CLINICAL ARTICLE

Gynecology

A cross-sectional analysis of Kenyan postabortion care services using a nationally representative sample

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Abstract
Objective: To assess quality of postabortion care (PAC) offered by Kenyan healthcare facilities.

Methods: A cross-sectional survey was conducted using data from the Incidence and Magnitude of Unsafe Abortions study, conducted among 326 PAC-providing healthcare facilities throughout Kenya from March 13 to June 30, 2012. Descriptive results with weighted proportions and an ordered probit model were used.

Results: Overall, 408 (41.8%) first-trimester PAC cases were treated using appropriate technology versus 826 (82.6%) second-trimester cases. Private healthcare facilities lagged behind public healthcare facilities on the use of appropriate technology: 264 (47.5%) public and 144 (33.1%) private facilities used such technology for first-trimester abortion, and 664 (89.6%) public versus 162 (68.8%) private for second-trimester abortions). Most healthcare facilities (251, 70.7%) had at least one provider trained in PAC. A total of 273 (80.7%) healthcare facilities reported offering contraception to all PAC patients, mainly short-acting methods. Delivery of PAC services depended on the availability of separate evacuation room (public level 2–3: odds ratio [OR] 22.93; public level 4–6: OR 77.14), and the number of family planning methods offered within the facility (public level 2–3: OR 1.38; public level 4–6 OR 1.57; private level 2–3: OR 2.27; private level 4–5: 4.89).

Conclusion: Effective monitoring of PAC services, particularly among private healthcare facilities, might improve overall quality of services.

KEYWORDS
Healthcare facilities; Kenya; Maternal mortality; Postabortion care; Quality of care; Unsafe induced abortion

1 | INTRODUCTION

Estimates suggest that greater than 20 million unsafe induced abortions occur worldwide each year.1 Such procedures are responsible for up to 13% of all maternal deaths; however, the majority of these deaths are easily preventable.2 Postabortion care (PAC) is a life-saving intervention that reduces the risks of mortality and morbidity from incomplete induced abortion.3

In 2003, the PAC Consortium endorsed a framework that identified the essential elements of care, with the aim of improved PAC
service quality and sustainability from the perspective of both patients and healthcare providers. The five-point PAC Consortium framework takes a public-health approach to respond to women's broad sexual and reproductive health needs. These five elements include community and service provider partnerships to prevent unwanted pregnancies and unsafe induced abortion, counseling, treatment, contraceptive and family planning (FP) services, and links to reproductive and other health services.

A high proportion of women who undergo unsafe induced abortion will require medical care; however, access to quality PAC remains a challenge, especially among low-income countries. Furthermore, induced abortion is illegal in many low-income countries, and women often fail to seek intervention owing to a fear of legal repercussions. Conversely, many patients who actively seek PAC do not receive immediate and adequate treatment at healthcare facilities, mainly due to too many patients in healthcare facilities and other access restrictions such as cost. Such delays to provision of PAC can lead to severe complications such as sepsis, perforated uterus, and obstetric hemorrhage, which can all cause death if advanced medical or surgical intervention is not provided in time. Together with stigma, cultural, socioeconomic, and religious factors minimize any conversations on induced abortion. Although complications from unsafe induced abortion can be life-threatening, many women fail to seek PAC because they fear reprimand from medical personnel, whereas others do not seek care due to poverty and cultural practices, even among countries where PAC is highly subsidized.

The leading known cause of unsafe induced abortion is unintended pregnancy, which is associated with unmet need for FP services. Contraceptive interventions are therefore an important pathway to prevent unsafe induced abortions through reducing the risk of unwanted or mistimed pregnancies before and after induced abortion. The PAC Consortium model advocates the provision of FP counseling and services to increase contraceptive uptake and so reduce repeat unintended pregnancies.

In Kenya, maternal mortality remains high. The majority of such deaths are associated with the type of care sought once women are faced with pregnancy complications. The PAC Consortium framework provides fundamental elements of quality of care and is generally accepted as the standard approach to estimating facility-based quality of care. Nonetheless, little research has been conducted to date on the quality of PAC in Kenya.

