

Level and determinants of contraceptive uptake among women attending facilities with abortion-related complications in East and Southern Africa

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Abstract

Objective: To investigate the level and determinants of nonreceipt of contraception among women admitted to facilities with abortion-related complications in East and Southern Africa.

Methods: Cross-sectional data from Kenya, Malawi, Mozambique, and Uganda collected as part of the World Health Organization (WHO) Multi-Country Survey on Abortion-related morbidity. Medical record review and the audio computer-assisted self-interviewing system were used to collect information on women's demographic and clinical characteristics and their experience of care. The percentage of women who did not receive a contraceptive was estimated and the methods of choice for different types of contraceptives were identified. Potential determinants of nonreceipt of contraception were grouped into three categories: sociodemographic, clinical, and service-related characteristics. Generalized estimating equations were used

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to identify the determinants of nonreceipt of a contraceptive following a hierarchical approach.

Results: A total of 1190 women with abortion-related complications were included in the analysis, of which 33.9% ($n = 403$) did not receive a contraceptive. We found evidence that urban location of facility, no previous pregnancy, and not receiving contraceptive counselling were risk factors for nonreceipt of a contraceptive. Women from nonurban areas were less likely not to receive a contraceptive than those in urban areas (AOR 0.52; 95% CI, 0.30–0.91). Compared with women who had a previous pregnancy, women who had no previous pregnancy were 60% more likely to not receive a contraceptive (95% CI, 1.14–2.24). Women who did not receive contraceptive counselling were over four times more likely to not receive a contraceptive (AOR 4.01; 95% CI, 2.88–5.59).

Conclusion: Many women leave postabortion care having not received contraceptive counselling and without a contraceptive method. There is a clear need to ensure all women receive high-quality contraceptive information and counselling at the facility to increase contraceptive acceptance and informed decision-making.

KEYWORDS

abortion, contraception, health facilities, postabortion care, sub-Saharan Africa

1 | INTRODUCTION

Unintended pregnancy is a global issue that contributes to unsafe abortion, and thus, maternal morbidity and mortality. The World Health Organization (WHO) reported that 48% of pregnancies were unintended between 2015 and 2019,¹ with 25 million unsafe abortions between 2010 and 2014.² High-quality postabortion care (PAC) is essential to reduce the morbidity and mortality associated with unsafe and incomplete abortions. Alongside providing uterine evacuation, treating infection, referring women to other sexual health services, and addressing women's psychological and physical needs, offering family planning counselling and providing effective contraception during PAC is considered best practice by many global and national organizations.^{3,4} For many women, access to effective contraceptives is critical for preventing unintended pregnancies, repeat abortions, and maternal mortality.⁵

Despite wide recognition of the importance of providing contraceptives as part of PAC, there is limited published literature on the levels and determinants of contraceptive uptake among women attending facilities for abortion-related complications in East and Southern Africa. A systematic review published in 2020 by Izugabara et al.⁶ identified only a small number of studies from sub-Saharan Africa that looked at levels of contraceptive uptake among women in PAC.^{7–9} The estimates varied widely between studies: in Ghana in 2012–2013, for example, 39.9% of women who were receiving care for postabortion complications left the facility without a contraceptive⁶; substantially lower estimates of women leaving a facility without a contraceptive were found in Tanzania (2004) and Ethiopia (2018) (approximately 10%).^{8,9} In Rwanda in 2012, only 53% of PAC

clients treated with misoprostol reported receiving a method of contraception before discharge.¹⁰

It is likely that the vast differences in levels of contraceptive uptake among women with postabortion complications across these studies are driven in part by methodological differences between the studies, including the extent to which women with spontaneous abortions are included in the sample alongside women with induced abortions. However, sociodemographic and health systems factors are also likely to explain differences in postabortion uptake of contraception across different settings. Previous literature reviews have identified factors such as providing contraceptives free of charge, providing high-quality counselling, providing couples counselling, and expanding the mix of methods offered as linked with higher levels of contraceptive uptake.^{11,12}

In light of the paucity of data on the levels of contraceptive uptake among women seeking PAC, and the challenge of comparing previously published estimates across different settings, the objective of the present paper is to investigate women's preference for contraceptive type, and the level and determinants of nonreceipt of contraceptives among women admitted to facilities with abortion-related complications in Kenya, Malawi, Mozambique, and Uganda using data from the WHO Multi-Country Survey on Abortion-related morbidity (MCS-A).

