

# Effect of COVID-19 Pandemic on Provision of Sexual and Reproductive Health Services in Primary Health Facilities in Nigeria: a Cross-sectional Study

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## Research

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# Abstract

## Background

Nigeria, like many other countries, has been severely affected by the COVID-19 pandemic. While efforts have been devoted to curtailing the disease, a major concern has been its potential effects on the delivery and utilization of reproductive health care services in the country. The objective of the study was to investigate the extent to which the COVID-19 pandemic and related lockdowns had affected the provision of essential reproductive health, maternal and child health, and adolescent health services in primary health care facilities across the Nigerian States.

## Methods

This was a cross-sectional study of 307 primary health facilities in 30 Local Government Areas in 10 States, representing the six geopolitical regions of the country. A semi-structured interviewer-administered questionnaire was used to obtain data on issues relating to access and service provision before, during and after COVID-19 lockdowns from the head nurses/midwives in the facilities. The questionnaire was entered into Open Data Kit mounted on smartphones. Data were analysed using non-parametric statistics.

## Results

The results show that a large proportion of the primary health facilities in the selected states opened for the provision of essential sexual and reproductive health and rights services during the COVID-19 pandemic lockdown. However, there was a significant reduction in clients' utilization of services due to challenges experienced in service implementation such as stock-outs, and low demand for services by clients. Although the health facilities reported identifying cases of COVID-19, there was limited provision for primary protective equipment and other special offers that would motivate the health workers to optimize services for clients.

## Conclusions

We conclude that efforts made to address these challenges by governments, non-governmental agencies, the private sector, and donor agencies working in low resource settings would reduce the health and social burden posed by COVID-19 in Nigeria.

## Plain Language Summary

COVID-19 has been postulated to pose a challenge to women's access to sexual and reproductive health and rights (SRHR). Although data are still emerging, recent surveys report significant reductions in the use of sexual and reproductive health services, largely due to disruptions in the production and supply of contraceptive commodities, diversion of staff and resources to urgent clinical care, clinic closures, and travel restrictions. While these have similarly been projected for Nigeria, there has been no systematic documentation of the extent of the disruptions caused by COVID-19 on the provision and utilization of services, especially those related to reproductive, maternal, child and adolescent health in the country. This study was a cross-sectional facility-based survey initiated by the United Nations Population Fund (UNFPA) Nigeria and implemented by three non-governmental organizations. Field assistants administered a questionnaire on the heads of 307 Primary health centres in Nigeria. The results of this study indicate that a large proportion of PHCs in Nigeria attempted to open for the provision of essential SRHR services during the COVID-19 pandemic lockdown. However, there was a significant reduction in clients' utilization of services due to challenges experienced in service implementation such as stock-outs, and also to low demand for services by clients. Although PHC facilities reported cases of COVID-19, there was limited provision for PPE and other special offers that would motivate the health workers to optimize services for clients. We conclude that efforts should be made to address these challenges by governments, non-governmental agencies, the private sector, and donor agencies working in low resource settings.

## Introduction

Nigeria, like many other countries, has been severely affected by the COVID-19 pandemic. The first case of the disease was reported in the country in February 2020 (1). The number of cases further surged in the country in March 2020 coincident with its declaration as a pandemic by the World Health Organization (2). Arising from this development, the Nigerian government constituted a Presidential Task Force (PTF), which was saddled with the task of identifying all cases of COVID-19, establishing accurate surveillance of contacts, and ensuring the isolation and treatment of those infected (3). The PTF thereafter swung into action by a proclamation of lockdown of all sectors of the country and established a system of daily reporting of cases and deaths from the disease (4).

Despite these efforts, the progression in the number of cases of COVID-19 in the country has not abated. To date (April 29, 2021), 164,912 cases of the virus, and 2,063 deaths have been reported in the country, making Nigeria the 4th most affected country in Africa (5). The pandemic has no doubt affected several sectors of the Nigerian economy including the educational, health, and agricultural sectors, resulting in a negative overall economic growth of the country in the latter half of 2020 (6). Most worrisome is its effects on the already precarious health care delivery system in Nigeria. While efforts have been devoted to curtailing the disease, a major concern relating to its effects on potential neglect of other essential services has featured in several reviews and publications (7, 8). For a country already witnessing dismal performances in essential health indicators, this neglect has been identified as a major challenge for health and social development in the country.