The aim of the present study was to evaluate PAC services among Kenyan healthcare facilities.

2 | MATERIALS AND METHODS

An analysis was conducted using cross-sectional data derived from the Incidence and Magnitude of Unsafe Abortions (IMUA) study, which was conducted among PAC-providing Kenyan healthcare facilities from March 13 to June 30, 2012. Approval was obtained from the ethical review committees of the Kenya Medical Research Institute, the University of Nairobi, and Kenyatta National Hospital (all in Nairobi, Kenya). Service providers and patients signed informed consent forms before participating in the interview.

The present analysis used data from two components of the IMUA study: the retrospective health facility survey and the prospective morbidity survey. Data for the health facility survey were collected from healthcare managers and senior staff by trained field workers. The prospective morbidity survey collected data from 2631 (83.2%) of the 3161 patients who presented for PAC services at a participating healthcare facility in a 30-day period. The remaining 530 patients did not provide consent and so were excluded, as were those who sought a pregnancy termination. Trained providers who offered PAC services at the sampled healthcare facilities collected prospective morbidity survey data, including sociodemographic characteristics, reproductive and clinical histories, diagnosis, treatment, contraception, and clinical outcomes.

The Kenya Essential Package for Health classifies all healthcare facilities into six levels of preventive and curative services, based mainly on functionality. Level 1 refers to preventive approaches for the community; therefore, level 2 was considered to be the lowest level of care (e.g. dispensaries and clinics), whereas level 6 was the highest level of care (e.g. national referral hospitals). The IMUA study sampled 350 (12.3%) of 2838 nationally representative level-2–6 healthcare facilities, and 326 (93.1%) participated in the study. All level-1, and some level-2, healthcare facilities were excluded from the IMUA study as they did not offer PAC services. A stratified random sample was drawn, with the geographic region and level of care used as the strata. All level-5 and level-6 healthcare facilities were included, as were all non-governmental facilities known to provide induced abortions and PAC services. A representative sample was drawn for the level-2–4 healthcare facilities.

The present analysis assessed the quality of PAC services offered at the level-2–6 Kenyan healthcare facilities by using the PAC Consortium model. The indicators for each component of PAC assessment are presented in Table 1. These indicators focused on the use of appropriate technologies, provider technical performance, information and counseling, and equipment, supplies, and medications.

All data were captured on paper forms and then entered into computer systems using Census and Survey Processing System (CSP) version 5.0 (United States Census Bureau, Suitland, MD, USA), before being exported to Stata 13.1 (Stata, College Station, TX, USA) for cleaning and analysis. Survey data weights were computed as the inverse of the product of the probabilities of any facility being sampled (350/2838) and the probability of a sampled facility participating in the interview (326/350).

Bivariate analysis was conducted using $\chi^2$ tests of association, with a 5% significance level for inclusion in the final model. Multiple correspondence analysis was used to reduce the data to a single indicator of quality. The internal reliability of this indicator was tested using the Cronbach $\alpha$ value. This indicator was categorized into three levels of quality (high, medium, and low). A mixed-effects ordered probit model was fitted on the ordinal outcome, controlling for healthcare facility level and ownership (public or private). Healthcare facilities were compared using the following variables: having a separate evacuation...
Abbreviations: PAC, postabortion care; FP, family planning.

Random effects reflected the county level. Kenya comprises 47 counties, which were used as the source of clustering to account for such effects. In all, 15 county level characteristics were modeled to assess the effect of facility characteristics on the quality of PAC. These county-level characteristics were modeled to assess the effect of facility characteristics on the quality of PAC. counties were used as the source of clustering to account for such effects. In all, 15 county level characteristics were modeled to assess the effect of facility characteristics on the quality of PAC. These county-level characteristics were modeled to assess the effect of facility characteristics on the quality of PAC. Random effects reflected the county level. Kenya comprises 47 counties, of which 45 (95.7%) provided data from at least one healthcare facility.

### RESULTS

Characteristics of the healthcare facilities and patients included in the present analysis are outlined in Table 2. Most of the healthcare facilities sampled were level 2–3, and most were publically owned. The median age of the patients was 26 years; 1700 (64.4%) were married or living with their partner; 952 (35.5%) had received secondary education; and 908 (34.6%) were nulliparous.

