Use of emergency contraceptive pills among female sex workers in Swaziland

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ABSTRACT

Objectives Female sex workers (FSW) often have unprotected sex. Emergency contraceptive pills (ECP) are an important back-up method to prevent unwanted pregnancy among FSW. We examine ECP use among FSW in Swaziland.

Methods Using data from a 2011 respondent-driven sampling survey of 325 Swazi FSW, we explored the association between individual characteristics and ever having used ECP.

Results In weighted analyses, 27.5% of FSW had ever used ECP. Most (77.8%) had ever been pregnant, among whom 48.7% had had an unwanted pregnancy and 11.7% had had an abortion. Nearly half (47.5%) had experienced condom failure in the past month. Significant independent correlates of ECP use were younger age, higher education, higher income, having two or more children, and never having been married.

Conclusions FSW who are older or of lower socioeconomic status may not have adequate access to ECP. By better addressing these women's family planning needs, the dual goals of preventing unwanted pregnancy and preventing vertical transmission of HIV can be achieved.

KEY MESSAGE POINTS

- Emergency contraception pill use is common among female sex workers (FSW) in Swaziland.
- Swazi FSW engage in frequent unprotected sex and are at substantial risk of both unwanted pregnancy and HIV transmission.
- Those with lower education and income may lack access to this postcoital contraceptive method.

INTRODUCTION

Female sex workers (FSW) are at heightened risk of both sexually transmitted infections (STIs) and unwanted pregnancy. Most interventions targeting FSW focus on HIV prevention, emphasising condom use to prevent disease transmission. When used consistently and correctly, condoms provide effective dual protection against both HIV/STIs and pregnancy. However, there is suboptimal use of condoms among FSW, the cause of which is likely multifactorial, including high frequency of sex with multiple partners, elevated susceptibility to sexual violence, substance use and low socioeconomic status.[1] Furthermore, given their frequency of intercourse, the prevalence of condom breakage and slippage is high among FSW.[2–4] In addition to their disproportionate HIV burden,[5] previous studies among FSW have consistently demonstrated high levels of abortion, unwanted pregnancy and unmet need for contraception.[6–11]

For the past 30 years, women have used emergency contraceptive pills (ECP) as a back-up method after unprotected sexual intercourse or in cases of contraceptive failure.[12] Currently, branded ECP products are registered in 140 countries, and in 60 of these countries they can be obtained at pharmacies without a prescription.[13] Timely ECP use can prevent up to 95% of unwanted pregnancies[12] and can serve as an entry point to encourage uptake of a regular contraceptive method.[14] However, despite the clear need for postcoital contraception among FSW, little to no research has examined ECP use among these women.

We investigated ECP use among FSW in Swaziland, a country with the highest HIV prevalence in the world where approximately one-third of all

reproductive-age adults are living with HIV.[15] In the general female population in Swaziland, modern contraceptive prevalence is relatively high for the southeast African region (47.7% among married women and 62.9% among sexually active unmarried women).[16] However, unwanted pregnancy is common, with just one-third of Swazi births wanted at the time of pregnancy.[16] Among Swazi women of reproductive age, 25.7% have heard of ECP and 2.6% have ever used them.[16] NorLevo®, a dedicated progestogen-only ECP product, is sold at Swazi pharmacies, and is available at clinics of the non-profit Family Life Association of Swaziland (FLAS), an affiliate of the International Planned Parenthood Federation. The cost of NorLevo is roughly 60 emalangeni (approximately US$7) (personal communication).

METHODS

From July to September 2011, we conducted a cross-sectional survey of FSW in Swaziland using respondent-driven sampling (RDS), an adaptation of traditional snowball sampling that incorporates mathematical adjustments to account for the non-random nature of the sampling.[17–20] Inclusion criteria included being aged 16 years or older, able to provide informed consent in either English or siSwati (the predominant local language), presenting a valid recruitment coupon, and attesting that they exchanged or sold sex for money, favours or goods in the past 12 months.

Participants responded to an interviewer-administered questionnaire that covered demographic characteristics, sexual and reproductive health knowledge and behaviours, violence, social cohesion, substance use and stigma. Specifically, the sexual and reproductive health content included questions about condom use with clients and non-commercial partners; current use of non-barrier contraception; abortion history; ever having used ECP; and ever having had an unwanted pregnancy. This article presents an analysis of the outcome of ECP use among participants, a secondary analysis of data originally collected as part of a larger biobehavioural surveillance study. Study staff gave FSW a monetary reimbursement both for their own study participation (primary reimbursement) as well as for the participation of their recruits (secondary reimbursement). After obtaining oral informed consent from participants, trained interviewers administered questionnaires at a centrally located study clinic.

