

Original research article

# Accessing medical and surgical first-trimester abortion services: women's experiences and costs from an operations research study in KwaZulu-Natal Province, South Africa<sup>☆</sup>

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## Abstract

**Objective(s):** To explore women's experiences accessing services and estimate costs incurred for first-trimester abortion at four public hospitals in KwaZulu-Natal Province, South Africa.

**Study design:** Subanalysis from a prospective cohort study (2009–2011) of women aged 18–49 years accessing abortion services through 12 weeks' gestation. Trained study personnel conducted structured interviews with women about their reason for having an abortion, experiences accessing services and costs incurred. Women who were 9 weeks' gestation or less were eligible to choose medication abortion or manual vacuum aspiration (MVA); women 10–12 weeks' gestation all had MVA.

**Results:** We enrolled 1167 women; 923 (79.1%) were eligible to choose their procedure. The median age was 25 years; most were black African, single and unemployed. Many women reported concerns about the affordability of raising a(nother) child (58.9%) or not being ready for (more) children (43.4%) as their reason for having an abortion. In total, women incurred a median cost of US\$9.99 (interquartile range 6.46–14.85) for their procedure which usually required two facility visits. Many had to pay for transportation, a pregnancy test, sanitary pads or pain medication.

**Conclusions:** Despite the availability of government assistance for children through South Africa's "child grant," the affordability of raising a child was a major concern for women. Although theoretically available free of charge in the public sector, women experienced challenges accessing abortion services and incurred costs which may have been burdensome given average local earnings. These potential barriers could be addressed by reducing the number of required visits and improving availability of pregnancy tests and supplies in public facilities.

**Implications:** Many women cited concerns about the affordability of having a(nother) child when requesting an abortion. Although public services are technically free or low-cost in South Africa, women incurred costs for first-trimester abortions. Women's costs could be lowered by reducing facility visits and improving availability of pregnancy tests and supplies.

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**Keywords:** Medication abortion; Manual vacuum aspiration; Termination of pregnancy; Access; Costs; Economic

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## 1. Introduction

In South Africa, abortion up to 12 weeks of gestation is available on request, and termination up to 20 weeks is legal in

cases of socioeconomic hardship, rape, incest and for reasons related to the health of the pregnant woman or fetus [1]. The methods available vary by location and gestational age, but manual vacuum aspiration (MVA) is most commonly offered in the public sector for women in their first trimester. In 2013, medication abortion became available in the public sector, where most South Africans receive their health care [2], but today, the service is available in just six of the country's nine provinces. Access remains limited, and given that roughly a third of women presenting for abortion services present in the

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second trimester [3], questions remain about whether women will present early enough for early medication-based services.

Women's reasons for having an abortion have been documented in several settings [4,5]; problems related to the affordability of raising a(nother) child are often noted. There is less information available on the costs – both financial (or out-of-pocket expenditure) and other economic costs – of accessing a safe abortion and the affordability of those costs. In South Africa, safe abortion in the public sector should be offered freely to all women who do not have private health insurance [6]. In practice, however, some women, including foreign nationals, may be asked to pay according to published guidelines [7]. Irrespective of whether fees are charged at public facilities, women accessing services incur costs. A study focusing on second-trimester safe abortion in South Africa showed that women accessing second-trimester services in the public sector incurred costs for multiple visits to health facilities, doctor's fees and the supplies needed for the abortion [8]. No published studies exist showing the costs of accessing first-trimester abortion in South Africa. Abortion-related costs may exacerbate other existing barriers to accessing safe, legal services [9–13], and may prevent access altogether in some cases. Two recent studies from South Africa indicate that not being able to afford the fee for accessing abortion services at an NGO provider was a reason for being turned away from the service [14,15].

In this study, we aimed to better understand women's abortion-seeking experiences and to estimate women's costs associated with accessing first-trimester MVA and medication abortion services at public hospitals. We also aimed to shed light on current practices which may be contributing to unnecessary costs and to make suggestions for service improvements which could impact on women's access and acceptability.

## 2. Materials and methods

The data presented here were collected as part of an operations research study conducted from 2009 to 2011 in public-sector facilities offering first-trimester abortion services in KwaZulu-Natal. We have described the methodology and clinical outcomes of the operations research study separately [16]. In summary, the study employed an observational, cohort design and aimed to assess and compare clinical and acceptability outcomes among women undergoing medical and surgical first-trimester abortion. At four intervention sites, we introduced medication abortion services alongside existing MVA services. At all sites, women were eligible if they were 18–49 years old, reporting 12 weeks' gestation or less based on their last menstrual period, and presenting at the facility to request an abortion. The study nurse assessed each woman's gestational age; if the woman was  $\leq 9$  weeks' gestation and clinically eligible for medication abortion, she was able to choose MVA or medication abortion. If the woman chose medication abortion, the nurse provided mifepristone to take at

the facility and misoprostol to take at home 48 h later. If the woman chose MVA, in accordance with the local standard of care, she was given an appointment for the procedure, typically within 1 week. All women who were  $\leq 9$  weeks' gestation were also scheduled for a follow-up visit 10–21 days after the initial visit as part of the study protocol. (Follow-up visits are standard of care for medication abortion, but not for MVA in South Africa.) A trained study interviewer conducted a semistructured interview on the day of presentation at the facility after the woman chose her procedure and at the follow-up visit if the woman returned. If the woman did not present for her study follow-up visit in person, we attempted to conduct the interview by telephone.

