





Contextualizing medication abortion in seven African nations: A literature review

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ABSTRACT



We conducted a comprehensive literature review on abortion in seven African countries to synthesize and analyze the landscape of abortion-related scientific knowledge, with the aim of informing abortion-access related research and programs in the region. We find that that abortion is common, despite legal restrictions, and often occurs outside of the formal health care system. Use of medication abortion was reported to be low, potentially due to legal restrictions and insufficient provider training across the continent. Creative interventions that could improve people's knowledge of and access to safe medication abortion were identified and described.

ARTICLE HISTORY

Received 22 October 2018

Accepted 12 April 2019

Despite the existence of safe, effective, and low-cost abortion methods, particularly medication abortion, many abortions in the world remain unsafe, and people suffer morbidity and mortality as a result. The African continent has the highest proportion of less and least safe abortions of any region in the world. Increasingly, there is grassroots energy and effort to expand access to safe abortion on the continent; yet, these efforts are held back by a perception that existing research is scarce, and difficult to access. In an attempt to address this gap, we conducted a comprehensive literature review of the peer-reviewed data on the incidence and experience of induced abortion in seven African countries to offer a higher-level view of the landscape of medication abortion in the region, beyond what can be gained from any individual study, and to thereby highlight patterns in the evidence across countries, gaps in current research, and to identify

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The author list has changed since the initial publication and the updates are reflected in the online version. Please see Correction (<http://dx.doi.org/10.1080/07399332.2021.1951572>)

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promising programs and interventions that could be adapted and applied more broadly to increase access to safe, medication abortion.

With the advent of safe, medication abortion, “illegal” abortion need no longer be equivalent to “unsafe” abortion. With accurate information and access to reliable medicines, medication abortion with misoprostol, and mifepristone where available, is a safe and effective way to terminate pregnancy (Blanchard, Winikoff, Coyaji, & Ngoc, 2000; Fiala, Winikoff, Helström, Hellborg, & Gemzell-Danielsson, 2004; Henderson, Hwang, Harper, & Stewart, 2005; Ngoc et al., 2011). Less than one-fifth of one percent (0.2%) of women¹ experience serious complications from medication abortion when the medicines are administered correctly (World Health Organization [WHO], 2018) far less than the proportion that experience serious complications due to childbirth.

Yet, abortion is not always safe. Policy makers around the world have set legal restrictions that limit access to abortion, and these are widely-believed to contribute to the incidence of unsafe abortion and its associated morbidity and mortality by restricting training and education on safe abortion methods, limiting access to the medications or instruments necessary for safe abortion, furthering stigma that isolates women and providers, and more (Haddad & Nour, 2009; Grimes et al., 2006; WHO, 2018). Throughout the African continent, legal restrictions on abortion are particularly severe (Jackson, Johnson, Gebreselassie, Kangaude, & Mhango, 2011), and this translates to a high proportion of unsafe abortion cases. Between 2010 and 2014, an estimated 6.8 million abortions took place each year in Africa, and of these, nearly all were considered unsafe at some level: 0.7 million abortions were classified as “safe”, 2.2 million were classified as “less safe” abortions, and 3.9 million as “least-safe” abortions (Ganatra et al., 2017).²

In an effort to reduce the incidence of less and least safe abortions in Africa, many organizations are working to expand access to medication abortion information and services in the region. In 2016, eleven non-governmental organizations (NGOs) that each work to improve access to and use of medication abortion (as an alternative to unsafe abortion) in Africa came together to form a network called “Mobilizing Activists around Medical Abortion”, or MAMA, supported by Women Help Women, an international activist nonprofit organization. Through the MAMA Network program, partners in seven countries (Burundi, Democratic Republic of Congo, Kenya, Malawi, Nigeria, Tanzania, and Uganda) work to strengthen community activism around safe abortion through a variety of strategies. The MAMA network members and many other NGOs, however, lack access to the peer-reviewed literature on abortion, even within their home

countries, which limits their ability to design informed strategies for increasing access to medication abortion.

In an attempt to address this gap, we partnered with members of the MAMA network to design and conduct a comprehensive literature review of the peer-reviewed data on the incidence and experience of induced abortion in the seven African countries in which members of the MAMA network operate. Through this review, we aim to offer a higher-level view of the landscape of medication abortion in the region, beyond what can be gained from any individual study, and to thereby highlight patterns in the evidence across countries, gaps in current research, and to identify promising programs and interventions that could be adapted and applied more broadly to increase access to safe, medication abortion in the region.

With the understanding that the legal restrictions and overall abortion landscape in the countries studied here are similar to legal contexts in other settings, these results may be more broadly relevant to inform the scope and direction of the work pursued by academics, NGOs, community activists, and other stakeholders elsewhere, as well as to build capacity for more effective community activism. The peer-reviewed data presented in this review on the size of populations affected in each country, lessons learned from previous efforts to address unsafe abortion, and successful models of improving abortion care documented elsewhere can help to inform similar efforts within the same regional context.

Collectively, the authors of this paper represent different organizations that operate in Africa, Europe, and North America. As service providers, researchers, and advocates who are committed to improving access to safe abortion in places where it is illegal or inaccessible, we undertook this research to inform research and programmatic efforts toward that goal.

Methodology

We conducted a comprehensive literature review in June 2017 to identify and synthesize publications related to the incidence and experience of abortion, safe and unsafe, in seven African countries: Burundi, Democratic Republic of Congo, Kenya, Malawi, Nigeria, Tanzania, and Uganda. To guide our review, we adhered to a modified version of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework (Moher et al., 2009). We utilized the PRISMA guidelines to enhance the completeness and replicability of our comprehensive review, even though conducted among studies other than randomized controlled trials. The PRISMA framework we utilized was modified in that we did not assess the risk of bias in included studies, as our aim was not to provide a conclusive statement on a single research question; rather, to provide an

Table 1. Search terms and results.

Search term	Database	Results	Reviewed	Included in final literature review
'Burundi AND abortion'; 'Burundi AND avortement'; 'Burundi AND interruption volontaire de grossesse'	PubMed, MEDLINE, EBSCO, and EMBASE	8	2	2
'Democratic Republic of the Congo AND abortion'; 'Democratic Republic of the Congo AND avortement'; 'Democratic Republic of the Congo AND interruption volontaire de grossesse'	PubMed, MEDLINE, EBSCO, and EMBASE	47	12	5
'Kenya[MeSH Terms] AND abortion[MeSH Terms]'	PubMed, MEDLINE, EBSCO, and EMBASE	144	18	13
'Malawi[MeSH Terms] AND abortion[MeSH Terms]'	PubMed, MEDLINE, EBSCO, and EMBASE	45	5	5
'Nigeria[MeSH Terms] AND abortion[MeSH Terms] AND (2002/01/01[PDat] : 2017/06/07[PDat])'	PubMed, EBSCO ^a	128	38	28
'Tanzania[MeSH Terms] AND abortion[MeSH Terms]'	PubMed, EBSCO ^a	51	10	9
'Uganda[MeSH terms] AND abortion[MeSH terms]'	PubMed, EBSCO ^a	49	11	8
Total	PubMed, MEDLINE, EBSCO, and EMBASE	472	96	70

^aMEDLINE and EMBASE not listed for final four countries, as all results were duplicates of those returned from PubMed and EBSCO searches.

overview of the “state of the literature” on abortion in the region. In this comprehensive review, we searched the EBSCO, EMBASE, MEDLINE, and PubMed databases using a systematic search strategy by country, described in Table 1.