More specifically, COVID-19 has been postulated to pose a challenge to women's access to sexual and reproductive health and rights (SRHR) (9–11). Although data are still emerging, a recent survey of frontline health workers in 81 countries reported significant reductions in the use of sexual and reproductive health (SRH) services (12–14), largely due to disruptions in the production and supply of contraceptive commodities (15), diversion of staff and resources to urgent clinical care, clinic closures, and travel restrictions (16). While these have similarly been projected for Nigeria, there has been no systematic documentation of the extent of the disruptions caused by COVID-19 on provision and utilization of services, especially those related to reproductive, maternal, child and adolescent health in the country.

Nigeria has some of the most daunting statistics relating to maternal and child health, reproductive health (especially fertility control and gender-based violence) and adolescent reproductive health in the world (17–19). It is important that while COVID-19 is being curtailed that measures are put in place to ensure that essential services that promote all components of reproductive health, maternal and child health, and adolescent reproductive health continue to be implemented in all parts of the country. This would eliminate the possibility that the pandemic could reduce the gains that have been made in promoting all elements of comprehensive reproductive health in the country.

The objective of this study was to investigate the extent to which the COVID-19 pandemic and related lockdowns had affected the provision and utilization of essential reproductive health, maternal and child health, and adolescent health services in primary health facilities across ten Nigerian States. We believe the results would be useful in planning the comprehensive delivery of resilient SRHR services in Nigeria in ways to enable them to overcome the fragilities posed by COVID-19.

## Method

### Design and Setting

The study was a part of a bigger intervention initiated by the UNFPA and implemented by three non-governmental organizations (NGOs): The Women's Health and Action Research Centre (WHARC), Education as a Vaccine (EVA), and the Planned Parenthood Federation of Nigeria (PPFN). The three implementation partners (IPs) worked in partnership with three identified Civil Society Organizations (CSOs) per State to conduct the study. Overall, 30 CSOs worked with WHARC, EVA and the PPFN to conduct the study. The design was a cross-sectional descriptive study conducted in selected Primary Health Centres (PHCs) in three purposefully selected Local Government Areas (LGAs) in 10 States in Nigeria. The states were Lagos, Akwa Ibom, Kano, Kaduna, Gombe, Borno, Ogun, Enugu, Adamawa, and the Federal Capital Territory (FCT) (Abuja Municipal Area Council). The states were drawn from the six geopolitical zones or region of Nigeria (North Central, North East, North West, South East, South-South, and South West). A total of 32 PHCs were purposefully selected from the three LGAs in each State, making a total of 320 health facilities. The head nurse/midwife (or Deputy) in each PHC was the respondent. The exclusion criterion was non-functional PHCs before and after the pandemic started. A total of 307 PHCs were successfully assessed (a non-response rate of 4.1%). The prevalence of COVID-19 cases informed the selection of States and LGAs. States with a relatively high number of COVID-19 cases were selected. With assistance from the Ministry of Health, and the State Primary Health Care Development Agency in each state, LGAs with high prevalence and the functional PHCs in the LGAs were identified and selected for the study. We ensured a mix of rural, semi-urban and urban LGAs.

### Data Collection

The study protocol was developed in WHARC and revised and finalised by all IPs. Thereafter, each CSO identified the respondents for health facilities in each LGA. Thirty-two (32) health facilities were purposefully selected from 3 LGAs per State, with at least 10 facilities per LGA. The data collectors were trained by the IPs in the art of collecting quantitative survey data.

The data were collected from November 1 to December 16, 2020, with a questionnaire that was programmed into the Open Data Kit (ODK) for interviewer-administered computer-assisted personal interviewing. The questionnaire contained basic questions on the description of

the health facility, maternal, child, adolescent health service delivery and utilization, and difficulties experienced before, during and after the COVID-19 pandemic lockdown. The COVID-19 lockdown took place in Nigeria in mid-March 2020 and was eased in September 2020. Thus, the period before the lockdown was identified as any time before March 15, 2020, while the lockdown period was from March 15 to the end of September 2020. The period after September 2020 when no lock-down occurred, and all schools, markets and Churches were re-opened to users was defined as the post lockdown period.

Specific questions were asked on service delivery before, during and after the lockdowns. The specific services whose functionality were investigated were family planning, antenatal care, delivery (intrapartum) care, immunization services, adolescent reproductive health services and others. Response was also solicited on the closure of the facilities during the lockdown, the number of clients per week (records were sighted), difficulties in service delivery such as stock-outs and transportation, among others, the availability of personal protective equipment, identification and management of persons with suspected symptoms of COVID-19.

