




Availability, accessibility and utilization of post-abortion care in Sub-Saharan Africa: A systematic review

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ABSTRACT

At the 1994 ICPD, sub-Saharan African (SSA) states pledged, *inter alia*, to guarantee quality post-abortion care (PAC) services. We synthesized existing research on PAC services provision, utilization and access in SSA since the 1994 ICPD. Generally, evidence on PAC is only available in a few countries in the sub-region. The available evidence however suggests that PAC constitutes a significant financial burden on public health systems in SSA; that accessibility, utilization and availability of PAC services have expanded during the period; and that worrying inequities characterize PAC services. Manual and electrical vacuum aspiration and medication abortion drugs are increasingly common PAC methods in SSA, but poor-quality treatment methods persist in many contexts. Complex socio-economic, infrastructural, cultural and political factors mediate the availability, accessibility and utilization of PAC services in SSA. Interventions that have been implemented to improve different aspects of PAC in the sub-region have had variable levels of success. Underexplored themes in the existing literature include the individual and household level costs of PAC; the quality of PAC services; the provision of non-abortion reproductive health services in the context of PAC; and health care provider-community partnerships.

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Background

Twenty-five years ago, at the International Conference on Population and Development (ICPD) of 1994, leaders of 179 countries, including sub-Saharan African (SSA) states, pledged to prevent unsafe abortion through expanding the availability of family-planning services; ensuring that where abortion is legal, it is safe; and guaranteeing that, in all cases, quality services for the management of abortion complications, including contraception counseling and provision of commodities, are available to all women,

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irrespective of the legal grounds for abortion (Wonkam & Hurst, 2007; Faundes, 2012; Mirembe, Karanja, Hassan, & Faúndes, 2010).

Following the above pledge, a number of SSA countries have legalized abortion, strengthened the provision of post-abortion care (PAC) services, or expanded the conditions under which pregnancy termination can be obtained, as well as the range of providers who can offer abortion-related care (Smit, Bitzer, Boshoff, & Steyn, 2009; Gerhardt, 1997; Hussain, 2012; Macha, Muyuni, Nkonde, & Faundes, 2014; Shah, Åhman, & Ortayli, 2014). However, compared to the rest of the world, the decline in the incidence of unsafe abortion in SSA has been much slower over the years. Unsafe abortion continues to account for up to 12% of maternal deaths in SSA (African Population and Health Research Center, Ministry of Health (Kenya), Ipas & Guttmacher Institute, 2013; Okonofua, 2006; Singh, 2006; Singh & Maddow-Zimet, 2016). On-demand safe abortion services also remain unavailable to majority of women in the sub-region (African Population and Health Research Center, Ministry of Health (Kenya) & Ipas, 2015; Shah et al., 2014).

At a time of urgent calls for more evidence on the situation of abortion services globally (Faundes, 2012; Faundes, Rao, & Briozzo, 2009), we synthesize available research on the provision, utilization, and accessibility of PAC services in SSA, focusing on the following questions:

1. What PAC services are provided in SSA, where, and by whom?
2. What issues characterize the availability, provision, distribution, and quality of PAC services in SSA?
3. What are the levels, dynamics, facilitators of, and barriers to the utilization of PAC services in SSA?
4. What interventions have been implemented to improve access, utilization and availability of PAC services in SSA, and what is their effectiveness?

Answers to these questions have potential to guide global action, including research, policy, and investments to address women's risks for unsafe abortion wherever it still occurs.

Methods

Search strategy and study selection process

The research team conducted a search of studies in EMBASE, POPLINE, JSTOR, MEDLINE, Bioline, Web of Science, Science Direct, African Journals Online (AJOL) and Scopus databases. We searched these databases using the following syntax terms: “*Abortion care*” or “*post abortion care*” or “*post abortion contraceptive counselling*” and their synonyms together with *Africa, sub-Saharan Africa, East/Eastern Africa, Central/Middle Africa,*

West/Western Africa and South/Southern Africa. Papers resulting from these searches were further searched for results on *availability, accessibility, delivery, utilization, provision and quality of the services.* The searches employed variants to key terms such as “*post-abortion*”, “*post abortion*”, “*postabortal*”, “*post-abortal*” and “*post abortal*”. Reference lists of relevant articles were further hand-searched for additional materials for potential inclusion in the review. The search of articles occurred between June 2017 and November 2018.

Two authors piloted the review questions and compared the results, before working independently to select the relevant articles. Disagreements on articles for inclusion in the review were resolved through discussion. Where consensus was not possible, a third reviewer- the principal investigator- arbitrated and held a casting vote. The search was restricted to journal articles published in English between 1995 and November 2018. Initially, only articles with a title and abstract or an English language-based summary were included. Reviewed articles were those that reported original research and that had unambiguous designs and methodologies, clear definitions of interventions, outcomes and study samples or populations as well as well-stated findings. Editorials, commentaries, or letters to the editor were excluded. The review protocol is registered in PROSPERO (reference number CRD42016043159).

Critical appraisal and risk of bias assessment in individual studies

We employed GRADE (Grades of Recommendation, Assessment, Development and Evaluation Working Group) (Guyatt et al., 2008) to appraise the quality of the evidence in the reviewed studies. We focused our risk of bias on: (a) representativeness and appropriateness of the study population; (b) study design, implementation and follow-up; and (c) definition and clarity of interventions/experiments and outcomes and their measurements. Quality grading for the papers included in the review ranged from low to high. Grading results are available on request.

Data extraction

For each of the selected articles, we extracted information on the author(s) and year of publication, study design, description of intervention/experiment, findings and reported outcomes, and limitations of the study. We also identified the specific components of PAC addressed in the study.

