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Women's Empowerment and Choice of Family Planning Methods

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WOMEN'S EMPOWERMENT AND CHOICE OF FAMILY PLANNING METHODS

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Abstract

Objectives: This study examines the associations between women's empowerment and contraceptive use in selected African countries. We test the hypothesis that, compared to women who are not empowered, those who are empowered will be more likely to use contraceptives that are female controlled, as well as couple methods that require the awareness and support of their husbands.

Data: Data come from the latest round of Demographic and Health Surveys conducted within the last five years in Namibia, Swaziland, Zambia, Ghana, and Uganda. These surveys have similar questions on women's empowerment, which facilitates cross-country comparisons. Women's empowerment is measured along six dimensions: household economy, socio-cultural activities, health seeking behavior, fertility preferences, sexual activity negotiation, and attitudes towards domestic violence. Current use of contraceptives is categorized into: non-use, use of female-only methods, and use of couple methods.

Methods: Bivariate and multivariate multinomial regressions are employed. An overall score of empowerment as well as different dimensional indices of women's empowerment are included in the analysis.

Findings: There is a strong association between the overall score of women's empowerment and contraceptive use in all countries. When women's and community's characteristics are controlled for, in most countries (except Swaziland) several dimensions of women's empowerment emerge as important to female method use, or couple method use, or both. These dimensions include household economic decision making, fertility preferences, and sexual activity negotiation. In Namibia, attitudes towards domestic violence are also important to the use of couple methods of contraception. The findings suggest different targeting strategies to improve women's use of contraception, as well as men's awareness and involvement in family planning via women's empowerment.

INTRODUCTION

Since the 1994 International Conference on Population and Development, women's empowerment (or the lack of it) relative to men's has been recognized as an important barrier to women's access to reproductive health (RH) services, including family planning (FP). Women's lack of power restricts their ability to make decisions about FP practices, as well as to have an open discussion with their partners about FP.

The purpose of this study is to add to the evidence base of the associations between women's empowerment and the use of contraceptives in selected African countries. Specifically, we aim to examine how improved women's empowerment may increase the likelihood that a couple uses either a female-only or a couple method of contraception. We hypothesize that women who are more empowered would not only be more likely to use contraceptives (and female methods), but some of them may also be more likely to involve their husband in FP and, therefore, more likely to use couple methods of contraception, compared to women who are not empowered. In this study, we also explore the influence of different dimensions of women's empowerment on contraceptive use, which has not been explicitly done in most of the literature so far.

WOMEN'S EMPOWERMENT

1. Definitions and measurements

To date, there is still much variation in the definition and conceptualization of the empowerment of women in the literature. For example, Bisnath is cited in Mosedale (2005) as defining women's empowerment as strategies to increase "choices and productivity of individual women." Empowerment is defined more broadly by Batliwala (1994) as a "spiral, changing consciousness, identifying areas to target for change, planning strategies, acting for change, and analyzing activities and outcomes." The World Bank goes beyond this and defines empowerment as the "expansion of freedom of choice and action to shape one's life" (Narayan, 2002). This definition encompasses two defining features of women's empowerment: process of change and agency (Maholtra & Schuler, 2005; Pradhan, 2003). Kabeer (1999) defines women's empowerment as a "process by which those who have been denied the ability to make strategic life choices acquire such an ability." This definition, in addition to process of change and agency elements, involves resources and achievements, all of which are interrelated.

A common underlying feature across these definitions is the recognition that household and interfamilial relations are a central focus of women's disempowerment. In addition, elements of gender subordination (Bisnath & Elson, 1999; Nussbaum, 2000; Sen & Grown, 1987) need to be recognized in specific contexts. The most cutting-edge empirical research often incorporates analyses of empowerment that use data aggregated from individual and household levels and/or direct measures at the community and contextual levels (Jejeebhoy & Sathar, 2001; Maholtra & Schuler, 2005; Mason & Smith, 2000; Mason & Smith, 2003).

It is difficult to measure women's empowerment—first, because it is a process; second, because of its multidimensional nature; and third, because the concept operates at various levels

(e.g. Alsop, Bertenslen, & Holland, 2006). Until recently, women's empowerment was often measured by proxies, such as education, employment, knowledge, etc., which are important but conceptually distant from women's empowerment and do not always lead to empowerment (Kabeer, 2005; Kishor, 1995; Maholtra & Schuler, 2005; Mason, 2005; Mason & Smith, 2003).

Among many frameworks proposed to measure empowerment, the framework proposed by Maholtra, Schuler, & Boender (2002) is among the most comprehensive ones, in which women's empowerment is measured in several dimensions and at different levels. The framework suggests that women's empowerment could be exercised in five different arenas: household economy, socio-cultural activities, legal activities, politics, and psychology. These aspects could be measured at the household, community, and broader societal levels by a series of indicators within each category.

Because of their inter-dependence, it is not easy to measure these dimensions neatly in practice on. Also, one should be cautious in combining different measures into one single indicator, as it might not be sufficient to measure empowerment (Kishor, 2000; Estudillo, Quisumbing & Otsuka, 2001) and may mask differential effects of these dimensions on outcomes (Durrant & Sathar, 2000). A composite, single empowerment measure is not always useful for policy makers and program designers (Grown, 2008).

2. Influence of women's empowerment on contraceptive use

There is a sizable body of literature on the relationships between women's empowerment and contraceptive use. Blanc (2001), in a literature review, suggested that the balance of power within sexual relationships had an influence on the use of health services, which in turn could be linked to RH outcomes. She proposed a framework depicting the relationships between power within sexual relationships and sexual and RH outcomes. Findings consistent with the framework have been reported in other studies examining contraceptive and condom use (e.g. Harvey, Bird, DeRosa, et al., 2003; Pulerwitz, Gortmaker, & DeJong, 2000; Wang & Chiou, 2008; Wingood & DiClemente, 2000).

A few studies have examined several dimensions of women's empowerment, including economic decision making, family size decision making, whether women need permission to go out, interpersonal coercive control, political and legal awareness, and women's participation in public protests and political campaigning (Mason & Smith, 2000; Schuler & Hashemi, 1994). Riyami et al. (2004) found some effects of women's involvement in decision making and freedom of movement on unmet need for contraception. In Egypt, Govindasamy and Maholtra (1996) found that women's freedom of movement, having at least some control in household matters and budget decisions, and FP decision making were all positively related to current use of contraceptives.

There has been some evidence of the relative weight of each partner's fertility preferences on contraceptive use (e.g., Dodoo, 1998; Kulczycki, 2008). Some studies found that both spouses' intentions had effects on fertility behavior, depending on the number of children a couple already had (e.g., Bankole, 1995). Bankole and Singh (1998), in a study of 18 developing

countries, also found that the use of modern contraceptives was highest when both partners agreed to stop childbearing and lowest when they both wanted more children.

Fears of domestic and intimate partner violence within abusive relationships have been reported in many settings as a barrier to contraceptive use (Heise, Ellsberg, & Gottmoelder, 2002; Pallitto and O'Campo, 2004; Williams, Larsen, & McCloskey, 2008). The use of female methods of contraception, such as oral pills, may also raise the male partner's suspicion of infidelity as well as challenge his authority (Williams et al., 2008). In Africa, however, evidence on the relationships between domestic and intimate partner violence and contraceptive use remains scarce, with the exception of Alio, Daley, Nana, et al. (2009). In areas where wives' influence on decision making is limited, FP use is not yet widespread and there are differences in husbands' and wives' fertility preferences as well as reports of substantial clandestine use of contraception (Bawah, Akweongo, Simmons, et al., 1999; Biddlecom & Fapohunda, 1998; Castle, Konate, Ulin, et al., 1999; Fapohunda & Rutenberg, 1999).

