AVAILABILITY AND QUALITY OF POST-ABORTION CARE SERVICES IN PUBLIC HEALTH FACILITIES IN OSUN STATE, NIGERIA

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ABSTRACT

BACKGROUND: Unsafe abortion contributes about 11% of maternal mortality in Nigeria. Post-abortion care (PAC) has the potential to reduce the maternal morbidity and mortality associated with unsafe abortion. The objective of this study was to assess the availability and quality of PAC in public healthcare facilities in Osun State, Nigeria.

MATERIALS AND METHODS: This cross-sectional study involved 223 (2 tertiary, 17 secondary, and 204 primary) public health facilities in Osun State. Data were collected using questionnaires and facility checklists developed according to global standards. Availability of PAC was measured by the presence of personnel and materials to render PAC at all times, while PAC quality was measured by the signal functions of PAC and the method used to evacuate retained products of conception. Univariate and bivariate analyses were undertaken and statistical significance was set at $p<0.05$. Ethical approval was obtained from Obafemi Awolowo University Teaching Hospitals Complex.

RESULTS: Only 18.6% (31.4% urban vs 5.9% rural, $p<0.001$) of primary health care (PHC)facilities had adequate availability of basic PAC, while 16.7% (27.5% urban vs 5.9% rural, $p<0.001$) of PHC facilities had good quality basic PAC. Among the referral facilities, 42.1% had adequate availability, while 31.6% had good quality comprehensive PAC.

CONCLUSION: Post-abortion care availability and quality were poor in Osun State, particularly in rural areas, and at the PHC level compared with higher levels of care. Improving PAC availability and quality by providing adequate human and material resources will reduce maternal morbidity and mortality, and improve overall maternal health.

KEYWORDS: Abortion, Post-Abortion Care, Availability, Quality of care, Nigeria.

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INTRODUCTION

Abortion is defined as the expulsion or extraction of a foetus from the uterus before the age of viability[1]. Abortion can be spontaneous or induced[2].Unsafe abortion occurs when a pregnancy is terminated either by persons lacking the necessary skills or in an environment that does not meet the minimal medical standards or both[3]. Unsafe abortion can be classified as less safe if only one of the two conditions (environment and skill) for safe abortion is met, or least safe if both conditions are not met[3]. Globally, unsafe abortion is a major cause of maternal mortality, with an estimated global incidence of 55.7 million cases per annum between 2010 and 2014.4 Out of this number, 25.1 million (45.1%) were unsafe abortions, with 24.3 million (97%) of these unsafe abortions occurring in developing countries[4]. According to the Guttmacher Institute, unsafe abortion accounted for about 8% of global maternal mortality in 2014 and at least 22,800 women die each year from complications of unsafe abortion[5].

In Nigeria, unsafe abortion is a maternal health issue of concern, and a major cause of maternal morbidity and mortality. An estimated 1.25 million induced abortions occurred in Nigeria in 2012[6]. In the same year (2012), an estimated 212,000 women in Nigeria were treated in health facilities for complications of induced abortion. In addition to this, an estimated 285,000 women had complications from unsafe abortion serious enough to require treatment in health facilities, but did not obtain the care they needed[6]. However, as of 2018, the number of induced abortion cases in Nigeria increased to 1.85 million[7].

The Nigeria Demographic and Health Survey (NDHS) of 2018 revealed that only 17% of all Nigerian women of reproductive age (15–49years) were using any contraceptive method, and of this proportion, only 12% use a modern method[8]. Similarly, there was no significant difference in the contraceptive prevalence rate of the NDHS of 2013 (15%) and the NDHS of 2018 (17%)[7].

In 2015, unsafe abortion was estimated to contribute about 11% of Nigeria's maternal mortality[9].However, some regional hospital-based studies done subsequently (after 2015) reported higher contributions of unsafe abortion to maternal mortality. For instance, a five-year review by Emechebe et al (2016) at the Enugu State University Teaching Hospital revealed that induced abortion accounted for 22.8% of maternal mortality[10], while a three-year review by Awowole et al (2018) in Obafemi Awolowo University Teaching Hospital Complex reported that induced abortion was responsible for 12.7% of maternal mortality [11]. Nigeria has a restrictive abortion law, only allowing induced abortion when the pregnancy has become a threat to the life of the mother, or if the foetus has severe conditions/malformations that are incompatible with extra uterine life[12].The combination of the restrictive abortion law and low contraceptive prevalence in Nigeria (and other developing countries) often lead to women seeking unsafe induced abortion for unwanted pregnancy, which may result in a higher chance of complications such as bleeding, uterine perforation, infection, injury to the genital tract, obstetric fistulae, chronic pelvic or lower limb pain (that may affect gait), infertility, renal failure or even death[10].

