Levels, Trends, and Determinants of Female Covert Use of Contraception in Sub-Saharan Africa

Introduction

Sub-Saharan Africa (SSA) has the highest fertility in the world with an overall total fertility rate (TFR) estimated at 5.10 for the period 2010-2015, and of the ten countries in the world with the highest TFRs in 2005-2010, eight are in SSA (United Nations, 2013). Thus, in the effort to lower fertility, family planning programs are paying particular attention to Sub-Saharan Africa (Darroch and Singh, 2013). This focus has almost exclusively been on women since most modern contraception only requires female participation. However, childbearing is in the realm of couple decision-making, so from this perspective family planning needs to have an orientation toward couples.

Past studies have documented substantial discrepancies among partners in reports of current contraceptive use (Bankole and Singh, 1998; Ezeh and Mboup, 1997; Becker and Costenbader, 2001) with 15-20% of partners giving differing responses (Biddlecom and Fapohunda, 1998). These discrepancies call into question the accuracy of contraceptive prevalence rates based on women's reports only, widely used by family planning programs. One explanation for reporting inconsistencies is the covert use of contraception; partner responses will differ if one person is using a contraceptive but the other person is unaware. From studies conducted in the 1990s in urban Zambia, Uganda, and rural Kenya, the level of covert use was estimated as 7, 15, and 20% of all contraceptive users in the respective areas (Rutenberg and Watkins, 1997; Blanc et al. 1996; Biddlecom and Fapohunda, 1998)

Female covert users may be vulnerable if their partners discover their use. Several studies have investigated reasons for this secrecy. First, if women have the means of obtaining contraceptives on their own, they might not inform their partner if he has expressed strong disapproval of family planning. Furthermore, when extended family members with authority disapprove of contraceptive use, a woman could be forced into secrecy so that her partner and family do not withhold resources (Bawah et al., 1999). Revealing contraceptive use can also lead to tension

with her partner, financial backlash, domestic abuse, or a decrease in intimacy, compelling a woman to covertly use contraception (Kaye, 2006; Bawah et al., 1999).

The argument has been made that female covert use is a minor factor in couple discrepancies in reports of current use (Becker and Costenbader, 2001). Other reasons that lead to discrepancies include unclear wording of survey questions, social expectations, and possible male covert use (Koenig et al., 1984). For instance, the term "current use" is quite subjective; what is current for one partner might not be considered current for the other (e.g. if a couple uses condoms but inconsistently it might be considered as use by him but not by her). Next, depending on the environment of the interview a woman might decide to underreport contraceptive use, while a man might be more likely to overreport in order to appear modern (Becker and Costenbader, 2001; Biddlecom and Fapohunda, 1998; Koenig et al., 1984). Although not as common, the lack of communication between partners could lead to male covert use though only vasectomy and perhaps periodic abstinence are available to him.

Subsequent to publication of the article of Becker and Costenbader (2001) which showed major discrepancies between spouses' reports, the Demographic and Health Survey (DHS) organization changed the male core questionnaire to ask about contraceptive use at last coitus instead of current use. (To be precise, the question is: "The last time you had sex did you or your partner use any method (other than a condom) to avoid or prevent a pregnancy?") Since this question is more specific than the current use question, discrepancies in subsequent surveys due to unclear wording should be lower. However, the female questionnaire still asks about current use.

Ezeh and Mboup (1997) argue that overreporting of current use by men is more likely to occur than underreporting by women. Cultural context and gender perceptions of contraception are important to keep in mind, since they can lead to reporting discrepancies. However, there are still at least 10% of couples in which women are the sole reporters of contraceptive use. Biddlecom and Fapohunda (1998) found that male covert use is negligible in SSA, so it is more relevant to study covert use among women there.

Covert users should be considered when the design and provision of family planning programs are planned. If their situation is not addressed, these women might not use any contraception at all because of the risks. In their review of past studies, Biddlecom and Fapohunda concluded that covert use is more prominent in SSA when contraception is "relatively new or uncommonly practiced." Thus, observing how levels of covert use change over time provides useful information for family planning program personnel to assess and adjust their current strategies. If there is more demand for using contraception covertly, programs would be wise to obtain methods that can be hidden easily, and they should be aware that confidentiality is crucial. Understanding why more women are covertly using contraception could improve the well-being of women as well.

Furthermore, estimating trends in covert use by method is important. Biddlecom and Fapohunda (1998) determined that pills, injectables, and periodic abstinence or breastfeeding were the most common methods used covertly by women. Similarly, Ezeh and Mboup (1997) established that wives reported pills, injectables, and IUDs more frequently than their husbands. Women who use covertly sometimes worry that if they have side effects, the husband may find out. One aim of this study is to document the distribution of methods used covertly and openly.

