

Postabortion Care Facility Readiness in Nigeria and Cote d'Ivoire

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Background

Induced abortion is among the safest medical procedures when performed according to recommended guidelines (Grimes et al. 2006). Yet unsafe abortions undertaken by 25 million women annually cause between 8% and 15% of maternal deaths worldwide (Ganatra et al. 2017; Kassebaum et al. 2014; Say et al. 2014). Research demonstrates that poor, rural, and uneducated women are more likely to have an unsafe abortion, more likely to experience complications, and less likely to seek treatment (Singh et al. 2018). Disparities in abortion-related morbidity and mortality are both a function of inequitable access to safe, clandestine abortion procedures and quality postabortion care (PAC) services to treat unsafe abortion-related complications. Viewing the prevention of unsafe abortion-related morbidity and mortality along a continuum, safe induced abortion is the primary means of prevention while PAC is the secondary means; together, these services constitute safe abortion care (SAC).

In Nigeria and Cote d'Ivoire, abortion is only legal to save a woman's life. Maternal mortality in these countries is high, estimates ranging from 500 to nearly 1,000 deaths per 100,000 live births (Hogan et al. 2010; Kassebaum et al. 2014; National Population Commission (NPC) [Nigeria] and ICF International 2014; World Health Organization 2015). Research suggest that 10% to 18% of these deaths are a result of unsafe abortion (Kassebaum et al. 2014; Say et al. 2014). For each mortality, there are hundreds of women who experience severe, and potentially life-threatening complications (Akinlusi et al. 2018). Despite these risks, research from Cote d'Ivoire suggests that abortion is a common means of fertility control. In one national survey, 42.5% of women of reproductive age with a history of pregnancy reported having had a prior abortion (Vroh et al. 2012). The same study found that 50.1% of abortions reported took place in the home, using methods such as plants, while 47.9% took place in a health facility. Abortion is similarly common in Nigeria, with the one-year incidence estimated at 33 per 1,000 women of reproductive age. Many of these abortions are highly unsafe: among gynecological admissions at a Nigerian teaching hospital in recent years, 7.4% were related to treatment of unsafe abortion, 17% of which ultimately resulted in maternal death (Akinlusi et al. 2018).

Even without legal reform, the changing abortion landscape characterized by the diffusion of medication abortion drugs provided by untrained providers or women themselves is reducing the extent and severity of complications by presenting a safer means of terminating pregnancies (Faundes et al. 1996; Juarez et al. 2008; Miller et al. 2005; World Health Organization 2012). However, women continue to use unsafe means to induce abortion as the knowledge and availability of these drugs is not universal. The lethality of these unsafe abortions varies widely in countries with restrictive laws, partly due to differential availability and quality of PAC services. To reduce the negative outcomes associated with unsafe abortion, PAC is an essential component of emergency obstetric care (EmOC) (Grimes et al. 2006). Despite its significance, we know little regarding the preparedness of facilities to provide abortion or PAC services, the distribution of these services, and its relationship to women's abortion care seeking and safety in low-resource settings.

There is little information regarding the quality of facility-based abortion service provision in low-resource settings. Recent evidence from several low-income countries suggests that PAC availability is low (Owolabi et al. 2019). The extent to which facilities are able to and actually do provide safe abortion services to the limit of the law, as well as PAC, is important to understand and can inform the need for additional scale-up efforts. Healthcare service *readiness* is an essential aspect of quality of care. Investigators have long viewed facility-based healthcare services in terms of Donabedian's three dimensions of quality: structural, process, and outcome (Donabedian 1966). Service specific signal functions are typically comprised of both structural and process elements of quality. The SAC signal functions framework is comprised of three elements: safe-induced abortion for all legal indications, treatment of abortion complications, and provision of postabortion contraception (Healy et al. 2006). The framework distinguishes between basic and comprehensive SAC readiness criteria.

Existing research had used the signal functions to assess service specific preparedness to provide these services, but these studies lack a singular, nuanced measure of SAC readiness; this is a hindrance to more in-depth assessment the efforts required to meet all signal functions. The limited prior research on SAC readiness has focused on availability of *individual* signal functions or a composite measure of the percentage of facilities with *all* basic or comprehensive signal functions; this approach generally does not distinguish between facilities with no signal functions and those with all but one (Abdella et al. 2013; Bell et al. 2017; Campbell et al. 2016; Huda et al. 2015; Otsea et al. 2011; Owolabi et al. 2019). We aim to address important gaps in knowledge, producing actionable findings regarding safe abortion and postabortion care service readiness in Nigeria and Cote d'Ivoire, where no data have previously enabled assessment of these services. Additional analyses will explore inequities in access to safe abortion and PAC services.