Statistical analyses were conducted using Stata V.11.0 (Stata Corp., College Station, TX, USA). We first conducted exploratory data analysis to assess missingness and illogical entries. To impute the missing values for number of clients in the past month (6.8%) we assigned the average number of clients reported by other participants who had been sex workers for the same amount of time as the woman with the missing values. No other variables were missing more than 2% of their values, and missing values for all other variables were handled by list-wise deletion. We conducted univariate analysis to describe participants' demographic characteristics and reproductive history, calculating both crude and RDS-weighted estimates. Adjusted RDS estimates attempt to account for two potential biases of the RDS methodology: the tendency for participants to recruit others like themselves (homophily) and the variation in network sizes of different individuals. To estimate standard errors for the RDS-weighted estimates we used a bootstrap method with 1000 repetitions.[20] For bivariate and multivariate analyses we did not use RDS weights, given the current lack of consensus about how or whether to use weights for these more complex models using RDS data.[20]

Our outcome of interest was ever having used ECP, based on participants' responses to the question: "Have you ever used emergency contraception to prevent pregnancy after having unprotected sex? Emergency contraception is also known as the 'morning after pill'."

We conducted bivariate analyses using Chi-square (χ^2) tests to assess unadjusted correlations between the outcome and the following participant background characteristics of interest: age, marital status, education, number of children, income in the past month, and having ever received an HIV-positive diagnosis. We also calculated unadjusted bivariate associations between ever having used ECP and the following recent behaviours: current use of non-barrier contraception, always used condoms in the past month, condom failure in the past month, number of clients in the past month, and having a non-commercial partner in the past month. To identify the participant characteristics associated with ever having used ECP we conducted multiple logistic regression analysis including the previously described background characteristics in the model. We calculated variance inflation factors to assess multicollinearity, and tested model fit using the Hosmer-Lemeshow goodness-of-fit χ^2 test.

RESULTS

Of the 339 women who presented at the study clinic, 325 met eligibility criteria and are included in this analysis. Table 1 shows the crude and weighted univariate statistics for participant characteristics and behaviours. Based on weighted estimates, the mean age was 24.1 (range 15–49) years, nearly 90% had not completed secondary school and more than 90% were single. Average total income in the past month was US$127. Approximately 70% of women had at least one child, and more than three-quarters had ever been pregnant. Of those who had ever been pregnant, 11.7% reported having had an abortion, and 48.7% had ever had an unwanted pregnancy. Half (51.1%) were currently using a non-barrier modern

contraceptive method. Less than one-quarter (22.5%) stated that they had always used condoms in the past month. Participants had had an average of 11.6 clients in the past month, and 91.3% reported having a non-commercial partner during that period. Nearly half (45.5%) had previously tested positive for HIV. Slightly more than one-quarter (27.5%) had ever used ECP.

In bivariate analyses, ECP use was significantly associated with higher education levels (23.6% among those with primary education or less compared to 33.1% among those with some secondary and 53.5% among those with secondary or more; $p=0.002$). Being single was a significant correlate of ECP use, with 34.9% of single FSW having used ECP compared to 16.7% among ever-married FSW ($p=0.029$). Higher income was associated with ECP use (15.3% among those who earned less than US$70 in the past month, 34.3% among those who earned US$70–140 and 42.9% among those who earned US$141 or more; $p<0.001$). Among those with 11 or more clients in the past month, 39.9% had used ECP compared to 25.5% among those with fewer than 11 clients ($p=0.006$). Women who had not always used condoms in the past month were significantly more likely to have ever used ECP (38.1% vs 15.8%; $p<0.001$). Similarly, those who had experienced condom failure in the past month were more likely to have ever used ECP (40.7% compared to 23.1%; $p=0.001$) (Table 2).

In adjusted analysis controlling for sociodemographic characteristics and previous HIV status, variables significantly associated with ECP use included age, marital status, education level, number of children and income. Women aged 25 years or older had a lower odds of having used ECP compared to younger women [adjusted odds ratio (aOR) 0.52; 95% confidence interval (95% CI) 0.29–0.94]. Single women had more than three times the odds of ECP use compared to women who had ever married (aOR 3.07; 95% CI 1.17–8.10). Compared to women with primary education or less, women with completed secondary education were nearly four times as likely to have ever used ECP (aOR 3.88; 95% CI 1.70–8.86). Higher income was significantly associated with ECP use, as those who earned US$70–140 were more than twice as likely to have used ECP than those who earned less than US$70 (aOR 2.58; 95% CI 1.22–5.45). Likewise, those who earned US$141 or more had a more than three-fold increased odds of

Table 1 Participant characteristics: crude and respondent-driven sampling-adjusted estimates ($n=325$)