Post-abortion care (PAC) is a global approach towards reducing the incidence of maternal morbidity and mortality arising from complications of unsafe abortion. Its overall aim is to reduce to a barest minimum the maternal morbidity and mortality arising from unsafe abortion and its complications, and to improve women's sexual and reproductive health[13]. Post-abortion care is divided into the basic component (PAC services at 12 weeks or before 12 weeks of gestation), and the comprehensive component (PAC services after 12 weeks of gestation, blood transfusion and surgery), depending on the signal functions that are offered in the health facility. While primary health facilities are expected to offer basic PAC, the referral health facilities (secondary and tertiary) are expected to offer comprehensive PAC[14].

Considering the high burden of unsafe abortion in Nigeria, it is essential that post-abortion care is readily available to care for these women, thereby limiting the immediate and delayed complications that they may experience from unsafe abortion. It is however unclear whether these services are readily available, and if they are, it is important to ensure that these services are of the right quality.

This study aimed to assess the availability and quality of PAC offered in public health facilities (primary, secondary, tertiary) in Osun State, Nigeria, and is expected to provide evidence for designing appropriate interventions to improve PAC services in public health facilities in the state.

Materials and Methods

This study was carried out in Osun State, located in the South-West geopolitical zone of Nigeria, and utilized a descriptive, cross-sectional study design. Public primary, secondary and tertiary health facilities registered and operating in the state, and whose heads gave permission to be part of the study were included in the study. Public primary, secondary and tertiary health facilities that were undergoing structural renovation or upgrade of their services at the time of this study were excluded from the study.

The two tertiary and 17 secondary healthcare facilities in the state were included in this study (total sampling). With regards to the public primary health facilities in the state, the sample size was determined using Cochran's formula.

The Performance Monitoring and Accountability 2020 (PMA 2020) group reported that 26.4% of public primary health facilities in Nigeria had the capacity to offer basic PAC of good quality.7 This figure (26.4% or 0.264) was used as the proportion to calculate the sample size for the primary health facilities. So, the final sample size was 204 primary health facilities after correcting for a finite population using the finite population correction formula.

A multi-stage sampling technique was used for the selection of the primary health facilities, thus:

Stage one: Total sampling was used to select the three senatorial zones in Osun State (Osun East, Osun Central and Osun West).

Stage two: Simple random sampling (computer-generated random numbers) was used to select four LGAs (two rural and two urban) from each of the three senatorial zones in the state, making a total of 12 LGAs (six rural and six urban). The selected rural LGAs were Atakunmosa West, Ayedire, Boripe, Ejigbo, Ifedayo, and Ife North. The selected urban LGAs were Ede North, Ife Central, Ila Orangun, Ilesa East, Irewole and Osogbo.

Stage three: Simple random sampling (computer-generated random numbers) was used to select 17 primary health facilities from each of the 12 LGAs giving a total of 204 primary facilities (102 rural and 102 urban) used for the study.

The research instruments were a semi-structured questionnaire and a checklist that were purpose-developed after an extensive literature search to ensure that the appropriate indices of PAC were adequately captured. The questionnaire had three sections, A to C. Section A contained the socio-demographic characteristics of the PAC service providers that responded to the questionnaire. Section B assessed the availability of PAC in the facilities while Section C assessed the quality of PAC in the facilities.

The research instruments were pretested for reliability using the test-retest method, and it involved one tertiary, two secondary (one rural and one urban) and 21 primary health facilities (11 rural and 10 urban) that were randomly selected from the three senatorial zones in Ogun State, Nigeria. The pretest offered the opportunity to ensure that the instruments achieve the objectives of the study, as well as to address ambiguities that arose from them before the main study.

The research instruments were validated by Consultants in Public Health and Community Medicine and Obstetrics and Gynaecology (O&G). The test-retest yielded correlation scores of 90% and 88% for the questionnaire and the checklist respectively. There was a 21-day interval between the test and the retest.