Socio-demographic variables have also been investigated for their impact on female covert use or concurrence between partners on use. In several studies, women's schooling has been linked with couple concurrence and therefore open contraceptive use among developing countries in Africa, Asia, and Latin America (Becker and Costenbader, 2001; Biddlecom and Fapohunda, 1998; Ezeh and Mboup, 1997). Covariates that have been identified as determinants of covert use are rural place of residence, absence of couple's discussion of family planning, and a large age difference between partners (Salway, 1994; Koenig et al., 1984).

It can be argued that the fewer years of school a woman completes relative to her spouse, the less relative power she has in the relationship. She may have a lower chance of discussing and advocating family planning with her partner. In SSA, men generally have a more prominent status in society, so some women need to obtain contraception secretly when their partner disapproves of it. As contraception upsets the power dynamics for reproductive decision-making,

especially in rural areas and traditional communities, place of residence is a good predictor of covert use (Kaye, 2006; Bawah et al., 1999; Biddlecom and Fapohunda, 1998). Without couple discussion of family planning, a man might not be aware that his partner is using contraception or what method she is using, thus qualifying as female covert use. A large age difference between partners generally signifies that the man is much older than the woman. Here, a man might be opposed to the relatively newer concept of modern contraception or a woman might not feel comfortable discussing family planning because of the gap in social status due to the age difference. A woman might then pursue contraception in secret. Therefore, another purpose of this study is to document determinants of female covert use, in particular considering education, age, and place of residence.

Covert use is a delicate matter and is difficult to measure, but two approaches have been utilized in previous studies. Secret use can be estimated by observing discordant couple responses in reports of current contraceptive use, or it can be estimated by directly asking interviewees if their partner knows about their current use of family planning. Though the second method would seem more accurate, only a few countries have included such a question in DHS surveys. To estimate covert use over time and location, we therefore opted for the first method. Then, to check the accuracy of this indirect estimation, we compared our results with women's direct reports of covert use where available. We predict that the indirect estimates will be higher than directly reported covert use. To further evaluate our estimates, we used DHS data in surveys where it was asked, to account for possible dual method use. A study in Botswana found that dual methods were used by 2.4% of monogamous couples (Kraft et al., 2009).

The purposes of the present study are therefore to describe the levels of female covert use of modern contraception in Sub-Saharan Africa, to examine the impact of socio-demographic factors on covert use, and to determine which contraceptive methods are more frequently used covertly or openly. Specifically, we investigate four hypotheses:
(1) Covert use declines as contraceptive prevalence increases;
(2) Estimates of covert use remain substantial even when women and men can report dual methods and these are taken into account.
(3) Covert use is more prevalent among women who:

a) live in rural areas,

b) are older,

c) have a substantially older partner,

d) attended school for less years, and

e) attended school substantially fewer years than their partner;

(4) Injectable contraception, where available, is more prevalent among covert users than among open users.

Data and Methods

Data

Data for this study come from the DHS, nationally representative surveys that focus on population and health in over ninety countries. Household samples are selected using multi-stage designs. In the final stages, clusters and then households within clusters are selected. In selected households there are up to three questionnaires types: the household questionnaire, a woman's questionnaire, and a man's questionnaire. Men are typically interviewed in only a fraction of selected households (usually about a third). Interviewers administer the questionnaires separately to each partner, upholding privacy to the extent possible. The methodology for each survey is detailed in each survey final report (ICF International, 2014).

Survey and Couple Selection

Sub-Saharan African countries with DHS surveys were selected for this study if they had experienced at least a 10% increase in current modern contraceptive use between two surveys, as reported by married women, using STATcompiler. The two surveys from each country were selected as far removed in time as possible. The rationale for this selection is given below. Also required in each survey were both partner's responses to questions regarding current contraceptive use. Nine countries met these criteria: Burkina Faso, Ethiopia, Madagascar, Malawi, Rwanda, Tanzania, Uganda, Zambia, and Zimbabwe (Table 1). Matched couples' data are available from ICF International.

In the contraceptive section of each questionnaire, individuals answered questions regarding their knowledge, use, and opinions regarding contraception and their current contraceptive use. All

surveys included the same question to women: "Are you currently doing something or using any method to delay or avoid getting pregnant?" However, the wording in the men's questionnaires changed between the earlier survey and later survey for all nine countries. In the first survey the question was: "Are you [or your partner] currently doing something or using any method to delay or avoid having a child?" But in the second, it was: "The last time you had sex did you or your partner use any method (other than a condom) to avoid or prevent a pregnancy?" In the later surveys, we only included men who reported that their last sex partner was their wife or live-in partner. The question asked to men in this regard was: "What was your relationship to this person with whom you had sexual intercourse?"

Couples within each survey were selected for analyses when both partners indicated that they were in a monogamous relationship, either married or in-union. To satisfy this condition, both the woman needed to report that her partner had no other wives, and the husband had to say he had no other wives (Table 1). The DHS question to the wives was: "Does your husband/partner have any other wives besides yourself?" and to husbands it was: "Altogether, how many wives do you have or other partners do you live with as if married?"