The focus of the original cohort study was outcomes among women who were  $\leq 9$  weeks' gestation; however, women who were between 10 and 12 weeks' gestation were also enrolled. They were not eligible to choose their abortion procedure because medication abortion eligibility is limited to women  $\leq 9$  weeks' gestation. These women had a semistructured interview at their first visit, underwent the MVA a few days later, and were not called back for a follow-up visit.

We captured data using CS Pro (v4.1) (U.S. Census Bureau, Washington, DC, USA, 2011) and conducted the analysis using Stata (Release 14; StataCorp LP, College Station, TX, USA). We calculated proportions for categorical data based on non-missing responses. For continuous variables, we calculated medians and interquartile ranges (IQRs) due to non-normal distribution of the data. We present the results by procedure type and gestational age. Following STROBE guidelines for observational studies, we present the descriptive results without statistical testing [17].

For women's cost data, we present the median cost and IQR for each cost type considering only the women who incurred those costs. We define recurring costs as those incurred at every visit to a facility (i.e., lost income, transportation costs and child care costs), with one exception: because a follow-up visit is not part of standard of care for MVA in South Africa, we have excluded recurring costs incurred at the study-required follow-up visit for women who had an MVA at  $\leq 9$  weeks. Once-off costs represent one-time expenditures for pregnancy tests and other supplies. Total costs represent the sum of recurring costs and once-off expenditures and are presented as the median cost across all study participants. All costs were collected in South African Rands (ZAR) and inflated to 2015 values using local Consumer Price Indices [18]. Costs were then exchanged to 2015 US dollars (\$US) based on an average annual exchange rate of 14.39 for 2015 [19].

Some cost data were systematically not collected from women in the study. Child care costs were not included in the interview with women who presented at 10–12 weeks' gestation, and medication, supply and "any other" costs were captured at follow-up from women who were  $\leq 9$  weeks at enrollment, and thus not obtained from women who did not have a follow-up visit. To assess the potential impact of these

systematically missing data, we imputed missing values based on the mean observation among women with non-missing data. We then recalculate the total cost per woman and present a second, hypothetical median value.

Finally, we used logistic regression analysis to explore possible predictors of women's early presentation for abortion services. The dependent variable was defined as late presentation (10–12 weeks' gestation=0) vs. early presentation ( $\leq 9$  weeks' gestation=1). The results are presented as odds ratios with 95% confidence intervals.

The Biomedical Research Ethics Committee at the University of KwaZulu-Natal, Allendale Institutional Review Board, the KwaZulu-Natal Department of Health and the study facilities reviewed and approved the study protocol.