Only 408 (41.8%) of all first-trimester PAC cases were treated using appropriate technology (as defined in Table 1). In all, appropriate technology for second-trimester PAC was used in 826 (82.6%) of all healthcare facilities used. Use of appropriate technology for first-trimester PAC was higher among public healthcare facilities than among private facilities (Table 3). Approximately two staff members per healthcare facility had received in-service or preservice training in PAC (Table 3). A substantial proportion of the healthcare facilities reported that at least one staff member had received PAC training (Table 3). For both public and private healthcare facilities, there was a marked difference between the mean number of staff trained at level 2–3 versus level 4–6 (Table 3). Additionally, 154 (67.6%) of the public healthcare facilities had at least one provider trained in PAC compared with 97 (78.0%) of the private healthcare facilities.

Patients were given information on the available FP methods in 187 (86.0%) public healthcare facilities and 92 (72.4%) private facilities. By contrast, patients were given instructions on the correct use of FP methods in only 215 (62.6%) of all healthcare facilities (Table 3). Only 61 (19.4%) healthcare facilities gave patients information about what to do should the FP method fail or if they forgot to take their oral contraceptive pills. Among all public healthcare facilities, 143 (66.2%) reported giving instructions on the correct use of contraceptive methods, compared with 72 (53.9%) of all private healthcare facilities.

### Table 1: Elements underpinning the quality of postabortion care services.

| Indicator of quality care | Description |
|---------------------------|-------------|
| Use of appropriate technology | This indicator measures the number of PAC cases treated with appropriate technology, which was defined as: |
| | • Manual vacuum aspiration or medical abortion in 1st trimester of pregnancy |
| | • Curettage and medical abortion in 2nd trimester of pregnancy |
| | Any other treatment approach was considered to be inappropriate technology |
| Technical performance | This indicator assesses the technical capacity of staff in each healthcare facility as follows: |
| | • The availability of providers at the facility who have received training in PAC (given as the mean number of providers) |
| | • Healthcare facilities with at least two providers trained in PAC (given as the percentage of facilities) |
| Information and counseling | This indicator focuses on healthcare facilities that offer FP counseling to assess the proportion that: |
| | • Give information on the available FP methods |
| | • Give instruction on correct use of these FP methods |
| | • Explains the advantages and disadvantages of each FP method |
| | Give information about what to do in the case of FP method failure or when patients forget to take oral contraceptive pills |
| Supplies and medications | This indicator is based on two main types of measurements: patients (as observed and recorded by the healthcare providers) or healthcare facilities (as reported by a key informant within each center). Values for the following measures are given as the percentage: |
| | • Whether patients reported that they were given pain medications for their procedure (yes or no) |
| | • Whether patients were given antibiotics for their procedure (yes or no) |
| | • Whether patients were given modern FP methods on discharge from the facility (yes or no) |
| | • Whether facilities offer a barrier method of FP (condom) to patients (yes or no) |
| | • The mean number of FP methods that facilities offer to patients (out of 11) was also assessed |

Abbreviations: PAC, postabortion care; FP, family planning.

aThe four indicators listed were sourced from Greenslade and Jansen.15
bSourced from the prospective morbidity survey component of the Incidence and Magnitude of Unsafe Abortions study.16 All prospective morbidity survey data were collected by trained service providers (predominantly the main providers of PAC in the sampled healthcare facilities).

cSourced from the health facility survey component of the Incidence and Magnitude of Unsafe Abortions study.16 All health facility survey data were collected by trained field workers using paper questionnaires, which were administered to health managers and senior hospital management staff.
A total of 1890 (83.5%) patients who underwent an evacuation procedure received some form of pain management: 1263 (84.8%) in public healthcare facilities and 627 (81.5%) in private healthcare facilities.

Among all facilities, 273 (80.7%) reported always offering contraceptive counseling to all PAC patients on discharge, with public healthcare facilities higher (172, 79.2%) than private healthcare facilities (101, 84.0%). A higher proportion of patients treated in level-4–6 public healthcare facilities (1348, 94.2%) were issued with a modern FP method or referred for such services than those attending level-2–3 public healthcare facilities (276, 88.0%).