### Data analysis

The data were extracted from the ODK to SPSS PC + software for data cleaning and analysis. The descriptive results are presented as absolute numbers, percentage, mean and standard deviation, and range where appropriate. Further analysis to determine a statistically significant difference between States in the number of clients utilizing each service before the pandemic, during and after the lockdown was conducted. The distribution for each service was not normal and the Levene test of homogeneity of variances was also validated for each service. Thus, the non-parametric alternative of one-way between-groups analysis of variance (Kruskal-Wallis test) was used to determine whether there was a significant difference by State. The alpha was set at 0.05.

## Results

The distribution of the PHCs by State is presented in Table 1. The PHCs were selected from 30 LGAs, three per state, with all being rural or semi-urban, and urban. The shortfall was in Borno State where 20 instead of 32 PHCs were accessed, due to the ongoing insurgency which has reduced movements to many health facilities in the state.

Table 1  
Number of studied PHC facilities by State

State	Geo-political Zone	Freq.	Percent
Akwa Ibom	South-South	32	10.4
Borno	North –East	20	6.5
Enugu	South East	32	10.4
Gombe	North East	33	10.7
Kaduna	North Central	38	12.4
Kano	North West	30	9.8
Lagos	South West	32	10.4
Ogun	South West	31	10.1
Sokoto	North-west	32	10.4
FCT	North Central	27	8.8
Total		307	100.0

## SRHR service delivery before the pandemic, during, and after the pandemic lockdown

The percentage distribution of facilities offering reproductive, maternal, new-born and child health (RMNCH) services before the pandemic, during, and after the pandemic lockdown is presented in Table 2.

Table 2  
Percentage distribution of facilities offering RMNCH services before, during, and after the pandemic lockdown

<b>Family Planning</b>			
State	Before pandemic (%)	During lockdown (%)	After lockdown (%)
Akwa Ibom	100	100.0	90.6
FCT	100	100.0	96.3
Borno	90.0	90.0	90.0
Enugu	96.9	93.8	81.2
Gombe	90.9	90.9	87.9
Kaduna	97.4	100.0	94.7
Kano	100	96.7	100.0
Lagos	100	93.8	96.9
Ogun	100	90.3	93.5
Sokoto	100	100	93.8
Total	97.7	95.8	92.5
<b>Antenatal care</b>			
Akwa Ibom	100.0	100.0	100.0
FCT	100.0	100.0	100.0
Borno	90.0	90.0	90.0
Enugu	90.6	90.6	96.9
Gombe	97.0	87.9	97.0
Kaduna	97.4	100.0	100.0
Kano	100.0	100.0	100.0
Lagos	90.6	93.8	96.9
Ogun	87.1	87.1	93.5
Sokoto	93.8	96.9	100.0
Total	94.8	94.8	97.7
<b>Delivery care</b>			
Akwa Ibom	90.6	90.6	100.0
FCT	100.0	100.0	100.0
Borno	85.0	90.0	90.0
Enugu	78.1	81.2	87.5
Gombe	93.9	97.0	93.9
Kaduna	94.7	97.4	100.0
Kano	76.7	76.7	100.0
Lagos	37.5	40.6	84.4
Ogun	74.2	77.4	87.1
Sokoto	87.5	87.5	96.9

<b>Family Planning</b>			
Total	81.8	83.7	94.1
Postnatal care			
Akwa Ibom	93.8	90.6	90.6
FCT	96.3	92.6	100.0
Borno	90.0	90.0	90.0
Enugu	87.5	81.2	78.1
Gombe	90.9	84.8	90.9
Kaduna	97.4	100.0	97.4
Kano	73.3	70.0	76.7
Lagos	78.1	81.2	40.6
Ogun	80.6	80.6	77.4
Sokoto	100.0	96.9	87.5
Total	88.9	87.0	82.7
Childhood immunization			
Akwa Ibom	100.0	93.8	93.8
FCT	100.0	100.0	96.3
Borno	85.0	85.0	90.0
Enugu	96.9	96.9	84.4
Gombe	97.0	93.9	87.9
Kaduna	97.4	100.0	97.4
Kano	100.0	96.7	76.7
Lagos	96.9	93.8	75.0
Ogun	100.0	90.3	77.4
Sokoto	96.9	93.8	96.9
Total	97.4	94.8	87.6
Childcare			
Akwa Ibom	100.0	100.0	93.8
FCT	96.3	92.6	100.0
Borno	80.0	80.0	90.0
Enugu	96.9	93.8	93.8
Gombe	81.8	78.8	90.9
Kaduna	92.1	94.7	97.4
Kano	70.0	66.7	93.3
Lagos	93.8	90.6	96.9
Ogun	87.1	83.9	96.8
Sokoto	100.0	93.8	96.9
Total	90.2	87.9	95.1