For this study, female modern contraceptive methods were female sterilization, pill, implant, injectable, intrauterine device (IUD), diaphragm/foam/jelly, and the female condom. The male modern contraceptive method was the condom. (Sixty-seven of 32,000 couples were excluded in which the man reported male sterilization.) Women who only reported use of traditional methods, folk methods, or nonuse were not included.

To measure female covert use, we considered modern contraceptive use to be hidden when the woman reported a female modern method and the man did not report a modern method. Among eligible couples, cross-tabulations were done to compare partner responses. With this definition of covert use, men could report condom use rather than a female modern method, and the contraceptive use would still be considered open.

We could test the accuracy of our estimate of covert use in four surveys. There was a direct woman's report of open or covert use in the surveys in Madagascar 2008-09, Malawi 2010,

Tanzania 2010, and Zambia 2007 where women were asked if their partners were aware of their contraceptive use ("Does your husband/partner know that you are using a method of family planning?"). For this analysis, a small proportion of couples were dropped if the woman did not respond to that question. Women reporting "Yes" were assumed to be using contraception openly, and women reporting "No" or "I don't know" were assumed to be using contraception covertly. Cross-tabulations were done to compare the two measures of covert use.

To investigate the impact of dual methods on our covert use estimate, we compiled all modern methods that each woman reported for her current contraceptive use. "Strict" female modern covert use occurred when the woman listed at least one female modern method and the man did not report any modern method she had listed. However, the wife reported multiple methods in less than 1% of couples throughout the surveys, so these results are not presented.

To test our hypothesis 3, the following covariates were evaluated as possible predictors of covert use: place of residence (urban/rural), woman's age in years, difference in partners' ages (man's age minus woman's), woman's years of schooling, and difference in partners' years of schooling (man's years minus woman's). To facilitate comparative analyses across all surveys, median values of each covariate were obtained for female modern contraceptive users in each of the 18 surveys, and the median of these 18 values was used as the cutoff point for each covariate in all surveys.

Couple sampling weights are not available for DHS surveys (but see Becker and Sayer, 2009). Therefore, male weights in each survey were used in the analyses as these are presumed closer to couple weights than female weights. This is because male response rates are lower and more variable than female response rates, and couple response rates are necessarily lower than either male or female rates. The SVY command in STATA was utilized to adjust for the clustering of samples.

Results

Modern Contraceptive Use and Covert Use Levels

Reported levels of contraceptive use are shown for the nine countries and 18 surveys in Table 2. The first 3 columns give the Statcompiler results for all married women—these data were used for the selection of countries. The increase in modern method usage between the two surveys varies between 11% and 35% across countries as reported by married women, though note that the time interval between surveys varies from 5 to 19 years. Among married and in-union monogamous couples, women similarly reported an increase of 10% to 36% in modern method use. The levels of modern contraceptive use in the later surveys range from 18% in Burkina Faso to 61% in Zimbabwe. There are differences in reporting by sex. In the earlier surveys, men reported a higher use of modern contraception in 7 of the 9 countries, but this only happened in 2 of the countries in the later surveys.

In later surveys in the 9 countries, levels of female modern contraception ranged from a low of 16% of monogamous couples in Burkina Faso to a high of 58% in Zimbabwe. Women reported a higher use of female modern contraception than their partners in 5 countries for the earlier surveys, and in later surveys their reports yielded higher estimates in all countries.

Estimates of changes in female covert use in the 9 nations among users of female modern contraceptives are shown in Table 3. In all countries except Rwanda, estimated female modern covert use increased contrary to our hypothesis. This increase was significant in Madagascar, Uganda, and Zimbabwe. Thus, as contraceptive prevalence increased, covert use increased. Among the later surveys, female covert use varied between 12% (Rwanda) and 49% (Burkina Faso). Note that the denominator is number of women in monogamous unions reporting modern contraceptive use.

Direct estimates of female covert use were much lower than our indirect estimates in the four applicable DHS surveys; among women using a female modern method, direct estimates of covert use ranged from 3-9%, while indirect estimates of covert use were 25-43% (last rows of Table 4). The discrepancies in which only indirect covert use was found were largely due to women reporting that their partners were aware of their contraceptive use, while the partners reported nonuse. This accounted for 38% of couples in Malawi and 21-29% of couples in the other three countries. Note that eighty of 3,441 couples were excluded when the woman did not

respond to the direct question regarding covert use, so the indirect estimates differ slightly from those reported in Table 3.

Determinants of Covert Use

Rural residence had a mixed impact on covert use--in 9 surveys, women in rural areas were more likely to use contraception covertly and in Ethiopia it was significant (Table 5). However, urban residence predicted higher covert use in the remaining 9 surveys and significantly so in Zimbabwe, contrary to our hypothesis.

Women 30 years and older were more likely to be covert users than younger users in 12 of the 18 surveys. In one country—Zambia—for the later survey, this difference was significant, supporting our hypothesis that older age is positively associate with covert use. But substantial differences in partners' ages had no effect on covert use. In 9 of the 18 surveys, women with partners 5 or more years older were more likely to use contraception covertly than users with less age difference, but the differences were not significant. Thus our hypothesis was not supported.