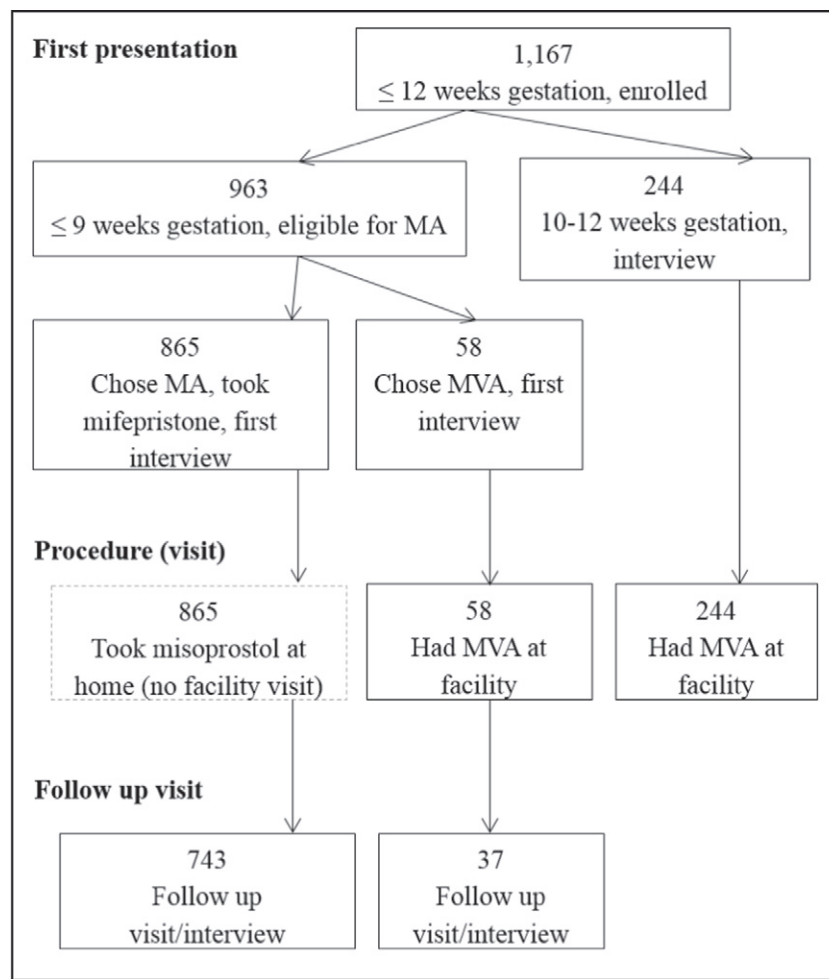
### 3. Results

In total, 1167 women enrolled in the study (Fig. 1) and 79.1% ( $n=923$ ) were eligible for medication abortion.

Almost all eligible women [865 (93.7%)] chose medication abortion.

Table 1 provides participants' baseline characteristics. Women with lower gestational age at presentation appeared more likely to have completed an advanced degree or qualification post-high school when compared to women who presented at 10–12 weeks' gestation. Women who presented earlier also appeared more likely to be currently studying. The majority of all women reported that their primary source of income in the last year was support from family members; though women in the later presentation group were more likely to report depending on their family for income.

Women's reasons for choosing to have an abortion were varied (Table 2). Over half (58.9%) said that they could not afford to have a(nother) child because either they or their partner were "not working." Almost a quarter of the women (23.7%) said that they could not manage a child while studying, and many cited not being "ready" for or not wanting (more) children (43.4%).



MA = medication abortion, MVA = manual vacuum aspiration

Fig. 1. Visit and interview schedule in operations research study [16]. MA, medication abortion; MVA, manual vacuum aspiration.

Table 1  
Baseline characteristics of women undergoing first-trimester abortion in the KwaZulu-Natal, South Africa

	≤9 weeks			10–12 weeks	Total (n=1167)
	MVA (n=58)	MA (n=865)	Total ≤9 weeks (n=923)	MVA (n=244)	
Age, median [IQR]	25 [22–28]	25 [21–29]	25 [21–29]	24 [21–28.5]	25 [21–29]
Race, n (%) <sup>a</sup>					
Black African	55 (96.5)	809 (93.6)	864 (93.8)	233 (95.5)	1097 (94.2)
Colored*	1 (1.8)	24 (2.8)	25 (2.7)	1 (1.6)	29 (2.5)
Indian	1 (1.8)	20 (2.3)	21 (2.28)	6 (2.5)	27 (2.3)
White	0 (0.0)	10 (1.2)	10 (1.1)	1 (0.4)	11 (0.9)
Other Asian	0 (0.0)	1 (0.1)	1 (0.1)	0 (0.0)	1 (0.1)
Marital status, n (%) <sup>b</sup>					
Single	52 (91.2)	785 (91.3)	837 (91.3)	233 (95.9)	1070 (92.2)
Married, cohabitating	4 (7.0)	70 (8.1)	74 (8.1)	9 (3.7)	83 (7.2)
Divorced, separated, widowed	1 (1.8)	5 (0.6)	6 (0.6)	1 (0.4)	7 (0.6)
Highest grade completed, n (%) <sup>c</sup>					
Grade 8 or less	6 (10.3)	44 (5.1)	50 (5.5)	9 (3.7)	59 (5.1)
Grades 9–11	14 (24.1)	173 (20.1)	187 (20.4)	40 (16.4)	227 (19.6)
Grade 12, matriculated	38 (65.5)	642 (74.7)	680 (74.2)	195 (79.9)	875 (75.4)
If grade 12, degree or diploma obtained, n (%) <sup>d</sup>	12 (21.8)	219 (27.9)	231 (27.5)	26 (10.7)	257 (23.75)
Currently studying, n (%) <sup>e</sup>	18 (31.0)	278 (32.4)	296 (32.3)	31 (12.9)	327 (28.3)
Employment status, n (%) <sup>f</sup>					
Employed (formal/informal, full/part time)	21 (36.8)	289 (33.5)	310 (33.7)	70 (28.7)	380 (32.6)
Unemployed, not studying	20 (35.1)	291 (33.7)	311 (33.8)	145 (59.4)	456 (39.2)
Unemployed, currently studying	15 (26.3)	270 (31.3)	285 (31.0)	29 (11.9)	314 (27.0)
Other	1 (0.7)	13 (1.5)	14 (1.5)	0 (0.0)	14 (1.2)
Currently caring financially for dependents (children or adults), n (%) <sup>g</sup>	36 (64.3)	467 (58.0)	503 (58.4)	138 (67.3)	641 (60.1)
Anyone in household receives a grant, n (%) <sup>h</sup>	35 (61.4)	437 (53.9)	472 (54.4)	121 (49.8)	593 (53.4)
Primary source of income in past year, n (%) <sup>i</sup>					
None	6 (10.7)	83 (10.3)	89 (10.4)	14 (6.9)	103 (9.7)
Family, spouse, boy/girlfriend	30 (53.6)	488 (60.8)	518 (60.3)	175 (86.2)	691 (65.1)
Employment	13 (23.2)	185 (23.0)	198 (23.0)	13 (6.4)	211 (19.9)
Grant	7 (12.5)	45 (5.6)	52 (6.0)	1 (0.5)	53 (5.0)
Other	0 (0.0)	2 (0.2)	2 (0.2)	0 (0.0)	2 (0.2)
Type of housing, n (%) <sup>j</sup>					
House or flat	54 (93.1)	777 (90.4)	831 (90.6)	230 (95.4)	1061 (91.6)
Cottage, shack or student residence	3 (5.2)	72 (8.4)	75 (8.2)	11 (4.6)	86 (7.4)
Other	1 (1.7)	10 (1.2)	11 (1.2)	0 (0.0)	11 (0.9)
Number of people per room, median [IQR] <sup>k</sup>	1.2 [0.8–1.5]	1.4 [1.0–2.0]	1.3 [1–2]	1.0 [0.7–1.4]	1.25 [1.0–2.0]
Household never goes without food, n (%) <sup>l</sup>	45 (80.4)	678 (84.4)	723 (84.2)	235 (97.5)	958 (87.1)
Water source is tap in the home, n (%) <sup>m</sup>	43 (75.4)	637 (79.0)	680 (78.8)	226 (93.8)	906 (82.1)
Has flush toilet in the home, n (%) <sup>n</sup>	45 (80.4)	682 (85.1)	727 (84.8)	229 (95.4)	956 (87.1)
House is connected to electricity, n (%) <sup>o</sup>	49 (86.0)	752 (93.8)	801 (93.2)	231 (95.5)	1032 (93.7)
House has a television, n (%) <sup>l</sup>	49 (86.0)	707 (88.2)	756 (88.0)	229 (95.0)	985 (89.5)