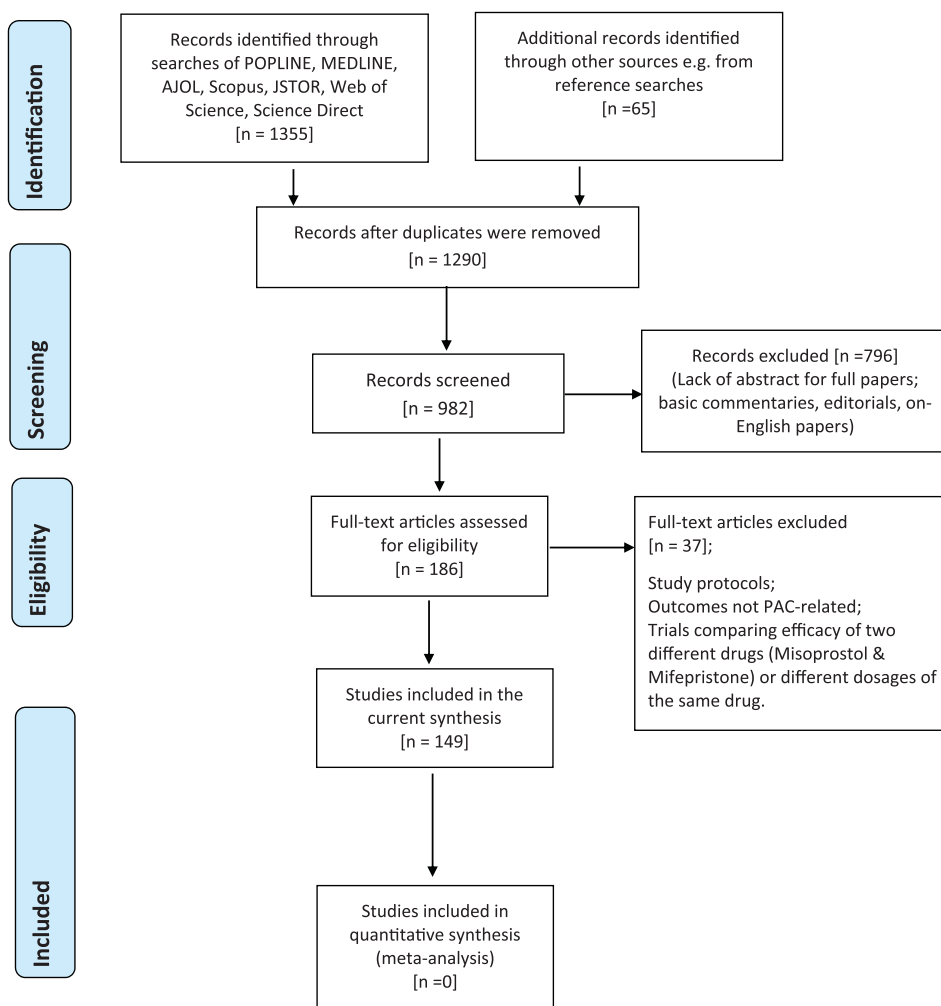


Figure 1. Search and selection of studies for the systematic review.

Qualitative synthesis of findings

This paper follows PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) (Liberati et al., 2009). [Figure 1](#) summarizes our search and inclusion criteria for this review. The PRISMA checklist for the final manuscript is available on request.

Findings

Availability and accessibility to PAC services in SSA

Complications of unsafe abortion constitute a significant proportion of gynecological admissions in SSA (Singh, 2006; Ishoso, Tshefu, & Coppieters, 2018; Singh, 2010; Singh, Prada, Mirembe, & Kiggundu, 2005;

Singh et al., 2010). Annually in the sub-region, an estimated 1.7 million women are hospitalized due to complications of unsafe abortion (Rasch, Massawe, Yambesi, & Bergstrom, 2004; Adesiyun & Ameh, 2006; Basinga et al., 2012; Gallo et al., 2004; Gebreselassie et al., 2010; Keogh et al., 2015; Konney, Danso, Odoi, Opere-Addo, & Morhe, 2009; Prata, Bell, Holston, Gerdtts, & Melkamu, 2011b; Singh, 2006). For instance, annual abortion complications-related hospitalization rates in SSA range between 4 and 7 per 1000 women in Nigeria to about 15 per 1000 women in Uganda (Singh, 2006). Young and single women form a significant proportion of PAC patients in the sub-region (Awoyemi & Novignon, 2014; Bankole et al., 2018; Henshaw et al., 2008; Ishoso et al., 2018; Mutua, Maina, Achia, & Izugbara, 2015; Ushie, Izugbara, Mutua, & Kabiru, 2018) reaching, for instance, as high as 48% and 28%, respectively, in Kenya (Ushie et al., 2018). Currently, PAC exerts considerable financial and other costs on individuals, households, and public health systems in the sub-region (Shearer, Walker, & Vlassoff, 2010). In Ethiopia, Rwanda, Uganda, and Zambia, for instance, the annual public health cost of treating complications of unsafe abortions stands at US\$8.9, US\$2.3, US\$13.9, and US\$1.4 million, respectively, (Vlassoff et al. 2014; Parmar et al., 2017; Vlassoff, Feters, Kumbi, & Singh, 2012; Vlassoff, Mugisha, et al., 2012).