The criteria for inclusion were as follows: peer-reviewed, research conducted in the seven countries of interest related to induced abortion, published since 2005, in English or French. Articles were excluded if they did not meet the above criteria. The population of interest was people of reproductive age in the seven African countries. The outcome of interest was abortion incidence, provision, physical/emotional experiences of abortion, abortion safety, and abortion context in the seven African countries.

Publications were first screened for relevance based on the title, and among those deemed relevant, the full article was reviewed. For those articles that passed the title screen, two researchers reviewed the full text to assess whether inclusion criteria were met. Next, seven team members, each trained in comprehensive review research methods, abstracted relevant data from each included article (author initials removed for peer review), with a second independent review carried out by a senior researcher (author initials removed for peer review). Figure 1 depicts the screening and review process.

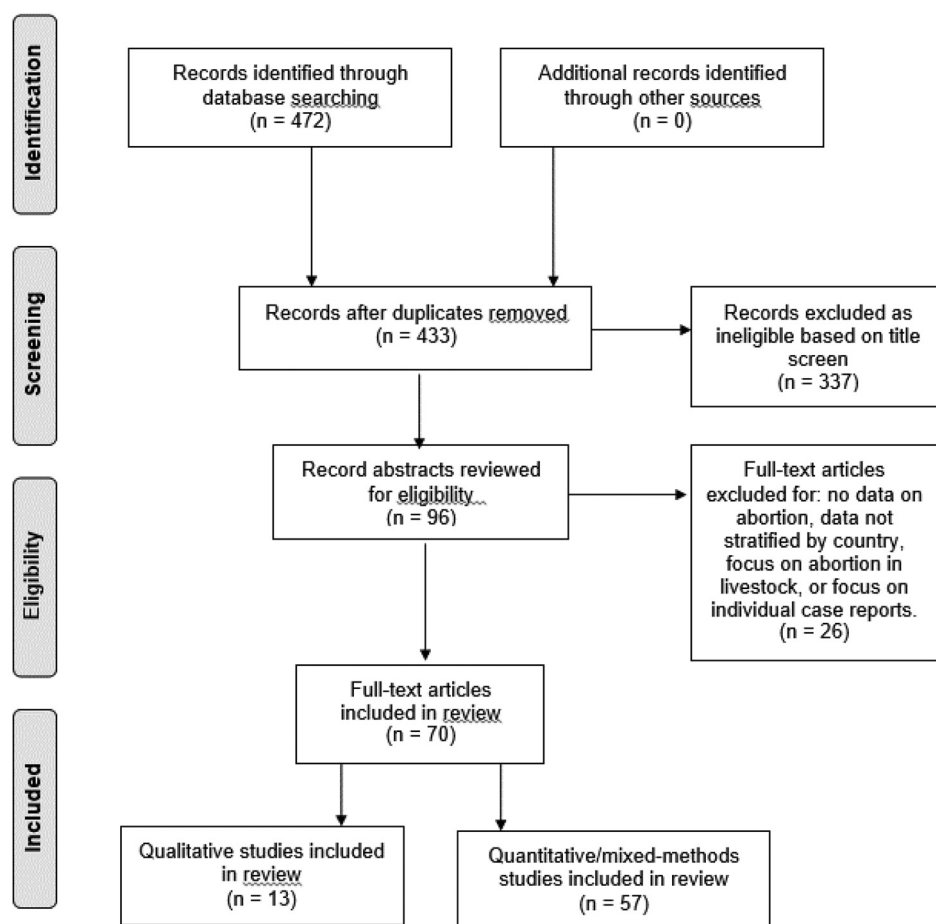


Figure 1. Flow diagram of the screening and review process for the literature review. Adapted from Moher et al. (2009) and the PRISMA Group.

Results

The search strategy returned 433 unique results. Of these 433 articles, 96 passed the title screen and went on to full text review. Of these 96 results, 70 studies fully met the inclusion criteria and were included in the literature review. The most common reasons for exclusion of an article included: a focus on general sexual and reproductive health (exclusive of abortion), abortions among livestock or other veterinary subjects, case reports of spontaneous miscarriages due to specific illness (i.e. Ebola virus), and results not stratified by country. Of the 70 included studies, 57 were quantitative or mixed methods, and include cross-sectional surveys (40 studies), randomized control trials (1 study), retrospective case review studies (11 studies), systematic review (1 study), and prospective cohort studies (4 studies). Thirteen of the publications were qualitative, including focus group discussions and in-depth interviews.

The publications reviewed focused on a variety of themes including, incidence of unsafe abortion, incidence of medication abortion, morbidity and mortality due to abortion, abortion in vulnerable populations, access to information on medication abortion, the role of health care workers in abortion provision, and community provision of medication abortion. In relation to the seven countries that we used to frame our research, we broadly categorized the findings into two topic areas: (a) incidence and safety of abortion and (b) provision of abortion information and care. In further sections, we detail the findings from each of these two topic areas, for each of the seven countries.

Incidence and safety of abortion in Burundi

Chi, Bulage, Urdal, and Sundby (2015) and De Plecker et al. (2017) addressed the occurrence of abortion in Burundi. In 2015, Chi, Bulage, Urdal, and Sundby (2015) published a peer-reviewed qualitative study in the journal *BMC International Health & Human Rights* on women's, health care providers', and NGO workers' perceptions of the impact of armed conflict on various aspects of maternal and reproductive health care. In interviews and focus group discussions with 115 individuals, health care providers and NGO workers expressed concern over a perceived increase in abortion-related complications and deaths among young girls. One NGO worker described her perspective as follows:

"...from my experience the complications of abortion are there because there are many induced abortions which go unrecorded. There are many teenage pregnancies because these girls conceive without planning. They never intended and then later they do all sorts of manipulation to end the pregnancy, and in so doing, you find that they have perforated their uterus, they have contracted a lot of infections, they are bleeding and all that. These are very common things!" (p. 8)

De Plecker et al. (2017) indirectly addressed the safety of abortion in Burundi. De Plecker et al. (2017) conducted a retrospective medical records review at a rural district hospital in Burundi, and found that of 6,084 women referred for emergency obstetrical care, the two most prevalent conditions requiring a minor surgical procedure were abortions (61%) and normal delivery (34%). This suggests that many abortions occurring in Burundi may result in complications that require referral for emergency obstetric care. No information was identified in the peer-reviewed literature about the incidence of medication abortion in Burundi.