MA, medication abortion; MVA, manual vacuum aspiration; MRA, multiple responses allowed; IQR, interquartile range.

<sup>a</sup> Missing 2.

<sup>b</sup> Missing 7.

<sup>c</sup> Missing 6.

<sup>d</sup> Missing 58.

<sup>e</sup> Missing 10.

<sup>f</sup> Missing 3.

<sup>g</sup> Missing 101.

<sup>h</sup> Missing 56.

<sup>i</sup> Missing 105.

<sup>j</sup> Missing 9.

<sup>k</sup> Missing 238.

<sup>l</sup> Missing 67.

<sup>m</sup> Missing 63.

<sup>n</sup> Missing 70.

<sup>o</sup> Missing 66.

\* Official designation for individuals of mixed race in South Africa.

The majority of the women in the study (93.2%) had a positive pregnancy test before visiting the study facility; however, a prior positive test (done at home) appeared more common among women who presented early. Most women (85.5%) reported that after deciding to have an abortion, they went without delay to seek help at a health facility. However, women who presented later tended to delay before seeking help. Reasons for delaying by all women included denial of being pregnant and doubting their decision to have the abortion.

Table 3 presents visits made by women to health facilities while seeking and obtaining a safe abortion. Almost one quarter (22.8%) of all respondents had visited another (public or private) facility before presenting at the study facility; though visiting another facility first was more common among women who presented later at the study facility. Many of the women who visited other facilities encountered a lack of services. Regardless of the services obtained (or not), most (58.2%) reported that they were referred to the study facility. The median time between first

presentation at any facility and obtaining an abortion at the study facility was 9 days (IQR 5–15); however, the range extended to 59 days (data not shown).

A range of circumstances impacted on the number of visits that women made to the study facilities when procuring their abortion. Fifteen percent of early-presentation women did not return for follow-up, and several women completed their follow-up interview telephonically. In contrast, some women had extra visits ( $n=27$ ) because they returned early due to concerning symptoms or because the nurse scheduled an extra visit (or visits) due to suspected incomplete abortion or the need for a follow-up surgical procedure to complete a medication abortion. The median number of in-person visits to the study facility was 2 [IQR 2–2] for all participants.

Ninety-one women (12.2%) who had a follow-up visit reported having missed work as a result of their abortion (Table 4), and 5.4% of all women indicated that they had lost income as a result of obtaining the procedure. The median travel time per visit (round trip) for all women was 50 min [IQR 30–80]. Almost all women (97.2%) reported having to

Table 2  
Decision making regarding abortion and experiences accessing services by women undergoing first-trimester abortion in KwaZulu-Natal, South Africa [ $n$  (%)]

