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Consensus, Power and Trust in the Use of Family Planning and Condoms
by Couples in Eastern and Southern Africa

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Abstract

This paper uses data on family planning and condom use by married or cohabiting couples in
Kenya, South Africa, Tanzania, Uganda, Zambia and (to a lesser extent) Zimbabwe collected by
the World Health Organization (WHO) in 1999-2000 as part of a major research initiative. We
find that the use of family planning has strong and approximately equal influences from the
man's and the woman's desire to limit fertility. If both partners want to space or limit fertility,
there is a substantial additional increment to contraceptive prevalence beyond the additive
effects. The use of family planning also depends crucially on the woman's (but not the man's)
favourable attitude toward the concept of family planning. Condom use has a crucial
dependence on the woman's (but not the man's) subjective sense of HIV risk. It is strongly and
approximately equally influenced by the man's and the woman's attitudes toward condoms. If
one partner has a negative attitude toward condoms and the other partner has a positive attitude,
the negative partner tends to prevail. The results suggest a more important role for women in
both family planning and condom use than is implied by much of the literature, as well as by
men's statements of sex-specific dominance and by focus group discussions within the same
WHO project.

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1. Introduction

The fundamental issue that motivates this research is the relative importance of the male and female partners in determining whether a married or cohabiting couple will use modern family planning to avoid the risk of unintended pregnancy or will use condoms to avoid the risk of HIV infection or both. This question will be studied in the context of Eastern and Southern Africa, where both of these risks are high.

There have been many studies of family planning and condom use in Sub-Saharan Africa, but few studies have looked at *both* family planning and condom use, apart from research based on the Demographic and Health Surveys (DHS) in these countries. Few studies of condoms have focused on use with a regular partner, i.e., within a married or cohabiting relationship.. Finally, even fewer have been able to analyse the matched responses of both partners in married or cohabiting relationships.

Motivations and attitudes related to family planning and condom use have been found to be associated with actual use in these surveys (Pullum et al., 2004, 2005), using data from men and women separately. The topic to be explored in this paper is how the couple, taken as a unit, may behave differently from what would be expected from the information about the man and woman as individuals. We focus particularly on relative importance of the male partner and the female partner in determining the use of a modern method of family planning and the use of the condom for HIV prevention.

Following a brief description of the data, this paper will present some findings from focus group discussions, a framework for analysis of the quantitative data, results, and finally some conclusions.

2. The Data

The data for this study come from a multi-country study launched by WHO's Department of Reproductive Health and Research in 1999 on "Family Planning and sexual behaviour in the era of HIV/STI". The countries participating in this study included Kenya, South Africa, Tanzania, Uganda, Zambia and Zimbabwe. For reasons that will be given below, the data from Zimbabwe could not be included in the quantitative part of the present analysis.

These countries were selected for the larger study because of a high prevalence of HIV combined with increasing levels of contraceptive use, with profound implications for individuals, services, programs, and policies to reduce the twin risks of unintended pregnancy and HIV/STI infection. These six countries together account for nearly half (46%) of the 23.1 million adults estimated to be living with HIV/AIDS in Sub-Saharan Africa at the end of 2003 (UNAIDS, 2004). They also

represent 30% of the 35.7 million adults with HIV/AIDS globally. All six countries have national population policies as well as national AIDS prevention and control programs. The overall aim of the WHO project was "to inform policy makers and program managers by providing insights into the perspectives and behavior of sexually active men and women with respect to HIV/STI and reproductive intentions."

Each country has conducted at least one survey as part of the Demographic and Health Surveys (DHS) project, providing nationally representative information from men and women on sexual and reproductive health and other related issues. The DHS surveys show several similarities that run through the countries. For example, knowledge of family planning and of HIV/AIDS is nearly universal among both men and women; use of the condom and having only one sexual partner are most often mentioned as ways to avoid HIV/AIDS; oral contraceptives or injectables are the most frequently used methods to avoid unintended pregnancy. Despite varying levels of contraceptive use, approval of family planning is high among both men and women.

Contraceptive use and HIV infection are highest in South Africa and Zimbabwe and lowest in Uganda. Kenya, Tanzania, and Zambia are intermediate on both measures. According to the DHS surveys, sources of condom supply are widely known in each country. However, condom use among married contracepting women is generally low, ranging from 3% in Kenya, South Africa, and Zimbabwe to 11% in Tanzania and Zambia, with Uganda at 8%. Condom use is higher with a non-cohabiting partner (ranging from 34% among men using the condom at last sex in Tanzania to 70% in Zimbabwe) than with a spouse, except in Kenya. Condom use at most recent intercourse among sexually active unmarried women ranges from 4% in South Africa to 60% in Uganda. Whether with the spouse or with another partner, condom use is reported at higher levels by men than by women. This discrepancy is especially noticeable for Kenya. DHS data also show non-negligible percentages of currently married men reporting sex in the last 12 months with at least one partner other than the wife (Kenya, 16%; Uganda, 12%; Tanzania, 36%; Zambia, 19%; and Zimbabwe, 16%).

The WHO study envisaged covering an urban and a rural population within one district in each of the participating countries. The study districts were chosen on the basis of relatively high contraceptive use, importance as foci of the HIV epidemic, and the contiguity of suitable urban and rural study sites. The urban site was a town or city with 50,000 to 200,000 inhabitants and the rural site was near the urban site. The estimated prevalence of current use of modern contraception was at least 10%. Within each urban and rural site, four wards (or other large sub-district locations) were chosen and then five smaller areas were selected within those wards. This multi-stage design used simple random sampling at each stage. The selected households were visited and a household listing identified the eligible respondents for structured interviews. An eligible respondent was a woman aged 18-39 years or a man aged 20-49 years. One respondent was selected per household using a Kish grid. The initial design called for approximately equal numbers of respondents in each of the four possible combinations of residence (urban/rural) and sex (male/female). The Zambian survey was an exception in that it did not include a rural component.

The survey questionnaire was essentially identical in each of the six countries, although some national investigators added a few questions of particular local relevance. Its content covered in

approximately the same detail cognitive, attitudinal and behavioural dimensions of the following topics: reproduction; contraceptive methods; condoms; and HIV risk, including non-marital sex partnerships. Slightly different versions of the questionnaire were administered to men and women. Instruments were informed by prior focus group discussions, and were translated into the local language and pre-tested before the main fieldwork. In-depth interviews were conducted with selected respondents after the completion of the survey.

The sub-group of interest is sexually active persons who are married or cohabiting with a co-resident partner, comprising the great majority of the respondents in all six countries. For the very few respondents who reported more than one spouse, analysis was restricted to the younger spouse. A total of 6829 respondents (males or females) with a spouse or cohabiting partner were interviewed. Condom use by these respondents was analysed by Pullum, Cleland, and Shah (2004).

An important strength of the study was that for a subset of respondents with a co-resident partner, the partner was also interviewed. It is thus possible to compare the partners' responses regarding behaviours, motivations, and attitudes. For the quantitative part of this study, male and female partners were linked and their responses were combined on a single record. Unfortunately, because of incomplete coding of household identifiers during fieldwork, the linkage of partners was not feasible for the Zimbabwe survey. The quantitative analysis is thus based on a matched sample of 1213 couples from five countries: Kenya, South Africa, Tanzania, Uganda, and Zambia. Unless indicated otherwise, results are weighted so that each of nine sectors counts equally. The nine sectors consist of the urban and rural couples from Kenya, South Africa, Tanzania, and Uganda, and the couples from Zambia (as stated above, all of the Zambian respondents were urban). Whether weighted or unweighted, the results do not describe a well-defined population, but equal weighting of each sector seems to be the least arbitrary way of pooling the data.

3. Findings from the qualitative study

Before the questionnaires were finalized, a total of 88 focus group discussions (FGDs) were carried out in Kenya, South Africa, Tanzania, Uganda, Zambia and Zimbabwe with the objective of discovering the perceptions of women and men on the topics of family planning and HIV/AIDS and other sexually transmitted infections. In most of the countries, discussants were drawn from both rural and urban areas. In Zambia no FGDs were conducted with rural men or women. Groups averaged six to ten participants each. This section of the paper will present some results from these focus group discussions. As a reflection of the FGD protocol, most of these results pertain to condom use, and if they apply to family planning it is mainly with reference to the condom as a method of family planning. The quantitative analysis will give a more balanced analysis of the two outcomes, family planning and condom use. In the study populations, actual use of the condom as a family planning method is relatively rare (see Pullum et al., 2004).