DATA AND METHODS

1. Country selection

The selection of countries to be included in this study is based on countries that can meet the following criteria:

- 1) substantial contraceptive use among married and cohabiting women (prevalence of 20% or more);
- 2) a sufficient sample size of married and cohabiting women;
- 3) comparable questions on six different dimensions of women's empowerment that may potentially influence contraceptive use, and
- 4) has a Demographic and Health Survey (DHS) conducted within the last five years (i.e. in 2005 or later).

The first two criteria are to ensure that the study sample is sufficiently large for the examination of specific contraceptive categories, while the last two are to facilitate cross-country comparisons. At first, nine countries¹ meet criteria 1, 2, and 4. An examination of the latest DHS questionnaire in each country leaves us with Ghana, Namibia, Swaziland, Uganda, Zambia, and Zimbabwe—countries that meet criterion 3. However, a closer look at the Zimbabwe DHS 2005-06 reveals that although contraceptive prevalence among married women in the country was fairly high (60.2%), contraceptive use was heavily dependent on oral pills (43% of all married women); the use of couple methods (defined as methods that require men's awareness and involvement, including male and female condoms, diaphragm, withdrawal, breastfeeding, and periodic abstinence) was very limited (only 4% of all married women were using these methods

¹ These nine countries are: Ghana, Lesotho, Malawi, Namibia, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe. Lesotho and Tanzania were included in the first round of selection although their last surveys were conducted in 2004 and 2004-2005, respectively.

at the time of the survey) (Central Statistical Office [CSO] [Zimbabwe] & Macro International Inc, 2007). The low proportion of couple method use does not allow for meaningful analyses; therefore, Zimbabwe is also excluded from the study. Countries that are included in the final analyses are: Namibia, Swaziland, Zambia, Ghana, and Uganda.

2. Data

Data come from the latest DHS conducted in each country within the last five years, including: Namibia DHS 2006-07, Swaziland DHS 2006-07, Zambia DHS 2007, Ghana DHS 2008, and Uganda DHS 2006. These surveys are based on nationally representative samples of households, men, and women of reproductive age to provide up-to-date information on a number of demographic and health indicators, including: fertility, mortality, FP, maternal and child health, etc. and HIV/AIDS. Details of the sampling procedure in each country can be found in its DHS final report. The data used in this analysis come from information collected with the DHS woman's questionnaire, which collected information on the woman's basic characteristics, fertility, FP use, maternal and child health, sexual activities, and HIV/AIDS-related knowledge, attitudes, and behaviors.

The sample of women of reproductive age (15-49) in each country is as follows: Namibia: 9,804; Swaziland: 4,987; Zambia: 7,146; Ghana: 4,916; and Uganda: 8,531. For the purposes of this study, we only include women who were currently married or cohabiting with their partners, and those who were not sterile. Women who had been sterilized or whose husbands had been sterilized are excluded because a series of questions on fertility, FP negotiation, and choice at the time of the survey would not be applicable. The final samples of the study include: 3,235 women in Namibia, 1,940 women in Swaziland, 4,241 women in Zambia, 2,902 women in Ghana, and 5,193 women in Uganda (see Appendix 1 for the sample description).

3. Outcome

The outcome of interest is the use of contraceptive methods. Following Becker and Costenbader (2001), we categorize contraceptive use into three groups: non-use of contraceptives, use of female-only methods, and use of couple methods (see Appendix 2 for lists of female and couple methods in each country). In general, female-only methods include oral pills, intrauterine devices (IUDs), injectables, implants, and foams and jelly. Couple methods include male and female condoms, diaphragm, withdrawal, breastfeeding, and periodic abstinence—methods that require at least the awareness and a certain degree of support and cooperation from husbands. Male and female sterilization users are excluded for the reasons mentioned above.

4. Measures of women's empowerment

Women's empowerment is measured at the individual level in this study and by the dimensions suggested by Maholtra and Schuler (2005) and Maholtra et al. (2002). Table 1 presents the measures of women's empowerment.

Table 1. Measures of Women’s Empowerment Dimensions at the Individual Level

Dimension	Definition	Questions asked in DHS and codings
1. Household economy	Control over income, relative contribution to family support, access to and control of family resources.	<p>1. Who usually decides how the money that you earn will be used: mainly you, mainly your husband/partner, or you and your husband/partner jointly? (0 = No earnings, In kind only, Not working, Others’ decision and Partner alone decision; 1= Joint decision and Women alone decision)</p> <p>2. Would you say that the money that you earn is more than what your husband/partner earns, less than what he earns, or about the same? (0 = No earnings, In kind only, Not working, and Don’t know; 1= Less than him, 2: About same, 3: More than him)</p> <p>3. Who usually decides how your husband’s/partner’s earnings will be used: mainly you, mainly your husband/partner, or you and your husband/partner jointly? (0 = Husband no earnings, Others’ decision, and Partner alone decision; 1 = Joint decision and Women alone decision)</p> <p>4. Who usually makes decisions about making major household purchases: mainly you, mainly your husband/partner, you and your husband/partner jointly or someone else? (0 = Others’ decision and Partner alone decision; 1 = Joint decision and Women alone decision)</p> <p>5. Who usually makes decisions about making purchases for daily household needs: mainly you, mainly your husband/partner, you and your husband/partner jointly or someone else? (0 = Others’ decision and Partner alone decision; 1 = Joint decision and Women alone decision)</p>
2. Socio-cultural activities	Freedom of movement, lack of discrimination against daughters, commitment to educating daughters.	1. Who usually makes decisions about visits to your family or relatives: mainly you, mainly your husband/partner, you and your husband/partner jointly or someone else? (0 = Others’ decision and Partner alone decision; 1 = Joint decision and Women alone decision)

Dimension	Definition	Questions asked in DHS and codings
<i>Dimensions 3-6 are familial/interpersonal factors, defined as participation in domestic decision making, control over sexual relations, ability to make childbearing decisions, use of contraception, access to abortion, control over spouse selection and marriage timing, freedom from domestic violence.</i>		
3. Health seeking behavior		1. Who usually makes decisions about health care for yourself: mainly you, mainly your husband/partner, you and your husband/partner jointly or someone else? (0 = Others' decision and partner alone decision; 1 = Joint decision and Women alone decision)
4. Fertility preferences		2. Do you think your husband/partners wants the same number of children that you want, or does he want more or fewer than you want? (0 = Don't know, husband wants fewer, and husband wants more; 1 = both want same)
5. Sexual activity negotiation		<ol style="list-style-type: none"> 1. Can you say no to your husband/partner if you do not want to have sexual intercourse? 2. Could you ask your husband/partner to use a condom if you wanted him to? 3. Husbands and wives do not always agree on everything. Please tell me if you think a wife is justified in refusing to have sex with her husband if she knows he has a disease that can be transmitted through sexual contact? 4. When a wife knows her husband has a disease that can be transmitted through sexual contact, is she justified in asking that they use a condom when they have sex? (not available in Uganda) 5. Is a wife justified in refusing to have sex with her husband when she is tired or not in the mood? 6. Is a wife justified in refusing to have sex with her husband when she knows her husband has sex with other women? 7. Is a wife justified in refusing to have sex with her husband when she is feeling unwell? (Swaziland only) 8. Is a wife justified in refusing to have sex with her husband when she has recently given birth? (Swaziland only)