	Crude estimates		RDS-adjusted estimates	
Characteristic	**%**	***n***	**%**	**95% CI***
Age (mean, SD)	26.2, 0.3		24.1, 0.5	
Education				
Primary or less	32.6	106	32.6	25.4–39.7
Some secondary	53.8	175	55.1	47.6–62.5
Completed secondary or more	13.5	44	12.3	6.5–18.2
Marital status				
Ever married/cohabited	11.2	36	9.1	4.6–13.6
Single/never married	88.8	285	90.6	86.4–95.4
Number of children				
0	24.6	80	29.2	21.8–36.7
1	30.8	100	32.1	24.9–39.4
2+	44.6	145	38.6	30.8–46.4
Total income in past month (US$) (mean, SD)†	157.3, 9.4		127.3, 9.4	
Number of clients in past month (mean, SD)	13.8, 0.74		11.6, 0.5	
Had non-commercial partner in past month	88.6	288	91.3	86.6–95.9
Previously tested positive for HIV	55.0	176	45.5	38.1–53.0
Currently uses non-barrier modern contraception	46.9	150	51.1	43.3–58.9
Always used condoms in past month	23.5	76	22.5	14.2–30.7
Condom failure in past 30 days	55.3	177	47.5	39.3–55.7
Ever pregnant	82.7	267	77.8	70.2–85.4
Ever had an abortion ($n=266$)	13.2	35	11.7	6.3–17.1
Ever had an unwanted pregnancy ($n=267$)	50.2	134	48.7	39.6–57.8
Ever used ECP	32.7	106	27.5	20.9–34.2

*Confidence intervals for adjusted estimates of categorical variables were constructed based on a bootstrap procedure with 1000 repetitions.
†Based on the exchange rate on 1 August 2011 (OANDA Corporation, 2012).
CI, confidence interval; ECP, emergency contraceptive pill; RDS, respondent-driven sampling; SD, standard deviation.

Table 2 Bivariate analyses of participant characteristics associated with emergency contraceptive pill use (*n*=324)*

Characteristic	Ever used ECP		*p*†
	No [*n* (%)]	Yes [*n* (%)]	
Age (years) (*n* = 324)			0.441
<25	95 (65.1)	51 (34.9)	
25+	123 (68.7)	55 (30.7)	
Education (*n*=324)			0.002
Primary or less	81 (76.4)	25 (23.6)	
Some secondary	117 (66.9)	58 (33.1)	
Completed secondary or more	20 (46.5)	23 (52.3)	
Marital status (*n*=320)			0.029
Married/cohabiting/divorced/separated	30 (83.3)	6 (16.7)	
Single	185 (65.1)	99 (34.9)	
Number of children (*n*=324)			0.094
0	61 (76.3)	19 (23.8)	
1	67 (67.7)	32 (32.3)	
2+	90 (62.1)	55 (37.9)	
Income in past month (US$) (*n*=320)‡			
<70	72 (84.7)	13 (15.3)	
70–140	67 (65.7)	35 (34.3)	
141+	76 (57.1)	57 (42.9)	
Number of clients in past month (*n*=324)			
<11	120 (74.5)	41 (25.5)	
11+	98 (60.1)	65 (39.9)	
Had a non-commercial partner in past month (*n*=324)			
No	23 (62.2)	14 (37.8)	
Yes	195 (67.9)	92 (32.1)	
Previously diagnosed with HIV (*n*=320)			
No	98 (68.1)	46 (31.9)	
Yes	116 (65.9)	60 (34.1)	
Currently uses non-barrier contraception (*n*=320)			
No	118 (69.4)	52 (32.6)	
Yes	96 (64.0)	54 (36.0)	
Always used condoms in past month (*n*=323)			
No	153 (61.9)	94 (38.1)	
Yes	64 (84.2)	12 (15.8)	
Condom failure in past month (*n*=320)			
No	110 (76.9)	33 (23.1)	
Yes	105 (59.3)	72 (40.7)	

*Frequencies sum by row.
†Reported *p* values are based on Chi-sqaure (χ^2) statistics calculated for associations between covariates and the outcome.
‡Based on the exchange rate on 1 August 2011 (OANDA Corporation, 2012).
ECP, emergency contraceptive pill.

ever having used ECP (aOR 3.43; 95% CI 1.67–7.02) (Table 3).