A comparative analysis of the qualitative data highlighted similarities and differences across countries and groups within the country on topics of this paper. On a number of issues, all six countries were in agreement. All six concurred with the following views:

- AIDS is a serious health issue
- There is no cure for AIDS
- Condoms can prevent HIV transmission
- Condoms are known and accepted by many in the local area
- Condoms can be used for family planning
- Condoms are appropriate in extra-marital relationships
- Condoms are not appropriate in marriage (some individuals would accept them for family planning but not for prevention of disease)
- Main problems with condoms are breakage and reduction of sexual enjoyment
- Violence may result when a woman refuses sex to her spouse even though she might fear infection with an STI or HIV
- If there is any discussion between spouses on family planning, it is very limited.

A majority of participants in all six countries appeared to concur that AIDS is caused by unprotected sex with an infected individual, AIDS and STIs can be prevented by faithfulness to one's partner, avoiding multiple partners, and abstaining from sexual intercourse, and condoms can be used with another FP method to avoid pregnancy or HIV

Negotiating safe sex

Discussants were asked to consider the proposition that individuals could refuse to have sex should they fear infection with an STI or HIV. The majority of men and women discussants responded with 'no' to refusal to have sex with the marital partner.

> *No, you will be beaten if you refuse to have sex.* (Urban woman non-user, Kenya)

Many women have little or no choice to refuse sex. Culturally, refusal of sex is unthinkable especially for those women for whom the bride-price has been paid. Rural women in South Africa, in particular, stated that it is inconceivable for a women to refuse to engage in sexual activity with her husband. Refusal can be dangerous and lead to violence. Equally dangerous for the women, refusal can cause the man to chase her from the household.

Focus groups discussed whether or not individuals could influence their sexual partners to change their behaviour. The topic is particularly relevant to couples in which one partner suspects the other of behaviours likely to introduce an STI or HIV into their relationship. Most women feel powerless to influence the behaviour of their partners.

> *Nothing. There is nothing the wife can do to change his behaviour. You just have to pray for him.* (Urban woman non-user, Kenya)

A Tanzanian woman qualifies the possibility of the woman changing her sexual partner's behaviour with a reminder that

> *To change his behaviour is a daunting task…but what else can one do. You can try and talk to him but given the current situation, it is difficult for him to listen.* (Rural woman user, Tanzania)

Many women felt that the only real possibility of influencing a suspected partner's behaviour was through 'feminine wiles'.

> *Wives should treat their husbands lovingly; cook them good food, wash their clothes and show them a lot of love in the bedroom so that he doesn't go out with other women.* (Urban woman user, Kenya)

Focus groups discussed whether or not a woman could ask her partner to use a condom, especially when she feared she might be at risk of infection. This issue, together with the suggestion that a woman might refuse to have sex with a partner for the same reason, saw the widest agreement among all the issues discussed by focus groups.

The majority of discussants were very clear that women do not have the right either to ask the man to use a condom or to refuse to have sex for fear of infection. In the context of regular sexual partnerships or marriage, any reference to the condom implies mistrust and most often results in dissension, even violence. Some discussants felt that such a request might drive men to find other partners or to stop providing material support for his partner/spouse.

> *These days, women are being taught how to negotiate with their husbands to use a condom without causing trouble.* (Urban woman user, Uganda)

A South African woman felt that a women could

> *…advise that whatever he planned to do with women, he must use a condom to avoid STIs/AIDS.* (Urban woman non-user, South Africa)

In most of the Zambian FGDs, there was a strong consensus that women could ask their partners to use a condom. Surprisingly, it was even suggested that married women could suggest condoms to their husbands, especially if they already had a baby or when it was clear that family planning was the objective. It appears that using a condom for disease prevention implies distrust and causes dissension between established sexual partners, but the condom can be accepted if family planning is stressed.

Condom use for family planning and/or HIV/STI prevention

A Ugandan man made clear the distinction between condom use for disease prevention and its use for family planning and the fact that for the latter, there is likely to be more acceptance.

When asked what a woman could do to protect herself if she feared contracting an STI or HIV from her husband, he said

> *I would advise her to tell her husband to use a condom by telling the man that they use a condom to reduce the number of children.* (Rural man Uganda)

There is evidence that knowledge of the condom is nearly universal, with nearly every FGD in this study readily acknowledging that condoms are known and generally available. However, acceptability of condoms is a different issue. People tend to fluctuate on the acceptability of the condom and when probed for their opinions many reveal strong biases that imply deep negativity towards its use.

Among Kenyans, knowledge about condoms is widespread, but not their acceptability.

> *If you are seen with a condom, you are stigmatized…so carrying is a problem.* (Rural man, Kenya)

There is widespread consensus that it is appropriate to use condoms at the beginning of a sexual relationship 'before you know how much to trust the partner'.

> *Condoms are accepted at the beginning of a relationship, once you are used to each other there is no need for a condom.* (Rural women user, Tanzania)

There is much distrust, suspicion and even paranoia surrounding the use of condoms within marriage or between partners in stable relationships. The great majority of discussants in all six countries agree with this Ugandan woman when asked if condoms could be used within marriage:

> *That is impossible!* (Urban woman user, Uganda)

Men say that they cannot suggest use of a condom with their wives for fear of being accused of having other girlfriends. Women fear suggesting condoms for fear of being accused of having other lovers or for fear of implying that their husband has other lovers. The fear evolves around the issue of trust. Other men have suggested that condoms are good precisely because of the amount of distrust within couples.

> *Most women deceive their husbands when they are not safe. Therefore condoms are good.* (Urban man, Uganda)

Tanzanian women and Zimbabwean men were firmly against the use of the condom within marriage and Zimbabweans did not consider it an appropriate method of contraception.

Contradictions appear in the data, making it difficult to arrive at clear conclusions. For example, in Kenya, all of the women's focus groups and one group of men felt that the condom is not appropriate for use within marriage. By contrast, a few Ugandan men deemed it acceptable to use the condom with spouses, especially when husbands are mobile and there is some suspicion

of his behaviour. Zimbabweans and Ugandans accept the use of condoms within marriage during the wife's menstruation. Zimbabwe was the only country in the study in which any discussant suggested that condoms are appropriate within marriage when the husband realizes that he has a serious STI.

In spite of the concern above to protect the wife from STI, Zimbabweans explained that even when the wife is faced with the risk of AIDS, the use of a condom was a problem. Should the wife be the one to suggest using the condom, the husband would surely refuse. A Kenyan woman explained bluntly that

> *Men will not use them in marriage because their wives are not prostitutes.* (Rural woman non-user, Kenya)

Most discussants in the six countries readily agreed that, in principle, condoms *could be used* for family planning in much the same way that most discussants mention that the condom *could be used* to avoid infection with STI. Close scrutiny of the available FGD transcripts, however, reveals a wide disparity between the view that condoms *can protect* against both unwanted pregnancy and STI/HIV and the conviction that they *should be used* for these purposes.

About one third of the women's focus groups in the study provided evidence that condoms can be, and often are, used by married couples for family planning.

> *Condoms are also used by people when other methods of family planning like the pill fail to work. A couple that cares for each other will sit down and discuss the use of condoms as a family planning method.* (Urban woman user, Zambia)

But Kenyan and Zimbabwean men did not agree with the use of the condom as a contraceptive. When asked if condoms were acceptable for family planning, rural Kenyan men said

> *Most people use condoms for 'hit and run' episodes, not to be used with your wife.* (Rural man, Kenya)

> *If the wife is using family planning methods, there is no use of using the condom…the condom should be used outside the marriage, not in it. If you find someone using condoms, he will not be using them at home.* (Rural man, Kenya)

Among Ugandan men, in contrast, there is some approval of the condom as contraceptive.

> *Condoms among married couples should be used for family spacing. If the partners trust each other, then condoms should be used for family spacing.*   (Rural man, Uganda)

Zambians suggested that the condom could be used for family planning when there was distrust between the partners.

> *Even married couples can use condoms, especially in a situation where one suspects the other of being promiscuous.*   (Urban woman user, Zambia)

Focus group participants were asked to consider the possibility of using a condom together with other methods of family planning in order to avoid infection with an STI. Some discussants explained that people are already using condoms this way.

> *Yes, they are already using them to avoid HIV/AIDS.* (Urban woman user, Uganda)

Interestingly, it was revealed that many women use contraception secretly, thus it would be impossible to add the condom.

> *Many women use contraception without their husband's knowledge. So it is really hard for her to depend on condoms.* (Urban woman user, Uganda R7/FG9)

It was pointed out that the simultaneous use of condoms and other family planning methods could be problematic among polygamists.