<b>Family Planning</b>			
Adolescent health			
Akwa Ibom	96.9	96.9	100.0
FCT	77.8	85.2	92.6
Borno	75.0	80.0	80.0
Enugu	84.4	87.5	93.8
Gombe	81.8	72.7	78.8
Kaduna	71.1	76.3	94.7
Kano	30.0	30.0	66.7
Lagos	62.5	65.6	93.8
Ogun	90.3	87.1	90.3
Sokoto	90.6	93.8	100.0
Total	76.2	77.5	89.6
Other services			
Akwa Ibom	78.1	3.1	93.8
FCT	40.7	0.0	81.5
Borno	10.0	5.0	80.0
Enugu	28.1	0.0	78.1
Gombe	3.0	3.0	72.7
Kaduna	10.5	0.0	78.9
Kano	40.0	0.0	36.7
Lagos	18.8	0.0	68.8
Ogun	6.5	0.0	90.3
Sokoto	0.0	0.0	93.8
Total	23.5	1.0	77.5

## Family Planning

Prior to the COVID-19 pandemic and lockdown, 97.7% of the 307 PHCs offered family planning services. There was a slight decrease during the lockdown to 95.8%, and a further decrease after the lockdown to 92.5%. Within States, 90–100% of the sampled PHCs offered family planning services before the COVID-19 pandemic, and during the lockdown. After the lockdown, the percentage offering FP services slightly decreased in Akwa Ibom, FCT, Enugu, Gombe, Kaduna, Lagos, Ogun, and Sokoto.

## Antenatal Care

Before the lockdown, 94.8% of all the sampled PHCs in the ten States offered antenatal care services. They all continued with this service during the lockdown, and after the lockdown, there was an increase to 97.7%. Within States, only Gombe experienced close to a 10% decrease during the lockdown.

## Delivery Care

The majority (81.8%) of the PHCs offered delivery care before the lockdown. The proportion increased slightly during the lockdown to 83.7% and 94.1% after the lockdown. Within States, all the sampled PHCs in the FCT offered delivery care before the lockdown, and between 74.2 to 94.7% of the PHCs in the various States offered delivery care except in Lagos where 37.5% reported offering delivery care.

The percentage of PHCs offering intrapartum care remained stable or increased in all the States, during and after the lockdown except in Gombe where the proportion post-lockdown returned to the pre-COVID level.

## **Postnatal Care**

Postnatal care was offered in 88.9% of the PHCs, the percentage increased to 98.7% during the lockdown, and decreased to 82.7% after the lockdown. In the various States, between 73.3% and 100% offered postnatal care. All the states except Borno, Kaduna, Lagos, and Ogun reported some decline during the lockdown. After the lockdown, the decrease continued in Enugu, Ogun, and Sokoto. Lagos reported a sharp decrease from 81.2–40.6% after the lockdown.

## **Childhood Immunization**

The majority (97.4%) of the PHCs offered childhood immunization before the pandemic. There was a slight decline to 94.8% during the lockdown and a nearly 10% decline after the lockdown. Except in Borno where 85% of the facilities offered childhood immunization, between 96.9 to 100% of the facilities in all the States offered this service before the pandemic. During the lockdown, Akwa Ibom, Gombe, Kano, Lagos, Ogun and Sokoto experienced a slight decrease. After the lockdown, Akwa Ibom remained at the lockdown percentage of 93.8%, whereas there was a decrease in the FCT, Enugu, Gombe, Kaduna, Kano, Lagos, and Ogun.

## **Child Care**

Childcare was offered in 90.2% of the PHCs before Covid-19. There was a slight decrease to 87.9% during the lockdown and an increase to 95.1% after the lockdown. In the various States, all the sampled PHCs in FCT, Akwa Ibom and Sokoto offered childcare before the pandemic, and the least percentage was in Kano where 70% offered childcare. During the pandemic, all the States except Akwa Ibom, Borno, and Kaduna experienced some decrease in the proportion of PHCs that offered childcare. After lockdown, Akwa Ibom reported a slight decline, whereas other States experienced some increase.