PAC patients in SSA present at both early and later gestation periods (Singh, 2006; Awoyemi & Novignon, 2014; Bankole et al., 2018; Henshaw et al., 2008; Ishoso et al., 2018; Mutua et al., 2015; Singh, 2010; Singh et al., 2005; 2010). In Kenya, nearly 70% of all PAC patients sought care at below 12 weeks of gestation (Ziraba et al., 2015); 39% of the abortions in girls and young women occurred after 12 weeks of gestation; and 46% of women presenting with late abortions (more than 12 weeks gestational age) suffered severe complications (Ushie et al., 2018). PAC patients in the sub-region are also managed as both out- and in-patients depending on the severity of the complications and country care guidelines (Mohamed et al., 2015; Prada et al., 2016; Ziraba et al., 2015). Eighty-nine percent of the 2,274 facilities in Uganda with potential to provide PAC treat post abortion complications. Forty-nine percent of the facilities provide both in- and out-patient PAC services, 20% provide only in-patient services, 19% provide only outpatient services, and 11% do not provide PAC at all (Prada et al., 2016).

In SSA, PAC is currently offered by a range of public and private providers including nurses, clinical officers, trained midwives, clinical officers, physicians and specialists such as obstetricians/gynecologists and internists who work in a variety of facilities. These include primary health care centers, dispensaries, public health facilities, mission facilities, private-for-profit and private-not-for profit hospitals, maternity homes, and teaching

hospitals, among others (Okonofua et al., 2011; Adinma, Ikeako, Adinma, Ezeama, & Ugboaja, 2010; Bacon, Ellis, Rostoker, & Oloro, 2014; Bankole et al., 2018; Basinga et al., 2012; Clark, Mitchell, & Aboagye, 2010; Dibaba et al., 2017; Dickson-Tetteh & Billings, 2002; Fetters, Tesfaye, & Clark, 2008; Jaldesa, 2014; Johnson, Ndhlovu, Farr, & Chipato, 2002; Kalilani-Phiri et al., 2015; Maxwell, Voetagbe, Paul, & Mark, 2015; Mayi-Tsonga et al., 2012; Mohamed et al., 2015; Nielsen et al., 2009; Paul, Gemzell-Danielsson, Kiggundu, Namugenyi, & Klingberg-Allvin, 2014; Prada et al., 2016; Prata, Bell, & Gessessew, 2013; Rasch, Yambesi, & Kipingili, 2005; Ziraba et al., 2015). For instance, 54% of women who received post-abortion care in a Kinshasa study were treated by physicians and 46% by midlevel providers (e.g. nurses and midwives (Bankole et al., 2018)). In a number of SSA contexts, lower cadre providers such as nurses and clinical officers have been reported to diagnose and treat incomplete abortion as effectively as physicians (Dickson-Tetteh & Billings, 2002; Bacon et al., 2014; Paul et al., 2014).

Currently, the distribution and availability of PAC services, providers, and technologies or methods in SSA favor urban areas, government-owned, NGO-owned facilities, big private, and referral hospitals (Mohamed et al., 2015; Campbell, Aquino, Vwalika, & Gabrysch, 2016; Clark et al., 2010; Gebreselassie, Gallo, Monyo, & Johnson, 2005; Mayi-Tsonga et al., 2012; Nielsen et al., 2009; Okonofua et al., 2011; Ziraba et al., 2015). However, in Ethiopia, which has a fairly liberal abortion law, a growing number of government facilities including those in rural areas offer abortion-related care, boosting the provision of post-abortion family planning and reducing abortion-related obstetric complications among marginalized women and girls (Dibaba et al., 2017; Gebreselassie et al., 2010). The percentage of all women treated for abortion-related obstetric complications decreased in both public hospitals and health centers in Ethiopia from 47% in 2008 to 39% in 2014. This decline was most steep at public hospitals, where the utilization of abortion-related care lessened from 43% to 31% among women treated for obstetric complications (Dibaba et al., 2017).

Interventions to improve the availability and uptake of PAC services in SSA include provider- training workshops, community education, male involvement programs, supportive supervision for providers, reorganization of services to ensure patients' rights to privacy and confidentiality, making family planning services readily available, and systematic contraceptive counseling (Thiam, Siri, & Moreira, 2006; Clark et al., 2010; Rasch et al., 2005; Rasch & Lyaruu, 2005). Existing evaluations show that training and supportive supervision boosted the willingness and capacity of midwives and other non-physician providers to offer PAC, reduced delays in the management of patients, and expanded access to PAC (Clark et al., 2010; Akiode, Fetters, Daroda, Okeke, & Oji, 2010; Fetters et al., 2008; Mayi-Tsonga et al., 2012;

Rasch et al., 2004). Misoprostol has also been rolled out as a first line treatment for incomplete abortion at the community level in some SSA countries with positive outcomes on PAC services availability and use (Gaye, Diop, Shochet, & Winikoff, 2014; Bacon et al., 2014; Fetters et al., 2008; Prata et al., 2013). However, some scholars have critiqued so-called improved PAC services use statistics for obscuring discrimination against women suspected of illegal abortion, hindering debates on safe abortion and limiting the reproductive rights of marginalized women in SSA (Suh, 2018a, 2018b; Storeng & Ouattara, 2014).

In Tanzania, the involvement of men in PAC contraceptive counseling increased their willingness to support their female partners' future contraceptive use (Rasch & Lyaruu, 2005). Community health education and mobilization, service provider-community partnerships (Baird, Billings, & Demuyakor, 2000; Fetters, Samandari, Djemo, Vwallika, & Mupeta, 2017), and targeted health outreach to vulnerable groups e.g. sex workers (Marlow, Shellenberg, & Yegon, 2014) are among other strategies that reportedly boosted access to PAC. In Kenya, however, a community engagement and service-strengthening intervention did not significantly increase PAC services utilization (Undie et al., 2014). In one study on the integration of HIV/AIDS testing services within PAC, 58% of women who were treated for complications of unsafe abortion accepted HIV testing (Rasch, Yambesi, & Massawe, 2006).