> *It is not easy, especially among polygamists, who may use condoms on some wives and may not use them on the other wives, while the women would be taking pills.* (Urban man, Zambia)

Spousal communication

Sexual partners, including married couples, can and do discuss issues of family planning. Not all couples do so and the major barriers relate to inequality of the sexes. Among the educated, including women who are informed about family planning, and in areas where efforts are underway to improve gender relations, spousal discussion about family planning exists and will increase. But discussion between sexual partners of HIV/AIDS is a very different matter. AIDS represents unavoidable and unpleasant death, a frightening prospect for every individual. And because of the very unequal power relations between men and women in the areas of this study and the fact that most women acquiesce to the man's domination and authority, discussion of the very sensitive subject of sexual disease and AIDS is extremely difficult, even impossible, for most people. Raising the subject of STI carries the powerful implication of illicit sex, or at least sex with multiple partners and this prevents most individuals from even broaching the topic with their regular sexual partners. Zimbabwe respondents report that 'discussing sexual matters with one's spouse would be viewed with suspicion and can destroy the perceived harmony in the home'.

> *When it came to sensitive issues like how to avoid getting HIV/AIDS or STDs between couples, communication breaks down since none of them wants to admit that they engage in extra-marital affairs.*

Overall, there is wide agreement that women cannot refuse, nor can men, to have sex with their spouse even though they may fear infection with an STI. Although many people cite the condom as a means to avoid infection with STI and to avoid unwanted pregnancy, few people readily approve their use. Condoms are clearly associated with lack of trust and disease. People say that

condoms are most appropriate at the beginning of relationships, until trust is established, and this often implies only a few days or weeks. Condoms are appropriate for extra-marital and 'hit and run' sexual encounters. Condoms are used by both married and unmarried persons, but are not approved for use between married partners. Thus there is the strong implication that condoms are only acceptable for married people to use with *outside* partners. There is a widespread consensus that a woman does not have the right to ask a sexual partner to use a condom, although there is some approval if the male partner is not regular or a spouse. Zambians seemed more accepting of the condom; Ugandans, who have experienced a fair number of IEC campaigns, remain basically opposed to the condom. A number of women practice covert family planning. Women were receptive of the idea of using the condom together with other methods of family planning but not very keen to approve the use of the condom instead of other methods. A Ugandan man cleverly advised that while use of the condom in marriage for disease prophylaxis was unacceptable, a woman who actually feared infection with an STI could request her spouse to use the condom for the purpose of contraception which would be more acceptable.

While there was general acceptance of the suggestion that the condom *could be used* for family planning, there was very limited agreement that the condom *should be used* for contraception. The FGDs reveal that the condom is known and that there are numbers of individuals already using them. Discussing them is still difficult for many people who fear the weight of negative social climate on the subject. Promoters of the condom for dual protection against both unwanted pregnancy and STI face a dilemma. The condom is powerfully associated in the public mind with disease prevention, specifically AIDS. Therefore, the image of the condom for many is frightening and evokes a deadly disease with no cure. A few discussants recalled the earlier image of the condom when it was promoted by family planning for contraception but pointed out that now with AIDS, the condom was more used for disease prevention.

4. Methods for the quantitative analysis

In the quantitative analysis, two key outcomes are examined: current use of contraception (except condoms) and condom use. Current use of contraception is measured in the conventional manner, following questions on knowledge and ever-use. The measure of condom use is taken from a separate sequence of questions in which the purpose of condom use with the named spouse is unspecified. The framework that guides the quantitative analysis of family planning and condom use is shown in Figure 1. The background or exogenous variables are the same for both family planning and condom use. For each outcome, we include the relevant motivations and attitudes of both the man and the woman. If the outcome is family planning, the motivation is the desire to have no more children and the attitude is the attitude toward family planning. If the outcome is condom use, the motivation is the subjective or perceived risk of HIV infection and the attitude is the attitude toward condoms. Each of the motivation and attitude variables has three ordered categories. A detailed description of how these variables are defined is provided in an appendix. We note here that a major component of perceived HIV risk is whether the respondent is "concerned" about contracting HIV from the partner, that is, has doubts that the partner is monogamous.

Figure 1: Frameworks for the analysis of family planning and condom use. Controls for pregnancy status, ages of man and woman, and surviving children from the union (3+ vs. 0-2) not shown.

Background variables	Intermediate variables	Outcome
Country	FP motivation of man	
Urban/rural residence	FP attitudes of man	Use of FP
Educational level of man	FP motivation of woman	
Educational level of woman	FP attitudes of wife	

Background variables	Intermediate variables	Outcome
Country	Perceived HIV risk of man	
Urban/rural residence	Condom attitudes of man	Use of the
Educational level of man	Perceived HIV risk of woman	condom
Educational level of woman	Condom attitudes of woman	

Our analysis will be largely symmetric with respect to the two outcomes, family planning and condom use, and with respect to the relevant characteristics of the male and female partners. Based on the literature and the FGD findings in part 3, we approach the analysis with two parallel expectations or hypotheses regarding the relative influence of the man and the woman in determining the outcomes:

Hypothesis #1: The man has more influence than the woman over the use of family planning.

Hypothesis #2: The man has more influence than the woman over the use of condoms.

The quantitative analysis will consider the degree of correspondence between the behaviours, motivations, and attitudes of the man and woman, assessed with kappa and gamma. Kappa is a measure of agreement between two measurements of the same categorical variable. It equals 0 if there is only a chance level of agreement and 1 if there is maximum possible agreement. Gamma is a measure of association between two ordinal variables. It ranges between -1 if there is maximum possible disagreement and +1 if there is maximum possible agreement. Gamma is equivalent to Yule's Q for a 2x2 table. Both kappa and gamma have an upper limit of 1, but when both are positive, gamma generally tends to be larger than kappa. Kappa and gamma are calculated twice, for weighted frequencies and unweighted frequencies, but there is very little difference between the two values.

The chi-square test statistic is used to test the null hypothesis that two variables are independent in the population and is equivalent to a test of the null hypothesis that kappa and gamma are zero in the population. It is calculated only with unweighted frequencies.

The analysis next moves to general perceptions of the relative importance of the man and the woman in influencing the two outcomes. We then look at how the outcomes are statistically related to the man's and the woman's motivations and attitudes, first using tabulations and finally using multinomial logit regression. The final models are estimated separately for the

man's and the woman's statements of the outcome. Those statements can differ, and it would be expected that when they differ, the man's statement of the couple's behaviour will tend to correspond somewhat better with his own motivations and attitudes, and the woman's statement will tend to correspond somewhat better with her own motivations and attitudes.

5. Results

Correspondence between the man's and the woman's responses

Table 1 describes the level of correspondence between the man's and woman's reports of the main variables in this study. All the chi-square values are highly significant, at the .001 level or better, but the measures of association vary considerably. The strongest correspondence is for two binary behavioural measures: whether or not the woman is currently pregnant and whether the pair have had 3 or more (vs. 0-2) children together that are still alive. The weighted gammas for these two variables are .98 and .97, respectively, indicating almost perfect agreement. In the multivariate model, these variables will be represented with the woman's value, which is presumably more accurate.

There is also strong agreement between the man's and the woman's dichotomized levels of education (0=none or some primary; 1=completed primary or above). This correspondence, with weighted gamma equal to .84, simply describes a tendency toward homogamy. Partners tend to have the same level of education, at least with this coarse dichotomy, although men also tend to have more schooling than women.

The full cross-tabulation of the man's and the woman's reports of family planning with the partner is given in table 2. The margins of this table show that women are considerably more likely to report current use than men (45% versus 33%), and more likely to report past use than men (20% versus 8%). The likely reason for the difference is that family planning is considered to be primarily a woman's responsibility, and all methods are female (the condom is excluded and there is virtually no use of vasectomy in the study population). There may also be some "secret" use by women that their partners do not know about. Clandestine use by wives is more feasible than such use by husbands. The reports of the women are probably much more accurate than those of the men. Despite the discrepancy in the margins, there is a strong level of agreement between partners. For example, if their responses were statistically independent, the three percentages on the main diagonal would be 59.4*.356=21.1%, 8.0*.196=1.6%, and 32.6*.448=14.6%, instead of 30.9%, 4.6%, and 25.6%, respectively. Of all couples, 61.1% are in agreement. The substantially larger observed percentages on the main diagonal lead to a (weighted) kappa of .38, as shown in table 1. Gamma is .67, also shown in table 1, indicating a strongly positive ordinal association.