Provision of abortion information and care in Burundi

Neither of the authors from the two included publications addressed provision of abortion information in Burundi. De Plecker et al. (2017), however,

provides some minimal insight into provision of abortion care for hospital-managed abortion – of 219 curettage procedures documented in the medical records review, 3 were conducted by an OBGYN (1%), while the remaining 216 (99%) were conducted by a “general practitioner with surgical skills”. The authors, however, do not define the clinical qualifications of a “general practitioner with surgical skills”.

Incidence and safety of abortion in Democratic Republic of Congo

In 2008, the WHO projected that 36 out of 1000 women of reproductive age in Central Africa induce an abortion each year (WHO, 2011). However, researchers, in other peer-reviewed studies (which may not be representative) have estimated that the number of induced abortions in DRC may be higher. Kisindja, Kimona, Etoy, Dorme, and Benfield (2017) conducted a cross-sectional survey of 155 women ages 14–45 years living in the Mugunga camps in 2014 and found that 21% of women reported ever terminating a pregnancy, and 61% of these abortions were self-induced. This estimate is nearly ten times that estimated by the WHO in 2008, and the authors acknowledge that the true prevalence of induced abortion in this population is likely even higher due to under-reporting of abortion owing to stigma and legal concerns.

In a study conducted by Kisindja, Benfield, and Wright (2012) of a narrower population of 83 women presenting to a local hospital (HEAL Africa tertiary care hospital in Goma) with bleeding in the first-trimester, 48% reported having attempted to induce an abortion. Of these women who reported “provoked” abortion, 62% attempted at less than 9 weeks gestation (range: 5–15 weeks). Forty percent of the women who presented after an induced abortion had a serious complication because of the abortion, such as infection or severe hemorrhage, including peritonitis in three women and two deaths. This compares to the 23% proportion of spontaneous abortion cases that resulted in complications. In all cases without severe hemorrhage or infection, women were successfully treated with misoprostol.

In a study by Rouhani et al. (2016), among a further limited subset of 86 women who reported terminating a pregnancy resulting from sexual violence, 79% had tried to induce an abortion at some point previously in their lives as well. The most common methods of termination were an oral medicine (55%), herbs (35%), cimpokolo (*Phytolacc dodecandra* L’Hérit) (31%), and quinine (18%). In addition to the above, specific herbs and methods mentioned included sombe/cassava, *mayanibuchungu*, root of sorghum, aloe vera, washing with dirty water, *luungusu*, *cimbehe*, *cilula/cigaka*, salt, and papaya. Women administered these methods in a variety of ways.

More than half (55%) took a medication by mouth, 35% took an herb by mouth, while 7% placed medicine in the vagina, 5% placed medicine in the rectum, 2% injected a medicine, and 1% or fewer reported placing an herb in the vagina or rectum, using an instrument or procedure, or participating in a ritual/ceremony. Most women (79%) reported subsequent physical symptoms after the abortion, including abdominal pain (74%), bleeding (47%), vaginal discharge (35%) and fever (18%). Nearly half of these women (44%) sought medical care for their symptoms. Burkhardt et al. (2016) published a qualitative study among a similar group of women who experienced sexual-violence related pregnancies (SVRP), 17 of whom successfully terminated the pregnancy and 38 of whom were parenting the child resulting from the SVRP., Burkhardt et al. revealed that nearly all women who terminated or attempted to terminate a pregnancy relied on herbs or medications obtained through informal health care networks. Most women relied on non-evidence based methods, most commonly *cim-pokolo*. It is unclear from the existing literature whether women rely on informal health care sources based on a preference for alternative care, or because of restricted access to safe abortion in the formal health care sector.

Provision of abortion information and care in Democratic Republic of Congo

Casey, Chynoweth, Cornier, Gallagher, and Wheeler (2015) assessed the provision and availability of a range of family planning services in the Masisi Health Zone in North Kivu Province of the DRC. The investigators surveyed all physically accessible health facilities in the region, including a total of 1 hospital and 25 health centers. Providers in eleven out of the 26 facilities assessed (44%) were offering comprehensive post-abortion care (PAC), defined as being able to adequately provide manual vacuum aspiration (MVA) or misoprostol and offering at least one family planning method to post-abortion clients in the past 3 months. MVA was the most common form of uterine evacuation, with staff in only three facilities in DRC having misoprostol on-hand for PAC at the time of assessment. None of the providers in the 26 facilities reported providing safe abortion care in the past 3 months, citing a lack of government authorization for such services. They cited scarce supplies and a dearth of trained staff as barriers to providing safe abortion.

Rouhani et al. (2016) conducted surveys and interviews among women who disclosed an experience of abortion. Women reported that their sources of information about abortion included friends (35%), family (14%), village chief/elder (10%), community members (8%), health care providers (7%), traditional healers (6%), other (1%), or no one (19%). Regarding

access to methods of abortion, women reported relying on friends (37%), health care providers (18%), family (16%), or themselves only (12%). Similarly, Burkhardt et al. (2016) found that, among women who successfully terminated a SVRP, 53% reported obtaining the medicine with help from someone else.

Incidence and safety of abortion in Kenya

Utilizing the Abortion Incidence Complications Methodology (AICM), Mohamed et al. (2015) estimated that in 2012, 464,000 induced abortions took place in Kenya, or 48 per 1,000 women ages 15–49 years, for an abortion ratio of 30 abortions for every 100 live births. In health facilities, an estimated 120,000 women received care for complications of induced abortion, suggesting that at least one in four induced abortions resulted in complications that required medical attention. These estimates are considered nationally representative for Kenya.

In a study by Maina, Mutua, and Sidze (2015), of 769 women who reported an induced abortion and were seen at one of 328 health facilities in Kenya, 16% had experienced multiple abortions. Women who were divorced, less educated, relied on traditional methods of contraception, and had previous births were much more likely to have experienced multiple abortions than women who did not fit those criteria.

When female focus group participants in Bungoma and Trans Nzoia in Western Kenya were asked about common methods of induced abortion, participants mentioned tea leaves, quinine, detergent, undiluted fruit juice, metal rod or wire, traditional herbs, and paracetamol overdose (Marlow et al., 2014). A number of misconceptions mentioned in this study were common to other studies as well – such as that abortion is safer at higher gestational ages, that abortion is illegal in all cases in Kenya, and that there are no safe methods of abortion. Nearly all women knew friends or relatives that had died from some form of complication from unsafe abortion.

In light of qualitative evidence of the health risks of informal-sector induced abortion, several researchers have attempted to quantify the safety of induced abortion in Kenya. In a nationally representative study which included a sample of 326 Kenyan health facilities and data from 2,625 women presenting with abortion complications, Ziraba et al. (2015) found that over 75% of women presented with moderate or severe complications (having at least one of the following: offensive products of conception, temperature $>37.3^{\circ}\text{C}$, localized or generalized peritonitis, evidence of mechanical injury/foreign body, shock, pulse >119 beats per minute, organ or system failure, tetanus, sepsis, or death). Of all documented complications, 65% were managed by performing manual or electric vacuum aspiration,

19% by forceps or finger, 8% by dilation and curettage (D&C), and 8% by misoprostol. Investigators found that pregnancies that were unplanned or unwanted had a much higher risk of complications as compared to wanted pregnancies.