Among the covariates, women's years of schooling had the most pronounced impact on covert use. In 14 of the 18 surveys, women with less than 6 years of schooling were more likely to be covert users, as we hypothesized. The difference in covert use between the two women's schooling categories was significant in Burkina Faso, Ethiopia, Madagascar, Malawi, and Zimbabwe. In 4 surveys women's schooling operated in the opposite direction but the difference was significant only in Tanzania.

Substantial differences in partners' schooling had an opposite effect on covert use. In 13 of the surveys, women who completed within 1 year of schooling as their partner completed were more likely to be covert users, contrary to our hypothesis. In Burkina Faso (S1 and S2), and Malawi S2, the effects were significant.

In the multiple logistic regressions, level of schooling continued to be significantly associated with covert use in three surveys with lower odds for women with six or more years of schooling

(Table 6). Interestingly, difference in years of schooling between spouses also had a significant association in three surveys with a difference of one or more years between spouses' years of schooling associated with lower odds of covert use.

Contraceptive Methods Used

In the later surveys, injectables accounted for a higher percentage of covert use than their percentage among open users in all countries except Ethiopia, Zambia and Rwanda, where the percentage difference was less than 2% (Table 7). But the difference between the percentage of covert users using injectables and open users using injectables was significant only in Uganda (at 22%), lending meager support to our hypothesis. To compare the usage of all female modern methods in the nine later surveys combined, we took a simple average of the weighted distributions of each method (Figure 1). Injectables were the most popular contraceptive method, followed by the pill, in both open and covert use. These two methods accounted for 80 and 84% of female modern contraceptive users among open and covert users respectively. Throughout the 9 SSA countries, injectables and implants were utilized more frequently by covert than open users. Injectable use was higher by 5.5% while implants had virtually the same percentage. Female sterilization was used more frequently by open users (12.4%) than covert users (8.0%). This is not surprising since in many settings in SSA husbands permission is needed for women to receive contraceptive sterilization (Miller et al. 1998).

Discussion

Female covert use increased over time in these nine SSA countries while contraceptive prevalence increased, contrary to our hypothesis based on the prior research of Biddlecom and Fapohunda's (1998). Though estimated covert use is lower where contraceptive prevalence is higher comparing across countries at a single time point (Figure 2 shows that relationship for the later surveys), in the recent past there has been a greater estimated percentage of female covert users within each country than was true when contraceptive prevalence was lower. This situation might be due to a greater availability of family planning services, making it easier for women to obtain contraception without the partner's approval.

The covariates that predicted women's covert use were fewer years of schooling, (as Biddlecom and Fapohunda (1998) identified), completing within 1 year of schooling as their husband, and being 30 years or older.

Covert users opted for injectables more frequently than open users did but it accounted for over half of both covert and open users in five countries in the recent survey. Thus, it is important to have this method available for all women, as it is a preferred method regardless of type of use.

Limitations

We note several limitations of these analyses. First, the estimated level of covert use is exceedingly high, ranging from 8% to 49% of female modern contraceptive users. Across the 18 surveys. Biddlecom and Fapohunda (1998) predicted covert use to be 6-20% of all female contraceptive users. Our measurement is based on the discrepant reports of female modern contraceptive use.; only a few countries included a direct question about covert use in the DHS. But when comparing the direct question to our estimates, there is a large discrepancy. For 22-38% of female modern contraceptive users, women reported that their husbands were aware of their use, yet the men reported nonuse. This calls into question the accuracy of one of these reports. One important factor could be the difference in the question asked to each partner in the recent survey. Men were asked about use at last coitus, while women were prompted about their current use. If a couple did not use contraception at the previous intercourse but did use it regularly, this could explain some of the differences found in Table 4. Another reason could be that men might not be associating female modern contraception methods with the coitus-dependent question that is asked. They may be more likely to respond with methods such as the condom or withdrawal than the pill or implant, for instance.

Conclusion

Covert use of contraception is substantial in Sub-Saharan Africa. With the availability and accessibility of methods that can be used covertly increasing in the past fifteen years, they have become a viable option for women looking to delay pregnancy, regardless of their partners' stance. Women with little schooling, women who were as educated as their husbands, and older

women were more likely to be covert users. Also, covert users chose injectables more often than open users.

These results can aid family planning programs. Clinicians need to be aware if women are planning to use contraception secretly and provide appropriate methods accordingly. High covert use is consistent with the finding that women's desired family size in many SSA countries is significantly lower than that of their husbands. Among 13 countries of SSA studied by Bankole and Singh (1998), in every one the percentage of husbands who wanted two or more children beyond the number desired by their wives was above 20% and the mean difference between spouses in desired family size was 1.5 children. Interestingly, a recent study found that young men's positive attitudes toward wife-beating were significantly associated with higher ideal family size in five DHS surveys from East African countries (Snow, Winter and Harlow, 2013). Thus, both ideal family size and violence against women need to be addressed. In addition, programs need to educate men about the risks to their wives of high parity births and the importance of contraception for birth spacing. Encouraging interspousal communication about family planning is another important strategy (e.g. Hartmann et al. 2012).