Dynamics of PAC services use and utilization

PAC patients in SSA differ on the basis of age, marital status, parity, experience with family planning, and place of residence (Ziraba et al., 2015; Adesiyun & Ameh, 2006; Bankole et al., 2015; Fabamwo, Akinola, & Akpan, 2009; Gebreselassie et al., 2005; Henshaw et al., 1998; Ibrahim & Onwudiegwu, 2012; Ishoso et al., 2018; Kalilani-Phiri et al., 2015; Konney et al., 2009; Maxwell et al., 2015; Mohamed et al., 2015; Prata et al., 2011b; Rasch et al., 2004; Rutgers, 2001; Tilahun, Dadi, & Shiferaw, 2017). In Zimbabwe, PAC patients are largely older and higher parity women (Rutgers, 2001), while nulliparity is common among women seeking treatment for complications of unsafe abortion in Nigeria (Adesiyun & Ameh, 2006). In Nigeria and DR Congo, single women and women with higher incomes presented more for PAC compared to married, older, and poorer women (Awoyemi & Novignon, 2014; Bankole et al., 2018; Ishoso et al., 2018). Twenty-five percent of single adolescents (19 years or less) and 13% of non-adolescents admitted into the gynecological ward of hospitals in Kinshasa, DR Congo, were seeking treatment for complications of unsafe abortion (Ishoso et al., 2018). In Lusaka, Zambia, over a four-month period

in 2005, 39% of girls aged 13–19 years admitted to the university hospital for incomplete abortions had undergone an unsafe induced abortion. Significantly more girls with an unsafe induced abortion were single, students, had completed more years in school and were in less stable relationships (Dahlbäck et al., 2010).

PAC patients in SSA present with different clinical symptoms; sepsis, bleeding, pelvic infection, instrumental injury, retained products of conception, uterine perforation, gangrenous uterus, gut injury, generalized peritonitis, septicemia, septicemic shock, system or organ failure, weak pulse or low blood pressure, trauma, and the presence of foreign body in the genital tract (Rasch et al., 2005; Bankole et al., 2018; Gebreselassie et al., 2005; Henshaw et al., 1998; 2008; Ishoso et al., 2018; Ziraba et al., 2015). Patients also include those whose abortions were spontaneous, self-induced or induced by traditional birth attendants, traditional healers, private providers, quacks, husbands, providers, boyfriends, and family members (Henshaw et al., 2008; Bankole et al., 2018; Gebreselassie et al., 2005; Henshaw et al., 1998; Izugbara, Egesa, & Okelo, 2015; Mohamed et al., 2015; Ziraba et al., 2015).

Barriers to the provision and utilization of PAC services in SSA

There are individual, community, provider, and health system-level barriers related to PAC services use in SSA (Kinaro, Mohamed Ali, Schlangen, & Mack, 2009; Campbell et al., 2016; Clark et al., 2010). These barriers trigger delays in seeking PAC, worsen complications and result in high levels of mortality. In a nationally representative study in Kenya, younger women (10–19 years), women and girls without an education, and those who experienced unwanted pregnancies reported more delays in seeking and utilizing PAC. The median delay in hours was highest among PAC patients presenting with more severe complications (74 h). Patients with moderate complications presented after 30 h and those with mild complications reported a delayed treatment of about 28 h. Women seeking treatment for first trimester abortion complications delayed, on average, about 51 h compared to a 48-hour delay by those seeking treatment for second trimester abortion complications (Mutua et al., 2015).

Cultural factors, lack of community support, prohibitive costs of PAC services, gender inequality; long distances and lack of transportation to facilities that offer PAC; stigma or fear of stigmatization by family members, providers and the community in general; fear of prosecution; and dying before reaching medical care are other key barriers to the use of PAC services in SSA (Melkamu, Betre, & Tesfaye, 2010; Bacon et al., 2014; Cleve, Fixelid, Nalwadda, & Klingberg-Allvin, 2017; Mohamed, Diamond-

Smith, & Njunguru, 2018). Health system barriers to PAC uptake in SSA include the dearth of facilities and trained providers, facility policies that prevent mid-level health care workers to provide PAC or prescribe contraception, shortage of PAC services and providers, poor capacity of providers, poor provider attitude, and conscientious and religious objections by some facilities and providers (Kinaro et al., 2009; Bacon et al., 2014; Chiweshe & Macleod, 2017; Faúndes & Miranda, 2017; Håkansson, Oguttu, Gemzell-Danielsson, & Makenzius, 2018; Izugbara, Egesa, Kabiru, & Sidze, 2017; Mutua, Manderson, Musenge, & Achia, 2018; Onah, Ogbuokiri, Obi, & Oguanuo, 2009; Rasch et al., 2005; Voetagbe et al., 2010). In Ghana, health tutors were reluctant to train midwifery students on the use of MVA in PAC due to concerns about the abortion law, religious objections, uncertainties about policies and procedures regarding safe abortion, and fears about their clinical competencies (Voetagbe et al., 2010).