With regard to vulnerable populations, authors of three studies examined the incidence or safety of abortion among people who had experienced intimate partner violence (IPV), female sex workers (FSW), and women who have sex with women (WSW). In a study utilizing data from Kenya's 2003 Demographic and Health Survey (DHS), Emenike, Lawoko, and Dalal (2008) found that, of 619 women who reported ever having an abortion, 44% had experienced physical IPV, 30% emotional IPV, and 16% sexual IPV. In multivariable models, women who had been exposed to physical or emotional IPV had odds of having terminated a pregnancy that were 24–30% higher ($p < .01$) as compared to women who had not been exposed to physical or emotional IPV. The authors conclude that women who experienced IPV may be at increased risk of seeking unsafe abortion; however, due to the cross-sectional nature of the survey, it is not apparent whether IPV preceded the termination or not. Sutherland et al. (2011) conducted a cross-sectional survey of 597 FSW as well as 8 focus group discussions in Changanwe and Naivasha by, and found that 37% of FSW reported ever having had an induced abortion. Over half of the FSW (52%) had experienced an unwanted pregnancy, and 60% did not want any more children ever. Many women reported fears about the risks of unsafe abortion, and weighed these against the challenges of continuing an unwanted pregnancy. In a study by Zaidi, Ocholla, Otieno, and Sandfort (2016), of 280 women who had sex with another woman in the past 3 years living in Kenya's three largest cities (Kisumu, Mombasa, and Nairobi), 13.2% had ever had an induced abortion. Although identifying as women who have sex with women, 39% reported a male sexual partner in the past 3 years as well, indicating that these women are at risk for unplanned pregnancy. Prevalence of abortion was highest in Mombasa, as compared to Nairobi or Kisumu.

Provision of abortion information and care in Kenya

Several studies addressed the complex social context in which abortion takes place in Kenyan communities. In a 2009 qualitative study of 74 purposively selected rural and urban married women and men ages 25 and older in Nyeri District, Central Kenya, Izugbara, Otsola, and Ezeh (2009) found that women neither champion nor condemn abortion – rather, they view it as an important shield against the negative socioeconomic consequences of mistimed or unnecessary childbearing. Men, however, were

condemnatory toward abortion and viewed it as a woman's strategy for "concealing her deviation from culturally acceptable gender and motherhood standards." Women discussed a need to rely on poor quality abortion services because of the prohibitively high cost of qualified providers. Osur, Orago, Mwanzo, and Bukusi (2015) conducted a mixed methods study, involving a survey of 320 women as well as key informant interviews and focus group discussions on social networks and their role in clandestine abortion facilitation. Investigators found that 95% of women consulted their social networks as part of the decision-making process before obtaining an unsafe or clandestine abortion. The man involved in the pregnancy was the most consulted in the decision-making process (64% of women), followed by a friend of the same sex (32%) and the woman's mother (23%). Of these, the man involved in the pregnancy and the woman's mother were the most influential advisors. The authors highlight that decision-making about seeking informal sector abortion appeared to be strongly socially networked, and programs to improve the safety of abortion services should bear this in mind.

Other investigators found that women defined a "safe abortion provider" much more broadly than the typical clinical perspective focusing on risks to the woman's health. Women in Kenyan focus groups described defining a "safe abortion provider" as someone who not only protects their physical health, but perhaps equally importantly, can protect their social reputation and keep their procedure secret (Izugbara, Egesa, & Okelo, 2015). Many women were knowledgeable about abortion methods, but declined to seek formal sector abortions due to the condemnatory and judgmental attitudes of clinic staff, who reportedly gossip about individual patients and even publicize individual abortion experiences (Izugbara, Egesa, & Okelo, 2015). This same stigma and public shaming by clinicians of women seeking abortion was reported in another qualitative study by Yegon, Kabanya, Echoka, and Osur (2016), as well in the Machakos and Trans Nzoia areas. The poor treatment of women by health care providers was a theme that repeatedly emerged across studies as a motivating factor for why women seek abortion outside of the formal health sector.

Beyond the social and emotional treatment of women at formal abortion facilities, Evens et al. (2014) highlighted discrepancies between what providers of PAC say they offer to their clients, versus what the clients report receiving. Fewer than half of clients said the provider explained the procedure to them, while all providers said they do this. Similarly, only 40% of clients reported receiving a method of contraception at their PAC visit, while all providers said that they routinely provide contraception at these visits.

In an assessment of alternative models of PAC, Osur, Baird, Levandowski, Jackson, and Murokora (2013) conducted a mixed methods

evaluation of a program implemented to introduce the use of misoprostol for PAC in Kenya. They found that the program was easy to use, freed up provider time and health facility resources that were traditionally necessary for provision of PAC with uterine aspiration. Beyond the facility side, the program seemed to be preferable to patients as well: providers perceived that many women preferred misoprostol use as they avoided use of medical instruments, hospital admission, high costs, and stigma associated with abortion.

Another study similarly explored the potential role of misoprostol in several contexts (Coeytaux et al., 2014). This paper presented results from a program that provided small grants (\$2,000 USD) to 28 organizations across Kenya and Tanzania to disseminate information on the correct use of misoprostol for abortion and post-partum hemorrhage (PPH). The community groups developed a range of creative education strategies for sharing this information with their communities – several of which are included here. A group working in a community where abortion was highly stigmatized avoided the use of the word “abortion” entirely, by designing a flyer that instead read “Have you missed your period? Are you worried? Come talk to us, we can help.” Another group printed and disseminated handkerchiefs with pictorial indications for the use of misoprostol for safe abortion and PPH. Another group printed messages inside the reusable sanitary towel packages distributed by an NGO in rural communities that described what to do if a woman is worried about a missed period, and provided the phone number for a hotline. Others trained traditional birth attendants (TBAs) and herbalists on how to provide misoprostol directly to women, while another intervention recruited and trained local mini-bus drivers to deliver misoprostol to women in rural areas. Women were provided the number for calling the driver, and a text message to confirm receipt when it arrived. This method has worked for same day delivery of misoprostol for many women. A unifying theme across funded groups was that women felt empowered and emboldened to share this information upon learning that women and mothers are dying because of a lack of information about misoprostol.

Incidence and safety of abortion in Malawi

Using data from 166 public, NGO, and private health facilities, as well as 56 key informants in Malawi, investigators used the AICM to estimate the incidence of induced abortion, induced abortion complications, and unintended pregnancy in Malawi (Levandowski et al., 2013). Researchers suggest that approximately 67,300 induced abortions were performed in Malawi in 2009, equivalent to 23 induced abortions per 1,000 women aged

15–44 years of age, and an abortion rate of 12 per 1,000 live births. Over half of all pregnancies (52%) were estimated to be unintended.