Dimension	Definition	Questions asked in DHS and codings
6. Domestic violence		<p>Sometimes a husband is annoyed or angered by things that his wife does. In your opinion, is a husband justified in hitting or beating his wife in the following situations:</p> <ol style="list-style-type: none"> 1. If she goes out without telling him? 2. If she neglects the children? 3. If she argues with him? 4. If she refuses to have sex with him? 5. If she burns the food? 6. If she has sex with other men? (Swaziland only)

The first two dimensions (economic and social-cultural empowerment) are similar to what were suggested by Maholtra et al. (2002). Economic empowerment is measured by responses to five questions related to spouses' relative income contribution, decisions about how the income would be used, and decisions about household purchases. Socio-cultural empowerment is measured by a question related to decision making on visiting the wife's family and relatives.

The remaining dimensions are subcategories of familial/interpersonal factors of women's empowerment, an area that is more complex than the first two dimensions and can be measured by a number of indicators related to domestic decision making, the wife's control over sexual relations, marriage, fertility, contraception, health seeking behavior, and domestic violence attitudes (Maholtra et al., 2002). Some of these components may be directly related to contraceptive use while the others may not; for example, decision making on fertility and contraception may directly influence contraceptive use, while domestic violence attitudes may not necessarily. Therefore, we examine familial/interpersonal factors through four dimensions of women's empowerment: health seeking behavior, fertility, sexual activity negotiation, and domestic violence attitudes.

Two of the familial/interpersonal women's empowerment dimensions, in health seeking behavior and fertility preferences, are measured by women's categorical responses to a single question: the first one (dimension 3 in table 1) is about decision making related to health care of the wife herself and the second one (dimension 4) is about the wife's perceptions of her husband's fertility preference, i.e. whether she thought that he wanted the same number of children as she wanted or if he wanted more or fewer. The last two familial/interpersonal aspects of women's empowerment, dimension 5 in sexual activity negotiation and dimension 6 in domestic violence attitudes, are measured by a series of yes/no questions. To construct women's empowerment in sexual activity negotiation, we use responses from six questions related to the wife's ability to refuse sex with her husband and to ask her husband to use a condom under different circumstances (see table 1 for details). Two exceptions are Uganda (five questions are used) and Swaziland (eight questions are used). Women's empowerment in domestic violence is measured by five questions related to women's beliefs of whether wife beating was justifiable in different circumstances (see table 1), except in Swaziland where an additional question on wife beating when she had sex with other men is used. It should be noted that these questions ask about women's attitudes towards wife beating, rather than their actual experience of domestic violence. A total of six indicators of different dimensions of women's empowerment are used in this study: three are continuous indices and three are categorical. Finally, an overall empowerment index score is constructed from all six dimensions.

We use principal component analysis (Dunteman, 1989) to construct composite indices for dimensions 1, 5, and 6 (i.e. household economy, sexual activity negotiation, and domestic violence), as well as the overall index. The reliability coefficients for different dimensions and the overall empowerment score range from .60 to .86 (see Appendix 3), indicating reasonable to high levels of correlations among components.

5. Methods

Cross-tabulations are conducted to provide a preliminary assessment of differences in contraceptive use across groups if an independent variable is categorical. Bivariate multinomial regression is used to examine relationships between contraceptive use and categorical as well as continuous independent variables. Finally, multivariate multinomial regression is used to examine the influence of women's empowerment and its various dimensions on contraceptive use, with and without controlling for individual- and community-level factors that may affect the outcome. These variables include: knowledge of modern contraceptives measured by the number of contraceptives that a woman knew, and exposure to FP messages on mass media (newspapers, radio, and TV), woman's age, education, household wealth, religion, and the number of living children. At the community level, they include: rural vs. urban residence and the prevalence of contraceptives in the community.

COUNTRY ANALYSIS

The following sections present findings from each country in this order: Namibia, Swaziland, Zambia, Ghana, and Uganda.

1. Namibia

1.1. Country setting

Namibia has a much higher contraceptive prevalence rate at 55.0% compared to the average of 23.0% in sub-Saharan Africa during 2000-2007. It has increased over the years: 28.9% in 1992, 43.7% in 2000, and 55.1% in 2006/07 (Ministry of Health and Social Sciences [MoHSS] & Macro International Inc. 1993, 2003, and 2008), along a dramatic decline of total fertility rate (TFR): from 6.5 in 1970, 5.8 in 1990, to 3.2 in 2007, in part due to rapid urbanization (United Nations [UN] [Web site], 2010a).

In the 2008 DHS, knowledge of modern contraceptive methods is nearly universal among married women and men. Eighty-four percent of married women and 76% of married men had used a modern method of contraception. Yet, negative attitudes towards contraceptives still existed. For example, 42.9% of men aged 15-49 believed that a woman who uses contraception may become promiscuous; some women also were opposed to contraception for fears of side effects or husband's disapproval (MoHSS & Macro International Inc., 2008).

Despite the rapid decline of TFR, studies on FP and fertility in Namibia are limited. In a multi-country study, 71.4% of Namibian married couples reported that both spouses approved of FP; 5.2% reported disapproval of FP by both spouses. Approval of FP by both spouses was found to be significantly associated with women's use of any modern method (Gebreselassie & Mishra, 2007).

1.2. Findings

About half of women in the sample were using a contraceptive method: 36% were using female methods, more than double the 14% that were using couple methods. Such differences between female and couple method use can be seen in all sub-groups of women.

In table 2, results of three different regression models examining the influence of women's empowerment on contraceptive use were presented. Model 1 shows that when the overall score of women's empowerment was the only predictor, there was a strong association between women's empowerment with contraceptive use: a one-point increase in the empowerment score was related to a 19-percent increase in the relative risk of female method use and a 24-percent increase in the relative risk of couple method use ($p < .001$ in both cases). Model 2 also includes only women's empowerment, broken down to six different dimensions. Results of this model show several empowerment dimensions as important determinants of contraceptive use. Economic empowerment was positively related to both female and couple method use ($p < .001$ and $p < .01$, respectively). Fertility preference was related only to female method use: couples in which women reported spousal agreement in the desired number of children were more likely to use female methods of contraception (relative risk ratio [RRR]=1.61, $p < .001$). The use of couple methods, in the mean time, was related to women's attitudes towards domestic violence (RRR=1.20, $p < .001$) and marginally related to women's sexual activity negotiation capacity (RRR=.109; $p < .10$).

These results of model 3 show that in Namibia, women's empowerment in household economic decision making and in fertility preference is directly related to the use of female methods of contraception, independent of other socio-demographic factors that may also influence contraceptive use. The use of couple methods in Namibia, however, is only directly related to women's attitudes towards domestic violence; other dimensions of women's empowerment, such as that in economic decision making and in sexual activity negotiation, may have indirect associations with couple method use.