## **Adolescent Health Care**

Adolescent health care services were offered in 76.2% of the 307 PHCs before the pandemic. During the lockdown, there was a slight increase to 77.5% and a 17.6% increase to 89.6% after the lockdown. Except in Kano where only 30% of the PHCs offered adolescent health service, between 62.5% and 96.9% offered adolescent health services in the other nine States. All the states reported some increase during the lockdown except Gombe, Kano, and Ogun, and after the lockdown, the increase continued in all the States.

## **Other Services**

Other services include malaria treatment, cervical cancer screening, HIV test, diabetes, and high blood pressure screening, among others. Only 23.5% of the facilities offered these services, the percentage decreased drastically to 1% during the lockdown, but after the lockdown, 77.5% reported offering these services.

## **Mode of service delivery during the lockdown**

Although most of the sampled PHCs offered all RMNCH services during the lockdown, full-service delivery was reported by 75.2% of the PHCs whereas 24.8% delivered partial services (Table 3).

Table 3  
Service delivery during the lockdown

State	Full N (%)	Partial N (%)
Akwa Ibom	30(93.8)	2(6.2)
FCT	23(85.2)	4(14.8)
Borno	11(55.0)	9(45.0)
Enugu	21(65.6)	11(34.4)
Gombe	27(81.8)	6(18.2)
Kaduna	27(71.1)	11(28.9)
Kano	24(80.0)	6(20.0)
Lagos	25(78.1)	7(21.9)
Ogun	21(67.7)	10(32.3)
Sokoto	22(68.8)	10(31.2)
Total	231(75.2)	76(24.8)

## Service Utilization

The number of clients reported by the respondents as utilizing the various RMNCH services per week before the pandemic, during and after lockdown is presented in Table 4. The number of clients who utilized the PHCs for family planning services decreased during the lockdown; after the lockdown, there was an increase of 3.2% from the pre-COVID-19 number. This pattern is similar for antenatal care, delivery care, postnatal care, childhood immunization, childcare, and adolescent health care. A similar pattern of decline during the pandemic lockdown was observed in most of the States, (See supplementary material). The test statistics of the Kruskal Wallis H test are presented in Table 4. The lowest and highest mean rank is reported.

The mean difference between States in the number of family planning clients was statistically significant before the pandemic ( $\chi^2(9) = 55.981, p < 0.001$ ), during lockdown ( $\chi^2(9) = 81.650, p < 0.001$ ), and after lockdown ( $\chi^2(9) = 67.087, p < 0.001$ ). The lowest mean rank was in Enugu in all three periods whereas the highest rank was in Borno. There was a statistically significant difference between States in the number of antenatal care clients before the pandemic ( $\chi^2(9) = 94.201, p < 0.001$ ), during ( $\chi^2(9) = 73.029, p < 0.001$ ), and after ( $\chi^2(9) = 98.251, p < 0.001$ ) the lockdown. The lowest mean rank was in Enugu in the three periods, and the highest was Kano before the pandemic, Gombe during lockdown and Kano after lockdown.

The number of clients who utilized the PHCs in the ten States for delivery care differed significantly ( $p < 0.001$ ) before the pandemic, during the lockdown, and after the lockdown. The lowest mean rank in the three periods was in Ogun whereas the highest before the pandemic was in Borno, Gombe during the lockdown, and Borno after lockdown. The number of clients who utilized the PHCs for postnatal care differed significantly by State before the pandemic, during the lockdown, and after lockdown. The lowest mean rank for the three periods was in Enugu whereas the highest rank was in Gombe before the pandemic and during the lockdown, and in Borno after lockdown (slightly above Gombe).

Table 4  
Service Utilization – Number of clients per week

Service	Before COVID-19				During Lockdown				After Lockdown			
	Sum	Mean	Std. Dev.	Test Statistics $\chi^2$ df = 9	Sum	Mean	Std. Dev.	Test Statistics $\chi^2$ df = 9	Sum	Mean	Std. Dev.	Test Statistics $\chi^2$ df = 9
FP	7384	24.1	32.4	55.981***	3776	12.3	12.6	81.650***	7620	24.8	31.8	67.087***
ANC	12744	41.5	71.0	94.201***	6562	21.4	26.7	73.029**	13177	42.9	83.1	98.251***
Delivery Care	3307	10.8	15.0	69.943***	2262	7.4	12.4	68.454***	3991	13.0	23.4	87.149***
PNC	5925	19.3	36.0	60.785***	3640	11.9	20.1	53.933***	6013	19.6	35.3	71.944***
Child Immunization	17024	55.5	73.2	44.448***	10064	32.8	53.1	25.323**	17257	56.2	79.1	55.614***
Child Care	8134	26.5	35.2	29.501**	4782	15.6	23.5	41.499***	8866	28.9	42.8	34.946***
Adolescent Care	4952	16.1	23.7	48.329***	4065	13.2	20.4	56.923***	3921	12.8	22.8	51.224***