DISCUSSION

In a country where less than 3% of all women have ever used ECP,[16] a very high proportion of FSW in our sample reported having used the method. Given that most FSW reported unprotected sex and could likely benefit from using ECP, it is reassuring that many participants appear to be aware of ECP and are able to access them. However, there is a socioeconomic gradient in ECP use, with use being significantly higher among those with higher education and income levels. Unfortunately, those who are less well-off may have the greatest need for ECP, yet may be less likely to use them. These women may have lower knowledge about the method, or they may simply be unable to afford it. For instance, the cost of a single ECP pack is nearly a month's income for some FSW, and for many this expense is prohibitive. HIV prevention and family planning professionals should explore strategies to ensure that ECP are

Table 3 Multivariate logistic regression analyses of characteristics associated with emergency contraceptive pill use (n=312)

Characteristic	Adjusted OR (95% CI)	p
Age (years)		
<25	Ref	
25+	0.52* (0.29–0.94)	0.031
Marital status		
Ever married	Ref	
Single (never married)	3.07* (1.17–8.10)	0.023
Highest education completed		
Primary or less	Ref	
Some secondary	1.53 (0.85–2.77)	0.154
Secondary or more	3.88** (1.70–8.86)	0.001
Number of children		
0	Ref	
1	1.85 (0.87–3.94)	0.110
2+	2.69* (1.2–5.89)	0.013
Total income in past month (in US$)		
<70	Ref	
70–140	2.58* (1.22–5.45)	0.013
141+	3.43** (1.67–7.02)	0.001
Previously received HIV-positive diagnosis		
No	Ref	
Yes	1.41 (0.83–2.39)	0.208
Hosmer-Lemeshow goodness-of-fit test	8.18 (p=0.42)	

*p<0.05, **p<0.01.
CI, confidence interval: ECP, emergency contraceptive pill; OR, odds ratio; Ref, reference.

available to all women, particularly the poorest. Programmes and policies that address the needs of FSW – many of which include free condom distribution – should ensure that a range of contraceptive options also are available and financially accessible including ECP.

ECP use is a proxy indicator for unprotected sex. Only half of the participants in the present study were using non-barrier contraception, and a minority consistently used condoms in the past month with all sexual partners. Given the frequency of sexual intercourse among FSW, it is likely that a far greater proportion have had a need for postcoital contraception than have actually ever used it. Furthermore, some FSW may use ECP repeatedly. The literature suggests that the health risk of repeat ECP use is low, and that repeat use is safer than pregnancy, particularly in a setting where abortion is illegal and many of the ECP users may be HIV-positive.[13] Nevertheless, use of ongoing, modern contraception to prevent pregnancy is far more effective than reliance on repeat ECP use.[13] FSW engaging in frequent unprotected sex need access to these ongoing methods, in addition to ECP as an emergency measure.

Not surprisingly, unwanted pregnancy and abortion were fairly common among participants, and a very high proportion reported that they were living with HIV. The large percentage of FSW who reported condom failure in the past month indicates that even when these women attempt to use condoms, improper use, low-quality products or limited access to appropriate personal lubricants may compromise their effectiveness. We were unable to ascertain the temporality of recent condom failure relative to past ECP use. Nevertheless, the crude association between condom failure in the past month and past ECP use suggests that condom breakage and slippage may be an important driver of ECP use among Swazi FSW. Programme planners should explore the reasons for condom failure among Swazi FSW, tailoring future interventions to address incorrect use or poor-quality products.

This study has several limitations and these findings raise questions that cannot be answered by this secondary analysis. Specifically, the cross-sectional nature of the survey prohibits us from determining the causal relationship between past ECP use and other reported behaviours such as abortion, uptake of non-barrier contraception, timing of HIV-positive diagnosis or condom use in the past month. Furthermore, we did not have information on where FSW obtained ECP, when they used them, how many times they have used them, or whether they were using any contraceptive method at the time of ECP use. Partner characteristics (such as the nature of the relationship) are also likely to influence women's decisions to use ECP, but we were unable to determine what kind of relationships the women had with the partner with whom they had unprotected sex at the time of ECP use. Finally, as with

all surveys on sensitive behaviours, respondents may not have answered questions truthfully, and they may have felt compelled to provide socially desirable responses to questions about their sexual behaviour. Social desirability bias was likely mitigated by significant training for all staff in cultural competence in working with FSW, as well as the significant input of informal networks of FSW into all aspects of the study.

Despite these limitations, the present study sheds light on an essential preventive behaviour that has been underexplored among FSW. HIV is hyperendemic in Swaziland, and programming for FSW focuses nearly exclusively on HIV prevention and condom promotion. However, the fact that more than one-quarter of the study participants have used this postcoital, 'last resort' contraceptive method demonstrates that there is substantial need for all contraceptive methods, not just condoms. By meeting these women's family planning needs, the dual goals of preventing unwanted pregnancy and preventing vertical transmission of HIV can be achieved.

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Competing interests None.

Ethics approval The Institutional Review Board at the Johns Hopkins Bloomberg School of Public Health approved this study protocol, as did the Scientific and Ethics Committee of Swaziland's Ministry of Health.

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