	≤9 weeks			10–12 weeks	Total ( $n=1167$ )
	MVA ( $n=58$ )	MA ( $n=865$ )	Total ≤9 weeks ( $n=923$ )	MVA ( $n=244$ )	
Reason for abortion (MRA) <sup>a</sup>					
Can't afford, self/partner not working	34 (58.6)	505 (58.4)	539 (58.4)	148 (60.7)	687 (58.9)
Not ready/doesn't want (more) children	27 (46.6)	329 (38.0)	356 (38.6)	151 (61.9)	507 (43.4)
No partner, partner unsupportive	15 (25.9)	146 (16.9)	161 (17.4)	35 (14.3)	196 (16.8)
Still studying, intending to study	10 (17.2)	230 (26.6)	240 (26.0)	37 (15.2)	277 (23.7)
Parents/guardians will not approve	8 (13.8)	132 (15.3)	140 (15.2)	21 (8.6)	161 (13.8)
Orphaned, no one to help raise the child	5 (8.6)	30 (3.5)	35 (3.8)	19 (7.8)	54 (4.6)
Infidelity (she or partner cheated)	4 (6.9)	49 (5.7)	53 (5.7)	8 (3.3)	61 (5.2)
HIV positive and/or sick, health concerns	2 (3.4)	36 (4.2)	38 (4.1)	10 (4.1)	48 (4.1)
Fear of losing bursary or job	0 (0.0)	9 (1.0)	9 (1.0)	2 (0.8)	11 (0.9)
Other	2 (3.4)	30 (3.5)	32 (3.5)	7 (2.9)	39 (3.3)
Had positive pregnancy test before initial visit at study facility <sup>b</sup>	52 (89.7)	820 (95.7)	872 (95.3)	207 (85.2)	1079 (93.2)
If she had positive test, where did she do the test? <sup>c</sup>					
At home	22 (42.3)	395 (49.3)	417 (48.9)	83 (40.7)	500 (47.3)
At public clinic	27 (51.9)	387 (48.3)	414 (48.5)	121 (59.3)	535 (50.6)
At private doctor/clinic or pharmacist	3 (5.8)	19 (2.4)	22 (2.6)	0 (0.0)	22 (2.1)
Reported delay between deciding to have an abortion and first visit to any health facility <sup>d</sup>					
No delay	50 (86.2)	709 (86.8)	759 (86.7)	193 (81.1)	952 (85.5)
<1 month	6 (10.3)	82 (10.0)	88 (10.1)	27 (11.3)	115 (10.3)
≥1 month	2 (3.4)	26 (3.2)	28 (3.2)	18 (7.6)	46 (4.1)
If delayed, reason for delay <sup>e</sup>					
Denial, didn't believe test result	4 (50.0)	30 (25.4)	34 (27.0)	21 (44.7)	55 (31.8)
Doubting decision, "confused"	4 (50.0)	38 (32.2)	42 (33.3)	17 (36.2)	59 (34.1)
No time to go, was working	1 (12.5)	6 (5.1)	7 (5.6)	1 (2.1)	8 (4.6)
Didn't know where to go	0 (0.0)	10 (8.5)	10 (7.9)	2 (4.3)	12 (6.9)
Couldn't afford transport, no money	0 (0.0)	8 (6.8)	8 (6.3)	2 (4.3)	10 (5.8)
Other	2 (25.0)	6 (5.1)	8 (6.3)	2 (4.3)	10 (5.8)

MA, medication abortion; MVA, manual vacuum aspiration; MRA, multiple responses allowed.

<sup>a</sup> Missing 11.

<sup>b</sup> Missing 9.

<sup>c</sup> Missing 22.

<sup>d</sup> Missing 54.

<sup>e</sup> Missing 44.

Table 3  
Abortion-related visits to facilities made by women undergoing first-trimester abortion in KwaZulu-Natal, South Africa

	≤9 weeks			10–12 weeks	Total (n=1167)
	MVA (n=58)	MA (n=865)	Total ≤9 weeks (n=923)	MVA (n=244)	
Visited other facility(ies) before visiting study facility <sup>a</sup>	8 (13.8)	177 (20.8)	185 (20.4)	76 (31.8)	261 (22.8)
If visited other facility, what happened there? (MRA) <sup>b</sup>					
Referred her to study facility	6 (75.0)	103 (58.2)	109 (58.9)	43 (56.6)	152 (58.2)
They were fully booked	1 (12.5)	48 (27.1)	49 (26.5)	26 (34.2)	75 (28.7)
They didn't do abortions ever/currently	3 (37.5)	57 (32.2)	60 (32.4)	8 (10.5)	68 (26.1)
Pregnancy test, U/S, or counselling done	2 (25.0)	38 (21.5)	40 (21.6)	20 (26.3)	60 (23.0)
She couldn't afford charges for services	1 (12.5)	7 (4.0)	8 (4.3)	2 (2.6)	10 (3.8)
Gave her misoprostol, but it didn't work	0 (0.0)	6 (3.4)	6 (3.2)	0 (0.0)	6 (2.3)
Other	0 (0.0)	10 (5.6)	10 (5.4)	4 (5.3)	14 (5.4)
Follow-up status, n (%)					
Lost-to-follow-up	21 (36.2)	122 (14.1)	143 (15.5)	N/A	143 (15.5) <sup>c</sup>
In-person follow-up	19 (32.8)	606 (70.1)	625 (67.7)	N/A	625 (67.7) <sup>c</sup>
Telephonic follow-up	18 (31.0)	107 (12.4)	125 (13.5)	N/A	125 (13.5) <sup>c</sup>
Follow-up, but approach unknown	0 (0.0)	30 (3.5)	30 (3.2)	N/A	30 (3.2) <sup>c</sup>
Had unplanned visit to study facility, n (%)					
None	58 (100.0)	838 (96.9)	1140 (97.7)	N/A	1140 (97.7) <sup>c</sup>
1 unplanned visit	0 (0.0)	23 (2.7)	23 (2.0)	N/A	23 (2.0) <sup>c</sup>
2–4 unplanned visits	0 (0.0)	4 (0.4)	4 (0.4)	N/A	4 (0.4) <sup>c</sup>
Total visits to any facilities, median [IQR]	2 [2–3]	2 [2–2]	2 [2–2]	2 [2–3] <sup>c</sup>	2 [2–2]
Admitted to the hospital during study, n (%)	0 (0.0)	4 (0.5)	4 (0.4)	N/A	4 (0.3)