Table 1. Measures of correspondence between the man and the woman
(unweighted and weighted; n varies between 1072 and 1202 couples).

```
                  Unweighted                        Weighted

          _____      _____

          kappa gamma chi-square df   Prob        kappa gamma
_____
Woman currently pregnant (two categories)
          .71    .98    600.0     1    .000        .72     .98
Have 3+ living children together (two categories)
          .74    .96    653.2     1    .000        .76     .97

Educational level (two categories)
          .46    .84    292.9     1    .000        .48     .84

Use of family planning
          .39    .69    351.6     4    .000        .38     .67
Use of condoms
          .36    .74    196.6     4    .000        .36     .74

Perception of relative influence over use of family planning
          .13    .25     52.3     4    .000        .13     .24
Perception of relative influence over use of condoms
          .15    .34     77.1     4    .000        .15     .32
Only reason to use condom is because you don't trust partner
          .14    .26     41.4     4    .000        .13     .26

Family planning motivation
          .48    .71    564.3     4    .000        .49     .71
Attitude toward family planning
          .07    .25     19.8     4    001         .07     .25

Subjective risk of HIV infection
          .12    .24     49.1     4    .000        .10     .19
Attitude toward condoms
          .09    .22     31.1     4    .000        .08     .22
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Table 2. Correspondence between man's and woman's responses about use of
modern family planning, excluding condoms (weighted percentages, n=1145
couples).

	Woman's response			
Man's response	Never user	Past user	Current user	Total
Never User	30.9	11.1	17.4	59.4
Past User	1.6	4.6	1.8	8.0
Current User	3.2	3.9	25.6	32.6
Total	35.6	19.6	44.8	100.0

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Table 3.  Correspondence between man's and woman's responses about use of
condoms (weighted percentages, n=1086 couples).


                                    Woman's response
                          _____
    Man's response        Never     Sometimes   Always       Total
_____
            Never         66.3         8.0         1.2         75.6
        Sometimes         10.5         9.7         1.8         22.0
           Always          1.1         1.1         0.3          2.5

            Total         78.0        18.8         3.3        100.0
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The full cross-tabulation of the man's and the woman's reports of condom use with the partner is given in table 3. There is less of a discrepancy between the marginal distributions in this table. Men are more likely than women to report previous use of condoms but slightly less likely to report current use. Very few couples agree that they "always" use condoms, unfortunately making it necessary to combine "occasionally" and "always" for our binary measure of use. There are consistently more cases on the main diagonal than would be expected by chance; of all couples, 76.3% are in agreement. As table 1 shows, kappa is .36 and gamma is .74 for this table.

The levels of agreement between partners on family planning and condom use are impressive, but disagreements occur often enough that neither partner's response can safely be used as a substitute for the other partner's response.

Tables 4 and 5 deal with the association between the man's and the woman's assessments of whether use of family planning and use of the condom are determined more by the man or the woman. Table 4 cross-tabulates the male and female partners' responses to the question "Who usually has more influence over whether or not to use a family planning method: the man, the woman, or both have equal influence?". The four possible responses were "Man", "Woman", "Equal", and "It depends". Table 4 combines "It depends" with "Equal". Looking first at the row totals of the table, a plurality of males give the middle response (45%). Otherwise, men credit themselves with more influence than women (35% versus 20%). By contrast, looking at the column totals, women most often respond that they dominate the decision to use family planning (45%), and least often respond that the man dominates the decision (23%). Thus hypothesis #1 is supported by the perceptions of the men but strongly contradicted by the perceptions of the women.

Table 5 cross-tabulates the partners' responses to the question "Who usually has the most influence over whether or not to use a condom: the man, the woman, or both equally?". The four possible responses were "Man", "Woman", "Equal", and "Don't know". Table 5 combines "Don't know" with "Equal". The overall distribution of men's responses is almost identical to that for the previous question: 47.3% say that men and women have equal influence, and otherwise they credit themselves with more influence than women (33.0% vs. 19.7%). The women's overall distribution differs from that for the previous question in that the percentages who respond "Man" and "Woman" are virtually equal (33.8% and 32.2%). Thus hypothesis #2

is supported by the perceptions of the men and only weakly contradicted by perceptions of the women.

Table 4. Perceptions of whether the man or the woman has more influence over the use of family planning (weighted percentages, n=1186 couples).

		Woman's response		
Man's response	Man	Equal	Woman	Total
Man	11.1	10.4	13.7	35.3
Equal	8.6	17.3	18.8	44.8
Woman	2.7	5.2	12.1	20.0
Total	22.5	32.9	44.6	100.0

Table 5. Perceptions of whether the man or the woman has more influence over the use of condoms (weighted percentages, n=1113 couples).

		Woman's response		
Man's response	Man	Equal	Woman	Total
Man	15.4	10.4	7.2	33.0
Equal	14.0	18.3	15.0	47.3
Woman	4.4	5.4	9.9	19.7
Total	33.8	34.1	32.2	100.0

For both tables 4 and 5, the chi-square values (given in table 1) are highly significant, but the values of kappa and gamma indicate that the association between the partners' responses is only weakly positive. There is more agreement than one would expect by chance.

Trust between the partners is potentially an issue for condom use, although it is unlikely to be an issue for family planning. The questionnaire asked respondents whether they agreed with this statement: "The only reason to use a condom is because you don't trust your partner," with response categories "agree", "mixed or no opinion", and "disagree". The partners' responses to this question are given in table 6. The overall distributions of the men and women are nearly identical: about 58% agree with the statement and about 29% disagree. This is a relatively polarizing question; only about 13% of the men or women give a "mixed" response. There is a small positive association, with a tendency for partners to agree more often than expected by chance. The table suggests that respondents who feel a subjective risk of infection, particularly from their partner, are more likely to use condoms. The measure of subjective risk is partly based on a question about concern with possible infection from the regular partner.

Table 6. Responses of man and woman to the question, "The only reason to use
a condom is because you don't trust your partner" (weighted percentages,
n=1125 couples).

| | Woman's response | | | |
Man's response	Agree	Mixed	Disagree	Total
Agree	37.6	7.2	12.8	57.5
Mixed	6.1	2.4	4.4	12.9
Disagree	14.6	3.9	11.1	29.5
Total	58.3	13.6	28.2	100.0

Variation in outcomes by the man's and woman's motivations and attitudes

We now turn to how actual use of family planning or condoms is related to the respective
motivations and attitudes. The last four rows of table 1 describe the association between the
man's and woman's values on these motivations and attitudes. Cross-tabulations of the variables
are not presented. All four of these associations are highly significant, but only one of them has
a large estimated value, comparable in magnitude to the behavioural measures. The man's and
woman's motivations to use family planning, that is, their desires to stop childbearing, are very
highly associated, with gamma equal to .71 (weighted or unweighted). There is a strong
tendency for men and women to have a consensus about whether they want more children or not.
Usually the consensus is that both *do* want more children, but the next most likely combination is
that both *do not* want more children.

By contrast, the associations between the man's and the woman's attitudes toward family
planning are weak, although significant. For most couples, both partners are in the highest
category of approval of family planning; they approve of family planning for both spacing and
limitation of future births.

Tables 7 and 8 use a binary indicator of use of family planning, coded 1 if *both partners* state
that they are currently using a modern method (other than condoms) and 0 otherwise. Table 2
showed that 25.6% of all couples are coded 1 on this indicator. The cells of table 7 give the
percentage of couples who are coded 1 on this indicator, which will be called "contraceptive
prevalence", in each combination of partners' motivations to use family planning. (The overall
percentage in table 7 is 25.0%, rather than 25.6%, simply because some respondents are missing
on the motivation variable.)

In table 7 we first look for evidence that contraceptive prevalence is strongly associated with the
desire to have no more children, indicating that fertility preferences are indeed being
implemented. Second, we seek evidence that contraceptive prevalence is not simply an additive
function of the man's and the woman's desires to limit childbearing, but rather reflects one
partner's preference more than the other's, or in some other way is reduced or increased in
specific combinations of the partners' motivations.