2. Swaziland

2.1. Country setting

The first National Family Planning Program was launched by the Swazi Ministry of Health in 1973, providing information about FP methods and making contraceptives available at many health centers at the time when TFR was about 7 children per woman (Armstrong, 1987). The program succeeded in raising awareness of FP; yet the 1988 Family Health Survey of Swaziland reported that contraceptive use was still minimal at 17% among all women, mainly for spacing purposes (Gule, 1993). By 2006, TFR had decreased to about 4 children per woman of reproductive age; modern contraceptive prevalence was moderate at 36% among all women (Central Statistical Office [CSO] [Swaziland] & Macro International Inc., 2008).

Table 2. Factors Associated with the Use of Female and Couple Methods of Contraception, Namibia, 2006-07

Women's Empowerment Characteristic	Model 1		Model 2		Model 3	
	Use of female methods	Use of couple methods	Use of female methods	Use of couple methods	Use of female methods	Use of couple methods
	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)
Overall score	1.19 (0.03)***	1.24 (0.05)***				
Economic			1.15 (0.03)***	1.16 (0.06)**	1.09 (0.04)**	1.05(0.06)
Socio-cultural activities:						
<i>Others/husband alone</i>			1.00	1.00	1.00	1.00
<i>Joint/husband alone</i>			1.22 (0.16)	1.06 (0.19)	1.15 (0.15)	0.96 (0.18)
Health seeking behavior:						
<i>Others/partner alone</i>			1.00	1.00	1.00	1.00
<i>Joint/women alone</i>			1.13 (0.16)	0.87 (0.17)	1.15 (0.17)	0.89 (0.19)
Fertility preference:						
<i>Don't know/husband wants more of fewer</i>			1.00	1.00	1.00	1.00
<i>Both want the same</i>			1.61 (0.14)***	1.20 (0.15)	1.48 (0.13)***	1.02 (0.15)
Sexual activity negotiation			1.04 (0.03)	1.09 (0.05)^	1.00 (0.03)	1.02 (0.05)
Domestic violence			1.04 (0.03)	1.20 (0.05)***	0.99 (0.03)	1.11 (0.05)*

Significance level: ^ p<.10; * p<.05; ** p<.01; *** p<.001

RRR = relative risk ration

Model 3 controls for individual and community characteristics.

Many factors have been identified as barriers to FP practice. First, the significance of children as a symbol of wealth and status of the family contributes to the non-use or ineffective use of FP methods (Gule, 1993; Ziyane et al., 2003; Ziyane et al., 2007). As the patriarchal tradition, as well as polygamy practice, has been rooted in Swazi social structures for many centuries, women's social and economic status and well-being are dependent on men. Women are expected to have as many children, especially sons, as possible; being childless often carries stigma with it (Ziyane, Ehler, & King, 2003; Ziyane & Ehlers, 2007). A payment of bride price to wife's family, "Labola," also contributed to such obligations (Gule, 1993; Physicians for Human Rights [PHR], 2007). Second, since the Swazi government does not provide social security to the elderly, seniors need to rely on their children for support, resulting in a high fertility level as a means to ensure adequate and steady support (Gule, 1993). In addition, infant and under-5 mortality rates, while declining, are still threats for couples who want to achieve a large family size (Gule, 1993; UN, 2010a; United Nations Children's Fund [UNICEF], 2009).

Another reason for the low level of acceptance of modern contraceptives in Swaziland is misperceptions about modern methods, particularly among men. Some modern contraceptives are believed to result in infertility (Gule, 1993). While men often are the sole decision makers in the household, their negative attitudes towards and ignorance about modern contraceptives could prevent couples from practicing FP. Many men, especially older men, prefer traditional methods since they are cheap, convenient and culturally accepted (Ziyane & Ehlers, 2007). Because of men's disapproval, many women who are highly motivated to practice FP resolve to using contraceptives without their husband's knowledge, as they fear negative responses from their husband (Armstrong, 1987; Gule, 1993). Attitudes towards domestic violence could also be a major hurdle to FP practice if women do not confront men due to their fears of domestic violence (Uthman, Lawoko, & Moradi, 2009). However, few studies have explored the associations between attitudes toward domestic violence and contraceptive use (Gule, 1993).

2.3. Findings

Nearly half of the sample were using a contraceptive method with many more women using female methods (30%) than couple methods (17%). The same pattern between female and couple methods is observed in each subgroup of women as well (results not shown).

Table 3 shows the associations between women's empowerment and contraceptive use. Model 1 indicates significant associations between the use of female methods as well as of couple methods of contraception with the overall measure of empowerment. Increased women's empowerment was associated with between 12% and 19% increase in the relative risk of using female and couple methods ($p < .001$ in both cases). In Model 2, when specific dimensions of empowerment were included instead of the overall score, results show that the use of female and couple methods of contraception is dependent on the women's household economic empowerment, the couples' perceived agreement in fertility preference, and women's attitudes towards domestic violence. The higher the score of empowerment in each of these dimension, the higher the likelihood that a woman would report using either a female or a couple method of contraception.

Table 3. Factors Associated with the Use of Female and Couple Methods of Contraception, Swaziland, 2006-07

Women's Empowerment Characteristic	Model 1		Model 2		Model 3	
	Use of female methods	Use of couple methods	Use of female methods	Use of couple methods	Use of female methods	Use of couple methods
	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)
Overall score	1.12 (0.03)***	1.19 (0.05)***				
Economic			1.06 (0.03)^	1.11 (0.04)*	1.02 (0.04)	1.00 (0.04)
Socio-cultural activities:						
<i>Others/husband alone</i>			1.00	1.00	1.00	1.00
<i>Joint/husband alone</i>			1.06 (0.12)	1.11 (0.16)	1.06 (0.13)	1.03 (0.16)
Health seeking behavior						
<i>Others/partner alone</i>			1.00	1.00	1.00	1.00
<i>Joint/women alone</i>			1.01 (0.15)	0.97 (0.16)	0.99 (0.15)	0.98 (0.17)
Fertility preference:						
<i>Don't know/husband</i>			1.00	1.00	1.00	1.00
<i>wants more of fewer</i>			1.39 (0.15)**	1.41 (0.18)**	1.25 (0.15)^	1.20 (0.17)
<i>Both want the same</i>						
Sexual activity negotiation			1.04 (0.05)	1.05 (0.04)	1.00 (0.05)	0.99 (0.04)
Domestic violence			1.07 (0.04)*	1.16 (0.05)**	1.02 (0.04)	1.07 (0.05)

Significance level: ^ p<.10; * p<.05; ** p<.01; *** p<.001

RRR = relative risk ration

Model 3 controls for individual and community characteristics.

In model 3, when other socio-demographic factors at the individual and community levels were included in the model, most of the associations between women's empowerment and contraceptive use were all canceled, with the exception of a marginally significant relationship between fertility preference and female contraceptive use. Results suggest that, in Swaziland, socio-demographic characteristics may be more important than women's empowerment in influencing contraceptive use.

3. Zambia

3.1. Country setting

Population growth was not deemed a development issue by the Zambian government until the early 1980s. The Fourth National Development Plan 1989-1993 included a national population policy, which aimed to reduce TFR from 7.2 to 6 children per woman and to make FP services accessible and affordable to at least 30% of those in need (Lucas, 1992).