2 | MATERIALS AND METHODS

The cross-sectional MCS-A was conducted between February 2017 and April 2018. The study methods and key results have been

described in detail elsewhere.^{13,14} In brief, countries and facilities were selected for inclusion in the survey through multistage sampling. Ultimately, 11 countries were selected from Sub-Saharan Africa, including four in Eastern and Southern Africa that were included in the present analysis: Kenya, Malawi, Mozambique, and Uganda. Facilities were eligible for inclusion if they had more than 1000 deliveries per year and capability to provide comprehensive emergency care. Further details on the sampling process are provided in Appendix S1.

There were three levels of data collection undertaken at each facility. Firstly, a facility survey was conducted collecting information about each facility's location, capacity, and its availability of abortion/postabortion services. Secondly, data were extracted from the medical records of women who had signs and symptoms of an abortion-related complication. Data included a woman's clinical history and the management of her abortion-related complications. Finally, using convenience sampling, women who were admitted to a hospital for at least 24 h, and were able and willing to consent, were invited to participate in an audio computer-assisted self-interview (ACASI). Only women who participated in an ACASI were included in this analysis.

The primary outcome was nonreceipt of contraception, as reported in the ACASI survey. This was defined as any woman who reported leaving the facility without being sterilized and not receiving a contraceptive or a prescription for a contraceptive method. Women who reported not being sterilized were also asked about their method of choice even if they did not receive it ("Sometimes women ask for a form of contraception to prevent future pregnancies. We would like to know the method of your choice even if you do not receive it"). They could choose any of the following: oral pills, patch, condoms, intrauterine device, implant, injection, and vaginal ring. Women were not asked about preference for the patch or vaginal ring in Mozambique as these contraceptives were not available at the time of the survey.

Potential risk factors for nonreceipt of contraception among women with abortion-related complications were broadly categorized into three groups: (1) sociodemographic factors (country, age, marital status, occupation status, education level, socioeconomic status [SES], and urban versus nonurban location of facility); (2) clinical factors (previous pregnancy, previous abortions, and severity of abortion-related complications); and (3) service-related factors (if contraceptives were available at the facility, and if the woman received contraceptive counselling). A composite measure of SES was created using four questions from the ACASI with each question contributing equally to the score (questions provided in Table S1). Women were subsequently categorized as having low (score 0–1), middle (score 2–3), and high (score 4) SES. All other sociodemographic factors and clinical factors were extracted from the medical records, with the exception of urban and nonurban, which was inferred from the location of the facility. The nonurban group included women who attend facilities in rural or peri-urban areas. Women reported in the ACASI if they received contraceptive counselling, and information on facility level was extracted from facility survey. For potential risk factors with <5% missing data or unknown data, this was treated as missing, and individuals with missing data were

dropped from any analyses including these factors. For potential risk factors where more than 5% of respondents had "unknown" responses, we created an "unknown" group.

Stata version 16.1 (StataCorp LLC) was used for analyses. We conducted descriptive analyses looking at the distribution of the study sample by key sociodemographic and clinical characteristics. We calculated the overall prevalence of nonreceipt of contraception in the study sample, and examined how this varied by sociodemographic characteristics. Among women who reported having a contraceptive preference, we also calculated the percentage that reported a preference for each contraceptive type, for any short-acting methods, and for any long-acting reversible contraception (LARC).