```
Table 7.  Percentage of couples for which both the man and the woman report
current use of a modern method of contraception (other than condom), for
combinations of reported motivations (weighted, n=1046 couples).  Percentage
is in parentheses if based on 50 or fewer couples.  (Additive model,
deviance=33.3 with df=4; interactive model, deviance=43.9 with df=8.)
```

Man's Motivation for family planning	Woman's Motivation for family planning			
	Wants more	Undecided	Would matter	Total
Wants more	17.2	(37.3)	15.7	18.9
Undecided	(26.7)	40.9	(23.5)	33.8
Would matter	26.8	(23.7)	38.2	33.2
Total	18.9	36.3	30.2	25.0

Table 7 shows clearly that the likelihood of using of family planning is strongly related to both partners' fertility preferences. Within the table, prevalence ranges widely from about 16% to about 41%. It is only about 17% for couples in which both partners want more children. The use of family planning in this cell is presumably intended for spacing, although that was not broken out as a separate category of motivation because it would have produced small cell sizes.

The data in table 7 can be modeled with a logit regression, in which the binary outcome is regressed on the man's motivation and the woman's motivation as categorical predictors. (This logit regression incorporates the weights for sectors.) The logit regression has four degrees of freedom and an explained deviance of 33.3. The deviance has a chi-square distribution under the null hypothesis that motivations are not related to family planning. The critical value for chi-square with four degrees of freedom is 9.5 for a .05 test and 13.3 for a .01 test. The logit regression is thus highly significant and confirms that the use of family planning is very strongly associated with a motivation to limit childbearing.

To see whether contraceptive prevalence is simply an additive function of the man's and the woman's desires to limit childbearing, we compare the observed prevalence in each cell with the expected prevalence from the model in the previous paragraph. Large differences will suggest non-additivity. We can test whether those deviations are statistically significant by incorporating interaction terms into the model.

A logit regression for table 7 with all possible interaction terms has an explained deviance of 43.9, using eight degrees of freedom. A test of whether there are significant differences between the prevalences observed in table 7 and those expected with an additive model is based on a change in deviance of 43.9-33.3=10.6 with 8-4=4 degrees of freedom. Thus there *is* significant interaction between the two motivations at the .05 level.

The non-additivity in table 7 can be traced to the specific cell for which both the man and the woman are most motivated to use family planning. As would be expected, prevalence is high in this cell, 38.2%, but it is 4.7% *higher than would be expected* from an additive model (z=2.50 for this deviation). Thus, when both partners want no more children, the consensus produces a kind

of reinforcement that translates into an additional boost to the use of contraception. In no other cell is there a significant difference between the observed prevalence and what would be expected from an additive model.

The other pre-condition for contraception is a favourable attitude toward family planning. The effect of the various combinations of family planning attitudes upon actual use of contraception is described in table 8. There are no current users at all in the three cells that are least favourable to the concept of family planning, but these cells have low case bases. The margins of the table show that prevalence is several times higher if the man is in the highest approval category or the woman is in the highest approval category, compared with the lowest category. It is highest (31.1%) if *both* partners are in the highest category. Effects from the man and the woman are virtually identical.

An additive model fits the data well: the explained deviance is 33.5 with four degrees of freedom. There is no evidence of interaction or non-additivity. In particular, the high prevalence in the cell for which both partners have the most positive attitude is no higher than would be expected.

Table 8. Percentage of couples for which both the man and the woman report current use of a modern method of contraception (other than condom), for combinations of reported attitudes (weighted, n= 1134 couples). Percentage is in parentheses if based on 50 or fewer couples. (Additive model, deviance=33.5 with df=4; interactive model cannot be estimated.)

Man's Attitude toward FP	Woman's Attitude toward family planning			
	Not ok	Ok to limit or space	Ok to limit and space	Total
Not ok	(0.0)	(0.0)	(14.8)	10.2
Ok to limit or space	(0.0)	(16.7)	19.9	17.7
Ok to limit and space	(13.0)	22.1	31.1	29.0
Total	8.4	19.1	28.3	25.7

We now describe in parallel fashion the effect of motivation and attitude upon condom use. As seen before, the agreement between partners on condom use is about as strong as their agreement on family planning use. The motivation variable here is a subjective sense of HIV risk, and the attitude variable is the attitude toward condoms. The last two rows of table 1 show that partners have a significant positive association between their respective sense of risk and between their respective attitudes, but the measures of association, kappa and gamma, are fairly small.

Tables 9 and 10 give the percentages of couples in which *both* the man and the woman report current *or occasional* use of condoms. Because current use is at a much lower level than

occasional use, the two categories are combined. The percentage will be referred to as prevalence, but this is a weaker definition of prevalence than was used for family planning.

```
Table 9.  Percentage of couples for which both the man and the woman report
current or occasional use of condoms, for combinations of reported
motivations (weighted, n=988 couples).  Percentage is in parentheses if based
50 or fewer 50 couples.  (Additive model, deviance=9.4 with df=4; interactive
model, deviance=16.5 with df=8.)
```

Man's Subjective HIV risk	Woman's Subjective HIV risk			
	Low	Medium	High	Total
Low	8.5	7.5	16.1	10.0
Medium	13.3	15.8	11.7	13.7
High	11.2	(7.4)	23.9	15.8
Total	10.8	11.3	16.6	12.5

Table 9 shows that condom prevalence varies according to perceived risk, and in the expected direction. Condom prevalence within the table ranges from about 8% to about 24%. However, the effect of perceived risk on prevalence is only marginally significant. The explained deviance is 9.4, with four degrees of freedom, and the relevant .05 critical value of chi-square is 9.5. The change in deviance associated with non-additivity is 16.5-9.4=7.1, with four degrees of freedom, which is not statistically significant. There is no evidence that either partner's sense of risk has more influence on condom use than the other partner's sense of risk. There is no evidence of a boost in prevalence if both partners have a high sense of risk.

Next, table 10 gives the couple's condom prevalence within combinations of the partners' attitudes toward condoms. Attitudes are much more important determinants of condom use than subjective sense of risk. The margins show that condom use ranges from 7.6% to 19.5% for women, as their attitude goes from negative to positive, and ranges even more widely from 4.4% to 23.0% for men, as their attitude goes from negative to positive. The wider range for men than for women does provide some evidence that men's attitudes toward condoms tend to dominate the actual use of condoms. A logit regression using just the man's attitude fits the data better than a logit regression using just the woman's attitude, but the woman's attitude adds very significantly to the fit. The combined additive effects of the partners' attitudes on condom use are very significant (deviance=50.5 with four degrees of freedom).

The association between condom attitudes and condom use is more complex: table 10 shows significant departures from additivity (the change in deviance is 66.1-50.5=15.6, with four degrees of freedom). Virtually all of the interaction can be traced to a single cell. If the man has a favourable attitude toward condoms but the woman does not, the observed prevalence of condom use is 8.6%. However, the expected prevalence in this cell would be 15.2%, so the observed prevalence is much less than expected. This difference is highly significant (z=-2.47).