Methods

Data for this study come from Performance Monitoring and Accountability 2020 (PMA2020), Nigeria. PMA2020 is an interdisciplinary group of researchers, faculty, and students from the Johns Hopkins Bloomberg School of Public Health (JHSPH) and research institutions in 11 countries (Performance Monitoring and Accountability 2020 (PMA2020) 2019; Zimmerman et al. 2017). PMA2020 uses mobile-assisted technology to implement low-cost, rapid turnaround national/regional family planning monitoring annually. In each country, a cadre of sentinel resident interviewers collect data at the household, female and facility levels. Ethical approval is provided by JHSPH and in-country ethical review boards.

The data we will use are cross-sectional and include surveys of service delivery points (SDPs) that serve a nationally representative population of reproductive age women. The sampling for the female survey in both countries employs a multi-stage cluster design with probability proportional to size sampling of enumeration areas (EAs). Enumeration areas are geographic units comprised of approximately 200 households and are defined by the central statistical or census office. Interviewers approach randomly selected households from each EA and invite women of reproductive age to participate. The final female sample was 11,108 in Nigeria and 4,XXX in Cote d'Ivoire. The SDPs surveyed are the private facilities in each EA and the public facilities assigned to serve those EAs. The final sample (excluding pharmacies and chemists) involved 429 facilities in Nigeria and 129 facilities in Cote d'Ivoire. We link these data using geospatial data.

The location and facility type of public sector facilities were obtained from the district/local health authorities, and the interviewers mapped and listed all private health facilities within each EA. On average, each EA had less than one private SDP, and two to three public SDPs that were designated as the primary, secondary and tertiary levels of care for that area. The SDP survey covered structural features of the facility, provider information, family planning service availability, stockouts, and patient caseload. Specific to this study, we included an additional module on abortion.

We will assess facility SAC readiness by measuring service specific signal functions necessary to provide basic and comprehensive abortion services. In forthcoming analyses, we will create a single index that combines signal function information. The index will be additive, creating a more nuanced measure of basic and comprehensive safe abortion care (SAC) readiness, which is a prerequisite to providing quality abortion services. Using the SDP data we will construct facility weights for each country to produce representative estimates (state specific in Nigeria and national in Cote d'Ivoire). We will then analyze weighted data to evaluate the level of abortion service readiness, estimate the percentage of PAC patients receiving care in facilities meeting readiness criteria, and identify facility factors (e.g. type, sector, location) associated with level of readiness. Additionally, we will use an index of family planning (FP) service quality developed by researchers using PMA2020 data (Alfonso et al PAA paper) and assess whether the SAC quality is correlated with FP quality. This will allow us to determine whether poor SAC readiness is specific to the provision of this reproductive health service or an issue of broader facility capacity and quality. Lastly, we will explore the characteristics of women who live closer to facilities offering SAC, as well as those offering higher quality SAC services as indicated by a higher readiness index score.

Results

Preliminary analyses reveal low levels of PAC and safe abortion service availability, particularly for pregnancies at higher gestations (>12 weeks) (Tables 1a-1b). These estimates are driven by high availability of services at hospitals, with limited PAC or safe abortion services available at the lower level facilities that are more accessible to the most vulnerable women. Results on the availability of individual signal functions highlight wide variability in individual readiness components across facility types (Tables 2a-2b). Excluding provision of safe abortion for legal indications, only 37.3% of Nigerian facilities and 51.2% of Cote d'Ivoirian facilities have all basic PAC signal functions. In subsequent analyses we will produce a single signal functions index that provides a more nuanced measure of readiness and will assess social and geographic inequities in access to these services. We will also develop weights to account for facility distribution and likelihood of selection in each country.

Discussion

Findings will equip stakeholders with information in their efforts to improve SAC service readiness in order to prevent unnecessary maternal morbidity and mortality.

Table 1a. Percentage of facilities offering post-abortion care (PAC) and safe abortion services to save a woman's life at 12 weeks or less and more than 12 weeks gestation by facility characteristics, Nigeria*

	PAC		Safe abortion		N
	≤ 12 weeks	> 12 weeks	≤ 12 weeks	> 12 weeks	
Facility type					
Public Tertiary	91.7	91.7	83.3	83.3	12
Public Secondary	80.9	74.2	72.7	68.5	89
Public Primary	39.6	23.9	23.7	12.3	284
Private Secondary	64.3	64.3	30.8	21.4	14
Private Primary	36.7	26.7	40.0	20.0	30
Managing authority					
Public	50.8	37.7	36.8	27.5	385
Private	45.5	38.6	37.2	20.5	44
State					
Anambra	35.5	30.6	24.2	17.7	62
Kaduna	56.8	39.8	33.3	25.0	88

Kano	50.0	43.5	47.8	45.7	46
Lagos	41.9	37.2	29.4	24.4	86
Nasarawa	46.8	27.4	37.1	17.7	62
Rivers	57.1	42.0	36.7	24.0	50
Taraba	77.1	51.4	71.4	48.6	35
Total	50.2	37.8	36.9	26.8	429