Trained research staff assisted in the data collection for the study. The questionnaire for the availability and quality of PAC in the facilities was self-administered and the data were collected from the Head of the Units/Departments offering PAC (e.g. Obstetrics and Gynaecology), or other senior staff in the unit. Then, after the filled questionnaires were retrieved, the researcher and the research assistants ticked the checklist accordingly to indicate the personnel and materials available and utilized for the provision of PAC services. The checklist was ticked after the materials and personnel were seen and confirmed to be available.

The availability of PAC was measured by the presence of personnel (at least a Nurse/Midwife for basic PAC and a Doctor for comprehensive PAC) and materials to offer 24 hours of PAC services in the facilities on every day of the week. This was regarded as adequate availability while anything short of that was inadequate availability because PAC services are expected to be available in health facilities at all times. Basic and comprehensive PAC services are expected to be adequately available in the primary and higher tier facilities respectively.

The structure component of the quality of basic and comprehensive PAC was assessed in the primary and higher tier facilities respectively using the basic and comprehensive PAC signal functions that are actually offered in the facilities.

The basic PAC signal functions are: removal of retained products less than or equal to 12 weeks, parenteral antibiotics, parenteral uterotonics, intravenous fluids, pain relief, a modern short-acting method of family planning, communication with a referral/higher centre and a vehicle with fuel to transport any patient needing referral[14,15].

The comprehensive PAC signal functions are: all the basic PAC signal functions plus removal of retained products more than 12 weeks, a modern long-acting method of family planning, blood transfusion and surgery/laparotomy[14,15].

The process component of the quality of PAC was assessed by the procedures carried out to evacuate retained products of conception in relation to the gestational age at which the abortion occurred. This assessment was according to the WHO recommendation that pregnancies less than or equal to 12 weeks may be managed by manual vacuum aspiration or electric vacuum aspiration, or medically with misoprostol. For pregnancies that have advanced more than 12 weeks of gestation, misoprostol and or dilatation and evacuation should be used to evacuate retained products of conception.

The presence of all these signal functions was regarded as good quality while the lack of any was regarded as poor quality[14,15]. The materials involved in rendering PAC were checked and confirmed to be functioning (e.g. the manual vacuum aspiration apparatus, the theatre or procedure room, the ambulance etc.), and ticked accordingly in the checklist.

Ethical approval for this study was obtained from the Ethics and Research Committee of the Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife (ERC/2021/03/21), and the Ladoke Akintola University Teaching Hospital, Osogbo (UTH/EC/2022/02/576). Ethical approval was also obtained from the Osun State Ministry of Health (OSHREC/PRS/569T/221), while permission was obtained from the Osun State Primary Health Care Development Board, the Medical Directors of the selected secondary and tertiary health facilities, and the Officers-in-Charge of the primary health facilities.

Participation of the respondents in this study was voluntary. A written informed consent to participate in the study was obtained from respondents after an adequate explanation of the objectives of the study. Respondents were also assured of the confidentiality of the data (for research only), as well as the anonymity of their identities and the health facilities where they provide PAC. Respondents were also at liberty to opt out of the study at any time without any consequence.

Results

This section presents the results of this study. A total of 223 questionnaires were distributed, filled and returned, giving a response rate of 100%. Table 1

Table 1: Socio-demographic Characteristics of Respondents

Characteristics	Frequency n = 223	Percent (%)
Age (years)		
30-39	143	64.2
40-49	77	34.5
50 and above	3	1.3
Gender		
Male	51	22.9
Female	172	77.1
Marital Status		
Single	33	14.8
Married	190	85.2
Professional cadre		
Doctors	15	6.7
Nurses/Midwives	48	21.5
Community Health Officer	43	19.3
Community Health Extension Worker	117	52.5
Current Level		
Consultant	2	0.9
Chief Medical Officer	2	0.9
Principal Medical Officer	6	2.7
Senior Medical Officer	5	2.2
Chief Nursing Officer	2	0.9
Principal Nursing Officer	2	0.9
Senior Nursing Officer	3	1.3
Nursing Officer	41	18.4
Community Health Officer 1	12	5.4
Community Health Officer 2	31	13.9
Community Health Extension Worker 1	33	14.8
Community Health Extension Worker 2	84	37.7
Years in practice		
6-10	137	61.5
11-15	73	32.7
16-20	9	4.0
Above 20	4	1.8
Years of practice in current facility		
1-5	139	62.4
6-10	76	34.1
11-15	5	2.2
16-20	3	1.3

presents the socio-demographic characteristics of the respondents that filled the questionnaires that assessed the availability and quality of PAC in their various health facilities.