The quality of PAC provided at a healthcare facility depended on availability of a separate evacuation room, specialized obstetrics and gynecology services, and the number of family planning methods offered within the healthcare facility (Table 4). Among level-2–3 public healthcare facilities, having a separate evacuation room and the availability of specialized obstetrics and gynecology services increased the odds of high-quality PAC services by 22.93 and 12.28 times, respectively. Within private healthcare facilities, the availability of a separate evacuation room did not affect the quality of PAC services, regardless of level. However, having specialized obstetrics and gynecology services increased the odds of high-quality PAC services by 59.02 times among level-4–5 private facilities.

Across all healthcare facility levels and ownership, the number of FP methods available remained a statistically significant factor in determining the quality of PAC. Within public healthcare facilities, each additional method increased the odds of quality PAC by 1.38 times in level-2–3 facilities and 1.57 times in level-4–6 facilities. The effect was higher among private healthcare facilities, with each additional FP method available increasing the odds of high-quality care by 2.27 times in level-2–3 and 4.89 times in level-4–5 facilities.

## DISCUSSION

The present study found a low level of adherence to the predefined PAC service standards among all healthcare facilities sampled. Notably, the use of appropriate technology was low, especially among private healthcare facilities. In providing the technology, a broad approach should ensure support in contraception and pregnancy testing, improvement in assessment of gestational age, supply of manual vacuum aspiration kits, and improved availability and ease of access to medical abortion. The use of invasive methods such as dilation and curettage (especially for first-trimester evacuation procedures) raises concern over the adherence to guidelines, as well as the process through which service providers decide on treatment and the factors that inform the decision. The present finding differs from past studies, which showed that dilation and curettage equipment were available in healthcare facilities yet remained unused. Interestingly, almost all dilation and curettage cases recorded in the IMUA study occurred at level-4–5 private facilities.

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Table 2: Characteristics of the Kenyan healthcare facilities and patients surveyed.

| Characteristic | Valuea |
|---------------|--------|
| Healthcare facilities that provided postabortion care (n=326) | |
| Facility level | |
| 2 | 92 (49.4) |
| 3 | 124 (36.2) |
| 4 | 94 (13.7) |
| 5 | 14 (0.6) |
| 6 | 2 (0.1) |
| Ownership | |
| Public | 210 (70.0) |
| Private for-profit | 55 (14.4) |
| Non-governmental or faith-based organization | 51 (11.5) |
| Other | 10 (4.1) |
| Services offered | |
| Obstetrics and gynecology | 90 (15.1) |
| Maternity and delivery | 271 (86.1) |
| Postabortion care and counseling | 319 (97.9) |
| Postabortion contraception and counseling | 313 (95.8) |
| Mean no. of deliveries per mo | 19.0 |
| Facilities where procedures were performed in the evacuation room | 119 (24.3) |
| Facilities with an evacuation room where postabortion care services are offered | 72 (14.4) |
| Patients who sought postabortion care (n=2631) | |
| Median age, y | 26.0 |
| Marital statusb | |
| Never married | 761 (27.8) |
| Married or living together | 1700 (64.4) |
| Separated, divorced, or widowed | 162 (7.5) |
| Educational statusc | |
| None | 158 (9.3) |
| Primary | 963 (40.1) |
| Secondary | 952 (35.5) |
| Post-secondary | 543 (14.8) |
| Parityb | |
| 0 | 908 (34.6) |
| 1–2 | 1081 (38.0) |
| 3–5 | 535 (21.8) |
| ≥6 | 99 (5.6) |
| Level of complication | |
| Low | 723 (22.8) |
| Moderate | 1135 (40.0) |
| Severe | 773 (27.2) |

Values are given as number (weighted percentage), unless otherwise indicated.

Eight cases excluded from tabulation because of missing data.