We identified the independent risk factors of nonreceipt of a contraceptive using pooled data from the four countries, guided by a framework where the risk factors were organized from the most distal to most proximate. Generalized estimating equations were used for all models to account for within-facility clustering. All models were adjusted for country a priori. For all potential risk factors, we calculated crude estimates of their association with nonreceipt of contraception, adjusting only for country. At the first stage of the multivariate modelling process, we investigated the most distal potential risk factors of nonreceipt of contraception—sociodemographic characteristics. We added each sociodemographic factor into a multivariable model, starting with the factor that was most strongly associated in the crude analysis. Sociodemographic factors that remained associated with nonreceipt of contraception at $P < 0.10$ were considered independent risk factors and were retained in the model. At the next stage of the modelling process, we added the clinical characteristics to the multivariate model, with all the independent sociodemographic risk factors included in this model as confounders at this more proximate level, and retained any clinical characteristics that were associated with nonreceipt of contraceptives at $P < 0.10$. Finally, we looked at the most proximate potential risk factors of nonreceipt of contraceptives—health service-related factors—following the same methods as described for the more distal levels.

Once the independent risk factors of nonreceipt of contraceptives were identified in the pooled data for East Africa, we assessed whether there was any evidence that the association between each risk factor and nonreceipt of contraceptives varied by country.

Ethical approval for this analysis was provided by the London School of Hygiene and Tropical Medicine's Research Ethics Committees (reference: 21909), with approval for the original study granted by the local ethics committee within each country and by the WHO Ethical Review Committee (protocol: 0002699) and the WHO Human Reproduction Programme (HRP) Review Panel on Research Projects.

3 | RESULTS

Figure 1 shows that 1286 women with abortion-related complications participated in the ACASI survey in the four East Africa