```
Table 10.  Percentage of couples for which both the man and the woman report
current or occasional use of condoms, for combinations of reported attitudes
(weighted, n=1083 couples).  (Additive model, deviance=50.5 with df=4;
interactive model, deviance=66.1 with df=8.)
```

Man's Attitude toward Condoms	Woman's Attitude toward condoms			
	Negative	Moderate	Positive	Total
Negative	4.7	3.7	5.1	4.4
Moderate	11.1	10.5	19.2	13.5
Positive	8.6	24.4	32.0	23.0
Total	7.6	12.2	19.5	12.7

Thus it appears that the couple's condom use is more reflective of the man's attitudes than the woman's attitudes, but if the man is favourable toward condoms and the woman is not, then the woman frequently has effective veto power over condom use. Stated otherwise, a negative view by either partner will be sufficient to block use. When statistical interactions are taken into account, neither the man nor the woman can be said to dominate the decision.

Multivariate model of partner effects on the outcomes

We will now estimate four multinomial logit regression models that include both outcomes, for both partners, and the motivations and attitudes of both partners. Here the outcomes are not dichotomized, but have three categories each.

The labeling of these models uses FP to refer to current use of family planning as the outcome or C to refer to current or occasional condom use as the outcome. M indicates that the man's response is used and W indicates that the woman's response is used. Thus, the first model, labeled FP-M, is a multinomial logit regression with the man's statement of family planning use (never, past, or current) as the dependent variable.

As seen above, there is a good correspondence between the man's and the woman's reports of family planning and condom use. In tables 7 through 10, the outcome variable was coded 1 if both partners agreed that, as a couple, they were using family planning or condoms. This section includes separate analyses of the outcome as reported by the man and reported by the woman. Separate analyses could provide convincing evidence that, for example, the man's attitude toward the condom is more important than the woman's attitude. If this pattern is found for the woman's report of condom use, and not just the man's report, then a potential bias for the man to induce consistency between his attitudes and behaviour will be removed.

"Background and control variables" refers to fixed effects for the nine sectors, binary indicators of the man's education and the woman's education, a binary indicator of family size (coded 1 if the woman reports that the couple have three or more living children together, 0 otherwise), the

ages of the partners, and a binary indicator of current pregnancy status (coded 1 if the woman reports that she is pregnant, 0 otherwise). All of these variables are included in all four models.

The coefficients for the nine sectors are not explicitly provided in the tables. It is important to adjust statistically for differences between sectors, but these are not nationally representative samples and the coefficients for sectors could easily be over-interpreted.

The family size and age variables indicate position in the life course. The partners' ages were entered in the form of the mean age of the couple and the age difference (the man's age minus the woman's age) to eliminate a risk of collinearity. Pregnancy status is included because pregnant women are generally not current users contraception, but they may have used contraception in the past and may use the condom for protection against infection. The coefficients for pregnancy status, age, and number of living children with the partner, like those for sector, are not presented.

The four multinomial logit models are as follows:

Model FP-M. Regress the man's statement of family planning use with the partner (never, past, or current) on the man's and woman's motivations to use family planning, their attitudes toward family planning, and the background and control variables.

Model FP-W. Regress the woman's statement of family planning use with the partner (never, past, or current) on the man's and woman's motivations to use family planning, their attitudes toward family planning, and the background and control variables.

Model C-M. Regress the man's statement of condom use with the partner (never, occasionally, or always) on the man's and woman's perceptions of HIV risk, their attitudes toward condoms, and the background and control variables.

Model C-W. Regress the woman's statement of condom use with the partner (never, occasionally, or always) on the man's and woman's perceptions of HIV risk, their attitudes toward condoms, and the background and control variables.

The two family planning models are presented in table 11. The results for model FP-M are given in the columns headed "man's response" and the results for model FP-W are given in the columns headed "woman's response". The numbers in the table are exponentiated coefficients from the multinomial logit regressions and can be interpreted as relative risks. Relative risks of "1" identify the reference category of each explanatory variable. The reference category for the outcome variables is "Never User".

The symbols "--", "-", "+", and "++" indicate statistical significance using one-tailed .05 and .01 critical values. It is legitimate to use one-tailed critical values because all of our research hypotheses lead us to expect positive coefficients (which after exponentiation will be greater than 1). Thus, if z is the original coefficient (before exponentiation) divided by its standard error, then "--" means that z is less than -2.33, "-" means that z is between -2.33 and -1.65, "+" means that z is between 1.65 and 2.33, and "++" means that z is greater than 2.33.

The models are estimated with the statistical package Stata 8, giving equal weight to each sector. That is, they include a sampling weight that is inversely proportional to the observed number of couples in the sector. (They do not use a cluster option that is available with Stata, even though each sector could be regarded as a cluster or a group of clusters. If this option is used, the coefficients do not change at all and the standard errors actually tend to become smaller, so the results become more significant.)

To clarify the interpretation of the risk ratios in table 11, consider the first significant coefficient in the table, 2.98. This means that if a man is in the middle level of family planning motivation (fpmotive=1), then the ratio of his estimated probability of being a past user to his estimated probability of being a never user is 2.98 times as large as what it would be for a man in the lowest level of family planning motivation (fpmotive=0). These estimated probabilities are adjusted for the other variables in the model.

The most important inference from table 11 is that the family planning attitudes of the woman are far more important than those of the man. Support for this inference is almost equally strong whether it is the man's statement of family planning use or the woman's statement.

Table 11. Relative risk ratios from the multinomial logit regression of use of family planning (with the regular partner) on motivations and attitudes. Controls for sector, pregnancy status, age, and number of living children with partner are not shown. Pseudo R^2 is .1461 for the man's response and .1849 for the woman's response; n=1016 couples.

Explanatory variable and education	Past User		Curent User	
	Man's Response	Woman's Response	Man's Response	Woman's Response
M fpmotive 0	1	1	1	1
M fpmotive 1	2.98 ++	1.35	1.32	1.73 +
M fpmotive 2	1.28	1.30	2.04 ++	1.83 +
M fpatt 0	1	1	1	1
M fpatt 1	1.14	0.97	1.02	1.08
M fpatt 2	1.24	0.71	1.92 +	1.62
W fpmotive 0	1	1	1	1
W fpmotive 1	0.66	1.04	1.97 ++	1.41
W fpmotive 2	1.42	2.82 ++	1.76 +	2.23 ++
W fpatt 0	1	1	1	1
W fpatt 1	1.11	3.13 +	3.75 ++	4.71 ++
W fpatt 2	2.22	3.72 ++	6.04 ++	7.26 ++
M High Ed	0.99	1.05	1.23	1.20
W High Ed	1.90 +	2.10 ++	1.70 ++	2.54 ++

Note: Response "Never User" of family planning is the comparison group
   "M" and "W" indicate that the response comes from the man or the woman, respectively

Indeed, the woman's attitude toward family planning is by far the most important explanatory variable for family planning use. Using the woman's statement of use, the risk of being a current user rather than a never user is 7.25 times as great if the woman has a highly favourable attitude than if the woman has an unfavourable attitude. Using the man's statement of use, the relative risk is 6.04 times as great.

We interpret this finding to imply that the woman is more important than the man in determining whether the couple will use family planning. Her attitudes about family planning, specifically, dominate the decision. As seen in table 1, there is only a weak association between the man's and the woman's attitudes (kappa=.01, gamma=.25) and collinearity is not an issue.

Second, current use of family planning is significantly, and approximately equally, associated with the family planning motivations of the man and the woman. The relative risks for current use are quite similar for both the male and the female response. The association of past use with motivation is weaker. When past use is measured with the man's response, there is one significant relative risk from the man's motivation variable (2.98); when it is measured with the woman's response, there is one significant relative risk from the woman's motivation variable (2.82), suggesting that both men and woman tend to impose a consistency on their motives and behaviour as mentioned above.

Third, table 11 shows that the woman's education is strongly associated with the use of family planning. This is particularly true when the response comes from the woman (relative risks of 2.10 and 2.54 for past and current use) but it also appears when the response comes from the man (relative risks of 1.90 and 1.70 for past and current use). By contrast, the relative risks for the man's education are never significant.

We now turn to the factors that are related to occasional and consistent condom use. The two condom use models are presented in table 12. Results for model C-M are given in the columns headed "man's response" and for model C-W are given in the columns headed "woman's response".

Probably the most important inference that can be drawn from table 12 is that the condom attitudes of the man *and* the woman are crucially important for condom use. Eight relative risks describe the association between condom use and a highly favourable condom attitude (condomatt=2); six of these relative risks are significant at the .01 level, one at the .05 level, and one is greater than 1 but not significantly.