Table 1 Survey year, number of couples, and number of monogamous couples for 9 Sub-Saharan African countries with an increase of ≥ 10% in modern contraceptive use reported by married women between two DHS surveys (S1 and S2)

	Survey Year		Number of couples[a]		Number of monogamous couples[b]	
Country	**S1**	**S2**	**S1**	**S2**	**S1**	**S2**
Burkina Faso	1993	2010	1145	5088	561	2702
Ethiopia	2000	2011	1271	6745	1109	5942
Madagascar	2003-04	2008-09	1285	4590	1250	4196
Malawi	1992	2010	744	3728	620	3149
Rwanda	1992	2010	587	2821	511	2653
Tanzania	1991-92	2010	849	1147	648	883
Uganda	1995	2011	1062	1038	807	757
Zambia	1996	2007	842	3116	728	2668
Zimbabwe	1994	2010-11	701	3005	590	2544

DHS = Demographic and Health Survey.

[a] Excludes couples in which men report male sterilization (n= 67).

[b] Excludes couples in which men report last sex not with wife or live-in partner (n= 850).

Table 2 Percentage of monogamous couples reporting current modern contraceptive use and female modern contraceptive use, by spouse reporting, survey (S1 and S2), and country

		STATcompiler Modern Method: Female[a]			Modern Method[b]					Female Modern Method				
					Female			Male[c]		Female			Male[c]	
Country	Years between surveys	S1	S2	Diff	S1	S2	Diff	S1	S2	S1	S2	Diff	S1	S2
Burkina Faso	17	4.2	15.0	10.8	5.6	20.3	14.7	9.3	20.2	4.1	18.2	14.1	4.1	12.0
Ethiopia	11	6.3	27.3	21.0	9.0	28.5	19.5	9.0	28.2	8.9	28.1	19.2	8.4	27.1
Madagascar	5	18.3	29.2	10.9	19.1	28.7	9.7	20.1	22.8	17.9	27.9	10.0	17.5	21.3
Malawi	18	7.4	42.2	34.8	9.1	45.4	36.4	12.4	37.9	7.3	42.5	35.2	6.1	29.6
Rwanda	18	12.9	45.1	32.2	13.1	46.5	33.3	11.9	46.0	12.8	43.5	30.7	11.6	41.2
Tanzania	19	6.6	27.4	20.8	8.2	29.9	21.7	10.7	24.2	5.6	28.1	22.5	6.1	19.1
Uganda	16	7.8	26.0	18.2	7.7	25.6	18.0	10.2	22.1	6.7	23.0	16.3	7.9	16.6
Zambia	11	14.4	32.7	18.3	19.0	31.1	12.1	22.3	32.9	14.2	25.6	11.4	15.1	21.6
Zimbabwe	16	42.2	57.3	15.1	49.8	61.9	12.1	55.5	61.2	48.4	58.5	10.0	51.7	54.6

Diff = Difference (S2 - S1).

[a] STATcompiler does not distinguish monogamous from polygamous married women.

[b] Modern methods include condom, diaphragm/foam/jelly, female condom, female sterilization, implant, injectable, IUD, and pill.

[c] Questions for men worded differently between S1 and S2 (See text).

Note: Weighted values.

Table 3 Number of women in monogamous couples who reported using a female modern method of contraception and estimated percentage of covert use for two DHS surveys, by country

Country and survey year		(N)[a]	Percent using covertly[b]	Difference (S2-S1)	
Burkina Faso					
	1993	(44)	33.9	13.3	
	2010	(492)	47.2		
Ethiopia					
	2000	(127)	19.5	4.7	
	2011	(1671)	24.1		
Madagascar					
	2003-04	(257)	8.2	22.7	*
	2008-09	(1171)	31.0		
Malawi					
	1992	(51)	30.0	12.1	
	2010	(1339)	42.1		
Rwanda					
	1992	(66)	21.1	-9.0	
	2010	(1154)	12.1		
Tanzania					
	1991-92	(37)	21.6	14.7	
	2010	(248)	36.3		
Uganda					
	1995	(81)	17.6	21.8	*
	2011	(174)	39.4		
Zambia					
	1996	(93)	20.8	2.8	
	2007	(683)	23.6		
Zimbabwe					
	1994	(276)	8.3	9.8	*
	2010-11	(1487)	18.2		

* Significant at $p \leq 0.01$. DHS = Demographic and Health Survey.

[a] Unweighted values. [b] Weighted values.