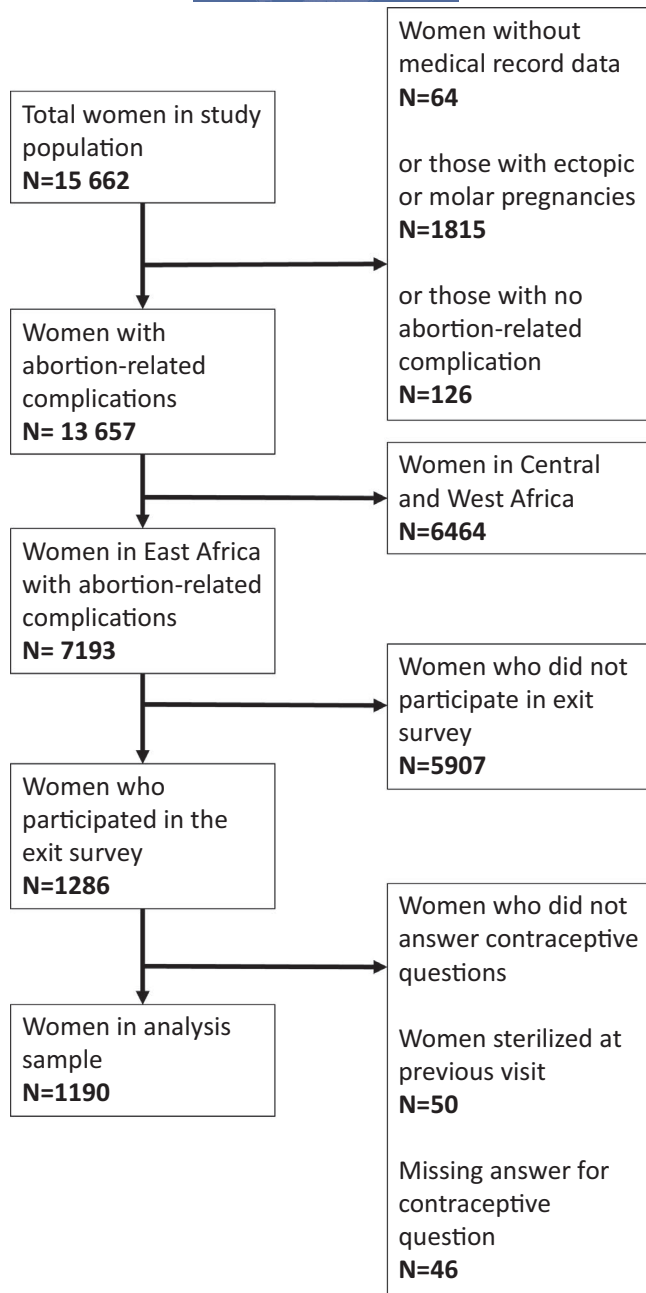


FIGURE 1 Inclusion criteria for the study

countries in the study. Of these women, 50 (3.9%) reported that they had had their tubes tied before this facility visit and 46 (3.6%) did not provide information on whether they received a contraceptive or prescription for a contraceptive, reducing our final sample size to 1190 women.

The distribution of the study sample by key sociodemographic, clinical, and facility-level characteristics is shown in Table 1. Most women were married or cohabitating with a partner ($n = 815$, 68.5%), lacked gainful occupation ($n = 610$, 51.3%), and sought care in urban locations ($n = 802$, 67.4%). Educational attainment varied by country, with the percentage of women with less than primary education varying from 5.5% ($n = 6$) in Uganda to 44.6% ($n = 215$)

in Malawi. Most women had a previous pregnancy ($n = 784$, 65.9%), while 17.3% ($n = 206$) had a previous abortion. A majority of women experienced moderate abortion-related complications during their current visit ($n = 663$, 55.7%).

A total of 48 (4.5%) women reported undergoing a procedure to get their tubes tied during the facility visit. Of the remaining 1142 women, most expressed a preference for one or more types of contraceptives ($n = 740$, 64.8%). The preferences for specific types of contraceptives among these 740 women are shown in Figure 2. Among women who had a preference for one or more contraceptive, 361 (48.8%) expressed a preference for both a short-acting method and a LARC, 150 (20.3%) stated a preference for a LARC only, and 229 (30.9%) for a short-acting method only. The pill ($n = 348$, 47.0%) and injections ($n = 404$, 54.7%) were the most popular method of choice among women who expressed a preference, with some women expressing a preference for both these methods.

A total of 403 (33.9%) women reported that they left the facility without a contraceptive or prescription for contraception and did not have a procedure to tie their tubes (Table 1). Of these 403 women, 161 (40.0%) reported they did not receive a contraceptive because they wanted to become pregnant again; 104 (25.8%) because their partner disagrees with using contraception 178 (44.2%) because of fear of adverse effects; and 105 (26.1%) because they were no longer in a relationship. Of the 403 women, 92 (22.8%) did not report any of the reasons, while 142 (35.2%) reported a single reason and the remaining women reported more than one reason (with 13 women reporting that it was due to all four reasons).

Table 2 shows how nonreceipt of a contraceptive varied by sociodemographic characteristics. In crude analyses, being single or separated/divorced/widowed, and being treated in an urban area were associated with higher odds of nonreceipt of contraception (Table 2). In adjusted analyses, there was evidence of an association between location of facility ($P = 0.02$) with nonreceipt of a contraceptive. Women from nonurban areas had half the odds of nonreceipt of a contraceptive compared with those treated in urban areas (AOR 0.52; 95% CI, 0.30–0.91). In both crude and adjusted analyses, there was strong evidence for an association between previous pregnancy and nonreceipt of a contraceptive ($P = 0.007$). After adjusting for facility location and country, women who had not had a previous pregnancy were 60% more likely to leave the facility without contraception (95% CI, 1.14–2.24). There was no evidence that the other clinical characteristics—repeat abortion and abortion complication severity—were associated with nonreceipt of a contraceptive after adjusting for country, facility location, and previous pregnancy (Table 2).