Note: Test statistics is from Kruskal Wallis test of the mean difference between States \*\*\*p < 0.001, \*\*p < 0.01, \*p < 0.05

There was a statistically significant difference in the number of clients who used the PHCs for childhood immunization between the States, before the pandemic, during the lockdown, and after lockdown. The lowest mean rank before the pandemic and after the lockdown was in Sokoto and Enugu during the lockdown. The highest mean rank before the pandemic was in Kano, in Gombe during the lockdown, and Kano after the lockdown. Utilization of the PHCs for general childcare differed significantly by State before the pandemic, during the lockdown, and after lockdown. The lowest mean rank was observed in Ogun state for the periods, whereas the highest was in Borno before the pandemic, in Sokoto during the lockdown, and Borno after lockdown. The number of clients who used the PHCs for adolescent care differed significantly by State before the pandemic, during the lockdown, and after the lockdown. The lowest mean rank in the three periods was in Kano State whereas the highest mean rank was in Gombe.

## Reported difficulties in service delivery

Table 5  
Percentage distribution of PHC facilities reporting selected difficulties during the lockdown by States.

State	No difficulty	Stock out of drugs	Stock out of contraceptives	Harassment by law enforcement agents	Transportation difficulties	Others
Akwa Ibom	3.1	6.2	9.4	86.7	73.3	81.2
Borno	45.0	40.0	40.0	45.0	40.0	75.0
Enugu	18.8	25.0	18.8	37.5	56.2	62.5
Gombe	24.2	60.6	60.6	71.9	50.0	57.6
Kaduna	18.4	36.8	39.5	94.7	50.0	57.9
Kano	20.0	6.7	6.7	70.0	86.7	90.0
Lagos	40.6	6.2	6.2	80.6	45.2	59.4
Ogun	12.9	9.7	9.7	87.1	61.3	90.3
Sokoto	65.6	37.5	37.5	90.6	65.6	18.8
FCT	18.5	29.6	22.2	92.6	22.2	51.9
Total	26.1	25.7	25.1	76.9	55.8	63.8

Many of the PHCs reported difficulties in service delivery during the pandemic lockdown (Table 5). Most challenges were reported in Akwa Ibom, Ogun and Kaduna, while Sokoto, Borno, and Lagos reported the least percentages of challenges. Stock-out of drugs was reported by 25.7% of the PHCs, stock-out of contraceptive products was reported by 25.1%, harassment by the law enforcement agents was reported by 76.9%, and transportation difficulties were reported in 55.8%, whereas 26.1% reported no difficulty. Other reported difficulties in 63.8% of the PHCs include centre was shut for a month due to a covid-19 patient detected, contact tracing of covid-19 patients, difficulty controlling clients to abide by the covid-19 prevention rules, harassment by hoodlums, high cost of transportation, inadequate supply of PPE, no incentive from the government, fear of the risk of infection, limited clinic opening time due to curfew during the lockdown, no water, no toilet, low morale, and insults from patients who do not believe there is COVID-19.

## Availability of personal protective equipment (PPE)

Table 6  
Percentage distribution of the number of facilities by available PPE

State	Gown	Gloves	Hand sanitiser	Temperature Checker
Akwa Ibom	0.0	31.2	93.3	96.7
Borno	15.0	5.0	90.0	100.0
Enugu	3.1	12.5	87.5	90.6
Gombe	0.0	12.5	87.5	93.8
Kaduna	0.0	21.1	94.7	100.0
Kano	0.0	6.7	86.7	90.0
Lagos	0.0	19.4	83.9	93.5
Ogun	3.2	9.7	96.8	80.6
Sokoto	0.0	25.0	87.5	100.0
FCT	3.7	33.3	92.6	96.3
Total	2.0	18.0	90.1	94.1
Note: Data for face mask and handwashing facility were incomplete.				