MA, medication abortion; MVA, manual vacuum aspiration; IQR, interquartile range; N/A, not applicable; U/S, ultrasound.

<sup>a</sup> Missing 21.

<sup>b</sup> Missing 8.

<sup>c</sup> The denominator for the proportion is the women who were required to come for follow-up or for whom unplanned visits were recorded in the study, that is, n=923.

pay for transportation, and 59.6% reported paying for a pregnancy test. Among women who had a follow-up visit (n=780), 95.3% reported having to buy sanitary pads or pain medication. A few women (2.7%) also reported that they had paid for additional items such as food/drink, other doctor's visits and other supplies.

The median recurring cost per visit for all women was US\$3.23 [IQR 1.57–4.54] (ZAR 46.48 [IQR 22.59–65.33]). The median expenditure for extra out-of-pocket expenses was US\$4.02 [IQR 1.75–7.34] (ZAR 57.85 [IQR 25.18–105.62]). Combining recurring, per visit, costs and once-off costs for each woman, the median total cost for the procedure, considering the entire study population, was US\$9.99 [IQR 6.46–14.85] (ZAR 143.76 [IQR 92.96–213.69]). This cost excludes missing data, which may include visits to other facilities if not reported by the women in open-ended questioning. After imputing missing values, the total median cost per woman rose to a possible US\$12.45 [IQR 8.30–16.50] (ZAR 179.16 [IQR 119.44–237.44]). Twenty-six women (3.5%) reported that someone (usually a partner or family member) helped them with the costs, most often by giving them money for transport or supplies.

The results of the logistic regression (Table 5) highlight factors that contributed to the likelihood of women presenting early for abortion services. Women who had obtained a degree or diploma after high school and those that were currently studying were significantly more likely (p=.05 level) to present early for services. Women who reported that their primary source of income was employment or a

grant were also more likely to present early. In contrast, women coming from households that never experienced food insecurity were less likely to present early for an abortion. Interestingly, having a long travel time to the facility or having to pay out-of-pocket for a pregnancy test was not significantly associated with presenting late.

#### 4. Discussion

Nearly 60% of women cited financial concerns as one of their reasons for choosing to have an abortion. Many of the women were already financially supporting dependents, and not wanting or being ready for (more) children was common. A government administered “child support grant” is available for low-income women in South Africa; however, at ZAR 350 (roughly US\$24.32) per month [20], it is widely seen as insufficient for covering the costs of childrearing.

Many women reported having visited another facility before coming to the study facility where they ultimately had their abortion. This may have been due to uncertainty regarding where to obtain an abortion or expectations of availability at the other facility(ies). Considering all reported visits to facilities and based on available data, we estimated that women incurred a total median cost of US\$9.99 [6.46–14.85] (ZAR 143.76 [IQR 92.96–213.69]) or US\$12.45 [IQR 8.30–16.50] (ZAR 179.16 [IQR 119.44–237.44]) using imputation for missing data) for their procedure. This is likely an underestimate as we were not able to collect detailed

Table 4  
Average costs incurred by women for a safe abortion procedure in a public hospital in KwaZulu-Natal, South Africa