Jackson et al. (2011), with the Ministry of Health in Malawi, conducted a large qualitative study in which 485 women across the country were interviewed about sexual and reproductive health, maternal mortality, and unsafe abortion. Induced abortion was found to be common, and while wealthier women in urban areas could pay for care from skilled providers (estimated cost \$35 USD), most women relied on unsafe methods from unskilled providers or self-managed their own abortions. Women listed a wide range of reasons for seeking abortion, including poverty, inability to support more children, desire to finish schooling, extra-marital pregnancy, partner insistence, parental insistence, birth spacing, pregnancy due to rape or incest, abusive relationships, and more. Alternative methods of abortion discussed included oral approaches (detergents, concentrated tea, quinine, aspirin, tetracycline, chloramphenicol, ampicillin, SB-300, ground sisal leaves, aloe vera, mtunda tree (ground bark/roots), nimu, and fish poison); as well as vaginal methods (cassava stick, msatsi tree stem, lemon juice on vaginal suppository); and several male methods (concoction smeared on penis prior to sex, male consumes concoction prior to sex).

Morbidity and mortality due to induced abortion in Malawi appear to be high. In a 2010 study, it was found that unsafe abortion was the second leading cause of pregnancy related mortality in Malawi, accounting for nearly one in five of all maternal deaths. Based on the AICM methodology, Levandowski et al. (2013) estimated that 18,700 women (or 28% of all induced abortions) were treated for complications of induced abortion in Malawi in 2009. Kalilani-Phiri et al. (2015) conducted a cross-section study of women who sought PAC in Malawi and estimated that 26,635 women (95%CI: 22,596–30,674) seek PAC at health facilities in Malawi annually. Of the 2,546 women in the study, 27% presented with severe or moderate morbidity. Sepsis (14%), retained products of conception (13%), and fever (12%) were the most common complications. The case fatality rate was 387 deaths per 100,000 post-abortion procedures. Women from rural areas were much more likely to present with severe or moderate complications and to have reported interfering with their pregnancy than women from urban areas. Most women sought PAC at public facilities, with an average of 160 PAC cases in hospitals and 173 PAC clients in private clinics each year. In a similar study by Levandowski, Pearson, Lunguzi, and Katengeza (2012), of PAC clients presenting to health facilities in Malawi, 21% were found to be less than 19 years old (the youngest of whom was 12 years old), and 30% were between the ages of 20–24 years. Most PAC clients lived in rural areas (66%), and 81% were currently married. Among PAC clients, the experience of unintended pregnancy was high and lack of access to

modern contraceptives was low: only 5% of adolescents were using contraception at the time of pregnancy, as compared to 23% of those aged 20–24 years, and 30% of all adults.

Provision of abortion information and care in Malawi

In interviews with health care providers in Malawi, many reported a conservative interpretation of Malawian abortion law, and nearly all said that they would decline to provide an abortion rather than risk providing an illegal abortion, which in Malawi is punishable with 7–14 years in prison (Jackson et al., 2011). This conservative interpretation of an already restrictive law further limits access to safe abortion for women in Malawi.

In a study by Odland et al. (2014), all available medical records for women who underwent surgical uterine evacuation between 2008 and 2012 at three hospitals in Malawi (Queen Elizabeth Central, Chiradzulu District, and Mangochi District hospitals) were reviewed and the procedure used to manage first-trimester abortions (MVA versus sharp curettage) was tracked. Of 5,121 cases reviewed, one third (34%) were treated with MVA while the rest were sharp curettage. Looking at trends over time, use of MVA increased between 2008 and 2009 (from 20% to 31%), but then declined sharply from 2010 (29%) to 2012 (5%), while use of sharp curettage increased at all hospitals over the same period. This preference for sharp curettage over MVA is contrary to best-practice recommendations, as MVA can be offered more safely, with less risk of hemorrhage, and as an outpatient procedure. When asked about why MVA is not used more frequently, providers cited a lack of equipment and trained personnel. Misoprostol was rarely used to manage incomplete abortion as providers dis-preferred the time required between treatment administration and result. They preferred the immediacy and certainty of sharp curettage. Study authors urged the Ministry of Health to address the barriers to utilization of misoprostol and MVA in Malawi.

Incidence and safety of abortion in Nigeria

The most recent nationally representative estimate of induced abortions in Nigeria was estimated in 2012 using the AICM by Bankole et al. (2015). Using data from 772 health facilities and 194 health care providers, an estimated 1.25 million induced abortions occurred in Nigeria in 2012, for a rate of 33 abortions per 1,000 women ages 15–49 years. Over half of all unintended pregnancies (56%) were estimated to end in abortion. From several studies conducted among non-probability samples of women of reproductive age, estimates of the lifetime prevalence of induced abortion

were generated. These varied widely depending on region, ranging from 14% (nationally) (Bankole et al., 2015; Sedgh et al., 2006), to 23% (Ogun State) (Lamina, 2015a), to 34% (South-Western Nigeria) (Lamina, 2015b), to 78% (University of Benin Teaching hospital) (Okonofua, Omo-Aghoja, Bello, Osughe, & Agholor, 2010). Across studies, women cited economic reasons, birth-spacing, and a desire to finish schooling, as primary reasons for seeking abortion. Contraceptive use was quite low across studies as well.

Regarding medication abortion specifically, in one cross-sectional study by Adinma et al. (2012) of 100 consecutive medication abortion seekers in South-Eastern Nigeria, it was found that 55% were students, and 49% had terminated a pregnancy previously. The medication that women had used to attempt to induce abortion previously included quinine combined with other drugs (8%), gynaecosid alone (6%), gynaecosid in combination with other drugs (6%), menstrogen combined with other drugs (6%), and unclassified medications (14%). Nearly half of the women surveyed (44%) purchased the medication for abortion from a pharmacy or chemist, while 52% did not specify where it was procured. Only 3% of women had knowledge of misoprostol, 2% had knowledge of mifepristone, and none were aware of methotrexate. Another prospective study by Okonofua, Shittu, Shochet, Diop, and Winikoff (2014) followed 250 women eligible for legal pregnancy termination in 2005 and 2006. All women received 200ug of oral mifepristone at the clinic, followed by 400ug of oral misoprostol 2 days later (either at home or in the clinic). Women returned 2 weeks later for follow-up. Nearly all women (96%) had successful complete abortions, and were satisfied or very satisfied with the method. Most women (83%) opted to take the oral misoprostol at home, reducing the number of clinic visits required. In another study by Dah et al. (2011) women and providers were surveyed following the introduction of misoprostol for incomplete abortion in three Nigerian hospitals. Similar to the above mentioned study, both women and providers were highly satisfied with the method. Most women (93%) would recommend it to another woman in a similar situation, and 86% would choose misoprostol again for an incomplete abortion. Providers were most satisfied with the method's ease of use, low cost, room temperature stability, and consequent ability to redirect surgical resources to more complicated issues. Despite this widespread acceptability and satisfaction with medication abortion, most safe abortions conducted in Nigeria are performed with MVA or D&C. However, medication abortion has been demonstrated to be as effective, much less costly in time and resources, to reduce complications, and to be preferable for many women.