Other key barriers to the provision of PAC services in SSA are non-availability of medications, stock-outs, lack of basic supplies, obsolete and deteriorating equipment, and lack of adequate facility space (Osur, Baird, Levandowski, Jackson, & Murokora, 2013; Sully et al., 2018). Fears of providing Misoprostol due to restrictive policies and worries that one would be held responsible if complications developed prevented its use among midwives in Uganda (Paul et al., 2014; Tagoe-Darko, 2013). Service providers' ability to offer PAC in some SSA countries is also constrained by their weak competency and capacity to use relevant and modern PAC treatment methods as well as lack of clarity in some national abortion laws regarding the legality of PAC (Etuk, Ebong, & Okonofua, 2003; Abdella et al., 2013; Kalu, Umeora, & Sunday-Adeoye, 2012; Kipkemboi, Walekhwa, & Musyoki, 2018; Okonofua et al., 2011; Onah et al., 2009). Use of inappropriate methods, dosages, drugs of unproven efficacy and/or dangerous medications has been reported among PAC providers, including physicians in the sub-region (Okonofua et al., 2011). In one facility in Nigeria, only 31% of PAC providers (mostly senior obstetricians and gynecologists) reported any formal training on comprehensive PAC and on more current methods for the management of abortion complications (Kalu et al., 2012). In Malawi, although existing guidelines recommend medical abortion and MVA for treatment of incomplete abortion, D&C was common at outpatient clinics and in facilities where resources and equipment were limited (Odland et al., 2014). In some cases in the sub-region, post-abortion family planning and contraceptive counseling was not provided due to inadequate capacity or lack of time and commitment among providers (Tagoe-Darko, 2013; Gallo et al., 2004).

In SSA, providers of PAC also reportedly perpetuate abortion stigma in facility settings by mistreating and being judgmental, indifferent, or showing

disdain toward PAC patients (Mayi-Tsonga et al., 2009). Poor, unmarried or adolescent PAC patients have been reported as particularly at risk of provider-stigma and mistreatment (Tagoe-Darko, 2013; Evens et al., 2014; Izugbara et al., 2015). In Gabon, waiting time was much longer (up to 24 h) among women presenting with complications of unsafe abortion compared to those with other obstetric complications (Mayi-Tsonga et al., 2009).

Adolescent-and youth-friendly PAC services are rare in SSA (Kalu et al., 2012). In Kenya, fewer abortion patients between the ages of 15 and 24 received a contraceptive method on discharge compared to adult clients (35% versus 48%) (Evens et al., 2014). The urban bias in the location of PAC facilities and providers in many countries in SSA also presents critical difficulties for rural abortion patients (Singh, 2006; Campbell et al., 2016). National Health Insurance Schemes, where they exist in SSA, do not always cover the cost PAC services (Adde, Darteh, Kumi-Kyereme, & Amu, 2018).

Management of post-abortion complications

In SSA, complications of unsafe abortion are managed using a range of procedures and technologies. These include manual/electrical vacuum aspiration (M/EVA), medication abortion (MA) drugs (Misoprostol and Mifepristone), digital (use of bare fingers) evacuation, forceps, and dilatation and curettage (D&C). Methods used in the management of post-abortion complications vary on the basis of provider, facility-type and severity of complications; and sometimes involve hysterectomy, abdominal surgery, blood and fluid transfusion, exploratory laparotomy with drainage of pelvic collection, analgesics and pain medication, repair of uterine perforation, bowel repair of bladder injury, oral or and parenteral antibiotics (Ziraba et al., 2015; Bankole et al., 2018; Blandine et al., 2012; Clark et al., 2010; Gebreselassie et al., 2005; Henshaw et al., 1998; 2008; Kalilani-Phiri et al., 2015; Kinaro et al., 2009; Melese, Habte, Tsimu, Mogobe, & Nassali, 2018; Mudokweny-Rawdon, Ehlers, & Bezuidenhout, 2005; Okonofua et al., 2011; Shochet et al., 2012; Tsimu et al., 2016). Dilatation and curettage (D&C) was the method of evacuation most commonly used to treat post-abortion patients (49%) in Kinshasa. This was followed by digital curettage (23%) and MVA/EVA (14%). D&C was more commonly used to treat severe and moderate complications than mild or no complications (52% each vs. 45%) (Bankole et al., 2018).

Studies in the sub-region show that MVA and medication abortion drugs are safer and more effective than D&C (Dickson-Tetteh & Billings, 2002; Fetters et al., 2008; Gebreselassie et al., 2010; Graff & Amoyaw, 2009; Makenzius et al., 2017; Suh, 2015; Tavrow, Withers, & McMullen, 2012). Majority of these studies are facility-based (Chigbu, Onwere, Aluka,

Kamanu, & Ezenobi, 2012; Adisso, Hounkpatin, Komongui, Sambieni, & Perrin, 2014; Dah et al., 2011; Dao et al., 2007; Fawole, Diop, Adeyanju, Aremu, & Winikoff, 2012; Shochet et al., 2012; Shwekerela et al., 2007; Taylor, Diop, Blum, Dolo, & Winikoff, 2011). In treating incomplete first trimester abortions, Misoprostol was effective 99.9% of the times, generally tolerable among patients, and fairly effective in treating missed abortions in second trimester (Gaye et al., 2014; Adisso et al., 2014; Menakaya, Otoide, Agboja, Odunsi, & Okonofua, 2005; Shwekerela et al., 2007). But it also had side effects such as severe pains, fever, chills, hyperthermia, diarrhea, and heavy bleeding (Adisso et al., 2014; Fawole et al., 2012; Shwekerela et al., 2007). Also, sublingual and oral Misoprostol administered at lower level health facilities by trained midlevel providers, midwives and physicians were both safe, tolerable, effective for uterine evacuation, and acceptable to women in different SSA countries (Blandine et al., 2012; Bique et al., 2007; Diop et al., 2009; Klingberg-Allvin et al., 2015; Makenzius et al., 2017; Maxwell et al., 2015; Shochet et al., 2012). In a multi-center randomized controlled equivalence trial in Uganda, 96% of (452) women in the midwife group and 97% (462) in the physician group were successfully treated for incomplete abortion with Misoprostol. No serious adverse events were recorded in the two groups of patients (Klingberg-Allvin et al., 2015).