	≤9 weeks			10–12 weeks	Total (n=1167)
	MVA (n=58)	MA (n=865)	Total ≤9 weeks (n=923)	MVA (n=244)	
<b>Reported recurring costs (per visit)</b>					
Missed work due to abortion, n (%) <sup>a, b</sup>	4 (10.8)	87 (12.3)	91 (12.2)	N/A	91 (12.2) <sup>c</sup>
If yes, number of days, m [IQR] <sup>d</sup>	2 [1–3]	1 [1–3]	1 [1–3]	–	1 [1–3]
Lost any income during visit, n (%)	3 (5.2)	54 (6.2)	57 (6.2)	6 (2.5)	63 (5.4)
If yes, amount, m [IQR] (US\$) <sup>e</sup>	9.17 [9.17–17.46]	8.71 [5.50–10.48]	8.73 [5.50–10.48]	5.50 [4.58–5.50]	8.71 [5.50–10.48]
Paid for childcare during visit, n (%) <sup>f</sup>	0 (0.0)	20 (2.5)	20 (2.3)	N/A	20 (2.3) <sup>e</sup>
If yes, amount, m [IQR] (US\$) <sup>g</sup>	–	8.56 [4.58–11.00]	8.56 [4.58–11.00]	–	8.56 [4.58–11.00]
Time traveled (return trip), m [IQR] <sup>h</sup>	1:00 [0:30–1:30]	0:50 [0:30–1:20]	0:50 [0:30–1:20]	0:50 [0:40–1:00]	0:50 [0:30–1:20]
Paid for transport to/from facility? n (%) <sup>i</sup>	56 (96.6)	832 (96.9)	888 (96.8)	240 (98.4)	1128 (97.2)
If yes, amount, m [IQR] (US\$)	2.86 [1.16–4.37]	2.62 [1.40–4.20]	2.66 [1.40–4.37]	3.67 [2.79–5.19]	3.14 [1.75–4.37]
<b>Reported once off costs</b>					
Paid for pregnancy test, n (%) <sup>j</sup>	29 (55.8)	472 (60.6)	501 (60.3)	106 (56.7)	607 (59.6)
If yes, cost, m [IQR] (US\$)	1.75 [1.38–2.18]	1.75 [1.40–2.18]	1.75 [1.57–2.18]	1.83 [1.75–2.62]	1.75 [1.57–2.18]
Bought pain meds. or pads, n (%) <sup>a, k</sup>	26 (70.3)	711 (96.6)	737 (95.3)	N/A	737 (95.3) <sup>c</sup>
If yes, cost, m [IQR] (US\$)	3.67 [2.62–5.24]	4.89 [3.49–6.99]	4.80 [3.49–6.99]	–	4.80 [3.49–6.99]
Bought other goods/services, n (%) <sup>a, l</sup>	0 (0.0)	21 (2.9)	21 (2.7)	N/A	21 (2.7) <sup>c</sup>
If yes, cost, m [IQR] (US\$)	–	3.67 [2.18–6.97]	3.67 [2.18–6.97]	–	3.67 [2.18–6.97]
<b>Total reported costs</b>					
Recurring costs (per visit), m [IQR] (US\$)	2.79 [1.10–4.37]	2.79 [1.40–4.37]	2.79 [1.40–4.37]	3.67 [2.77–5.24] <sup>m</sup>	3.23 [1.57–4.54] <sup>m</sup>
Once-off costs, median [IQR] (US\$)	1.83 [0.87–4.37] <sup>n</sup>	5.41 [2.62–8.30] <sup>n</sup>	5.24 [2.40–8.25] <sup>n</sup>	0.00 [0.00–1.79] <sup>n</sup>	4.02 [1.75–7.34] <sup>n</sup>
Total cost for abortion, m [IQR] (US\$)	8.14 [5.24–17.12] <sup>n</sup>	10.83 [6.59–16.59] <sup>n</sup>	10.65 [6.46–16.59] <sup>n</sup>	8.73 [6.65–11.00] <sup>m, n</sup>	9.99 [6.46–14.85] <sup>m, n</sup>
Total cost for abortion based on sensitivity analysis, m [IQR] (US\$) <sup>o</sup>	11.83 [6.97–17.12]	11.18 [7.70–16.59]	11.32 [7.68–16.59]	14.19 [12.11–16.46]	12.45 [8.30–16.50]
<b>Assisted with cash or goods</b>					
Someone helped pay for costs, n (%) <sup>a</sup>	0 (0.0)	26 (3.7)	26 (3.5)	N/A	26 (3.5) <sup>c</sup>
If yes, who was it? n (%) <sup>p</sup>					
Partner/Husband	–	10 (41.7)	10 (41.7)	–	10 (41.7)
Family member	–	9 (37.5)	9 (37.5)	–	9 (37.5)
Friend/Colleague	–	5 (20.8)	5 (20.8)	–	5 (20.8)

MVA, manual vacuum aspiration; MA, medication abortion; US\$, 2015 US dollars; m, median; IQR, interquartile range; meds., medications; N/A, not applicable, these questions were not included in interviews with these women.

<sup>a</sup> This question was only posed to women who had a follow-up visit (see Table 3); MVA ≤9 weeks n=37, MA n=743, MVA 10–12 weeks=not applicable).

<sup>b</sup> Missing=35.

<sup>c</sup> The denominator for the proportion is women who were required to come for follow-up or for whom unplanned visits were recorded in the study, that is, n=923.

<sup>d</sup> Missing=2.

<sup>e</sup> Missing=4.

<sup>f</sup> Missing=63.

<sup>g</sup> Missing=1.

<sup>h</sup> Missing=40.

<sup>i</sup> Missing=6.

<sup>j</sup> Denominator is non-missing responses for women who had a pregnancy test (MA n=820, MVA ≤9 weeks n=52, MVA 10–12 weeks n=207). Missing=61.