Fifteen cases excluded from tabulation because of missing data.
TABLE 3  Quality of PAC among Kenyan healthcare facilities.\(^a\)

| Indicator of quality for PAC services | Public healthcare facilities | Private healthcare facilities | All healthcare facilities |
|--------------------------------------|-----------------------------|-------------------------------|--------------------------|
|                                      | Level                       | Level                        | Level                    |
|                                      | 2–3 4–6 P value\(^b\) Total | 2–3 4–6 P value\(^b\) Total | 2–3 4–6 P value\(^b\) Total |
| **Use of appropriate technology**    |                             |                               |                          |
| 1st-trimester cases appropriately    | 132 (74.7) 132 (19.6) <0.001 | 264 (47.5) 78 (29.1) 66 (58.8) <0.001 | 144 (33.1) 210 (50.6) 198 (25.4) <0.001 |
| treated                              |                             |                               |                          |
| 2nd-trimester cases appropriately    | 136 (96.3) 528 (82.7) 0.001 | 664 (89.6) 132 (72.1) 30 (46.7) <0.001 | 162 (68.8) 268 (85.1) 558 (78.9) 0.072 |
| treated                              |                             |                               |                          |
| **Technical performance**            |                             |                               |                          |
| Mean no. of providers with training  | 1.1 5.5 <0.001\(^c\) 1.7   |                               |                          |
| in PAC available at the facility     |                             |                               |                          |
| Facilities with ≥1 provider trained  | 86 (64.3) 68 (87.7) <0.001 | 154 (67.6) 67 (76.4) 30 (87.0) 0.008 | 97 (78.0) 153 (67.9) 98 (87.5) <0.001 |
| in PAC                               |                             |                               |                          |
| Facilities with ≥2 providers trained | 43 (28.1) 59 (74.3) <0.001 | 102 (34.6) 53 (48.8) 21 (58.8) <0.001 | 74 (50.2) 162 (68.8) 268 (85.1) 0.072 |
| in PAC                               |                             |                               |                          |
| **Information and counseling**       |                             |                               |                          |
| Facilities that reported always      | 106 (78.0) 66 (87.0) 0.148 | 172 (79.2) 73 (84.7) 28 (80.3) 0.634 | 101 (84.0) 179 (80.0) 94 (84.9) 0.335 |
| giving contraceptive counseling to   |                             |                               |                          |
| all patients on discharge            |                             |                               |                          |
| Gives information on the available   | 120 (85.6) 67 (88.0) 0.66  | 187 (86.0) 65 (70.9) 27 (80.2) 0.358 | 92 (72.4) 185 (81.4) 94 (85.6) 0.401 |
| FP methods\(^d\)                     |                             |                               |                          |
| Gives instruction on the correct use | 89 (66.1) 54 (66.6) 0.952 | 143 (66.2) 50 (52.2) 22 (62.6) 0.378 | 72 (53.9) 139 (62.2) 76 (65.3) 0.619 |
| of FP methods\(^e\)                  |                             |                               |                          |
| Talks about the advantages and       | 104 (77.2) 67 (86.3) 0.157 | 171 (78.5) 65 (78.2) 25 (76.0) 0.818 | 90 (77.9) 169 (77.5) 92 (83.1) 0.292 |
| disadvantages of each FP method\(^d\)|                             |                               |                          |
| Gives information on what to do in   | 23 (19.8) 15 (18.0) 0.784 | 38 (19.5) 19 (20.6) 4 (10.8) 0.241 | 23 (19.1) 42 (20.0) 19 (15.8) 0.401 |
| case of FP method failure or         |                             |                               |                          |
| forgetting to take oral contraceptive pills\(^d\) |               |                             |                          |
| **Supplies and medications**         |                             |                               |                          |
| Patients given pain medication       | 119 (81.4) 1144 (86.7) <0.001 | 1263 (84.8) 506 (80.3) 121 (89.2) 0.246 | 627 (81.5) 625 (80.7) 1265 (87.0) <0.001 |
|                                    |                             |                               |                          |
| Patients given antibiotics           | 287 (91.5) 1369 (96.1) 0.002 | 1656 (93.8) 655 (92.2) 151 (92.4) 0.027 | 806 (92.2) 942 (91.9) 1520 (95.6) 0.003 |
| Mean no. of FP methods commonly      | 4.4 5.5 <0.001\(^c\) 4.6   | 4 4 1.0 0.06\(^c\) 4.1 5 0.220\(^c\) 4.4 |
| offered to patients (out of 11)      |                             |                               |                          |
| Patients offered a barrier method    | 108 (80.7) 61 (79.6) 0.953 | 169 (80.6) 59 (68.4) 16 (48.7) 0.011 | 75 (65.5) 167 (77.1) 77 (70.0) 0.15  |
| (condom)                             |                             |                               |                          |
| Given modern FP methods on discharge | 276 (88.0) 1348 (94.2) <0.001 | 1624 (91.1) 659 (89.1) 145 (84.1) <0.001 | 804 (88.5) 935 (88.6) 1493 (92.9) 0.056 |
| from the facility                    |                             |                               |                          |