The man's reported use in model C-M is more strongly associated with his own attitude (relative risks of 6.18 for "occasionally" and 4.12 for "always") than with the woman's attitude (relative risks of 2.42 for "occasionally" and 1.36 for "always"). Similarly, the woman's reported use in model C-F is more strongly associated with her own attitude (relative risks of 4.32 for "occasional" and 17.61 for "always") than with the man's attitude (relative risks of 2.17 for "occasional" and 2.69 for "always"). There is thus some tendency for men and women to establish a consistency between their own attitudes and their own reported behaviour, but the main finding is that *both* partners' reported attitudes are significantly associated with *both* partners' reported condom use.

Table 12. Relative risk ratios from the multinomial logit regression of use of condoms (with the regular partner) on motivations and attitudes. Controls for sector, pregnancy status, age, and number of living children with partner are not shown. Pseudo R^2 is .1849 for the man's response and .1877 for the woman's response; n=970 couples.

Explanatory variable and education	Uses condom occasionally		Uses condom always	
	Man's Response	Woman's Response	Man's Response	Woman's Response
M HIVrisk 0	1	1	1	1
M HIVrisk 1	1.33	1.51 +	1.34	1.31
M HIVrisk 2	1.07	1.30	0.83	0.72
M condomatt0	1	1	1	1
M condomatt1	2.99 ++	1.44	*	1.54
M condomatt2	6.18 ++	2.17 ++	4.12 +	2.69 +
W HIVrisk 0	1	1	1	1
W HIVrisk 1	0.90	0.83	1.84	2.91 +
W HIVrisk 2	1.24	1.78 ++	1.62	3.26 +
W condomatt0	1	1	1	1
W condomatt1	1.32	2.62 ++	2.50	2.66
W condomatt2	2.42 ++	4.32 ++	1.36	17.61 ++
M High Ed	1.73 ++	1.29	2.36	0.55
W High Ed	0.99	1.31	1.30	1.91

Note: response "Never User" of condoms is the comparison group
    "M" and "W" indicate that the response comes from the man or the woman, respectively
    "*" indicates insufficient cases

Secondly, the importance of the man's and the woman's attitudes is about the same. (Note: one extremely large risk ratio in model C-F, 17.61, is indeed highly significant, but it has a large standard error and should not be over-interpreted.) As pointed out in the previous paragraph, the man's attitude is more important for *his* reported use, the woman's attitude is more important for *her* reported use, and both partners show significant effects from each other. This is an important contrast with the family planning models, in which one partner's attitudes—the woman's—were clearly more important.

A third finding from table 3 is that subjective risk is not important from the man's perspective but it is moderately important from the woman's perspective. In model C-M there are a total of eight relative risks that pertain to the association of subjective HIV risk with the man's report of condom use. Six are greater than 1, and one reaches the value 1.84, but not a single one is *significantly* greater than 1. In model C-F there are also eight relevant relative risks, of which one is significant at the .01 level and three are significant at the .05 level. Three of the significant relative risks come from the woman's perception of risk and one from the man's perception of risk. In particular, women with a moderate or high subjective sense of HIV risk are three times as likely (relative risks of 2.91 and 3.26) to use the condom "always".

Fourth, education of the man and the woman generally has a positive association with condom use (six of the eight relevant relative risks are greater than one) but it is not as strong as the association with family planning (only one relative risk is significant, compared with four of the relevant relative risks in table 11). There is no clear evidence that the man's education is more or less important than the woman's education, in contrast to the evidence in table 11 that the woman's education is considerably more important than the man's education for family planning.

The multinomial logit regressions summarized with tables 11 and 12 do not include interaction terms. Several possible interactions were checked for, but they rapidly induced statistical instability. We have been unable to add terms to represent non-additive effects of the man's motivations and the woman's motivations, or of the man's attitudes and the woman's attitudes, which were noted in connection with tables 7-10. There may well be some important non-additive effects, but they cannot be estimated without more cases. We also cannot assert that relationships observed for the pooled data would hold in each country or sector.

6. Discussion and conclusions

This analysis used six surveys conducted with WHO support in Eastern and Southern Africa in 1999 to provide information about the use of family planning and condoms, by married and cohabiting partners, to manage the risks of unwanted pregnancy and HIV infection. It focused particularly on the relative importance of the male and female partners' motivations and attitudes as determinants of family planning and condom use.

Focus group discussions regarding the acceptability of the condom clearly indicate that male opposition is the main reason why condom use, particularly for HIV prevention, is low. Both men and women frequently stated that condom use is incompatible with a trusting relationship, and married women risk a violent response if they ask their partner to use a condom. The focus groups did not go into as much detail regarding family planning, but there is other evidence of a norm that this too is largely decided by the male partner, who values a large family [REF?].

The survey data from five of the six countries permit a quantification of these influences, and give a more complex picture. Both men and women often (32% to 47% of the time, in tables 4 and 5) state that men and women have approximately equal influence over the use of family planning and condoms. For both decisions , the men who say that the influences are not equal are about much more likely to respond that the man has more influence than to respond that the woman has more influence. They are 77% more likely to say that the man has more influence over family planning than to say that the woman has more influence. They are 68% more likely to say that the man has more influence over condom use than to say that the woman has more influence.

By contrast, women see themselves as having much more control than men over the decision to use family planning, and are evenly divided with reference to condom use. The women who did not give the "equal" response are 98% more likely to say that the woman has more influence

over family planning than to say that the man has more influence, and only 5% less likely to say that the woman has more influence over condom use than to say that the man has more influence. It is especially noteworthy that in the survey women *do not* tend to say that men have more influence than women over the condom decision, because the impression from the women in the FGDs is overwhelmingly that men dominate this decision.

In a sequence of four tables (tables 4-7) we examined the effects of both partners' motivations and attitudes on the use of family planning and condoms. The use of a modern method of family planning was found to be much better predicted by the desire to have no more children than by the attitude toward family planning (partly because the attitude toward family planning is generally favourable). If both partners are highly motivated, the consensus produces a significant increment in contraceptive prevalence. Condom use is much better predicted by attitude toward condoms than by a subjective sense of HIV risk. The man's attitude produced a wider range in condom prevalence than the woman's attitude, but it was also found that both partners have veto power. That is, if the man has a favourable attitude toward condoms but the woman does not, the woman prevails. There is little, if any, evidence that the man dominates either type of use.

In a multivariate analysis we found that the use of family planning is approximately equally influenced by both partners' desires to limit childbearing, but far more influenced by the woman's attitude toward family planning and her education than by those characteristics of the man. In sum, the woman dominates this decision. The use of condoms is influenced more by attitudes toward condoms than by a subjective sense of risk (except that the woman's report of condom use *is* associated with *her* sense of risk). The man's and the woman's attitudes are approximately equally important. The effect of either partner's education is generally not significant.

At the risk of over-simplification, we observe that the net result is remarkably similar to the responses of the women in tables 4 and 5: women tend to dominate the decision to use family planning and neither partner dominates the use of condoms. The men's response in those tables may describe the prevailing norms about male dominance, but the women's responses are consistent with the evidence.

A few caveats and qualifications must be added. First, our list of modern family planning methods omitted the condom, a decision that might raise some criticism. The main reason for doing this was simply to have no definitional overlap in the two outcomes of interest—the use of family planning to prevent unintended pregnancies and the use of the condom to prevent HIV or other STIs. Another reason, however, was that earlier analysis of these surveys found little evidence that condoms are being used for the purpose of family planning in this population. At the individual (rather than couple) level, it was found that condom use within married and cohabiting relationships is largely a response to perceived HIV risk rather than a desire to regulate fertility. Indeed, in some individual-level models the association between a desire for no more children and the use of condoms is significantly *negative*.

Second, there is a degree of fuzziness in the outcome variables. Partners usually agree about their use of family planning and condoms, but about a third of couples disagree. There is a

pattern to the discrepancies. Women tend to report a higher level of current use of family planning, and some of this discrepancy is probably due to covert use that the man does not know about. Men tend to report more "occasional" use of condoms, possibly because of the vagueness in the term. Both partners tend to induce some agreement between their behaviours, on the one hand, and their motivations and attitudes, on the other hand. Some of the multivariate analysis was done separately for the male-reported outcome and the female-reported outcome in order to take account of these effects, but we cannot know with certainty which responses are more accurate.

Finally, a potential criticism of this strategy is that the relationship among motivations, attitudes, and behaviours is more complex than indicated here. For example, attitudes change over time; the relationship between attitudes and behaviour may initially be inconsistent, and then become consistent because of attitude change, leading to spurious evidence that a favourable attitude caused the behaviour. Our repeated reference to family planning and condom use as "outcomes", with the implication of causality, tends to overstate the inferences that are possible with these data.

APPENDIX. Definitions of variables

Condom use