At that time, contraceptive use was still negligible. The Planned Parenthood Association of Zambia had been the major supplier of contraceptives to health care facilities since 1972; the number of modern contraceptive users had increased from about 66,000 in 1979 to 162,000 in 1987 (Lucas, 1992). However, contraceptive acceptance and use rates had remained low, particularly among men. A study conducted in 1984 with 22 randomly selected clinics in Lusaka reported that only 4% of 500 acceptors were male. In addition, most Lusaka clinics served only women who were married and could present an authorization letter from their husbands (Brown, Coeytaux, Chipoma, et al., 1987). While FP services seemed restricted to certain populations, clients also did not have many choices of methods in the early 1980s: most female acceptors received pills and all male acceptors received condoms at their first visits (Brown et al., 1987; Lucas, 1992).

Consistent with studies in other sub-Saharan Africa countries, studies in Zambia also suggested that men's approval of contraception was closely associated with contraceptive use. Susu and colleagues (Susu, Ransjo-Arvidson, Chintu, et al., 1996) reported husband's disapproval as a reason for not using contraceptives by two in five women who were not practicing FP at the time of the study. A study conducted in urban Ndola district, Copperbelt province, reported that only 7% of women indicated their contraceptive use intention was with their husband's knowledge. Significant covert contraceptive use among current female users was strongly associated with difficulties in spousal communication on contraception; and men were often concerned about losing control over their wives' reproductive behavior and their desire to raise a large family (Biddlecom & Fapohunda, 1998). In addition, some women and men are concerned that the availability of contraceptives could encourage negative sexual behaviors, such as early age of sexual initiation and adultery (Chapman & Gordon, 1999). Unlike many other countries, domestic violence between intimate partners has not been found associated with modern contraceptive use in Zambia (Hindin, Kishore, & Ansara, 2008).

3.2. Findings

Nearly 40% of women sampled were using a contraceptive method at the time of the survey; the proportions of women using female and couple methods were roughly the same in the total sample (Central Statistical Office [CSO] [Zambia], Tropical Diseases Research Center [TDRC], & Macro International Inc., 2009).

Similar to other countries' findings, model 1 in table 4 shows positive associations between the overall empowerment score and the use of both female and couple methods of contraception ($p < .001$ with female methods and $p < .01$ with couple methods). Detailed examination of different dimensions of empowerment with model 2 suggests that fertility preference, the women's ability to negotiate sexual activities, and their attitudes towards domestic violence are the most important dimensions that may influence contraceptive use. Each of these dimensions shows a positive and significant association with the use of both female and couple methods. In addition, women's empowerment in household economic decision making was related to female method use ($p < .01$) but not to couple method use. Women who had some say in health seeking behavior, either by making decisions jointly with their husbands or alone, also seemed marginally more likely to report the use of female contraceptive methods, compared to those who had no say at all in health care decision making ($p < .10$). Women's capacity in decision making related to socio-cultural activities, surprisingly, seemed to have a marginal negative association with the use of couple methods ($p < .10$).

In model 3, when individual- and community-level socio-demographic factors were taken into account, however, the seemingly negative effect of women's empowerment in socio-cultural activities on contraceptive use was cancelled. So were the associations between female method use and women's empowerment in household economic decision making and in sexual activity negotiation. The relationships between domestic violence attitudes and female and couple method use that were significant in model 2 also became insignificant in model 3.

Only perceived agreement in fertility preference remained an important determinant of both female and couple method use: among women who reported that both spouses wanted the same number of children, the relative risk of using female methods was increased by 45% ($p < .001$) and that of couple method use was increased by 31% ($p < .05$), compared to women who did not know their husband's desired number of children or whose husbands were perceived to have a different desired number of children. Women's empowerment in sexual activity negotiation, while not significantly related to female method use, was also an important factor influencing couple method use in Model 3: an 8% increase in the relative risk of using couple methods was associated with a one point increase in women's capacity in sexual negotiation ($p < .05$).

Table 4. Factors Associated with the Use of Female and Couple Methods of Contraception, Zambia, 2007

Women's Empowerment Characteristic	Model 1		Model 2		Model 3	
	Use of female methods	Use of couple methods	Use of female methods	Use of couple methods	Use of female methods	Use of couple methods
	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)
Overall score	1.17 (0.03)***	1.08 (0.03)**				
Economic			1.10 (0.03)**	1.01 (0.03)	1.03 (0.03)	1.02 (0.03)
Socio-cultural activities:						
<i>Others/husband alone</i>			1.00	1.00	1.00	1.00
<i>Joint/husband alone</i>			0.99 (0.12)	0.80 (0.09)^	1.01 (0.13)	0.97 (0.12)
Health seeking behavior:						
<i>Others/partner alone</i>			1.00	1.00	1.00	1.00
<i>Joint/women alone</i>			1.20 (0.11)^	0.90 (0.10)	1.21 (0.12)^	0.95 (0.11)
Fertility preference:						
<i>Don't know/husband</i>			1.00	1.00	1.00	1.00
<i>wants more of fewer</i>			1.75 (0.16)***	1.31 (0.15)*	1.45 (0.14)***	1.31 (0.15)*
<i>Both want the same</i>						
Sexual activity negotiation			1.10 (0.03)**	1.11 (0.04)**	1.03 (0.03)	1.08 (0.03)*
Domestic violence			1.06 (0.03)*	1.09 (0.03)*	0.99 (0.03)	1.02 (0.03)

Significance level: ^ p<.10; * p<.05; ** p<.01; *** p<.001

RRR = relative risk ration

Model 3 controls for individual and community characteristics.

4. Ghana

4.1. Country setting

Concerns of high population growth and fertility rates during the late 1960s prompted the government of Ghana to adopt its first national population policy. The policy set a specific goal: to reduce the annual population growth rate to 1.7% by the year of 2000 (Oliver, 1995). As the government set up a supporting environment for FP, services became more available. Knowledge of contraception is almost universal among people of reproductive age in Ghana (Ghana Statistical Service [GSS], Ghana Health Service [GHS], & ICF Macro, 2009). However, contraceptive use remains low: only 17 % of currently married women reported using any modern methods.

The last few decades have witnessed several important changes in FP service environment in Ghana. The use of injectables has increased steadily while the use of pills and the IUD has declined (Hong, Fronczak, Chinbuah, et al., 2005). The number of contraceptive methods offered at health centers also significantly increased between 1993 and 1996 (Hong et al., 2005). Most commonly used methods of contraception, such as injectables and pills, were increasingly available at pharmacies or other places than health facilities. The community-based distribution of FP has also expanded (Hong et al., 2005). Nevertheless, FP remains female-oriented. Men's negative attitudes have remained as a barrier to FP practice: 46% of currently married men reported that women who used contraceptives might become promiscuous (GSS, GHS, & ICF Macro, 2009). The lack of efforts to target in FP remains a challenge (Akafuah & Sossou, 2008).