Table 4 Number of women in monogamous couples who reported using a female modern method of contraception, percentage of women who used contraceptives covertly by direct and indirect estimates, and combinations of these two categories

	Country			
Direct and indirect categories of covert use	**Madagascar 2008-09**	**Malawi 2010**	**Tanzania 2010**	**Zambia 2007**
Number of monogamous couples[a]	1148	1307	242	664
Percentage	100.0	100.0	100.0	100.0
Combinations				
Both directly and indirectly covert	2.7	3.1	5.4	2.0
Only directly covert	1.4	1.4	3.3	1.2
Only indirectly covert	26.0	39.5	29.8	22.7
Husband's report				
Not using contraception	24.9	37.5	29.3	21.4
Other method[b]	1.0	2.0	0.4	1.4
Neither directly nor indirectly covert	69.9	56.1	61.6	74.1
Covert use measures				
Total covert by direct estimate	4.1	4.4	8.7	3.2
Total covert by indirect estimate	28.7	42.5	35.1	24.7

[a] Monogamous couples were excluded when women did not respond to the direct question: Madagascar (n=23), Malawi (n=32), Tanzania (n=6), and Zambia (n=19).

[b] Other methods include periodic abstinence, withdrawal, and other non-modern methods.

Table 5 Percentage of covert use among women in monogamous couples who reported using a female modern method of contraception, by covariate group and difference between categories, according to country and survey (S1 and S2)

Covariate group and category[a]	Country and survey																			
	Burkina Faso		Ethiopia		Madagascar		Malawi		Rwanda		Tanzania		Uganda		Zambia		Zimbabwe	
	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2
Place of residence																		
Urban	27	46	20	18	7	31	27	45	22	10	38	38	21	45	20	23	5	22
Rural	67	48	19	27	9	31	32	41	21	12	16	35	16	38	24	24	11	16
Difference	-40	-3	1	-9 *	-2	0	-5	3	1	-2	23	3	5	7	-4	-1	-6	6 *
Woman's age																		
< 30 years	29	48	13	23	12	30	14	41	10	10	12	42	28	41	25	20	8	17
≥ 30 years	36	46	26	25	6	32	37	43	27	13	28	29	9	38	16	28	9	20
Difference	-7	2	-13	-2	6	-2	-23	-2	-18	-3	-17	13 *	19	4	8	-9 *	-1	-3
Difference in partners' ages (M-W age)																		
< 5 years	36	43	29	27	11	31	33	41	22	13	21	29	11	42	15	23	8	17
≥ 5 years	33	49	16	23	5	31	28	43	19	10	22	41	22	37	23	24	8	19
Difference	3	-7	13	4	5	-1	4	-3	3	3	-2	-12	-11	6	-8	-2	0	-2
Woman's schooling																		
< 6 years	44	51	25	26	11	30	40	43	21	12	35	21	26	36	26	24	15	18
≥ 6 years	24	34	11	17	4	34	13	40	21	12	16	41	9	42	20	23	6	18
Difference	20	17 *	14	9 *	8 *	-4	27 *	3	0	0	19	-20 *	17	-7	6	1	9 *	0
Difference in partners' schooling (M-W years)																		
< 1 year	54	53	24	25	7	32	36	47	24	11	17	40	12	42	26	26	8	20
≥ 1 year	13	37	16	23	9	29	27	39	18	13	29	27	20	38	18	22	9	16
Difference	41 *	15 *	8	1	-2	3	9	8 *	6	-2	-12	12	-8	4	8	3	-1	4

* Significant at $p \leq 0.05$.

[a] The two categories for each covariate group were determined by a cutoff value which was the median of all the median values for the 18 surveys (for that group).

Note: Weighted values.

Table 6 Odds ratios for multiple logistic regression models predicting covert use among women in monogamous couples who reported using a female modern method of contraception, by covariate group, according to country and survey (S1 and S2)

Covariate group and category[a]	Country and survey																	
	Burkina Faso		Ethiopia		Madagascar		Malawi		Rwanda		Tanzania		Uganda		Zambia		Zimbabwe	
	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2
Place of residence																		
Urban/Rural	1.56	0.85	0.56	1.44	0.99	1.06	0.85	0.81	0.97	1.23	0.23	0.93	0.62	0.83	1.09	1.09	1.66	0.69*
Woman's age																		
< 30 yrs/≥ 30 yrs	1.04	1.02	1.33	1.04	0.43	1.10	3.26	1.07	3.57	1.37	2.39	0.58	0.34	0.89	0.61	1.64*	0.90	1.18
Difference in partners' ages (M-W age)																		
< 5 yrs/≥ 5 yrs	1.66	1.28	0.40	0.77	0.39	1.06	0.83	1.12	0.87	0.71	0.70	1.59	2.44	0.78	1.93	1.11	0.90	1.13
Woman's schooling																		
< 6 yrs/≥ 6 yrs	0.55	0.49*	0.30	0.66	0.28*	1.17	0.22*	0.81	0.84	1.00	0.42	2.26	0.30	1.21	0.52	0.97	0.40	0.81
Difference in partners' schooling (M-W years)																		
< 1 yr/≥ 1 yr	0.14*	0.57*	0.51	0.93	1.00	0.88	0.48	0.68**	0.62	1.25	1.54	0.78	1.22	0.91	0.62	0.80	0.77	0.78

* Significant at p ≤ 0.05, ** at p≤ 0.01.