Perhaps due to the low use of medication abortion in Nigeria, morbidity and mortality due to abortion remains high. In a nationally representative

study, Bankole et al. (2015) estimated that 212,000 women were treated for complications of unsafe abortion in 2012 in Nigeria, representing a treatment rate of 5.6 per 1,000 women of reproductive age, and that an additional 285,000 experienced serious health consequences but did not receive the treatment they needed. In a study by Adeniji, Atanda, and Adeyemi (2013) of 225 abortion complications cases in Osogbo, Nigeria, the most common complication was sepsis (71% of cases), followed by uterine perforation (13%), bowel injury (9%), and hemorrhage or anemia (7%). Women reported terminating their pregnancies by D&C (47%), other drugs (13%), prostaglandins (9%), MVA (7%), and herbs (2%). The majority (71%) were performed before 14 weeks gestation. In a study of 338 patients treated for abortion complications at Lagos State University Teaching Hospital, 12% of patients died (Fabamwo, Akinola, & Akpan, 2009). In another study by Kalu, Umeora, and Sunday-Adeoye (2012) in Ebonyi state, it was found that 41% of all gynecological admissions over a 5-year period were due to abortion complications. The study also found that, of the health care workers providing PAC to these women, only 31% had formal training in comprehensive PAC, thereby further exacerbating the problem.

In six studies published since 2005, reviews of maternal deaths in Nigeria were conducted and the role of induced abortion was assessed. In all of these studies it was found that approximately 10–12% of maternal deaths that occur in hospitals are due to unsafe abortion (Adegoke, Campbell, Ogundeji, Lawoyin, & Thomson, 2013; Ande, Olagbuji, & Ezeanochie, 2012; Kalu et al., 2012; Nwogu-Ikojo & Ezegwui, 2007; Prada et al., 2015). However, Nwobodo and Panti (2012) conducted a study in Sokoto (North-Western Nigeria) in which they looked only at maternal deaths among adolescent girls (ages 10–19), and found a much lower percentage of deaths due to induced abortion (2.4%). The authors speculate that this surprisingly low percentage may be due to a higher likelihood of early marriage in this region, often before first menarche. Thus, more adolescent pregnancies in this region occur to married women and may be less likely to be unwanted, thus fewer induced abortions may be sought in this age range.

The results of the prior study notwithstanding, adolescent girls are particularly vulnerable to the risks of unsafe abortion in Nigeria. Okereke (2010a) conducted a study of 896 adolescent girls (aged 10–19 years) in Owerri, Nigeria and found that 20% reported ever having had an abortion. Of these young women, 49% obtained abortion services from a pharmacy, 19% at a friend's house, and 5% in "the bush". Of the young women who reported having had an abortion, 71% had complications, but less than a third sought treatment (Okereke, 2010b). In another survey of 1,800 adolescent girls currently in school in Lagos state, nearly half (44%) felt that

information on the health consequences of abortion or how to terminate a pregnancy safely was inaccessible (Anasi, 2015).

Women who have experienced IPV are yet another vulnerable group at increased risk of unwanted pregnancy, and thus, unsafe abortion. Antai and Adaji (2012) used estimates from the 2008 Nigerian DHS, and found that, similar to findings in other countries, the prevalence of abortion was higher among women reporting experiences with sexual, physical or emotional IPV. Among women reporting any experience of IPV, 30% also reported a prior induced abortion.

Provision of abortion information and care in Nigeria

Much attention has been paid to the knowledge, opinions, and practices of health care workers in Nigeria regarding the provision of abortion care. In five studies of health care providers' experiences with induced abortions and abortion complications, fewer than one-third of respondents reported providing pregnancy termination services themselves (and often fewer than 25%), though nearly all reported treating abortion complications (Adinma, Adinma, Ikeako, & Ezeama, 2011; Okonofua et al., 2011; Okonta, Ebeigbe, & Sunday-Adeoye, 2010; Omo-Aghoja et al., 2011; Onah, Ogbuokiri, Obi, & Oguanuo, 2009). Of providers that did not provide abortion services, most cited religious or moral objections as the primary reason, more so than obedience to Nigerian law (Omo-Aghoja et al., 2011; Onah et al., 2009). In three studies, two in South Eastern Nigeria and another across five Nigerian states, MVA and D&C were the most common methods used for induced abortions (Adinma, Adinma, Ikeako, & Ezeama, 2011; Onah et al., 2009; Okonofua et al., 2011). However, in the Niger-Delta region, 52% of abortions were conducted using medication, and only 6% with MVA and D&C (Omo-Aghoja et al., 2011). Across studies, most providers had not received formal training in comprehensive abortion or PAC (generally only 30–40% had received formal training) (Adinma et al., 2012; Omo-Aghoja et al., 2011). As a result, knowledge of safe abortion methods was low among providers. In one study, only 35% of providers listed misoprostol as a medication they knew that could be used for abortion or PAC, and only 12% listed mifepristone (Okonofua et al., 2011). By contrast, 49% listed inappropriate or dangerous drugs for abortion provision (Okonofua et al., 2011).

There is a reported need for comprehensive training in abortion and PAC for health care providers across Nigeria. Ogu et al. (2012) describe one intervention in 8 states of Northern Nigeria that attempted to address this by providing an in-depth training focused on integrating PAC, family planning, and sexually transmitted infection/HIV care for 458 medical

doctors and 839 nurse midwives. In the 15 months after the intervention was established, only 33 of 2,559 women seen for abortion or PAC (1%) experienced mild complications, and none suffered severe complications or death. In addition, the total costs of treatment were reduced, and contraceptive uptake doubled.

To further improve the care women receive for pregnancy termination and resulting complications, there is a reported need to strengthen linkages between the community and the health care system. In a survey of all registered health facilities in South-Eastern Nigeria, only 6% of providers were aware of community partners active in reproductive health or family planning (Adinma, Ikeako, Adinma, Ezeama, & Ugboaja, 2010). Adinma (2011) makes the argument that community activists should advocate for liberalization of abortion law in terms of the three major bioethical principles that unsafe abortion violates: respect for persons with autonomy, beneficence, and non-maleficence.

Incidence and safety of abortion in Tanzania

Keogh et al. (2015) estimated the incidence of induced abortion in Tanzania using the AICM. The authors suggests that approximately 405,000 women had induced abortions in Tanzania in 2013. This translates to an abortion rate of 36 abortions per 1,000 women ages 15–49 years, and 21 abortions per 100 live births. The abortion rate was estimated to vary widely by region, from 10.7 per 1,000 women in Zanzibar to 50.7 per 1,000 women in the Lake Zone. Authors attribute this regional variation to differences in fertility and contraceptive prevalence by region.