For the health service factors, crude analysis revealed a strong association between contraceptive counselling and nonreceipt of contraception ($P < 0.001$), while there was no evidence of an association between the level of the facility and nonreceipt of contraception ($P = 0.56$) (Table 2). The strength of the association for contraceptive counselling was maintained after controlling country, facility location, and previous pregnancy ($P < 0.001$); women who did not receive counselling were over four times more likely to not

TABLE 1 Baseline distribution of sociodemographic, clinical, and health service-related characteristics of the study sample by country (N = 1190). For variables where >5% of data were unknown or missing, we have included these as separate “unknown” categories in the distribution

	Kenya (n = 507)	Mozambique (n = 91)	Malawi (n = 482)	Uganda (n = 110)	Total (n = 1190)
Age group, years					
<20	50 (9.9)	15 (16.5)	157 (32.6)	14 (12.7)	236 (19.8)
20–29	289 (57.0)	41 (45.1)	193 (40.0)	54 (49.1)	577 (48.5)
30+	163 (32.2)	31 (34.1)	119 (24.7)	39 (35.5)	352 (29.6)
Missing/unknown	5 (1.0)	4 (4.4)	13 (2.7)	3 (2.7)	25 (2.1)
Marital status					
Married/cohabiting	340 (67.1)	46 (55.6)	362 (75.1)	67 (60.9)	815 (68.5)
Single	146 (28.8)	43 (47.3)	74 (15.4)	21 (19.1)	284 (23.9)
Separated/divorced/widowed	13 (2.6)	2 (2.2)	8 (1.7)	0	23 (1.9)
Unknown	8 (1.6)	0	38 (7.9)	22 (20.0)	68 (5.7)
Gainful occupation					
No	224 (44.2)	61 (67.0)	270 (56.0)	55 (50.0)	610 (51.3)
Yes	256 (50.5)	28 (30.8)	105 (21.8)	30 (27.3)	419 (35.2)
Unknown	27 (5.3)	2 (2.2)	107 (22.2)	107 (22.7)	161 (13.5)
Education level					
None/some primary	44 (8.7)	33 (36.2)	215 (44.6)	6 (5.5)	298 (25.0)
Completed primary	185 (36.5)	39 (42.9)	131 (27.2)	23 (20.9)	378 (31.8)
Completed secondary	236 (46.6)	16 (17.6)	45 (9.3)	26 (23.6)	323 (27.1)
Unknown	42 (8.3)	3 (3.3)	91 (18.9)	55 (50.0)	191 (16.1)
Socioeconomic status					
Low	115 (22.7)	17 (18.7)	64 (13.3)	27 (24.6)	223 (18.8)
Middle	288 (56.8)	55 (60.4)	292 (60.6)	71 (64.6)	706 (59.3)
High	99 (19.5)	18 (19.8)	125 (25.9)	12 (10.9)	254 (21.3)
Missing	5 (1.1)	1 (1.1)	1(0.2)	0 (0.2)	7 (0.6)
Location at which accessed facility					
Urban	434 (85.6)	54 (59.3)	231 (47.9)	83 (75.5)	802 (67.4)
Nonurban	73 (14.4)	37 (40.7)	251 (52.1)	27 (24.6)	388 (32.6)
Any previous pregnancy					
No	148 (29.2)	17 (18.7)	170 (35.3)	26 (23.6)	361 (30.3)
Yes	359 (70.8)	71 (78.0)	273 (56.6)	81 (73.6)	784 (65.9)
Missing	0 (0)	3 (3.3)	39 (8.1)	3 (2.7)	45 (3.8)
Any previous abortion					
No	392 (77.3)	67 (73.6)	389 (80.7)	67 (60.9)	915 (76.9)
Yes	114 (22.5)	18 (19.8)	53 (11.0)	21 (19.1)	206 (17.3)
Missing/unknown	1 (0.2)	6 (6.6)	40 (8.3)	22 (20.0)	69 (5.8)
Abortion severity					
Severe maternal outcome	16 (3.2)	1 (1.10)	4 (0.8)	4 (3.6)	25 (2.1)
Potentially life-threatening condition	61 (12.0)	9 (9.9)	23 (4.8)	18 (16.4)	111 (9.3)
Moderate	314 (61.9)	65 (71.4)	234 (48.6)	50 (45.5)	663 (55.7)
Mild	116 (22.9)	16 (17.6)	221 (45.9)	38 (34.6)	391 (32.9)
Facility level					
Primary/secondary	232 (45.8)	50 (55.0)	425 (88.2)	11 (10.0)	718 (60.3)
Tertiary	275 (54.2)	41 (45.1)	57 (11.8)	99 (90.0)	472 (39.7)