[a] The two categories for each covariate group were determined by a cutoff value which was the median of all the median values for the 18 surveys (for that group).

Note: Weighted values.

Table 7 Estimated number of women in monogamous couples using female modern contraception covertly or openly and percentage of each reporting use of injectable contraception, by country

		Status of use				
Country	**Survey Year**	**Estimated number using FMC covertly**	**Percentage using injectables**	**Estimated number using FMC openly**	**Percentage using injectables**	**Difference (covert inj - open inj)**
Burkina Faso	2010	(219)	45.4	(245)	38.2	7.2
Ethiopia	2011	(463)	77.0	(1457)	77.4	-0.5
Madagascar	2008-09	(369)	69.3	(823)	62.7	6.6
Malawi	2010	(570)	71.1	(785)	66.4	4.6
Rwanda	2010	(140)	66.4	(1011)	64.5	1.8
Tanzania	2010	(97)	57.1	(169)	49.2	7.9
Uganda	2011	(72)	76.4	(110)	55.8	20.6 *
Zambia	2007	(156)	37.4	(504)	38.8	-1.5
Zimbabwe	2010-11	(280)	15.4	(1263)	13.3	2.1

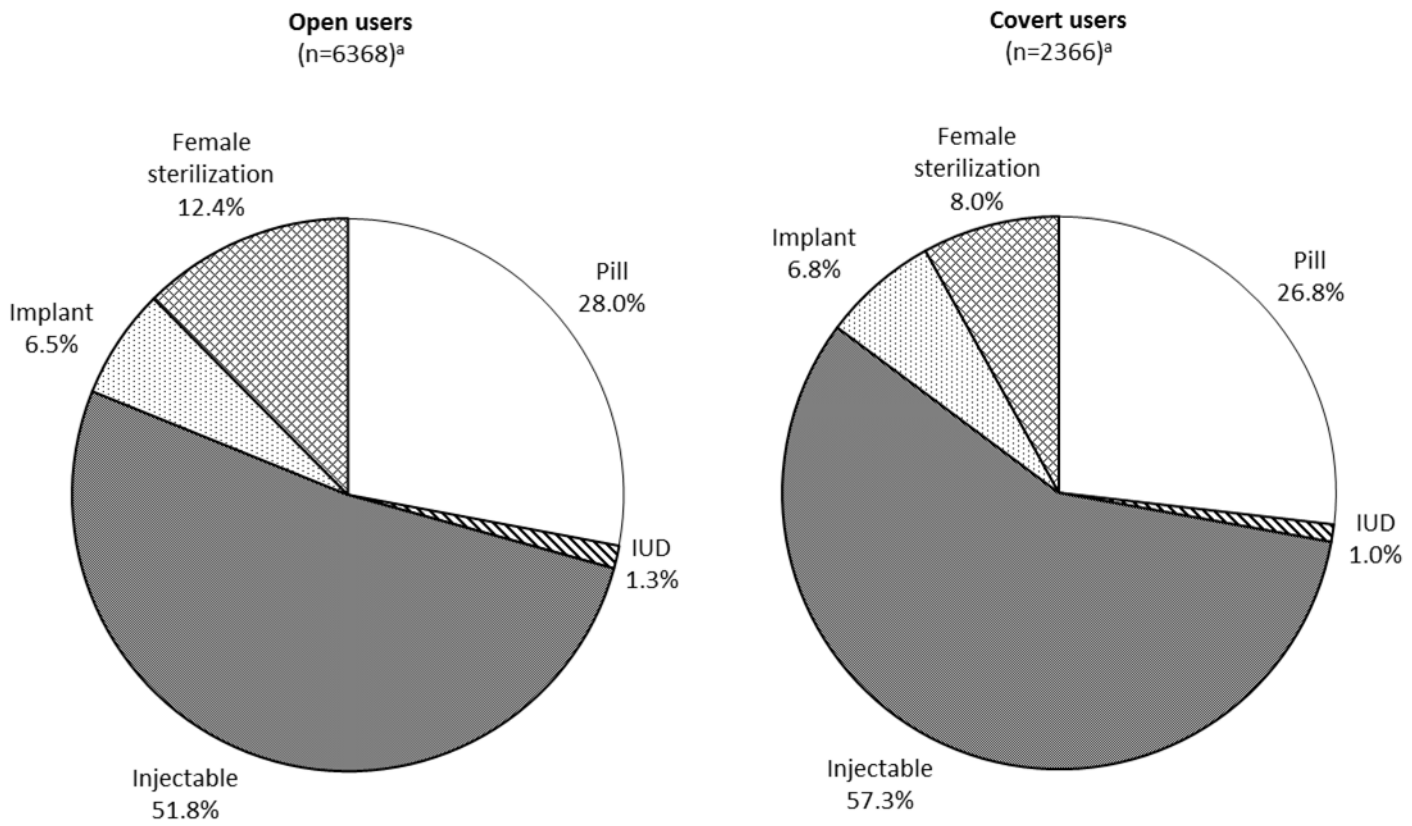
* Significant at $p \leq 0.05$.