Several researchers have investigated the methods used by Tanzanian women to induce abortion. In two studies, published 5 years apart (Rasch & Kipingili, 2009; Rasch, Sørensen, Wang, Tibazarwa, & Jger, 2014), data on women admitted for incomplete abortion or alleged miscarriage in Tanzanian health facilities were collected. From the most recent estimates, it is suggested that at least two-thirds of women (67%) admitted for incomplete abortion had attempted to induce abortion. Nearly half of these women (45%) had sought care from unskilled providers (27% self-managed, while another 18% saw a traditional provider). More than half of the reported induced abortions took place in a private home. In terms of methods used, 38% of women reported receiving MVA or D&C, while 35% of women ingested plants/herbs orally (strong tea or chewed) or vaginally. In a more recent study, Norris, Harrington, Grossman, Hemed, and Hindin (2016) interviewed 45 women who had induced abortions in Zanzibar and identified similar methods of induced abortion as those reported on the mainland. Of the 45 women who induced an abortion, approximately half

terminated the pregnancy in a hospital, while the other 47% successfully terminated the pregnancy using herbs – most frequently henna root, strong black tea, and combinations of the two. Women reported spending an average of \$29 USD for the abortion, ranging from \$0 to 47 USD. Over 80% of women were successful at aborting in the first attempt, even those using herbs. The three most common reasons cited for seeking abortion were already having an infant (34%), extra-marital pregnancy (34%), and being a student (30%).

The safety of induced abortion in Tanzania, as in many other countries in the region, is poor when conducted by unskilled providers. In a 2014 report from the Ministry of Health, it is suggested that unsafe abortion may be the second leading cause of maternal deaths in Tanzania (The United Republic of Tanzania Ministry of Health and Social Welfare, 2008). Magoma et al. (2015) explored this topic specifically in a retrospective chart review of maternal deaths between 2008 and 2012 at a tertiary care hospital in Tanzania (the main referral hospital for 37% of the mainland population). Of the 80 maternal deaths documented during this time, abortion accounted for 1 in 10. Rasch and Kipingili (2009) cite a similar report by the Tanzanian Health Management Information System, that abortion complications are the second through fourth most common hospital admission causes, exceeded only by malaria, acute respiratory infection, and anemia. While data on the incidence or prevalence of medication abortion was not found for Tanzania, Baggaley, Burgin, and Campbell (2010) estimated the number of deaths that could be averted by introducing medication abortion with misoprostol to Tanzania. The authors concluded that over 2,000 lives could be saved each year if misoprostol were introduced with at least 56% coverage in the population (the same coverage as modern contraceptive methods). Beyond this, with each 10% increase in coverage of misoprostol for safe abortion, authors suggested a 1–2% decrease in the maternal mortality ratio.

In a large population based study by Stöckl, Filippi, Watts, and Mbwapbo (2012) of women of reproductive age in Dar es Salaam and Mbeya, the authors found that 41% of ever-pregnant women and 54% of ever-partnered women reported experiencing physical, and/or sexual IPV at some point in their lives. Among these women, 7% reported ever having induced an abortion (although this is likely an underestimate).

Provision of abortion information and care in Tanzania

Given that many women seek information about terminating unwanted pregnancies from TBAs, Nikolajsen et al. (2011) explored the content and efficacy of the abortion induction methods recommended by TBAs to

women in Tanzania. Investigators interviewed 22 TBAs regarding plant use in relation to induced abortion, and identified 21 different types of plant extract that they subsequently tested in rats. Eleven plant species were found to increase the force of uterine contractions, and 12 to increase their frequency. The species that gave the strongest contractions comparable to the maximum response obtained with acetylcholine were *Bidens pilosa*, *Commelina africana*, *Desmodium barbatum*, *Manihot esculenta*, *Ocimum suave*, *Oldenlandia corymbosa* and *Sphaerogyne latifolia*. Extracts of seven species, *Commelina africana*, *Desmodium barbatum*, *Obetia radula*, *Ocimum suave*, *Rubia cordifolia*, *Sphaerogyne latifolia* and *Triumfetta microphylla* increased both the force of contractions and their frequency. For most of the extracts, a dose–response curve was observed.

In other work in Tanzania, researchers have focused on how to reduce the harms of unsafe abortion in the near-term, given that any liberalization of the legal status of abortion is likely to be slow and incremental. In a recent study, Kahabuka, Pembe, and Meglioli (2017) described a harm-reduction model for induced abortion that was implemented at a public health center in Dar es Salaam. The model was centered on the right to information, and was targeted toward women with unwanted pregnancies but no legal grounds for abortion. These women were given evidence-based information and counseling about alternative options, the risks involved in clandestine methods, and the information needed to self-administer misoprostol (though no referrals to or advice about where to obtain misoprostol was provided). The women were then sent back into the community, and asked to return for a follow-up visit 1–2 weeks later so that any complications could be ruled out and/or treated, or women could be linked to prenatal care if no termination occurred. In a survey of women who returned for a follow-up visit, 98% of women who had received the counseling used misoprostol for self-managed abortion. This is a markedly different from other studies in Tanzania where use of misoprostol was found to be much lower. Elsewhere in the world, this model of care has found to reduce deaths from unsafe abortion by 28–47% (Pan American Health Organization, 2012; Tatum et al., 2012).

Incidence and safety of abortion in Uganda

The most recent, nationally representative estimate of abortion incidence in Uganda was calculated by Singh, Prada, Mirembe, and Kiggundu (2005) based on the AICM. An estimated 297,000 Ugandan women had induced abortions in a year, translating to an abortion rate of 54 per 1,000 women of reproductive age – an abortion rate notably higher than other countries in Eastern Africa.

Morbidity and mortality from induced abortion was similarly estimated to be high, given the unsafe conditions in which it typically occurs. It was estimated that 85,000 women, or 15 of every 1,000 women aged 15–49 years, were treated for complications from induced abortion per year in Uganda (Singh et al., 2005). Somigliana et al. (2011) conducted a maternal death review at a rural hospital in Uganda over a 12-month period in 2009 and 2010 and identified unsafe abortion as the direct cause of 29% of maternal deaths. In another study, Mbonye, Asimwe, Kabarangira, Nanda, and Orinda (2007) assessed emergency obstetric services at 553 health facilities across Uganda. The authors list complications of abortion as the cause of 11% of maternal deaths, and general obstetric complications as the cause of 39% of maternal deaths.

Beyond mortality, Lubinga et al. (2013) compared the experiences of women seeking care for induced abortion complications versus routine obstetric care and found that abortion complications were associated with a significantly diminished health related quality of life score. The largest differences between women who had abortion complications versus those who received routine obstetric care were observed in outcomes related to pain/discomfort, usual activity, and anxiety/depression, suggesting that these are the main drivers of poorer quality of life.

Unskilled providers and unsafe conditions account for much of the morbidity and mortality resulting from many induced abortions in Uganda. However, in a recent audit of PAC provision at a rural hospital by Mellerup, Rensen, Kuriigamba, and Rudnicki (2015), the authors found that health providers were not adhering to evidence-based treatment guidelines for PAC. Authors reviewed medical records and found that among women admitted for incomplete abortion, vital signs were measured in only 3% of women, intravenous fluid resuscitation was administered to only 35% of hypotensive patients, and antibiotics were administered to only 59% of relevant cases. Of those patients who received surgical management of the incomplete abortion, 69% were performed with sharp curettage and only 14% with MVA. In short, women were not receiving comprehensive post abortion care, which could be exacerbating the morbidity and mortality resulting from induced abortion.