Abbreviations: PAC, postabortion care; FP, family planning.

\(^a\)Values are given as number (weighted percentage) unless indicated otherwise.

\(^b\)P values calculated from bivariate \(\chi^2\) tests of association unless indicated otherwise.

\(^c\)F value. Probability (\(F_\text{value}\)); significance was cutoff at 0.05, meaning any F value below 0.05 was considered to represent a significant difference between the means.

\(^d\)Data given for healthcare facilities that always offer FP counseling.

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280  | TABLE 3 | Quality of PAC among Kenyan healthcare facilities.\(^a\)
TABLE 4 Factors associated with quality of care among Kenyan healthcare facilities offering PAC services.\textsuperscript{a,b}

| Facility characteristic                             | Model 1 (public facility; level 2–3) | Model 2 (public facility; level 4–6) | Model 3 (private facility; level 2–3) | Model 4 (private facility; level 4–5) |
|----------------------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Has an evacuation room\textsuperscript{d}          | 22.93 (4.16–126.42)\textsuperscript{a} | 77.14 (13.36–445.32)\textsuperscript{a} | 8.8 (0.91–84.84)\textsuperscript{a} | 4.69 (0.25–87.71)\textsuperscript{a} |
| Offers specialist obstetrics and gynecology services\textsuperscript{d} | 12.28 (1.10–137.38)\textsuperscript{f} | 1.50 (0.31–7.25)\textsuperscript{g} | 302.59 (8.68–10 552.10)\textsuperscript{g} | 59.02 (0.99–3518.46)\textsuperscript{g} |
| Offers maternity services                           | 0.65 (0.16–2.65)\textsuperscript{d} | 0.64 (0.01–47.53)\textsuperscript{d} | 2.41 (0.01–759.93)\textsuperscript{d} |                       |
| Providers always trained for PAC                    | 0.66 (0.20–2.17)\textsuperscript{d} | 1.85 (0.52–6.60)\textsuperscript{d} | 3.67 (0.40–33.77)\textsuperscript{d} | 0.34 (0.02–5.48)\textsuperscript{d} |
| Provider reported that PAC a significant load       | 0.49 (0.15–1.54)\textsuperscript{d} | 0.49 (0.12–2.08)\textsuperscript{d} | 1.86 (0.24–14.62)\textsuperscript{d} | 0.22 (0.01–3.50)\textsuperscript{d} |
| No. of deliveries per month are logged              | 1.59 (0.95–2.64)\textsuperscript{d} | 1.78 (0.84–3.79)\textsuperscript{d} | 2.09 (0.78–5.57)\textsuperscript{d} | 1.73 (0.45–6.67)\textsuperscript{d} |
| No. of family methods available                     | 1.38 (1.00–1.89)\textsuperscript{d} | 1.57 (1.08–2.29)\textsuperscript{d} | 2.27 (1.22–4.22)\textsuperscript{d} | 4.89 (1.68–14.24)\textsuperscript{d} |

Abbreviation: PAC, postabortion care.
\textsuperscript{a}Values are given as odds ratio (95% confidence interval).
\textsuperscript{b}Odds ratios and their confidence intervals are generated from fitting a mixed-effects ordered logit model for the ordinal outcome variable “use of an effective family planning method.” A covariate on the model was considered to be significant if \( P<0.05 \).
\textsuperscript{c}No level 6 private facilities.
\textsuperscript{d}Missing variables dropped owing to multicollinearity.
\textsuperscript{e}Of the level 2–3 public facilities, only 14 had evacuation rooms and four offered specialized obstetrics and gynecology services; therefore, the associated odds ratios should be interpreted with caution.
\textsuperscript{f}\( P<0.001 \).
\textsuperscript{g}\( P<0.05 \).