Almost two-thirds of the respondents (64.2%) were aged 30-39 years, while 77.1% were females. Also, 21.5% were nurses/midwives while 18.4% were at the rank of Nursing Officers. In addition, almost two-thirds (61.5%) had practiced for 6 – 10 years.

Table 2: Level of Health Facilities by Location

Characteristics	Rural Freq. (%) n1=108	Urban Freq. (%) n2=115	Total (%) n=223
Level of facility			
Primary	102 (94.4)	102 (88.7)	204 (91.5)
Secondary	6 (5.6)	11 (9.6)	17 (7.6)
Tertiary	0 (0.0)	2 (1.7)	2 (0.9)

Table 3: Availability of PAC Services in the Health Facilities

Availability of basic PAC in primary health facilities	Rural Freq. (%) n1=102	Urban Freq. (%) n2=102	Total (%)n=204
Hours in a day the facility is open			
Less than 12 hours	12 (11.8)	6 (5.9)	18 (8.8)
More than 12 hours but less than 24 hours	69 (67.6)	47 (46.1)	116 (56.9)
24 hours	21 (20.6)	49 (48.0)	70 (34.3)
Days in a week the facility is open			
More than 3 days but less than 7 days	35 (34.3)	12 (11.8)	47 (23.0)
7 days	67 (65.7)	90 (88.2)	157 (77.0)
Availability of personnel and materials for PAC			
Often	96 (94.1)	64 (62.7)	169 (78.4)
Always	6 (5.9)	38 (37.3)	44 (21.6)
Highest level of personnel available for PAC			
Community Health Extension Worker	81 (79.4)	36 (35.3)	117 (57.4)
Community Health Officer	15 (14.7)	28 (27.5)	43 (21.1)
Nurse/Midwife	3 (2.9)	30 (29.4)	33 (16.2)
Doctor	3 (2.9)	8 (7.8)	11 (5.4)
Overall Availability of basic PAC			
Inadequate Availability of basic PAC	96 (94.1)	70 (68.8)	166 (81.4)
Adequate Availability of basic PAC	6 (5.9)	32 (31.4)	38 (18.6)
Availability of Comprehensive PAC in referral health facilities	n1=6	n2=13	n=19
Hours in a day the facility is open			
24 hours	6 (100.0)	13 (100.0)	19 (100.0)
Days in a week the facility is open			
7 days	6 (100.0)	13 (100.0)	19 (100.0)
Availability of personnel and materials for PAC			
Often	6 (100.0)	5 (38.5)	11 (57.9)
Always	0 (0.0)	8 (61.5)	8 (42.1)
Highest level of personnel available for PAC			
Doctor	6 (100.0)	13 (100.0)	19 (100.0)
Overall Comprehensive PAC Availability			
Inadequate Availability of comprehensive PAC	6 (100.0)	5 (38.5)	11 (57.9)
Adequate Availability of comprehensive PAC	0 (0.0)	8 (61.5)	8 (42.1)

Overall, less than one-fifth (18.6%) of the primary health centres had adequate availability of basic PAC (basic PAC services at all times by at least a nurse/midwife); while less than half (42.1%) of the referral (secondary and tertiary) health facilities had adequate availability of comprehensive PAC (comprehensive PAC services at all times by at least a doctor).