Post-abortion contraceptive and family planning services

PAC contraceptive counseling offers an entry point for preventing repeat abortion, unwanted pregnancy and STI/HIV infections (Rasch et al., 2006; Johnson et al., 2002). Yet, inadequate contraceptive counseling and options remain missing links in the provision of PAC in some SSA contexts (Adesiyun & Ameh, 2006; Rutgers, 2001). For some abortion patients in the sub-region, post-abortion family planning counseling provided first knowledge of available options, particularly LARC (Sullivan et al., 2018). Studies have addressed the acceptability, quality, and effects of post-abortion contraceptive counseling in a few SSA contexts (Rominski, Morhe, & Lori, 2015; Asrat, Bekele, & Rominski, 2018; Rasch, Yambesi, & Massawe, 2008; Rasch et al., 2004; 2005; Samuel, Fetters, & Desta, 2016). In many facilities, some providers do not offer PAC patients any counseling or contraceptive options (Gebreselassie et al., 2005; Evens et al., 2014; Johnson et al., 2002; Kinaro et al., 2009; Rasch et al., 2005; Tesfaye & Oljira, 2013). This is in spite of evidence that post-abortion contraceptive services are generally well-accepted by women treated for complications of unsafe abortion in the sub-region (Rasch et al., 2008; Asrat et al., 2018). However, not all PAC patients accept post-abortion contraceptive services when they are offered (Rominski et al., 2015).

Acceptance rates increased when the services were high quality, comprehensive and offered by trained and experienced counselors (Rasch et al., 2004; Tavrow et al., 2012). In Kenya (Tavrow et al., 2012), no client aged 10–18 years and 60% of clients aged 27–46 years reported using contraception before presenting for PAC. However, after a PAC family planning counseling session, 6% of clients aged 10–18 and 96% of clients aged 27–46 chose a method. Tesfaye and Oljira (2013) found that about 57% of the abortion patients received family planning in health facilities of Guraghe zone, Ethiopia.

The most common contraceptive methods offered to PAC patients in the SSA are injectables (Kalu et al., 2012), oral contraceptive pills (Benson, Andersen, Healy, & Brahmi, 2017), condoms, and intra-uterine devices (IUDs) (Etuk et al., 2003; Makenzius et al., 2018; Ogu et al., 2012; Rominski et al., 2015). Post-abortion contraception methods offered and received in SSA are however largely short-acting (Obare, Liambila, & Birungi, 2014; Dickson-Tetteh & Billings, 2002; Prata, Bell, Holston, Gerdt, & Melkamu, 2011a). In one multi-country study, injectables were received by 37% and 88% of women treated for abortion complications in Ghana and South Africa, respectively; implants by 24%, 15%, and 8% of women in Ethiopia, Ghana, and Zambia; and IUDs by only 6% of acceptors in South, Ethiopia, Ghana, and Zambia. Twenty percent of the adopters in Ghana accepted condoms (Benson, Andersen, et al., 2017). In SSA countries where abortion is legal, programs focus on providing standalone post-abortion family planning, but where abortion is illegal, both PAC and post-abortion family planning counseling are provided as a single service (Curtis, Huber, & Moss-Knight, 2010).

In many instances, PAC patients in the sub-region are counseled on contraception and provided a commodity before leaving the facility (Dickson-Tetteh & Billings, 2002; Etuk et al., 2003; Gaye et al., 2014; Mahomed, Healy, & Tandom, 1997; Maxwell et al., 2015; Nielsen et al., 2009; Penfold, Wendot, Nafula, & Footman, 2018; Rasch et al., 2006; Rutgers, 2001). In Kenya, however, PAC patients valued post-abortion family planning counseling but reported that the service they received lacked comprehensive information (Penfold et al., 2018). Facility-type and ownership and patient- and provider- characteristics have implications for the provision of PAC in SSA (Macha et al., 2014; Mutua, Achia, Maina, & Izugbara, 2017; Rasch et al., 2005). In Uganda, providers cited lack of time, limited facility space, and lack of resources as barriers to effective post-abortion contraceptive counseling and follow up (Paul et al., 2014). In Tanzania, PAC patients treated and counseled in facilities owned by the Catholic Church were less likely to go home with a modern contraceptive method than those treated in facilities owned by Protestant churches (Rasch et al., 2005).

Post-abortion contraceptive counseling and provision of commodities reportedly boosted the use of highly-effective methods such as oral contraceptives (progestin-only and combined contraceptive pills), bilateral tubal ligation, Depo Provera, IUD, implants, and female sterilization in some contexts (Johnson et al., 2002; Okonofua et al., 2011; Rasch et al., 2005; Rominski et al., 2015; Samuel et al., 2016). Following a counseling intervention in Tanzania, 90% of PAC patients accepted post-abortion contraceptive service and methods. Of these, 86% reported still using contraception 1-6 months after discharge (Rasch et al., 2004). In one evaluation of a post-abortion family planning intervention in Zimbabwe, significantly more women who received counseling used highly effective methods of contraception, experienced fewer unplanned pregnancies occurred (15%), and reported fewer repeat abortions than women who did not receive family planning counseling (Johnson et al., 2002). A multi-month facility-based quality improvement intervention in Ethiopia involved the formation of facility-based quality improvement teams and the creation of a separate space/room for PAC treatment and FP services. Following the intervention, the share of abortion clients receiving LARCs progressively improved. The proportion of abortion clients who left the facilities with a contraceptive method increased from 58% in 2010 to 83% in 2014. During the same period, the share of method-mix for LARCs rose from 2% to 55%; condoms, injectables, and oral contraceptives declined from 98% to 45%; implant rose from 2% to 43% and use of intrauterine devices grew from 0.1% to 12%. Fifty-nine percent of women receiving LARCs sought services in facilities where midwives and nurses were the primary providers (Samuel et al., 2016).