All PAC patients must receive FP services to enable them to space or limit future pregnancies, and so prevent further unwanted pregnancies. Therefore, a need exists to equip healthcare facilities with adequate and variant FP methods, as well as creating a pool of PAC providers who are knowledgeable about appropriate contraceptive options. That most healthcare facilities in the present study offered approximately four different types of contraceptive methods (mainly barrier methods) shows how these facilities are not prepared to offer quality PAC, especially in level-2–3 healthcare facilities where primary contact with the patients occurs. The need for service improvement is particularly evident among level-2–3 healthcare facilities to safeguard women’s health. Improving the quality of PAC services should focus not only on availing contraceptive services, but also on ensuring that these services have the potential to reach the intended users.

Enhanced community involvement in PAC increases awareness of the dangers of unsafe induced abortion and improves utilization.\textsuperscript{24} Additional evidence\textsuperscript{25} demonstrates that healthcare facilities with specialized obstetrics and gynecology services have increased odds of improved PAC. This evidence preempts the need for increased service provision and improvement in low-level healthcare facilities. Having a separate evacuation room for all PAC cases is also vital for quality improvement and enhanced patient satisfaction with services.\textsuperscript{25}

Potential limitations of the present study pertinent to interpretation of the results included the patient selection, provider recall bias, and the inability to assess all five elements of the PAC Consortium model.\textsuperscript{4}

In conclusion, the present study revealed an urgent need to improve the capacity of level-2–3 healthcare facilities to offer quality PAC services, by equipping service providers with the requisite skills to offer effective FP and counseling. Although these efforts could easily

such as dilation and curettage. Some providers are thought to have shown a preference for these inappropriate methods for financial gain rather than as patient-centered treatment choices.\textsuperscript{6}

Unwanted pregnancies are a leading cause of unsafe induced abortion, the majority of which can be attributed to an unmet need for contraception.\textsuperscript{20} The number of PAC patients who receive modern FP methods is therefore a critical component of the PAC quality framework and remained high in the present study (9 of 10 patients), although seven of these nine cases received only a barrier method (male condom). The findings indicated the need for effective contraception skills improvement and objective treatment of PAC patients by service providers. This role of effective contraception is in line with studies showing high rates of repeat induced abortion among women across all age groups.\textsuperscript{21,22}

The capacity of the care provider is of prime importance when offering PAC services.\textsuperscript{1} This capacity is mainly in reference to the nature of PAC training and continuous quality improvement through enhanced and regular in-service education of medical service providers. Of note, one-third of the facilities sampled in the present study did not have any medical personnel trained in PAC, yet these facilities still offered PAC services. This discrepancy represents a capacity gap according to the PAC Consortium framework. Currently, only obstetricians, gynecologists, general practitioners, and midwives are trained in the use of medical vacuum aspiration and medical abortion in Kenya.

The PAC Consortium model recognizes safe and effective treatment, which includes standard infection prevention and appropriate pain management. Nonetheless, few of the patients in the present study received pain management and antibiotics, similar to the investigation of Renner et al.\textsuperscript{23}
focus on public healthcare facilities (which deliver the bulk of PAC in Kenya), an inclusive approach that promotes private-sector participation will reduce the risk of complications attributable to delays in seeking care, often owing to lengthy referral times.  

AUTHOR CONTRIBUTIONS

MMM conceptualized the present study; led the data analysis; and wrote the first draft of the manuscript. TNOA and BWM reviewed the manuscript drafts. COI conceptualized the present study; was the Principal Investigator of the Incidence and Magnitude of Unsafe Abortion study (which provided data for the present analysis); and reviewed the manuscript drafts. All authors read and approved the final manuscript before submission.

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CONFLICTS OF INTEREST

The authors have no conflicts of interest.

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