Table 4: Quality of PAC Services in the Health Facilities

Quality of basic PAC in the primary health facilities	Rural Freq. (%) n1=102	Urban Freq. (%) n2=102	Total Freq. (%) n=204
Structure/Inputs			
Removal of retained products less than 12 weeks gestation	6 (5.9)	38 (37.3)	44 (21.6)
Parenteral uterotonics	6 (5.9)	38 (37.3)	44 (21.6)
Pain relief	102 (100.0)	102 (100.0)	204 (100.0)
Parenteral antibiotics	6 (5.9)	38 (37.3)	44 (21.6)
Modern short-acting contraceptive	88 (86.3)	102 (100.0)	190 (93.1)
Counselling	102 (100.0)	102 (100.0)	204 (100.0)
Intravenous fluid	6 (5.9)	38 (37.3)	44 (21.6)
Facility phone for communication	27 (26.5)	43 (42.2)	70 (34.3)
Facility vehicle for referral	6 (5.9)	28 (27.5)	34 (16.7)
Evacuation methods for retained products less than 12 weeks gestation (Process)			
Misoprostol	5 (4.9)	17 (16.7)	22 (10.8)
Manual Vacuum Aspiration	1 (1.0)	13 (12.7)	14 (6.9)
Manual Vacuum Aspiration and Misoprostol	0 (0.0)	8 (7.8)	8 (3.9)
Overall Quality of Basic Post-Abortion Care			
Poor Quality of Basic PAC	96 (94.1)	74 (72.5)	170 (83.3)
Good Quality of Basic PAC	6 (5.9)	28 (27.5)	34 (16.7)
Quality of Comprehensive PAC in the referral facilities	n1=6	n2=13	n=19
Structure/Inputs			
Evacuation of retained products more than 12 weeks gestation	0 (0.0)	12 (92.3)	12 (63.2)
Modern long-acting contraceptive	4 (66.7)	12 (92.3)	16 (84.2)
Blood transfusion	1 (16.7)	10 (76.9)	11 (57.9)
Laparotomy	0 (0.0)	6 (46.2)	6 (31.6)
Evacuation methods for retained products more than 12 weeks gestation (Process)			
Misoprostol	0 (0.0)	5 (38.5)	5 (26.3)
Dilatation and Evacuation	0 (0.0)	2 (15.4)	2 (10.5)
Dilatation and Evacuation and Misoprostol	0 (0.0)	5 (38.5)	5 (26.3)
Overall Quality of Comprehensive Post-Abortion Care			
Poor Quality of Comprehensive PAC	6 (100.0)	7 (53.8)	13 (68.4)
Good Quality of Comprehensive PAC	0 (0.0)	6 (46.2)	6 (31.6)

Overall, less than one-fifth (16.7%) of the primary health facilities had good quality of basic PAC (all signal functions of basic PAC present); whil e less than one-third (31.6%) of the referral (secondary and tertiary) health facilities had good quality of comprehensive PAC (all signal functions of comprehensive PAC present).

Table 5: Observed Inputs for PAC in the Health Facilities

Inputs for basic PAC in the primary health facilities	Seen		
	Rural Freq. (%) n1=102	Urban Freq. (%) n2=102	Total Freq. (%) n=204
Misoprostol	6 (5.9)	25 (24.5)	31 (15.2)
Couch	18 (17.6)	49 (48.0)	67 (32.8)
Parenteral analgesia	6 (5.9)	44 (43.1)	50 (24.5)
Parenteral antibiotics	10 (9.8)	43 (42.2)	53 (26.0)
Intravenous Cannulas	9 (8.8)	40 (39.2)	49 (24.0)
Drip-giving set	9 (8.8)	39 (38.2)	48 (23.5)
Syringes and needles	18 (17.6)	46 (45.1)	64 (31.4)
Parenteral uterotonics	7 (6.9)	43 (42.2)	50 (24.5)
Intravenous fluid	9 (8.8)	43 (42.2)	52 (25.5)
Modern short-acting contraceptive	91 (89.2)	102 (100.0)	193 (94.6)
PAC service providers	102 (100.0)	102 (100.0)	204 (100.0)
Inputs seen and working			
MVA Apparatus	6 (5.9)	38 (37.3)	44 (21.6)
Mobile phone	27 (26.5)	43 (42.2)	70 (34.3)
Vehicle for referral	6 (5.9)	28 (27.5)	34 (16.7)
Inputs for Comprehensive PAC in the referral health facilities	**Seen**		
	n1=6	**n2=13**	**n=19**
Modern long-acting contraceptive	4 (66.7)	12 (92.3)	16 (84.2)
Blood-giving set	2 (33.3)	12 (92.3)	14 (73.7)
Cervical dilators	5 (83.3)	13 (100.0)	18 (94.7)
Surgical instruments for laparotomy	0 (0.0)	8 (61.5)	8 (42.1)
Inputs seen and working			
Autoclave	0 (0.0)	9 (69.2)	9 (47.4)
Blood bank	0 (0.0)	8 (61.5)	8 (42.1)
Operating theatre	0 (0.0)	12 (92.3)	12 (63.2)

For basic PAC, less than one-fifth (15.2%) of the facilities had Misoprostol, 26% had parenteral antibiotics, 24.5% had parenteral uterotonics, 94.6% had modern short-acting contraceptives, while 21.6% of the facilities had their MVA apparatus seen and working. For comprehensive PAC, more than four-fifths of the facilities had a modern long-acting contraceptive while 42.1% had surgical instruments for laparotomy; 42.1% and 63.2% of the facilities had their blood banks and operating theatres seen and working respectively.