*Results unweighted

Table 1b. Percentage of facilities offering post-abortion care (PAC) and safe abortion services at 12 weeks or less and more than 12 weeks gestation by facility characteristics, Cote d'Ivoire*

	PAC		Safe abortion		N
	≤ 12 weeks	> 12 weeks	≤ 12 weeks	> 12 weeks	
Facility type					
Hospital	93.8	87.5	45.8	41.7	48
Public Health Center/Clinic	74.6	50.7	4.5	1.5	67
Private Health Center/Clinic	42.9	28.6	21.4	0.0	14
Managing authority					
Public	82.6	66.1	21.7	18.3	115
Private	42.9	28.6	21.4	14.3	14
Total	78.3	62.0	21.7	17.8	129

*Results unweighted

Public Health Center/Clinic includes all health center (urban, rural), maternity centers, infirmaries, polyclinics, and clinics

Private Health Center/Clinic includes all health center, maternity centers, infirmaries, polyclinics, clinics, medical social centers, and religious centers

Table 2a. Percentage of facilities that have specific components for basic and comprehensive safe abortion care (SAC), Nigeria*

N	Public Tertiary	Public Secondary	Public Primary	Private Secondary	Private Primary	Total
	12	89	284	14	30	429
Basic						
≤ 12 weeks removal of retained products	91.7	80.9	39.6	64.3	36.7	50.2
≤ 12 weeks induced abortion for legal indications	83.3	72.7	23.7	30.8	40.0	36.9
At least one provider trained in PAC	90.9	93.1	88.4	100.0	90.9	90.9
Antibiotics	100.0	97.8	96.1	92.9	93.1	96.2
Oxytocics	100.0	84.3	55.0	71.4	65.5	63.7
Intravenous replacement fluids	100.0	88.8	64.3	78.6	72.4	71.5
Any contraception	100.0	92.1	92.3	78.6	60.0	89.7
All basic components (minus induced abortion)	91.7	67.4	26.4	50.0	23.3	37.3
All basic components (including induced abortion)	83.3	56.2	12.7	14.3	16.7	24.0
Comprehensive (basic +)						
> 12 weeks removal of retained products	91.7	74.2	23.9	64.3	26.7	37.8
> 12 weeks induced abortion for legal indications	83.3	68.5	12.3	21.4	20.0	26.8
Blood transfusion	100.0	82.0	15.4	57.1	41.4	34.9
Laparotomy	100.0	57.3	5.0	57.1	24.1	21.7
24/7 PAC services available	58.3	42.7	15.8	42.9	20.0	23.8
Long-acting reversible contraception	100.0	88.8	68.0	57.1	36.7	70.6
All comprehensive components (minus induced abortion)	50.0	23.6	1.8	14.3	3.3	8.2
All comprehensive components (including induced abortion)	50.0	23.6	1.8	14.3	0.0	7.9

abortion)						
Provided PAC services in the past month	91.7	64.0	22.5	50.0	30.0	34.5
Average number of PAC patients treated in past month	17.3	12.9	2.4	5.1	4.0	6.9
Provided safe abortion services in the past month	33.3	44.9	11.3	14.3	16.7	19.3
Average number of safe abortion patients in the past month	2.1	4.7	1.6	1.3	2.7	3.0

*Results unweighted

Table 2b. Percentage of facilities that have specific components for basic and comprehensive safe abortion care (SAC), Cote d'Ivoire*

N	Hospitals	Public Health Centers/ Clinics	Private Health Centers/ Clinics	Total
	48	67	14	129
Basic				
≤ 12 weeks removal of retained products	93.8	74.6	42.9	78.3
≤ 12 weeks induced abortion	45.8	4.5	21.4	21.7
Antibiotics	97.9	100.0	100.0	99.2
Oxytocics	93.8	73.1	46.2	78.1
Intravenous replacement fluids	85.4	58.2	53.8	68.0
Any contraception	97.9	98.5	42.9	92.2
All basic components (minus induced abortion)	79.2	40.3	7.1	51.2
All basic components (including induced abortion)	39.6	3.0	7.1	17.1
Comprehensive (basic +)				
> 12 weeks removal of retained products	87.5	50.7	28.6	62.0
> 12 weeks induced abortion	41.7	1.5	14.3	17.8
Blood transfusion	85.4	6.0	0.0	35.2
Laparotomy	54.2	0.0	7.7	21.1
24/7 PAC services available	88.9	60.0	50.0	72.3
Long-acting reversible contraception	95.8	86.6	21.4	82.9
All comprehensive components (minus induced abortion)	27.1	0.0	0.0	10.1
All comprehensive components (including induced abortion)	22.9	0.0	0.0	8.5
Provided PAC services in the past month	75.0	44.8	21.4	53.5
Average number of PAC patients treated in past month	11.0	1.4	3.7	5.8
Provided safe abortion services in the past month	8.3	3.0	7.1	5.4
Average number of safe abortion patients in the past month	0.7	0.7	0.3	0.6

*Results unweighted

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