FMC = Female modern contraception.

inj = Injectable contraceptive.

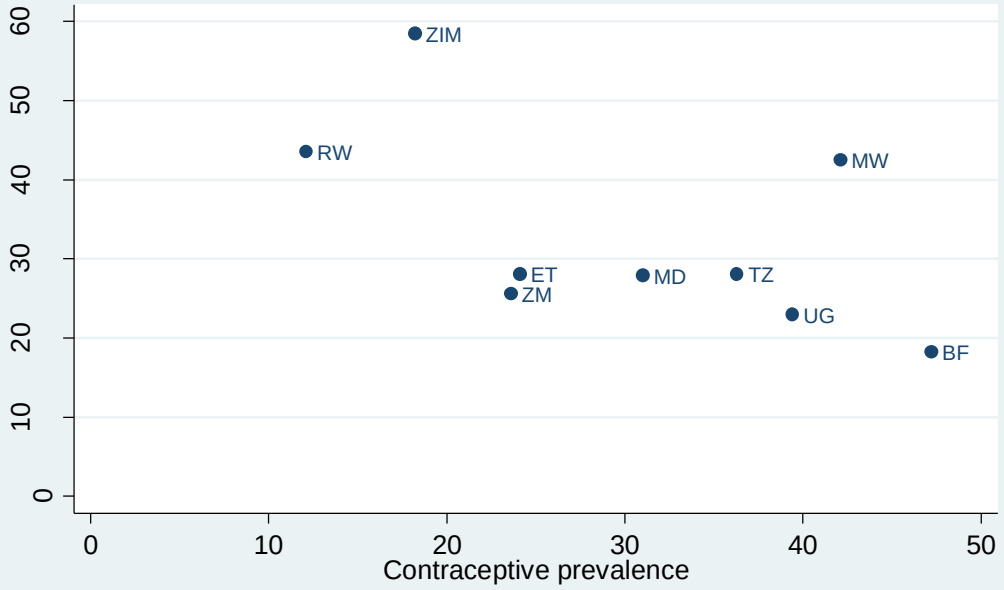
Note: Weighted values.

Figure 1 Percentage distribution of female modern contraceptive methods reported by estimated covert and open users (data from 9 countries combined)



[a] Less than 1% of open female modern contraceptive users (n=1) and less than 1% of covert female modern contraceptive users (n=5) reported using the female condom. **Notes:** Simple average taken across countries. Weighted values within surveys.

Figure 2: Estimated percentage of women using modern contraception covertly by contraceptive prevalence from DHS for 9 SSA countries



SO: DHS surveys

Table A1 Percentage distribution of female modern contraceptive users who report each type of method, by open and covert use

Country, survey year, and status of use	(N)	Contraception method: All methods	Pill	IUD	Injectable	Female sterilization	Implant	Injectable and implant
Burkina Faso 2010								
Open	(245)	100	22	4	38	2	34	72
Covert	(219)	100	28	2	45	2	22 *	68
Ethiopia 2011								
Open	(1457)	100	6	1	77	1	14	92
Covert	(463)	100	11 *	1	77	3	9	86
Madagascar 2008-09								
Open	(823)	100	24	1	63	4	7	70
Covert	(369)	100	23	2	69	2	4	73
Malawi 2010								
Open	(785)	100[a]	7	1	66	22	4	70
Covert	(570)	100	4	0	71	22	3	74
Rwanda 2010								
Open	(1011)	100	17	1	65	1	16	80
Covert	(140)	100	16	0	66	5 **	12	78
Tanzania 2010								
Open	(169)	100	33	1	49	9	7	56
Covert	(97)	100	32	3	57	5	3	60
Uganda 2011								
Open	(110)	100	8	2	56	11	23	79
Covert	(72)	100	8	1	76 *	4	12	88
Zambia 2007								
Open	(504)	100	53	0	39	6	2	41
Covert	(156)	100	46	—	37	15 **	1	38
Zimbabwe 2010-11								
Open	(1263)	100[a]	81	1	13	1	5	18
Covert	(280)	100[a]	74 *	—	15	3 *	7	22

* Significant at $p \leq 0.05$, ** at $p \leq 0.01$. FMC = female modern contraception. — = no recorded cases.

[a] Less than 1% of open FMC users in Malawi 2010, 1% of open FMC users in Zimbabwe 2010-2011, and 2% of covert FMC users in Zimbabwe 2010-2011 reported using the female condom. **Note:** Weighted values.

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