Many have suggested that the promotion of FP cannot be successful without addressing gender-related factors rooted in Ghanaian society (Bawah et al. 1999). In fact, the strong influence of men's attitudes towards contraceptive use should be stressed (Ezeh, 1993; Phillips, Bawah, & Binka, 2006). Men have expressed concerns that women who practiced contraception might be unfaithful and that the men might lose control over their wives as modern methods gave women a degree of reproductive authority (Bawah et al., 1999). Meanwhile, some women who used contraception feared physical abuse and reprisals, not only from husbands but from their extended families. Ezeh (1993) also found that a husband's disapproval was a common reason for married women not to use contraception, fearing that they would lose the husband's affection. The study also reported men's intention to beat their wife if she adopted FP (Ezeh, 1993).

4.2. Findings

More than three-quarters of the sample were not using any contraceptives; only 12% were using female methods and almost 10% were using couple methods. Female methods were more frequently used than couple methods, but the differences between them in subgroups of women were not as marked as they were in the other countries included in this study.

Looking at the overall index of women's empowerment, as presented in model 1 of table 5, it seemed that empowerment had a strong, significant association with the use of couple methods (RRR=1.27; $p<.05$), but only a marginal, although also positive, association with the

use of female methods of contraception (RRR=1.14, $p<.10$). Model 2 shows some differences between female and couple method use with regard to empowerment determinants. While both female and couple method uses were positively related to women's empowerment in sexual activity negotiation (in fact, it is the strongest empowerment predictor of contraceptive use), the use of female method was also related to economic empowerment within the household (RRR=1.14; $p<.05$), and the use of couple methods was related to women's attitudes towards domestic violence (RRR=1.21; $p<.01$).

When other individual and community characteristics were controlled for in model 3, women's empowerment in sexual activity negotiation remained a strong predictor of contraceptive use. It is also the only empowerment dimension that was significantly related to either female or couple method use in the multivariate model: an increase of one point in the score of women's empowerment in sexual activity negotiation was associated with an 18% increase in the relative risk of using female methods and an 13% increase in that of using couple methods ($p<.05$ in both cases). Economic empowerment was only marginally related to female method use; so were domestic violence attitudes to couple method use.

Overall, results in Ghana highlight the importance of women's empowerment in sexual activity negotiation to both female and couple contraceptive use. It is the only empowerment dimension that had a strong, direct relationship with contraceptive use outcomes in this country. Few other empowerment dimensions, including household economic decision making and domestic violence attitudes, had some associations with the outcomes. Instead they may work through individual and community socio-demographic characteristics.

Table 5. Factors Associated with the Use of Female and Couple Methods of Contraception, Ghana, 2008

Women's Empowerment Characteristic	Model 1		Model 2		Model 3	
	Use of female methods	Use of couple methods	Use of female methods	Use of couple methods	Use of female methods	Use of couple methods
	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)
Overall score	1.14 (0.07) ^	1.27 (0.11) *				
Economic			1.14 (0.07) *	1.11 (0.10)	1.10 (0.05) ^	1.02 (0.09)
Socio-cultural activities:						
<i>Others/husband alone</i>			1.00	1.00	1.00	1.00
<i>Joint/husband alone</i>			1.13 (0.17)	0.94 (0.16)	1.17 (0.16)	0.97 (0.18)
Health seeking behavior:						
<i>Others/partner alone</i>			1.00	1.00	1.00	1.00
<i>Joint/women alone</i>			0.98 (0.19)	0.79 (0.15)	1.00 (0.22)	0.82 (0.15)
Fertility preference:						
<i>Don't know/husband</i>			1.00	1.00	1.00	1.00
<i>wants more of fewer</i>			1.05 (0.13)	1.17 (0.20)	1.04 (0.11)	1.06 (0.14)
<i>Both want the same</i>						
Sexual activity negotiation			1.26 (0.09) **	1.28 (0.07) ***	1.18 (0.07) *	1.13 (0.05) *
Domestic violence			0.96 (0.05)	1.21 (0.07) **	0.95 (0.04)	1.11 (0.06) ^

Significance level: ^ p<.10; * p<.05; ** p<.01; *** p<.001

RRR = relative risk ration

Model 3 controls for individual and community characteristics.

5. Uganda

5.1. Country setting

FP activities in Uganda started in 1957 with the establishment of the Family Planning Association of Uganda, implemented by Maternal and Child Health/FP division of the Ministry of Health with support from the U.S. Agency for International Development and the United Nations Population Fund (Agyei & Migadde, 1995). FP services were at that time limited to married women who were accompanied by husbands or could provide written documents indicating their husband's consent (Blacker, Opiyo, Jasseh, et al., 2005). In 1995, after the International Conference on Population and Development, the Ugandan government adopted a national population policy for sustainable development; one of its objectives was to reduce unmet need for FP. While introducing FP services at all public clinics nationwide, the government also took steps to improve the availability of FP services in rural areas that were previously neglected. Other policies related to population and RH issues, including gender policy, were also developed. However, support for FP from the government remained very limited and challenges in contraceptive supplies continued in rural areas (Blacker et al. 2005; Uganda Bureau of Statistics [UBOS] & Macro International Inc., 2007).

Despite the limited investment from the government, knowledge of modern methods of contraception was almost universal among married. Yet, current use of modern methods remained low at 18.5% in 2006 people (UBOS & Macro International Inc., 2007). Disapproval of FP was cited as a reason for not using contraceptives by few women: 9.8% of women who were not using contraceptives reported their own disapproval towards contraception while 4.7% of them mentioned their husband's disapproval (Khan, Bradley, Fishel, et al., 2008). Wolff and colleagues (Wolff, Blanc, & Ssekamatte-Ssebuliba, 2000) found that men's opposition to contraception was significantly associated with an increase in unmet need reported by women as well as increased reliance on traditional methods compared to modern methods.

Such disapproval has been attributed to social and cultural norms related to gender inequality and negative perceptions that contraceptive use may lead to women's promiscuity and infidelity (Kaida, Kipp, Hessel, et al., 2005; Kaye, 2006). Traditional marital practices, including payment of bride price, polygamy, and early marriage, also enhance women's dependence on men's decision-making authority and put constraints on women's ability to negotiate sexual activities and contraceptive use (Blanc, 2001; Kaye, Mirembe, Ekstrom, et al.; 2005, Wolff, Blanc, & Gage, 2000).

Experience with domestic and intimate partner violence is also an important factor that may prevent women from practicing contraception. Koenig et al. (Koenig, Zablotska, Lutalo, et al., 2004) showed that among 15-19 year old girls, coerced first intercourse was associated with lower contraceptive use and non-use of condoms at last sex, as well as inconsistent condom use within the last six months. Kaye and colleagues (Kaye, Mirembe, Bantebya, et al., 2006) found that many research participants agreed that violence against women should be expected if women's use of contraceptives was identified or even suspected. Koenig and colleagues (Koenig, Lutalo, Zhao, et al., 2003) also reported that more women than men (27% vs. 22%) justified domestic violence if a woman adopted contraception without her husband's approval.

5.2. Findings

The majority (79%) of the sample were not using any contraceptives at the time of the survey; female method use was twice often as that of couple methods (14% and 7% of the sample were using these methods, respectively). Similar differences between female and couple methods can be seen in all subgroups of women (results not shown).