(Continues)

TABLE 1 (Continued)

	Kenya (n = 507)	Mozambique (n = 91)	Malawi (n = 482)	Uganda (n = 110)	Total (n = 1190)
Contraceptive counselling					
No	150 (29.6)	27 (29.7)	64 (13.3)	47 (42.7)	288 (24.2)
Yes	357 (70.4)	64 (70.3)	418 (86.7)	63 (57.3)	902 (75.8)
Received contraceptive or prescription for contraceptive					
Yes	340 (67.1)	74 (81.3)	323 (67.0)	50 (45.5)	787 (66.1)
No	167 (32.9)	17 (18.7)	159 (33.0)	60 (54.6)	403 (33.9)

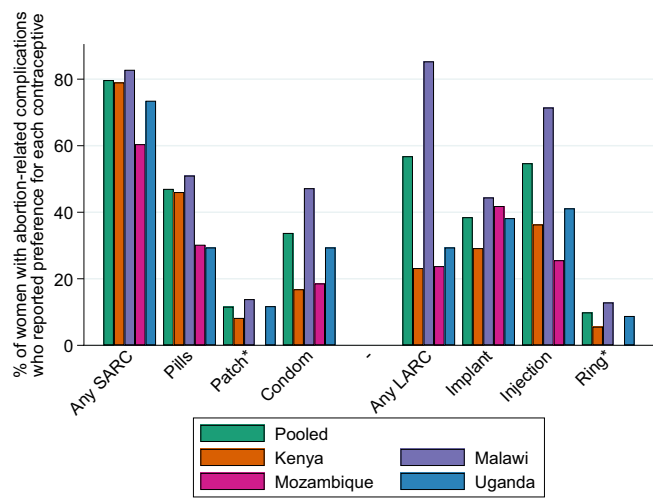


FIGURE 2 Percentage of all women who reported a preference for at least one contraceptive method (n = 740), that reported preference for each method. Note that women could report a preference for more than one type of contraceptive. Women who were sterilised were excluded from this analysis. *Patch and ring not asked in Mozambique (n = 691). LARC, long-acting reversible contraceptive; SARC, short-acting reversible contraceptive

receive a contraceptive compared with women who did receive counselling (AOR 4.01; 95% CI, 2.88–5.59).

The stratum-specific odds ratios (Table S2) show how the relationship between each independent risk factor and nonreceipt of a contraceptive varied by country, adjusting for confounders. We found some evidence that the association between contraceptive counselling and the odds of nonreceipt of contraception varies between the four countries (P = 0.04).

4 | DISCUSSION

In this study, we found that 33.9% of women seeking care in facilities for abortion-related complications in Kenya, Malawi, Mozambique, and Uganda left the facility without a contraceptive or prescription for a contraceptive. This varied between the different countries, from 18.7% in Mozambique to 54.6% in Uganda. This wide range of estimates is of a similar magnitude to

earlier studies from Sub-Saharan Africa,^{6,8,9} indicating that levels of nonreceipt of contraception vary substantially across different settings. Similarly, we found some important between-country differences in women's preference for certain types of contraceptives. In Malawi, for example, over 80% of women expressed a preference for any LARC compared with just over 20% of women in Mozambique.