Condom use refers specifically to use with the spouse or cohabiting partner. Possible responses were "never used" (coded 0, the reference category), "at the beginning of the relationship only" or "occasionally" (coded 1) and "always" (coded 2). Respondents were not asked whether the intention was to avoid pregnancy, or disease, or both. As a preliminary check on data quality, partner agreement on condom use was assessed on the sub-set of 1,145 matched partners using the gamma coefficient as the measure of agreement. A gamma coefficient of 0.69 (z=24.8) was estimated, indicating a high level of agreement between cohabiting partners about consistent or occasional use of condoms within the relationship. As stated above, discrepancies tend to be in the direction of higher reported use by men.

Fertility control motivation

The primary motivation for using family planning is of course the desire to delay or prevent future childbearing, at least with the primary partner. This is measured with a categorical variable called *fertility control motivation*, based on the responses to two questions: "Would you like to have a/another child … or would you prefer not to have any [more] children?" and "How much would it matter if you did have another child?". It is coded 0, the reference category, if the respondent wants more children. It is coded 1 if the respondent is "undecided" or "another child would not matter much", or 2 if another child "would matter somewhat" or "very much".

More detailed measures have been checked, taking into account the desired length of time until the next birth and distinguishing between whether having another child would matter "somewhat" or "very much." These alternatives lead to small categories and unstable estimates and will not be used here.

Perceived HIV risk

The survey included several questions about knowledge of AIDS, concern about risk, and behaviours to reduce risk. Corresponding to fertility control motivation, which measures the motivation to control fertility, we have constructed a variable *HIV risk*, a subjective indicator of the perceived risk of HIV infection. It is constructed from the responses to the following three questions: "Before today, have you ever thought about your own chance of contracting HIV/AIDS?"; "Considering all things, do you consider your chance of getting HIV to be high, medium, low, or no chance at all?"; and "During your relationship with <name> have you ever been concerned that you might contract AIDS from him/her? If YES, very or somewhat concerned?".

The constructed variable combines the three responses. It is coded 0, the reference category, if the response to the first question is "No". It is coded 1 if the sum of responses to the other two questions implies a moderate perceived risk and 2 if the sum implies high perceived risk.

Extra-marital partners

Respondents were asked about number of extra-marital partners in the past three years and details were collected for the three most recent partners. In this paper we summarize this information by assigning a code 0 to respondents with no extra-marital partners in the past three

years, 1 to those with one or more partnerships in the past three years, all of which had ended, and 2 to those with a continuing partnership.

Self-efficacy

The measure of self-efficacy is based on evaluations of the following statement: "If a husband (wife) gets HIV or STD from outside the marriage there is nothing the wife (husband) can do to avoid getting infected her(him)self". Those agreeing with this proposition were coded 0 (the reference category), those disagreeing were coded 2 (high self-efficacy), and the intermediate group (mixed, no opinion) were coded 1.

Attitude toward family planning

It is unlikely that someone will use a family planning method if they do not approve in principle of the use of methods to delay or prevent future births. Approval is not sufficient, but under most circumstances it is a necessary precondition for use.

The variable is derived from evaluations of two statements: "It is acceptable for a couple to use a method to space between births" and "It is acceptable for a couple to use a method to have no more children", to which the possible responses were "agree", mixed/no opinion" and "disagree". These two statements have the closest parallel to the questions about motivation to use family planning and they focus on the use of family planning by cohabiting partners.

The great majority of respondents approve of family planning for both purposes. Of those who approved for one purpose but not the other, the greater approval was for spacing rather than terminating childbearing. The constructed variable is coded 0 (the reference category) for "disagree" or "mixed" responses about both spacing and stopping; 1 if the respondent agrees with spacing or stopping, but not both; and 2 if the respondent agrees with both spacing and stopping.

Attitude toward condoms

The questionnaire included a series of ten questions about specific attitudes related to condoms. Exploratory analysis showed that responses to eight questions were highly correlated and could be adequately represented by a single summary scale. Two items specifically refer to the acceptability of condom use within marriage and are thus especially pertinent to the purposes of the analysis. From the scale we have constructed a variable with three categories approximately equal in size. Category 0, the reference category, is least favourable to the condom, category 2 is most favourable, and category 1 is intermediate.

REFERENCES

Askew, I. and M. Berer. 2004. "The Contribution of Sexual and Reproductive Health Services to the Fight Against HIV/AIDS: A Review." *Reproductive Health Matters* 11(22):51-73.

Berer, M. 1997. "Dual Protection: Making Sex Safer for Women." Pp. 109-21 in *Reproductive Health Matters*, edited by T.K.S. Ravindran, M, Berer, and J. Cottingham. London:.

Berer, M. 2003. "Integration of Sexual and Reproductive Health Services: A Health Sector Priority." *Reproductive Health Matters* 11(22):6-15.

Blanc, A.K., and B. Wolff. 2001. "Gender and Decision-Making and Condom Use in Two Districts in Uganda." *African Journal of Reproductive Health* 5(3):15-28.

Blecher, M., M. Steinberg, W. Pick, M. Hennink, and N. Durcan. 1995. "AIDS Knowledge, Attitudes and Practices among STD Clinic Attendees in the Cape Peninsula." *South African Medical Journal*, 85:1281-1286

Caldwell, J.C., and P. Caldwell. 1987. "The Cultural Context of High Fertility in Sub-Saharan Africa". *Population and Development Review* 13(3):409-437.

Clark, S. 2004. "Early Marriage and HIV Risks in Sub-Saharan Africa." *Studies in Family Planning* 35:149-160.

Darrow, W.W., 1974. "Attitudes Toward Condom Use and the Acceptance of Venereal Disease Prophylactics." In *The Condom: Increasing Utilization in the United States*, edited by M.H. Redford et. al. San Francisco: San Francisco Press.

Dunkle, K.L., R. Jewkes, H.C. Brown, G.E. Gray, J.A. McIntyre, and S.D.Harlow. 2004. "Gender-Based Violence, Relationship Power, and Risk of HIV Infection in Women Attending Antenatal Clinics in South Africa." *Lancet*, 363:1415-20.

Ezeh, A.C., M. Seroussi, and Raggers H. 1996. *Men's Fertility, Contraceptive Use, and Preference.* Demographic and Health Surveys Comparative Studies Number 18. Calverton (Maryland): Macro International.

Fox, L., N.E. Williamson, W. Cates, and G. Dallabetta. 1995. "Improving Reproductive Health: Integrating STD and Contraceptive Services." *JAMWA* 50(3 and 4):129-36.

Hugonnet, S., F. Mosha, J. Todd, K. Mugeye, A. Klokke, L. Ndeki, D. Ross, H. Grosskurth, and R. Hayes. 2002. "Incidence of HIV Infection in Stable Sexual Partnerships: A Retrospective Cohort Study of 1802 Couples in Mwanza Region, Tanzania." *Journal of Acquired Immune Deficiency Syndrome* 30:73-80.

Jewkes, R., J.B. Levin, L.A. Penn-Kekana. 2003. "Gender Inequalities, Intimate Partner Violence and HIV Preventive Practices: Findings of a South African Cross-Sectional Study." *Social Science and Medicine* 56:125-34.

Knodel, J., and Pramualratana, A. 1996. "Prospects for Increased Condom Use within Marriage in Thailand." *International Family Planning Perspectives* 22(3): 97-102.

Lightbourne R. 1987. "Reproductive Preferences and Behaviour." Pp. 838-861 in *The World Fertility Survey: An Assessment*, edited by J. G. Cleland and C. Scott. Oxford: Oxford University Press.

Lindan, C., S. Allen, M. Caraël, et al. 1991. "Knowledge, Attitudes and Perceived risk of AIDS Among Urban Rwandan Women: Relationship to HIV Infection and Behavioural Change." *AIDS* 5(8):993-1002.

Maharaj, P. and J.G. Cleland. 2004. "Condom use Within Marital and Cohabiting Partnerships in KwaZulu-Natal, South Africa." *Studies in Family Planning* 35(2):116-24.

Maharaj, P. and J.G. Cleland. 2005. "Risk Perception and Condom Use Among Married or Cohabiting couples in KwaZulu-Natal, South Africa." *International Family Planning Perspectives*.

Maharaj, P. and J.G. Cleland. (in press) "Women on Top: The Relative Influence of Wives and Husbands on Contraceptive Use in KwaZulu-Natal." *Women and Health*.

Pitts, M., M. Bowman, and J. McMaster. 1995. "Reactions to Repeated STD Infections: Psychosocial Aspects and Gender Issues in Zimbabwe." *Social Science and Medicine* 40:1299-304.

Pullum, T.W., I.H. Shah, J.G. Cleland, and E. Bauni. 2003. "Factors Affecting Condom Use in Primary Sexual Relationships in Kenya." Paper presented at IUSSP seminar, "Taking Stock of the Condom in the Era of HIV/AIDS," Gaborone, Botswana, July 13-17.

Pullum, T.W., J.G. Cleland, I.H. Shah, E. Bauni, P. Maharaj, W. Muhuwava, A. Mushingeh, S. Neema, and P. Riwa. 2004. "Factors Affecting Condom Use in Primary Sexual Relationships in Southern and Eastern Africa." Paper presented at Annual Meetings of the Population Association of America, Boston, April 1-3.

Quigley, M., K. Munguti, H. Grosskurth, et al. 1997. "Sexual Behaviour Patterns and Other Risk Factors for HIV Infection in Rural Tanzania: A Case-Control Study." *AIDS* 11(2):237-48.

UNAIDS. 2004. *2004 Report on the Global AIDS epidemic: 4th Global Report.* Geneva.

United Nations. 1999. *Levels and Trends of Contraceptive Use as Assessed in 1998.* New York: United Nations.

United Nations. 2004. *World Contraceptive Use 2003*. New York: United Nations.

Varga, C.A. 1997. "Sexual Decision-Making and Negotiation in the Midst of AIDS: Youth in KwaZulu Natal, South Africa." *Health Transition Review* 7(Suppl 3):45-67.

Wood, H. 2000. *Dangerous love: reflection on violence among township youth*. Pietmaritzburg: University of Natal Press.

World Health Organization. 1998a. *Family Planning and Sexual Behaviour in the Era of HIV/STDs: A Multi-Country Study* (study protocol). Geneva: Special Programme in Human Reproduction, World Health Organization.

World Health Organization. 1998b. "Family Planning in the Era of HIV/AIDS." *Progress in Human Reproduction (48): 1-8.* Geneva: Special Programme in Human Reproduction, World Health Organization.

Worth, D. 1989. "Sexual Decision-Making and AIDS: Why Condom Promotion Among Vulnerable Women is Likely to Fail." *Studies in Family Planning* 20(5):297-307.