The overall score of women's empowerment was shown in model 1 (table 6) to have a strong relationship with contraceptive use outcomes. An increase of one point in the overall empowerment score was related with 21% increase in the relative risk of female method use and 31% increase in that of couple method use ($p < .001$ for both outcomes). In model 2, several empowerment dimensions were shown to be associated with contraceptive use. Women's empowerment in the household economy was related to both female and couple contraceptive use ($p < .001$ for both outcomes). Women who reported the same fertility preference between them and their husbands also seemed more likely to report using female and couple methods of contraception ($p < .01$ and $p < .001$, respectively). Similarly, empowered domestic violence attitudes were positively related to contraceptive use—for both female and couple methods ($p < .001$ for both outcomes). Empowerment in sexual activity negotiation seemed strongly related only to couple method use ($p < .05$); the evidence of its association with female method use was weak, even in the unadjusted model.

When individual and community characteristics were controlled for, as in model 3, several of these associations were canceled. For example, domestic violence attitudes were no longer shown to be associated with either contraceptive use outcome; neither was women's capacity in sexual activity negotiation. Women's empowerment in household economic decision making remained significantly related to both female and couple method use: a one point increase in the score of women's economic empowerment was related to 9% increase in the relative risk of using female or couple methods of contraception ($p < .01$ and $p < .05$, respectively). Fertility preference also remained associated with contraceptive outcomes. Women who reported spousal agreement in fertility preference had a 60% increase in the relative risk of using couple methods ($p < .001$). With female methods, the relationship was marginal, where women reporting spousal agreement in fertility preference had a 20% increase in the relative risk of using female methods ($p < .10$).

Table 6. Factors Associated with the Use of Female and Couple Methods of Contraception, Uganda, 2006

Women's Empowerment Characteristic	Model 1		Model 2		Model 3	
	Use of female methods	Use of couple methods	Use of female methods	Use of couple methods	Use of female methods	Use of couple methods
	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)	RRR (s.e.)
Overall score	1.21 (0.03) ***	1.31 (0.06) ***				
Economic			1.20 (0.03) ***	1.20 (0.05) ***	1.09 (0.03) **	1.09 (0.04) *
Socio-cultural activities:						
<i>Others/husband alone</i>			1.00	1.00	1.00	1.00
<i>Joint/husband alone</i>			1.12 (0.13)	1.17 (0.17)	1.11 (0.14)	1.11 (0.17)
Health seeking behavior:						
<i>Others/partner alone</i>			1.00	1.00	1.00	1.00
<i>Joint/women alone</i>			0.91 (0.09)	1.01 (0.14)	1.07 (0.12)	1.13 (0.16)
Fertility preference:						
<i>Don't know/husband</i>			1.00	1.00	1.00	1.00
<i>wants more of fewer</i>			1.40 (0.14) **	1.99 (0.22) ***	1.20 (0.12) ^	1.60 (0.18)***
<i>Both want the same</i>						
Sexual activity negotiation			1.09 (0.05) ^	1.13 (0.06) *	0.97 (0.04)	1.02 (0.05)
Domestic violence			1.16 (0.03) ***	1.21 (0.06) ***	1.03 (0.03)	1.07 (0.05)

Significance level: ^ p<.10; * p<.05; ** p<.01; *** p<.001

RRR = relative risk ration

Model 3 controls for individual and community characteristics.

DISCUSSION

Women's empowerment is a complex concept that is often difficult to operationalize. Most studies of women's empowerment and FP so far have only examined a single or a few aspects of empowerment. The current study measures the multiple dimensions of empowerment and explores the associations between different dimensions of women's empowerment and contraceptive practice in five African countries: Namibia, Swaziland, Zambia, Ghana, and Uganda. Contraceptive methods are categorized into female only and couple methods, depending on whether men's awareness and support are required for use. Implicit, but not tested, is the assumption that women who are empowered would be more likely to have discussions with their husband about FP and, therefore, involve their husband in FP practice.

Table 7 summarizes the findings. It shows that none of these countries share the same associations between contraceptive use and women's empowerment. Different empowerment dimensions showed significant associations with contraceptive use in different countries. This finding suggests that while improving women's empowerment in general may lead to increases in contraceptive use, there may not be a "one size fits all" strategy for Africa.

There are still several common findings between countries. First, in most countries, female only methods are markedly more frequently used than couple methods. This is also true when women are categorized into subgroups by their characteristics. It should be noted that all female methods in this study are modern methods, which are also more likely to be targets of FP programs, compared to traditional methods, all of which are classified as couple methods. The difference between female and couple method use could be a result of many decades of FP programs that have traditionally targeted women. Zambia is the only country where the difference between female and couple method use is not observed. The Zambia 2007 DHS data show that male condoms, breastfeeding, and withdrawal are the most popular couple methods (results not shown).

Second, in all countries in this study, positive, significant associations are found between overall women's empowerment and both female and couple method use. In most countries, we also find that several empowerment dimensions are associated with contraceptive use in the multivariate analysis (see table 7). An exception is Swaziland, where none of the empowerment dimensions are found to be related to contraceptive use in the multivariate analysis. It is possible that in a setting like Swaziland, where FP practice for spacing purposes is wide-spread and traditional contraceptives are relatively frequently used, accessibility to contraceptives by women and couples is more important to their use than women's ability to make their own decision on using per se.

Table 7. Summary of the Observed Associations between Women’s Empowerment and Contraceptive Use in Five Countries

Empowerment Dimension	Namibia	Swaziland	Zambia	Ghana	Uganda
1. Household economy	Female methods	–	–	–	Female + couple methods
2. Socio-cultural activities	–	–	–	–	–
3. Health seeking behavior	–	–	–	–	–
4. Fertility preferences	Female methods	–	Female + couple methods	–	Couple methods
5. Sexual activity negotiation	–	–	Couple methods	Female + Couple methods	–
6. Domestic violence attitudes	Couple methods	–	–	–	–
– No statistical significant association.					

Among women's empowerment dimensions, empowerment in household economic decision making, in fertility preference, and in sexual activity negotiation are most often related to contraceptive use. In many cases, one of these dimensions of empowerment is related to both female and couple method use, such as in Zambia, Ghana, and Uganda. These effects are observed when only measures of different empowerment dimensions are included in the models, as well as when socio-demographic factors are controlled for, suggesting that they have direct associations with the outcomes. These findings suggest that different strategies may be employed in these countries to promote FP and men's involvement in FP. For example, it may make sense in Zambia to promote couple discussion on fertility preferences as both female and couple method use increased with spouses' agreement on the desired number of children. On the other hand, strategies to promote FP may need to focus on women's ability to negotiate sexual activities with husband in Ghana and on women's decision making in household economy in Uganda. In the latter example, programs that aim to improve women's independent earnings and contributions to the household finance may be an effective way to improve women's empowerment and increase contraceptive use.

The finding that women's empowerment in household economy and in fertility preferences are only related to female methods and not to couple methods in Namibia may suggest that responsibilities in FP may still be seen as women's, even if women may be relatively equal to men. It is possible that many men still have reservations about FP, especially the use of modern methods.

Attitudes toward domestic violence also seem important to contraceptive use. When only measures of empowerment are included in the model, domestic violence attitudes show a significant association with contraceptive use in most countries. However, when socio-demographic factors are controlled for, domestic violence attitudes are no longer statistically significant, except in Namibia and Ghana. In Namibia, attitudes toward domestic violence remain significantly related to couple contraceptive use; in Ghana, their association with couple method use is marginally significant when other factors are controlled for. This finding in Namibia suggests that unless women become more equal to men in issues that may be more intimate and directly related to the unequal power dynamics between spouses, men's involvement in FP may remain limited. Unlike other countries in the study, Namibia may require interventions that directly target domestic violence issues in order to promote men's involvement in FP practice.