<sup>k</sup> Missing=7.

<sup>l</sup> Missing=11.

<sup>m</sup> This excludes any childcare costs for women 10–12 weeks' gestation as this was not asked of these women.

<sup>n</sup> This excludes any costs incurred for sanitary pads, pain medications and other supplies for women 10–12 weeks' gestation as this was not asked of these women. It also excludes these costs for women ≤9 weeks' gestation who did not return for follow-up as these questions were only asked at the follow-up visit.

<sup>o</sup> Possible higher bound for total costs. Sensitivity analysis involved imputing mean values that were missing. See Materials and methods for more detail.

<sup>p</sup> Missing=2.

cost information on visits to other facilities or longer-term postabortion costs. Lost wages were not commonly reported. This may be explained by laws providing for sick leave in formal employment contracts [21].

Our findings are lower than other published costs; however, comparisons are limited in that there is very little literature on women's costs of accessing safe abortion

services. A study that measured women's costs of accessing first-trimester abortion in public and private facilities in Mexico City in 2005 reported a mean cost incurred of US\$12.07 for MVA and US\$29.70 for medication abortion [22]. A study from South Africa in 2015 showed that women undergoing second-trimester abortion incurred a median of US\$21.23 in out-of-pocket and other costs [8].

Table 5

Logistic regression to explore predictors of presenting early for abortion services during operations research in KwaZulu-Natal, South Africa (Dependent 1= Presented early)

Predictor variables	OR (95% CI)	p Value
Age [1=older than median (age 25 years)]	1.44 (0.95–2.20)	.09
Race (1=non-black race)	1.14 (0.51–2.51)	.75
Marital status (1=unmarried, not cohabitating)	0.52 (0.21–1.31)	.16
Educational attainment (1=matriculated/grade 12)	1.03 (0.62–1.71)	.90
Obtained degree/diploma after high school (1=yes)*	1.93 (1.09–3.41)*	.02*
Currently studying (1=yes)*	2.36 (1.21–4.60)*	.01*
Employment status (1=employed)	0.84 (0.52–1.38)	.49
Caring for dependents at home (1=yes)	0.71 (0.46–1.11)	.13
Primary source of income (1=employment or grant)*	4.19 (2.10–8.35)*	.00*
Household food security (1=never goes without food)*	0.23 (0.09–0.61)*	.00*
Distance traveled to facility [1=less than median (50 min)]	0.92 (0.62–1.37)	.69
Had to pay for transport (1=yes)	1.05 (0.29–3.82)	.94
Had to pay for pregnancy test (1=yes)	1.34 (0.91–1.96)	.14
Constant	16.26 (2.47–106.89)	.00
LR Chi2 (13)	90.88	
Prob>Chi2	0.0000	
Pseudo R <sup>2</sup>	0.1136	

\* Significant at p=.05.

Despite appearing low, the cost incurred by women in this study may have proved challenging as the majority of the study population was unemployed and dependent on family members for financial support. In 2010, the average monthly income for an employed, black individual in South Africa was ZAR 2167 [roughly US\$151.69 (US 2010)] [23]. Thus, even for many working South Africans, US\$9.99 (ZAR 143.76) for an abortion may not be insignificant. Indeed, women who were employed or had their own income through a grant were more likely to present earlier for services. Future studies could benefit from a rigorous assessment of the affordability of costs incurred.

There are limitations to this study. Because questions about costs were spread across the two interviews and many women did not return for follow-up, there is missing information for some women. Also, women were not asked directly about costs for visits to other facilities prior to visiting the study facility or hospitalization. They were asked to report on “any other costs” at their follow-up visit and may have included these costs, but this is uncertain. Longer-term costs that may have been incurred beyond the three-week study visit timeline are not included.

Despite these limitations, this study helps to shed light on women’s experiences procuring a safe abortion in South Africa. Many women reported having to pay for transportation, a pregnancy test, sanitary supplies and pain medicine. All of these items (except transportation) should technically be available free of charge in the public sector.

Women’s costs could be reduced by improving availability of pregnancy tests and supplies in public health facilities as well as reducing the number of required visits to reduce transportation costs. Booking MVA procedures – instead of providing them the same day – results in an extra visit for women and, as a result, extra recurring costs. Guidelines

available from the World Health Organization on provision of safe medication abortion specify that a follow-up visit may not be required if the woman has “adequate information about when to seek care for complications and has received any needed supplies or information to meet her contraceptive needs” [24]. Finally, increasing the number of facilities offering abortion services and allowing for telephone booking prior to arrival could help to eliminate travel to facilities and could reduce travel time and costs.

Understanding women’s experiences and costs when seeking abortion care is important for identifying barriers to care and highlighting interventions to reduce those barriers. Many women arrive at facilities too late to have a medication abortion. If they arrive still in their first trimester, they can have an MVA. However, although MVA is extremely safe, abortion risk increases as gestational age increases. Provider-dependent delays should be addressed wherever possible. Ultimately, eliminating unnecessary time and costs for women could improve access and health outcomes.

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