We found evidence that women who attended facilities in urban areas, those who had not had a previous pregnancy, and those who did not receive contraceptive counselling were more likely to leave the facility without a contraceptive. Women in urban areas had higher levels of nonreceipt of a contraceptive compared with women in nonurban areas; this is most likely explained by greater service availability in urban areas meaning women can choose to source contraceptives from other outlets. Drawing on data from the MCS-A, Qureshi et al.¹⁴ showed that single women were more likely to have severe postabortion complications than other women, suggesting this is a particularly vulnerable group. Previous studies in Eastern Africa have found that single women are more likely to have unmet need for contraception compared with married women.¹⁵ This is likely to be due, at least in part, to cultural perceptions of young women's sexuality and stigmatization against premarital sex, with service providers unlikely to offer contraceptives to young women and young women unlikely to demand them.^{16,17} We saw a trend toward higher levels of single women leaving the facility without a contraceptive compared with married women, but no statistical evidence for an association between marital status and nonreceipt of contraception. Whilst we did find evidence that women who had not had a previous pregnancy were more likely to have nonreceipt of contraception, we found no evidence that women who previously had an abortion, potentially a particularly vulnerable group for having a repeat abortion, had different levels of nonreceipt of contraception compared with women who did not report having a previous abortion in this study.

Our findings generally support existing studies that have identified the important role of contraceptive counselling in a woman's decision to adopt contraceptives in PAC,^{18,19} although this was not the case across all the countries in our study. In Mozambique, there was no evidence for a difference in uptake of contraceptives between women who received counselling and women who did not. In the other three countries, women who did not receive counselling had

TABLE 2 Association between potential risk factors (sociodemographic, clinical, and health service) and nonreceipt of contraception among women with abortion-related complications

	Nonreceipt of contraception N (%)	Crude OR (95% CI) ^a	P value	Adjusted OR (95% CI) ^b	P value ^b
Sociodemographic characteristics					
Age group, years					
<20	81 (34.3)	1		1	
20–29	210 (36.4)	0.93 (0.70–1.22)		0.92 (0.70–1.21)	
30+	109 (31.0)	0.74 (0.54–1.02)	0.15	0.74 (0.54–1.02)	0.15
Marital status					
Married/cohabiting	266 (32.6)	1		1	
Single	101 (35.6)	1.31 (1.02–1.68)		1.31 (1.03–1.66)	
Separated/divorced/widowed	10 (43.5)	1.71 (0.67–4.35)		1.69 (0.66–4.36)	
Unknown	26 (38.2)	0.95 (0.66–1.36)	0.07	0.93 (0.63–1.36)	0.14
Gainful occupation					
No	200 (32.8)	1		1	
Yes	144 (34.4)	0.98 (0.76–1.26)		0.96 (0.75–1.22)	
Unknown	59 (36.7)	0.95 (0.59–1.54)	0.87	0.95 (0.57–1.57)	0.94
Education level					
None/some primary	72 (24.2)	0.82 (0.60–1.11)		0.85 (0.63–1.14)	
Completed primary	129 (34.1)	1		1	
Completed secondary	124 (38.4)	1.14 (0.88–1.49)		1.14 (0.88–1.47)	
Unknown	78 (40.8)	1.08 (0.78–1.51)	0.12	1.09 (0.78–1.52)	0.18
Socioeconomic status					
Low	69 (30.9)	1		1	
Middle	239 (33.9)	1.09 (0.84–1.40)		1.07 (0.83–1.38)	
High	94 (37.0)	1.25 (0.81–1.93)	0.59	1.22 (0.80–1.88)	0.65
Location of facility					
Urban	291 (36.3)	1		1	
Nonurban	112 (28.9)	0.52 (0.30–0.91)	0.02	0.52 (0.30–0.91)	0.02
Clinical characteristics					
Any previous pregnancy					
Yes	238 (30.4)	1		1	
No	144 (39.9)	1.60 (1.15–2.22)	0.005	1.60 (1.14–2.24)	0.007
Any previous abortion					
Yes	70 (34.0)	1		1	
No	302 (33.0)	1.08 (0.73–1.60)		0.91 (0.64–1.29)	
Missing/unknown	31 (44.9)	1.16 (0.53–2.52)	0.88	0.57 (0.29–1.14)	0.25
Abortion severity					
Severe maternal outcome	5 (20.0)	0.84 (0.33–2.12)		0.85 (0.35–2.08)	
Potentially life-threatening condition	39 (35.1)	1.11 (0.77–1.59)		1.15 (0.78–1.69)	
Moderate	194 (29.3)	1		1	
Mild	165 (42.2)	1.25 (0.91–1.71)	0.47	1.24 (0.88–1.75)	0.48
Health service characteristics					
Facility level					
Primary/secondary	211 (29.4)	1		1	
Tertiary	192 (40.7)	1.03 (0.58–1.82)	0.92	0.85 (0.51–1.44)	0.56
Contraceptive counselling					
Yes	225 (24.9)	1		1	
No	178 (61.8)	4.05 (2.90–5.66)	<0.001	4.01 (2.88–5.59)	<0.001

^aCrude estimates adjusted for country.