Table 6: Association between the Location of the Health Facilities and PAC

Location	Availability of Basic PAC Inadequate Availability Freq. (%)	Adequate Availability Freq. (%)	Total Freq. (%)	Test Statistics
Rural	96 (94.1)	6 (5.9)	102 (100.0)	$\chi2$ = 21.862
Urban	70 (68.6)	32 (31.4)	102 (100.0)	df = 1
Total	166 (81.4)	38 (18.6)	204 (100.0)	*p < 0.001
Location	**Availability of Comprehensive PAC** **Inadequate Availability Freq. (%)**	**Adequate Availability Freq. (%)**		
Rural	6 (100.0)	0 (0.0)	6 (100.0)	$\chi2$ = 6.378
Urban	5 (38.5)	8 (61.5)	13 (100.0)	df = 1
Total	11 (57.9)	8 (42.1)	19 (100.0)	*p = 0.018 (Fisher's Exact)
Location	**Quality of Basic PAC** **Poor Quality Freq. (%)**	**Good Quality Freq. (%)**		
Rural	96 (94.1)	6 (5.9)	102 (100.0)	$\chi2$ = 17.082
Urban	74 (72.5)	28 (27.5)	102 (100.0)	df = 1
Total	170 (83.3)	34 (16.7)	204 (100.0)	*p < 0.001
Location	**Quality of Comprehensive PAC** **Poor Quality Freq. (%)**	**Good Quality Freq. (%)**		
Rural	6 (100.0)	0 (0.0)	6 (100.0)	$\chi2$ = 4.047
Urban	7 (53.8)	6 (46.2)	13 (100.0)	df = 1
Total	13 (68.4)	6 (31.6)	19 (100.0)	p = 0.109 (Fisher's Exact)

More facilities in the urban areas compared to the rural areas (31.4% vs 5.9%) had adequate availability of basic PAC, and the difference was statistically significant (p < 0.001). Furthermore, none of the facilities in the rural areas (0.0%) and eight facilities (61.5%) in the urban areas had adequate availability of comprehensive PAC, and this difference was statistically significant (p = 0.018).

More facilities in the urban areas compared to the rural areas (27.5% vs 5.9%) had good quality of basic PAC, and this difference was statistically significant (p < 0.001). Furthermore, none of the facilities (0.0%) in the rural areas and six facilities (46.2%) in the urban areas had good quality of comprehensive PAC, but the difference was not statistically significant (p = 0.109).

DISCUSSION

Availability of PAC in Public Health Facilities in Osun State

Less than one-fifth (18.6%) of the public primary health facilities assessed in the state had adequate availability of basic PAC. This low level of adequate availability of basic PAC in the primary health facilities was because some of the facilities do not operate for seven days in a week, especially during weekends and public holidays. In addition, most of these facilities do not operate for 24 hours on the days that they are open.

Also, even some facilities that are open on every day of the week do not operate for 24 hours especially in the rural areas. Some of the reasons given by the health workers for this situation include inadequate staff, difficult terrain of some areas, high cost of transportation, lack of incentives and insecurity.

Furthermore, the materials and personnel for basic PAC were not available at all times in some facilities even while they were open. The implication of this poor availability of basic PAC in the primary health facilities is that some patients especially in the rural areas may not get PAC services when they need it, hence, they may have to go to a secondary or a tertiary facility to get basic PAC services. As a result, more time is spent before they can get to a facility where PAC is available, contributing to the delay before receiving care, sometimes with dire consequences.

Less than one-third (31.6%) of the public referral health facilities (secondary and tertiary) had adequate availability of comprehensive PAC. This may have resulted because although all the secondary and tertiary facilities were open all the time (24 hours a day, seven days a week), some secondary facilities did not always have the materials and personnel to render PAC. Incidentally, none of the secondary facilities in the rural areas had materials and personnel for PAC all the time.

This means that such secondary facilities with inadequate availability of comprehensive PAC will not be able to manage patients referred to them from the primary facilities, and such patients will have to go to another secondary facility or a tertiary facility, thereby prolonging the time spent before accessing care.