In none of the countries included in this study do women's empowerment measures in socio-cultural activities and health seeking behaviors show statistically significant associations with contraceptive outcomes. It is possible that in these African countries, women's mobility is not as socially limited as it is the case in some Asian settings (see, for example, Acharya, Bell, Simkhada, et al., 2010); therefore, contraceptive behaviors do not depend on whether women can make decisions about visit families and friends. It is also possible that the question used to measure the socio-cultural dimension of women's empowerment does not fully capture this dimension of empowerment in Africa; in this case, additional qualitative research may be necessary to identify appropriate indicators for this measure. On the other hand, the finding that women's empowerment in health-seeking behavior is not important to contraceptive use is surprising. It is possible that there is truly no association between women's decision making in

their own health care and contraceptive use, because the former may not necessarily involve any interactions with their spouses, whereas the latter does. It is also plausible that being subordinate to men and having little control of resources, many women may decide to forfeit their own health care for fears of aggression from their husband. In such cases, women's decision making in care-seeking behavior for their own health may not necessarily be a good measure of women's empowerment.

In addition to some limitations that have been mentioned, this study is also limited by the data available to measure women's empowerment. Data came from women's responses to questions about usual practices in the household and several hypothetical questions. There is a risk that this measurement will suffer from information bias if women gave responses that they thought were expected, especially in sensitive issues related to sexual activity negotiation and domestic violence. In addition, in some dimensions of empowerment, such as fertility preferences, women's responses may not reflect the real situation if spouses do not talk about the number of children that they want to have, or if women would agree to whatever their husbands wish.

Another limitation is related to the cross-sectional nature of DHS data. Both measures of women's empowerment and contraceptive use were collected at the time of the survey. The temporal relationship between them, therefore, cannot be determined in this study. There is also a possibility of endogeneity between women's empowerment and contraceptive use, which means that the same observed and unobserved factors may influence both outcomes. In this paper, we did control for several factors that are theoretically related to contraceptive use and not to women's empowerment, such as the number of contraceptives known and the prevalence of contraceptive at the community level. However, full testing and controlling for endogeneity would go beyond the scope of this paper.

CONCLUSIONS

Despite the limitations, the study points out important associations between several dimensions of women's empowerment and the choice of contraceptive methods. Although no countries are alike, overall, women's empowerment in household economic decision making, fertility preferences, and sexual activity negotiation has direct associations with contraceptive use. In Namibia, these dimensions are related only to female method use; whereas in Zambia, Ghana, and Uganda, they are either related to the use of couple method use or both. The finding suggests that efforts to improve men's awareness and involvement in FP in Zambia, Ghana, and Uganda may need to target empowering women in these dimensions. In Namibia, on the other hand, programs may need to improve women's attitudes toward domestic violence in order to increase men's participation in FP. In Swaziland, no associations between women's empowerment and contraceptive use are observed. Further research may be needed to identify factors that are important to the use of female and couple methods of contraception in this country.

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APPENDICES

Appendix Table 1. Sample Distribution of Study Countries

Characteristic	Namibia	Swaziland	Zambia	Ghana	Uganda
	% or mean	% or mean	% or mean	% or mean	% or mean
<i>Individual level</i>					
Age					
15 – 24	16.71	22.10	27.01	17.59	29.41
25 – 39	60.13	54.50	56.61	58.95	54.04
40 – 49	23.16	23.40	16.38	23.46	16.55
Highest education level					
None	12.61	11.98	13.00	30.02	24.78
Primary school	30.79	35.15	61.34	22.25	60.20
Secondary school	47.55	44.13	21.67	44.16	11.82
High school or more	9.06	8.74	3.99	3.58	3.20
Household wealth tertile					
1 st (poorest)	33.08	36.61	40.90	31.92	35.71
2 nd	30.40	32.82	31.48	34.04	36.91
3 rd (richest)	36.52	30.57	27.62	34.04	27.38
Religion ^a					
1.	3.03	21.82	21.41	26.22	22.76
2.	22.12	14.68	78.59	12.54	43.91
3.	74.85	20.41	–	26.02	33.33
4.	–	43.09	–	35.23	–
Number of living children (range)					
	2.77	3.14	3.40	3.00	3.83
	(0-12)	(0-13)	(0-13)	(0-11)	(0-14)
Exposure to FP messages on mass media					
No	41.05	21.75	56.47	31.30	39.57
Yes	58.95	78.25	43.53	68.70	60.43

Number of contraceptives known ^b (range)	5.05 (0-9)	6.89 (0-10)	6.14 (0-10)	6.42 (0-10)	5.00 (0-8)
Community level					
Residence					
Rural	52.07	74.52	65.56	57.85	87.02
Urban	47.93	25.48	34.44	42.15	12.98
Contraceptive prevalence ^c (range)	41.36 (7.50-82.14)	33.76 (12.50-68.00)	27.95 (0.00-61.54)	17.54 (5.49-25.84)	15.67 (0.00-51.72)
N	3,235	1,940	4,241	2,902	5,193

^a Religious groups vary by country:

Namibia: 1. No religion/Others, 2. Catholic, and 3. Protestant.

Swaziland: 1. No religion/Others, 2. Charismatic, 3. Protestant, and 4. Zionist.

Zambia: 1. Others, and 2. Protestant.

Ghana: 1. No religion/Others, 2. Catholic, 3. Other Christian, and 4. Pentecostal.

Uganda: 1. Others, 2. Catholic, and 3. Protestant.

^b includes: oral pills, IUDs, injectables, implants, male and female condoms, withdrawal, periodic abstinence and others.

^c includes all methods included in (a); calculated among all women in the community, regardless of marital status.

Appendix Table 2. Contraceptive Methods included in the Outcome

	Female Methods	Couple Methods
Ghana	Pill, IUD, Injections, and Norplant	Diaphragm, male and female condom, periodic abstinence, withdrawal, and other
Namibia	Pill, IUD, Injections, and Norplant	Diaphragm, male and female condom, periodic abstinence, withdrawal, and other
Swaziland	Pill, IUD, Injections, and Norplant	Male and female condom, periodic abstinence, withdrawal, lactational amenorrhea, and other
Uganda	Pill, IUD, Injections, and Norplant	Male condom, periodic abstinence, withdrawal, lactational amenorrhea, and other
Zambia	Pill, IUD, Injections, and Norplant	Male and female condom, periodic abstinence, withdrawal, lactational amenorrhea, and other

Appendix Table 3. Reliability Coefficients of Women's Empowerment Indices in Each Country

Women's Empowerment Index	Ghana 2008	Namibia 2006-07	Swaziland 2006-07	Uganda 2006	Zambia 2007
1. Economic	0.6100	0.7221	0.5998	0.5998	0.6506
2. Socio-cultural	-	-	-	-	-
3. Health seeking behavior	-	-	-	-	-
4. Fertility	-	-	-	-	-
5. Sexual activity negotiation	0.6703	0.8033	0.6744	0.6609	0.6474
6. Domestic violence	0.8112	0.8437	0.7734	0.7864	0.8639
Overall index	0.7287	0.8146	0.7082	0.6847	0.7191