In Togo, contraceptive counseling and uptake among PAC clients interventions was significantly boosted through an intervention involving the reorganization of services to ensure that contraceptives are provided to PAC clients before discharge; improving provider-competencies in family planning services, including in providing long-acting reversible contraceptive implants and intrauterine devices; and ensuring that contraceptive methods are available to all PAC clients free of charge. The intervention also standardized PAC registers and enhanced data collection and reporting systems; boosted internal supervision systems at facilities and teamwork among PAC providers; and engaged PAC providers in community talks. During the 5-month baseline period, 31% of PAC clients were counseled, while during the 13-month intervention period, 91% were counseled. Thirty-seven percent (37%) of the PAC patients counseled at baseline accepted a contraceptive, compared with 60% of those counseled during the intervention period. Before and after the intervention, oral contraceptive pills remained the most popular method, but uptake of implants

increased significantly during the intervention period—from 4% to 27% of those accepting contraceptives (Mugore, Kassouta, Sebikali, Lundstrom, & Saad, 2016).

Uptake of FP and contraceptive methods among PAC patients in SSA is associated with health facility-type, partners' attitudes toward contraception, parity, previous termination of pregnancy, prior contraceptive use, and age (Tavrow et al., 2012; Asrat et al., 2018; Benson, Andersen, et al., 2017; Hagos et al., 2018; Makenzius et al., 2018). In Ethiopia, Prata et al. (2011a) showed that patients' level of education was associated with the adoption of long-acting methods (i.e. injectable, implants, and IUDs), while being single, young and receiving services in private health facilities are associated with low uptake of post-abortion contraceptive. In Gabon and Ethiopia, long-acting reversible contraceptives (LARC) were preferred more by abortion patients who experienced an induced abortion than those treated for spontaneous abortion (Mayi-Tsonga et al., 2014; Asrat et al., 2018). In Tanzania, when men were involved in contraceptive counseling, the acceptability and use of PAC contraceptive among their female partners increased (Rasch & Lyaruu, 2005).

Quality of post-abortion care

While quality of PAC is critical (Corbett & Turner, 2003), it is an under-researched theme in SSA. Existing evidence shows variations in the quality of PAC services including levels of appropriate technology use between countries, urban and rural areas and providers, patients, and facilities (Izugbara et al., 2015; Campbell et al., 2016; Graff & Amoyaw, 2009; Maxwell et al., 2015; Mutua et al., 2017). Scholars have observed the growing use of medication abortion (MA) and MVA to treat incomplete abortion in some SSA countries (Prata et al., 2013; Jaldesa, 2014; Suh, 2015). However, the use of bare-finger (digital) and forceps evacuation and D&C to treat incomplete abortion persists in many contexts (Odland et al., 2014; Bankole et al., 2018; Madziyire et al., 2018; Basinga et al., 2012; Cook, Bregje de Kok, & Odland, 2017; Gallo et al., 2004; Melese et al., 2018; Odland et al., 2018). In Kenya, about 65% of abortion complications were managed by manual or electronic vacuum aspiration, 8% by dilation and curettage, 8% with Misoprostol, and 19% by forceps and bare fingers (Ziraba et al., 2015). Private facilities in Kenya lagged behind public ones in the use of essential PAC technologies (Mutua et al., 2017).

Age and parity of PAC clients are associated with the quality of PAC received in Kenya. Compared to adolescent women and girls, older women in Kenya are more likely to receive better quality care (measured in terms of management with appropriate PAC technologies, treatment by a

qualified provider, contraceptive counseling upon discharge, and timely treatment at presentation (Mutua et al., 2015). Delays in receiving PAC treatment also occur widely in the sub-region (Mayi-Tsonga et al., 2009; Melese et al., 2018; Mutua et al., 2015). Existing standards for PAC are also often disregarded by health care providers in SSA. In South Africa, even though antibiotics and blood products were prescribed by existing PAC guidelines, they were not always administered to patients (Brown, Jewkes, Levin, Dickson-Tetteh, & Rees, 2003). Administration of blood, blood components, antibiotics and analgesics during PAC was also suboptimal due largely to cost-cutting practices in some SSA countries (Brown et al., 2003; Melese et al., 2018; Rutgers, 2001; Tsima et al., 2016). These challenges notwithstanding, evidence from studies using a patient-centered framework in Ethiopia indicated appreciable levels of satisfaction with the quality of received care among Ethiopian PAC clients (Kumbi, Melkamu, & Yeneneh, 2008; Tesfaye & Oljira, 2013).

Current interventions to improve the quality of PAC in the sub-region take a variety of forms, including support to ministries of health to develop and implement national PAC guidelines; task-shifting to nurses, pharmacists and other mid-level health providers; upgrading facilities; supply of equipment, contraceptive methods and commodities to facilities as well as continuous and on-job training and capacity building for health care providers in post-abortion care and contraceptive counseling. Interventions also include training on and promotion of the use of newer and safer technologies such as E/MVA; supportive supervision and follow-up of providers; value clarification with providers; reorganization of services to ensure patients' rights to privacy and confidentiality and intensive, regular feedback to enhance early recognition and management of incomplete abortion and its early complications. Others strategies include the provision of harm reduction services, assurance of supplies and infrastructure, and community collaboration and mobilization and the care of PAC equipment (Benson et al., 2018; Bain & Kongnyuy, 2018; Benson, Andersen, et al., 2017; Chukwumalu, Gallagher, Baunach, & Cannon, 2017; Clark et al., 2010; Fetters et al., 2017; Jaldesa, 2014; Kahabuka, Pembe, & Meglioli, 2017; Kiemtoré et al., 2017; Klingberg-Allvin et al., 2015; Macha, Muyuni, Nkonde, Padua, & Faundes, 2018; Mayi-Tsonga et al., 2012; Ogu et al., 2012; Pattinson, Snyman, & Macdonald, 2006; Paul et al., 2014; Prata et al., 2013; Rasch et al., 2005; Thiam et al., 2006; Tumasang, Leke, & Aguh, 2014).