The availability of basic and comprehensive PAC obtained from this study was lower than the findings of a similar study carried out in Nigeria in 2021, which reported an availability of 48.4% and 82.2% for basic and comprehensive PAC respectively.16 However, the comparison study involved public and private facilities in the selected states unlike this study that was on public health facilities only. This difference may have also resulted because some states in Nigeria are more metropolitan than others, and the various state governments have different levels of commitment to health.

Quality of PAC in Public Health Facilities in Osun State

Less than one-fifth (16.7%) of the public primary health facilities assessed in the state had good quality of basic PAC. Good quality of basic PAC was regarded as having all the signal functions of basic PAC. This may be because most of the primary facilities, and especially those located in the rural areas were not offering some signal functions of basic PAC either because the materials were not available, or the personnel needed to perform the signal function was not available, or both.

Most of the rural primary facilities had Community Health Officers (CHOs) and Community Health Extension Workers (CHEWs) as the highest PAC personnel available, and there are basic PAC signal functions that should not be performed by CHOs and CHEWs.17 Signal functions of basic PAC such as evacuation of retained products of gestation less than 12 weeks, administration of parenteral uterotonics and administration of parenteral antibiotics are to be performed by at least a nurse/ midwife.17 Consequently, these three signal functions were not offered by most of the rural facilities and they actually constitute the hallmark of basic PAC because they prevent two major complications of unsafe abortion (haemorrhage and sepsis).

The implication of this situation is that some patients who received PAC in most of the primary facilities may not have received all the signal functions they required, thereby reducing the quality of care received. Furthermore, some patients that presented for PAC in the primary facilities were referred to higher centres because some of the signal functions they needed were not available especially evacuation of retained products. This may have contributed to the delay in receiving care with its possible attendant effect on maternal morbidity and mortality.

On the other hand, less than one-third (31.6%) of the public referral (secondary and tertiary) facilities had good quality of comprehensive PAC. Good quality of comprehensive PAC was regarded as having all the signal functions of comprehensive PAC. The two tertiary health facilities in the state had good quality of comprehensive PAC, so, the shortfall was from the secondary facilities, and especially, secondary facilities in the rural areas.

While most of the referral facilities offered evacuation of retained products of gestation more than 12 weeks, some offered blood transfusion while few offered surgery/laparotomy. Some of the reasons the service providers in the affected secondary facilities gave for this situation included lack of the materials needed to perform certain signal functions even when the personnel are available, and poor or no power supply which served as a major limitation to their work especially at night.

All the secondary facilities in the rural areas and some secondary facilities in the urban areas had poor quality of comprehensive PAC. This means that most of the referral facilities in the state are deficient in their quality of comprehensive PAC, particularly, the referral facilities in the rural areas of the state. As a result, the patients that will present to these secondary facilities with poor quality of comprehensive PAC will either receive sub-optimal quality of care or will be referred to another secondary facility or a higher (tertiary) facility for proper care, thereby, contributing to care delays and increasing the patient load in the facilities with good quality of comprehensive PAC.

The quality of basic and comprehensive PAC in this study was similar to the findings from a survey done in Nigeria in 2018 by the Performance Monitoring and Accountability 2020 (PMA 2020) group.7 This study's result on the quality of PAC was also similar to the findings from another survey carried out in Nigeria in 2020 by the African Population and Health Research Centre as part of a continental survey on the quality of PAC in Sub-Saharan Africa.18 The similarities may have resulted because this study and the comparison surveys were all done in Nigeria.

This study did not involve private health facilities (especially private secondary facilities), and may not give a wholistic view of PAC service availability and provision in Osun State. It was a cross-sectional study; hence, temporality may not be established. In addition, the assessment of the availability and quality of PAC in this study was by the all-or-none method which did not make room for public health facilities that fulfilled some of the criteria that were assessed. Furthermore, there may have some reporter or observer bias during data collection. These were mitigated by encouraging the respondents to be as honest as possible after assuring them of anonymity and confidentiality; and ensuring that the research assistants were well-trained before data collection.

Conclusion and Recommendations

The availability and quality of post-abortion care in Osun State were inadequate, particularly in rural primary and secondary health facilities, posing a barrier to reducing abortion-related maternal mortality and ensuring women's reproductive health rights. Strengthening PAC services in Osun State requires adequate staffing, essential supplies and infrastructure, reliable electricity and security, sufficient funding, and regular monitoring and evaluation, particularly in rural areas.