The availability of PPE in the health facilities is presented in Table 6. Only 2% of the 307 PHCs reported the availability of gowns. Within States, the highest percentage was 15% in Borno, and six states had none. Gloves were available only in 18% of the PHCs; and within States, the highest percentage was 33.3% in the FCT and the lowest was in Borno (5%). Most of the PHCs (90.1%) had hand sanitisers; the highest percentage was reported in Ogun State (96.8%) while the lowest was in Lagos (83.9%). A temperature checker was available in 94.1% of the facilities. Whereas 100% of the PHCs in Sokoto, Borno and Kaduna had temperature checker, 80.6% had in Ogun State.

## Experience of cases of COVID-19 in the health facilities

The percentage of PHCs that identified clients with symptoms of COVID-19 is presented in Table 7. Slightly above one in ten (10.6%) of the sampled PHCs identified clients with symptoms of COVID-19. The highest percentage was reported in Borno (40%), and the lowest was in Gombe with 0%.

Table 7  
Identification of patients with COVID-19 symptoms

State	Yes
Akwa Ibom	23.3
Borno	40.0
Enugu	3.1
Gombe	0.0
Kaduna	2.6
Kano	26.7
Lagos	3.2
Ogun	3.2
Sokoto	12.5
FCT	3.7
Total	10.6

## Discussion

The study was designed to investigate the experiences of PHCs in selected States of Nigeria on the management of SRHR services and explore the potential effects of the pandemic in limiting the delivery and access to such services. We focused on PHCs given that they are the entry point and the first port of call into the Nigerian health care system, ensuring equitable and affordable access to services for all citizens (20, 21). With respect to SRHR and other essential services, we investigated the five domains of service opening (availability of the service), service utilization, challenges in service utilization, availability of PPEs for prevention of COVID-19 and other infections, and case-reporting of COVID-19 in the health facilities.

The results showed an increased tendency for the PHCs to open for antenatal and delivery services, but less so for postnatal services. This is possibly due to the importance of pregnancy and delivery that had occurred before or during the pandemic which the health facilities identify as essential to be provided.

Most noteworthy was the slight decline in the number of health facilities offering family planning immunization services, and childcare during the period. Although insignificant, these declines have the potential to reduce the tenacity with which such services are offered in the PHCs, which could dampen the future effectiveness of family planning and immunization programs.

It was of interest that adolescent services did not decline during the period, and indeed, the offering increased in some of the health facilities. This may be due to the importance attached to adolescent health services by the health facilities. By contrast, the services offered for other diseases – malaria, HIV, hypertension, diabetes etc. – declined significantly during the lockdown but rebounded immediately after the lockdown.

A further area we investigated was the extent to which services were utilized before and after the lockdown. This was obtained through reviewing weekly statistics on service utilization in the PHCs before, during, and after the lockdown. The results showed a 30–50% reduction in service utilization for family planning, antenatal, delivery, postnatal care, immunization, childcare and adolescent health services during the lockdown as compared to the pre-lockdown period. While service utilization for most components improved after the lockdown, adolescent health services continued to witness reduced counts in all the facilities after the lockdown. This may be due to the special nature of adolescents, their free mobility, and the fact that they have their own notions of health care utilization which may manifest as a result of the pandemic (22). This aspect must be further investigated as adolescents are at high risk of, physical, mental and social effects of the pandemic and gender-based violence which has been postulated to have an increased incidence as a result of the lockdown associated with COVID-19 (23, 24).

In a country that is characterized by a lack of accurate data, methods must be identified to ensure the accurate documentation of data related to essential health services utilization. Without such new methods, planning and policy formulation related to SRHR services will

continue to rely on guesstimates, which will reduce the quality and effectiveness of interventions being proposed and implemented. It is within this context that our team is currently working on an App to be used on smartphones for the early reporting and documentation of cases of gender-based violence, family planning failures, unwanted pregnancy, HIV, COVID-19, etc. within primary health care settings is being developed by UNFPA/WHARC. When available and fully tested for its efficacy, it will help to resolve the timely reporting of SRHR challenges, especially in rural settings.

We investigated the challenges reported by the respondents as limiting their delivery of essential reproductive health services during the COVID-19 lockdown. Several anecdotal reports have featured challenges in health facilities as a major difficulty during the pandemic, but no substantive empirical evidence has yet been provided. Close to three-quarter of the health facilities in all States reported major challenges, with the majority reporting multiple challenges. Such challenges were mostly reported in Akwa Ibom, Gombe, Kaduna, Kano, Lagos and Ogun States. They ranged from “out of stock syndrome” (mostly in Gombe, Borno, and Sokoto), contraceptives not available (largely in Gombe, Borno, Kaduna, and Sokoto), and police harassment (in all States, especially in Kaduna, Sokoto and FCT, where more than 90% of the health facilities reported this outcome).