Provider-targeted PAC interventions reportedly enhanced the availability of qualified providers and improved the use of appropriate technologies, FP counseling and uptake of post-abortion contraception in a number of contexts (Wendot et al., 2018; Benson, Healy, Dijkerman, & Andersen, 2017; Ogu et al., 2012). The training of midlevel providers in the use of

Misoprostol at the community level as a first-line treatment for incomplete abortion also improved the availability of skilled providers, use of quality PAC methods (Misoprostol) and treatment satisfaction among PAC patients in Senegal (Gaye et al., 2014). In Ethiopia, an intervention involving the training of midlevel providers increased their capacity for offering uterine evacuation using MVA, the accessibility of skilled providers, and the availability of post-abortion contraceptive services. The proportion of uterine evacuation procedures performed with MVA increased from 14% to 50% of procedures in intervention facilities. (Fetters et al., 2008; Prata et al., 2013).

Discussion

Nearly two and half decades after the ICPD, unsafe abortion remains a major social and public health problem in SSA. The available evidence indicates that access to care among women presenting with complications of unsafe abortion has expanded in the sub-region since the 1994 ICPD. However, several millions of dollars continue to be spent annually by countries in the sub-region in PAC. Treatment and management of complications of incomplete/induced abortion using safer and modern, yet low-cost technologies such as E/MVA and MA is also rising in the sub-region. But the use of poor-quality treatment methods like D&C persists. A variety of individual-, community-, provider- and health system-level barriers also continue to constrain access to PAC across the sub-region. Initiatives that have improved access to and quality of PAC services in SSA include health care provider training, task-shifting to mid and lower-level providers, use of trained midwives to offer PAC at the community level, commodity security, community education, and facility enhancement and upgrading programs. Lack of drugs, facilities, supplies, providers, equipment and technologies; conscientious and religious objection by providers; and inequities in distribution of health centers and providers are among the leading causes of the shortage and poor quality of PAC services in the sub-region.

Major gaps remain in the provision of post-abortion contraceptive counseling in the sub-region. The existing evidence also suggests that several providers in SSA lack the requisite skills to offer post-abortion contraceptive counseling, have heavy workloads that make them unable to offer quality PAC contraceptive counseling and services, or work in facilities that lack essential PAC technologies, commodities and supplies.

Gaps in evidence on PAC in SSA

We found very little evidence of the integration of PAC with other health care services as stipulated by the PAC framework (Corbett & Turner,

2003). Only one study reported the integration of PAC with HIV screening. Yet, there exists an opportunity to integrate services such as treatment for and/or nutrition education and screening for sexual and/or domestic violence, cervical cancer, and anemia within PAC. Little evidence also exists on community engagement and mobilization and education initiatives to enhance knowledge of PAC services and rights. Evidence is lacking on the long-term effects of the provision of post-abortion contraceptives on the use or adoption of contraception methods. We also know very little about the quality of PAC services in SSA. Other underexplored but critical issues related to PAC in the sub-region include the cost of PAC to patients and their households, the role of and implications of social media technologies for PAC, and how the focus on PAC in the sub-region affects debates on safe abortion and the reproductive rights of marginalized women and girls.

Limitations of the study

Although the studies included in this review were generally of high quality, and offered evidence on the different elements of PAC, many of them relied on data from implementation research. These studies may therefore not have adhered to robust scientific methodologies. Most of the publications were from a few countries in SSA and as a result may not be representative of the sub-region. There is a need for more research on abortion-related care especially in countries where abortion remains illegal. Further, only papers published in English were included in the review. Relevant research published in other languages, or not indexed in the selected databases have been excluded. Lastly, we are not able to assess the extent to which the cumulative evidence may be affected by publication bias or selective reporting of findings.

Conclusions

Available evidence indicates that PAC is currently offered in many health facilities in SSA, by a host of different providers, and across a diversity of facility levels and types. Barriers to access to PAC services include individual, community, and health system factors, such as age; marital status; stigma; provider attitudes; conscientious objection; lack of facilities; supplies; equipment and drugs; and poor referral systems. Although young people bear the brunt of unsafe abortion, pervasive lack of youth friendly services hampers the provision of quality PAC services to them. There is little robust evidence on the implementation of such critical elements of PAC as quality of care, provision of other RH services, partnerships between health care providers and the community, and the involvement of men. Generally, health systems and providers in SSA need support to

ensure quality PAC in the face of a reportedly high burden of complications arising from unsafe abortion in the sub-region.

The emerging findings raise important questions for PAC-related research, programing and policy actions in Africa. There is a disturbing lack of evidence on several issues related to PAC in most countries in the sub-region. As a result, little is known about the dynamics of availability, accessibility, and utilization of PAC services in majority of SSA countries. Research is needed to fill these knowledge gaps. The emerging evidence on inequities in and barriers to access, distribution and use of PAC service is critical and raise urgent need for policymakers and governments in the sub-region to address issues related to access and quality of PAC, including the use of outdated methods like D&C, stock-outs of essential PAC drugs and lack of basic equipment and supplies. Evidence on the barriers and facilitators of PAC services use, quality and availability can also support the implementation of relevant PAC interventions in SSA.

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