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Data Availability

The data generated during this study may be available from the corresponding author on a reasonable request by qualified researchers.

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Conflict of Interest

The authors declare no conflict of interest.

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REFERENCES

1. Shiel W, Stoppler M. Definition of Abortion [Internet]. Webster's New World Medical Dictionary. 2019 [cited 2019 Oct 8]. p. 12–3. Available from: https://www.medicinenet.com/script/main/art.asp?articlekey=2091
2. Grimes DA, Stuart G. Abortion Jabberwocky: The need for better terminology. Contraception, Abortion and Post-Abortion Care. 2012;81(2):93–6.
3. Watson S. Abortion [Internet]. Health Line. 2018 [cited 2020 Mar 24]. p. 1–4. Available from: https://www.who.int/health-topics/abortion#tab=tab_1
4. Ganatra B, Gerdts C, Rossier C, Johnson BR, Tunçalp Ö, Assifi A, et al. Global, regional, and sub-regional classification of abortions by safety, 2010–14: Estimates from a Bayesian hierarchical model. The Lancet. 2017 Nov 25;390(101):2372–81.
5. Guttmacher Institute. Induced Abortion Worldwide. Fact Sheet. New York; 2016 Jul.
6. Guttmacher Institute. Fact Sheet: Abortion in Nigeria [Internet]. Guttmacher Institute. New York; 2013 Oct. Available from: www.guttmacher.org
7. Performance Monitoring and Accountability Group. PMA2020 Abortion Survey Results in Nigeria [Internet]. Abuja; 2018 [cited 2019 Oct 20]. Available from: http://www.achpr.org/files/instru-
8. National Population Commission. Nigeria Demographic and Health Survey 2018 Key Indicators. Abuja; 2019.
9. Bankole A, Adewole IF, Hussain R, Awolude O, Singh S, Akinyemi JO. The incidence of abortion in Nigeria. Int Perspect Sex Reprod Health. 2015 Dec 1;41(4):170–81.
10. Emechebe C, Njoku C, Udofia U, Ukaga J. Complications of induced abortion: Contribution to maternal mortality in a tertiary center of a low resource setting. Saudi J Health Sci [Internet]. 2016 [cited 2019 Dec 29];5(1):34–8. Available from: http://www.saudijhealthsci.org/text.asp?2016/5/1/34/182864
11. Awowole IO, Badejoko OO, Kuti O, Ijarotimi OA, Sowemimo OO, Ogunduyile IE. Maternal mortality in the last triennium of the Millennium Development Goal Era at the Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria. J Obstet Gynaecol (Lahore). 2018 Feb 17;38(2):189–93.
12. Federal Ministry of Health. National Guidelines on Safe Termination of Pregnancy for Legal Indications. Abuja; 2018 Feb.
13. Adinma ED. Post Abortion Care Services in Nigeria. In: From Preconception to Postpartum. InTech; 2012. p. 52–7.
14. Riley T, Madziyire MG, Owolabi O, Sully EA, Chipato T. Evaluating the quality and coverage of post-abortion care in Zimbabwe: a cross-sectional study with a census of health facilities. BMC Health Serv Res [Internet]. 2020 Mar 24 [cited 2020 Apr 23];20(1):244–59. Available from: http://www.ncbi.nlm.nih.gov/pubmed/32209080
15. Owolabi OO, Biddlecom A, Whitehead HS. Health systems' capacity to provide post-abortion care: a multicountry analysis using signal functions. The Lancet of Global Health. 2019 Jan 1;7(1):110–8.
16. Bell SO, Omoluabi E, Olaolorun F, Shankar M, Moreau C. Inequities in the incidence and safety of abortion in Nigeria. BMJ Glob Health [Internet]. 2020 Jan 7 [cited 2021 May 25];5(1):1824–35. Available from: http://gh.bmj.com/
17. The Federal Ministry of Health. Task-Shifting and Task-Sharing Policy for Essential Health Care Services in Nigeria [Internet]. Abuja; 2014 Aug [cited 2020 May 7]. Available from: https://health.gov.ng/doc/TSTSP.pdf
18. Ouedraogo R, Juma K, Bangha M, Athero S. Quality of Post-Abortion Care in Nigeria [Internet]. Abuja; 2021 Aug [cited 2022 Jun 10]. Available from: https://www.researchgate.net/publication/353670744_Quality_of_Post-Abortion_Care_in_Nigeria