Other reported challenges with the delivery of services included difficulties with transportation and insufficient PPE. With respect to PPE, only 2% of the health facilities overall and 16% reported the availability of protective gowns and hand gloves. By contrast, temperature checker and hand sanitisers were more frequently present.

If the health facilities are to be efficient in managing COVID-19, these challenges must be addressed on an ongoing basis. Our direct questioning on whether the PHCs had reported cases of the virus showed that up to 10% answered affirmatively, which means that the situation is real and requires urgent attention by managers of the facilities. Such measures should include the provision of guidelines for managing and triaging potential cases of the virus in the PHCs, the early referral of suspected cases to confirmatory, isolation and treatment sites, the provision of comprehensive PPE and precautionary measures in the health facilities, staff motivation, and the training and re-training of PHC staff on COVID-19 management.

### **Study Strengths and Weaknesses**

Although the curtailment of essential services due to the COVID-19 pandemic has been a major source of concern in Nigeria and other parts of Africa, to the best of our knowledge, this is one of the first empirical investigations of the nature and extent of this challenge. Our focus on PHCs in rural, semi-urban and urban settings ensures that the most basic unit of health care that is available to all citizens and where COVID-19 prevention measures can be universally delivered is one of the strong points of this study. Furthermore, our selection of 30 LGAs in 10 States, and 307 PHC health facilities for the study provides a good representation of all six geo-political zones of the country. This suggests that the results of the study can be generalized throughout the country.

However, on the downside, the study is limited by the fact that only one single key informant per health facility was interviewed. The interviews largely relied on recall of events such as challenges experienced in the health facilities which could not have been witnessed by only one informant. Recall bias was therefore a potential weakness of the study. The triangulation of these results with those obtained from focus group discussion with groups of health providers would have increased the accuracy of some of the results obtained. Nevertheless, the fact that the key informants supported the information they provided with existing records in the health facilities helped to improve the accuracy of the data obtained.

### **Conclusion And Recommendation**

The results of this study indicate that a large proportion of PHCs in Nigeria attempted to open for the provision of essential SRHR services during the COVID-19 pandemic lockdown. However, there was a significant reduction in clients' utilization of services due to challenges experienced in service implementation such as stock-outs, and also to low demand for services by clients. Although PHC facilities reported cases of COVID-19, there was limited provision for PPE and other special offers that would motivate the health workers to optimize services for clients. We conclude that efforts should be made to address these challenges by governments, non-governmental agencies, the private sector, and donor agencies working in low resource settings. Such efforts should include the development and adoption of policies and programs for the comprehensive provision of health care, including essential SRHR services during epidemics such as the COVID-19, the regular provision of PPE, the motivation and regular training of the health workforce, and the strategic and continuous dissemination of information about the disease and its prevention.

### **Abbreviations**

PTF: Presidential Task Force

SRHR: Sexual and reproductive health and rights

SRH: Sexual and reproductive health

PHC: Primary Health Centre

LGAs: Local Government Areas

FCT: Federal Capital Territory

NGOs: Non-governmental organizations

WHARC: Women's Health and Action Research Centre

EVA: Education as a Vaccine

PPFN: Planned Parenthood Federation of Nigeria

IPs: Implementation partners

CSOs: Civil Society Organizations

ODK: Open Data Kit

RMNCH: Reproductive, maternal, new-born and child health

PPE: Personal protective equipment

## Declarations

### ***Ethics approval and consent to participate***

Approval to conduct the study was obtained from the Ministries of Health in each state, and in some states was complemented by permission sought from Advisers on Health to the State Governments. Further approvals to conduct the study were obtained from each facility visited, and only those who consented were included in the study. Finally, the study was fully explained to each participating head nurse/midwife, and they were informed that the information they provide would only be used for the study and not for anything else. They were also assured of the confidentiality of information they provide and that their names will not feature in the report or any publications.

### ***Consent for publication***

Not applicable

### ***Availability of data and materials***

The data are available on request from the UNFPA country Office, Nigeria

### ***Competing Interests***

The authors declare that they have no competing interests

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### ***Authors' contributions***

UM, ZA, BA, EG, AA, TO conceptualized and provided oversight to the research, FO directed the study; FO and LN prepared the questionnaire with input from IM and BW. FO, LN, IM, and BW supervised the data collection, LN analysed the data, FO and LN drafted the manuscript with input from BA. All authors read and approved the final manuscript.

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