Another examination of PAC in Uganda, is reported in a study by Weeks et al. (2005). This involved a randomized controlled trial that enrolled 317 women presenting with clinically diagnosed incomplete abortions in the first trimester and randomized each participant to treatment with either MVA or 600ug misoprostol orally to complete their abortions. Authors found that misoprostol was as effective as MVA (96% of misoprostol abortions were completed versus 91% of MVA), with fewer complications (0.9% of misoprostol group and 9.8% of MVA group), with similar

rates of acceptability (94% for misoprostol versus 95% for MVA). For low-resource settings, it is suggested that misoprostol may have several advantages over MVA for management of first trimester abortion. First, it is a more flexible treatment that does not require the same precision in estimation of gestational age; and secondly, it does not require equipment or the same level of training for providers.

Regarding induced abortion in vulnerable populations, Kaye, Mirembe, Bantebya, Johansson, and Ekstrom (2006) found that induced abortion was associated with more frequent and more severe domestic violence. An implication is that women seeking PAC should be screened for domestic violence, and offered the additional physical, emotional, and material support needed. Marlow, Shellenberg, and Yegon (2014) addressed induced abortion among FSW in Uganda. FSW are at particularly high risk of induced abortion due to their greater number of sexual contacts and higher risk of forced sex. To support this population, FSW requested that community-level interventions be created in which women can speak openly about abortion, creating a support network among sex workers, training peer educators, and making available a community outreach educator, and conducting community outreach workshops on abortion.

Discussion

Beyond an exhaustive summary of the recent peer-reviewed literature on experiences with induced abortion, safe, less safe, and unsafe, in seven African countries, we identify themes and gaps in the evidence base, and make recommendations to inform directions for future research. We found that the incidence of induced abortion across all seven countries was high, ranging from an abortion rate of 23 to 54 abortions per 1,000 women of reproductive age yearly. Due to legal restrictions that severely limit access to safe abortion, morbidity and mortality due to induced abortion remain high. A substantial proportion of maternal deaths in each country was due to complications of abortion – complications that in nearly all cases could be preventable if access to accurate information and safe methods were more widely available.

From the literature, we know that many women seek pregnancy termination services outside of the formal health care system, leaving them especially vulnerable to adverse health outcomes. There is a need for widespread outreach to people of reproductive age across the region to inform them of safe options for pregnancy termination, particularly the use of misoprostol, and mifepristone where available, for safe abortion. From much of the included research in this review, the need for comprehensive training for health care providers – many of those involved in providing

abortions or treating abortion complications have not been formally trained, and are using methods known to be less safe – has been highlighted.

We also suggest that medication abortion is vastly under-used in the countries studied. Several researchers have evaluated interventions to introduce medication abortion for first-trimester abortion or for treatment of incomplete abortions, and all found medication abortion to be safer than surgical methods used, as effective, and lower cost – with high acceptability and satisfaction among both clients and providers. As we can see from the literatures, there is a need for more advocacy and programmatic efforts directed toward increasing knowledge of and access to medication abortion options.

Several methodological factors limited the scope of this review. Due to the language abilities of the research team, we only reviewed peer-reviewed publications that were accessible in English or French. Further, we restricted our search to the peer-reviewed literature only, and thus may have missed insights from the gray literature, and publications in other languages. This review is strengthened, however, by the compilation of data from seven different countries from research team members based in each of those countries, allowing for the creation of a more comprehensive view of the abortion landscape in the region. Further, the inclusion of qualitative, quantitative, and mixed methods study designs in this review adds to the completeness of data presented.

Through this review, we offer a contribution to those who study and those who provide information and/or services to improve access to safe abortion in various parts of Africa – whether in the public, private, or non-profit sectors. Through this synthesis of the peer-reviewed literature, we facilitate the identification of key patterns and gaps in regional abortion service provision and knowledge that are otherwise difficult to see in individual studies. Specifically, when looked at in its entirety, we highlight (a) a strong need for increased investment in medication abortion education, training, and distribution throughout the region, (b) efforts to improve the quality of clinic-based abortion care, through provider attitude adjustment and more, to encourage those who desire clinical abortion services to feel safe and comfortable seeking this care, and (c) efforts to increase access to high-quality, medically sound information on safe use of medication abortion for those who prefer self-managed abortion outside of the health care facility. Based on the findings from the included studies, we suggest specific interventions or program structures for providing this information and care that could be adapted for similar contexts to address these gaps.

Conclusion

In this literature review, we summarized and analyzed patterns and gaps in 70 peer-reviewed studies. The authors of these studies examined

experiences with induced abortion in Burundi, DRC, Kenya, Malawi, Nigeria, Tanzania, and Uganda. We find that the incidence of induced abortion in the region is high, but the specific incidence of *medication* abortion is low – likely due to legal restrictions on access to the medications and to insufficient provider training. We also find that many women seek abortion outside of the formal health care system due to lack of legal services, fear of judgment by providers, inability to pay for formal care, or a preference for the privacy of self-management of abortion. Severe legal restrictions and pervasive stigma around abortion have seemingly contributed to the high mortality and morbidity associated with unsafe abortion in the region as identified in this review. Even when provided in the clinic setting, researchers found that health care providers often lack formal or accurate training, rely on outdated procedures that place women at increased risk of complications, and actively shame and stigmatize women for seeking care. A striking gap in the literature is that almost no data have been published on the incidence, safety, methods, effectiveness, or experiences of abortion beyond the first trimester. Despite this somewhat dire landscape, the innovative programmatic interventions from the region hold immense potential for medication abortion in particular to be used in these contexts to reduce the morbidity and mortality associated with abortion, and to improve the quality of abortion care. Future areas for research include more in-depth study of specific models by which medication abortion access could be expanded on a country-by-country basis, including self-management of abortion with medications, and the extent to which these services could serve clients beyond the first trimester.

Notes

1. A note about language: to be consistent with the language used in the articles included in this review, we refer to “women”, although we acknowledge that people who do not identify as “women” are capable of pregnancy, and have abortions, too.
2. “Safe” abortions are those that were performed with a method which is recommended by the World Health Organization (WHO) that was appropriate to the duration of the pregnancy, and was provided by a trained provider. “Less safe” abortions are those where either misoprostol is used outside of the formal health system, often without access to a trained health care worker and/or appropriate information; or those where the abortion was carried out by trained providers but using outdated methods (for instance, sharp curettage). “Least safe” abortions are provided by untrained individuals using dangerous methods, such as the insertion of foreign bodies, use of traditional concoctions, or the ingestion of caustic substances (Ganatra et al., 2017).

Acknowledgment

The authors would like to thank Daniel Zoetewey (University of Calgary, Calgary, Alberta, Canada) for their help with identifying and synthesizing relevant literature.

Funding

This research was supported by a grant from The William and Flora Hewlett Foundation.

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