^bSociodemographic characteristics adjusted for country and location of facility where women accessed services; clinical characteristics adjusted for country, location of facility, and any previous pregnancy; health service characteristics adjusted for country, marital status, location, and contraceptive counselling.

around four to five times the odds of not receiving a contraceptive. However, we do need to be cautious in our interpretation that contraceptive counselling led to uptake of contraceptives in the absence of information on whether women received counseling because they asked about family planning in the first place or whether the counseling was provider initiated. While no data were collected to understand the quality of the contraceptive counselling in this study, we noted that the main reason that women reported not getting a contraceptive was fear of adverse effects, suggesting shortcomings in the provision of high-quality family planning counselling. Inherent in good-quality contraceptive information and services is information delivery in a way that ensures fully informed decision-making, which respects the individual's autonomy, privacy, and confidentiality, and is sensitive to women's needs and perspectives.²⁰ A recent systematic review on effective counselling strategies found that detailed contraceptive counselling increased contraceptive uptake in women; however, there were no studies identified as part of the review looking specifically at interventions to increase uptake among women with abortion-related complications in Sub-Saharan Africa, indicating an important area for future research.²¹

A key strength of this study was the comprehensiveness of the WHO MCS-A dataset, which used multistage sampling and had three data sources, allowing for exploration of numerous determinants, from sociodemographic and clinical characteristics of women to facility-level information. However, there were also some limitations. Firstly, as the data were not collected for the purposes of measuring contraceptive preferences and determinants of postabortion contraceptive acceptance, there were some potentially important determinants of contraceptive uptake for which data were not collected in this survey. Most notably is religion, which has been shown to be a determinant of contraceptive uptake in other studies.²² It would have also been helpful to have collected detailed information on women's fertility intentions, which would have enabled us to assess whether women received a contraceptive method that corresponds with that intention. Secondly, the inclusion of only women attending high-volume facilities with surgical capacity who were hospitalized for more than 24 h could limit the generalizability of these results and limit comparison with studies that include women attending for PAC at lower-level facilities or women with less severe complications. Thirdly, the sample includes both women who had complications following a spontaneous abortion as well as an induced abortion, and it is not possible to know how many women fall into each of the groups in this study population. These two groups of women will have different needs in relation to counselling and contraception. Finally, these data were only cross-sectional, thus we do not know whether women initiated and continued using contraceptives nor if they were satisfied with the method.

At the 1994 International Conference on Population and Development and the more recent 25th Anniversary of the conference, 179 country leaders agreed to ensure quality services for abortion complications were available—irrespective of the legal status of abortion—and that this would include counselling and provision of contraceptives.^{23,24} As we have demonstrated in the present study,

there remains a need to continue improving access to contraceptives for women who have had an abortion-related complication. Given the important relationship between counselling and contraceptive acceptance demonstrated in the study, all women should receive high-quality contraceptive information services and counselling, if desired, at the facility to increase contraceptive acceptance.

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CONFLICTS OF INTEREST

Outside of the submitted work, CC reports consultancy fees to her institute received from WHO. Other authors have no conflicts of interest.

AUTHOR CONTRIBUTIONS

ZQ, AJ, VF, CC, HM, and OT conceptualized the study. AJ and CC conducted the analysis. ZQ and AJ wrote the first draft of the paper. VR, GG, AO, HM, AB, FAB, RC, LG, CRK, ATM, OT, and CC reviewed and provided critical input on the draft.

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SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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