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Assessment of Primary Health care Facilities on readiness for Antenatal Care and Childhood Immunization Services in Zamfara State, Nigeria

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Abstract

Effective maternal and child healthcare delivery centers on availability of essential medical equipment, drugs and trained medical personnel in health facilities. Poor funding, inadequate supply of physicians, essential equipment and drugs as well as mismanagement characterized healthcare delivery system in Nigeria. This study assessed public primary health care facilities on readiness of Antenatal Care (ANC) and childhood immunization services in Zamfara State, Nigeria. Based on theoretical orientation of Political Economy of Health Care, quantitative and qualitative data were used for the study. Descriptive statistic was used for quantitative data analysis using Statistical Package for Social Sciences (SPSS), while ATLAS.ti8 software was used for qualitative data. The study found most of the visited health facilities offered various components of ANC and childhood immunisation services but did not comply with the current eight (8) ANC visits as recommended by WHO. Other essential services including hepatitis B tests, breast examination, Fansida for malaria prevention, free folic acid and iron supplements, insecticide treated nets, weight scale, ROTA vaccine and midwives were grossly inadequate in most health facilities. The study also found urban bias in terms of distribution of healthcare staff in Zamfara State. This study recommends that Zamfara State government, non-governmental organisations and donor agencies should urgently channel their efforts to PHC centers and address the challenges confronting primary health care centers in Zamfara State

Keywords: Assessment, primary health care, antenatal care, childhood immunization, availability of drugs

Introduction

Antenatal care (ANC) and childhood immunization remain two most effective healthcare strategies (Reiss, 1999; Rappuoli, 2014; Park, 2015) for prevention of maternal and child mortality especially in developing countries. Antenatal

care is a comprehensive and competent care given to women during pregnancy with a view of averting pregnancy related complications and achieving safe delivery. While childhood immunization has to do with vaccination services that are given to under-five children. Triumphant in effective delivery of such healthcare services predicated on availability of well-functioning Primary Health Care (PHC) Centers that have adequate essential medical equipment, drugs and personnel.

In the effort of revamping PHC, international conference on PHC Alma-Ata, was organized (WHO & UNICEF, 1978) from 6-12 September, 1978. The conference declared Primary Health Care as a key to attaining the target of ensuring health for all people by the year 2000. Consequently, PHC was adopted as universally most accepted approach to achieving health for all especially women during and after pregnancy as well as children under-five irrespective of socioeconomic status or places of residence (Aigbiremolen, Alenoghena, Abejegah & Eboreime, 2014). Therefore, attention of governments, international organizations and the whole world communities was drawn to revamping PHC for the realization of the target objectives.

Since its inception, many strategies have been put in place in Nigeria to revitalize PHC in general and maternal and child health in particular. These strategies in the areas of maternal and child health included: fusion of National Program on Immunization (NPI) with National Primary Healthcare Development Agency (NPHCDA) in 2007 to provide effective services, National Routine Immunization Strategic Plan (2013-2015) with the target of Reaching Every Ward (REW) with Routine Immunization (RI) services, the Midwives Service Scheme (MSS) which is designed to improve the quality and access to maternal and child health as well as implementing bi-annual Maternal Newborn and Child Health Weeks (MNCHW) with a view of reducing maternal and child mortality (Aigbiremolen *et al.*, 2014; WHO, 2017). Despite the concerted efforts, PHC centers in developing countries are still confronted with many challenges including inadequate qualified healthcare personnel, shortage of essential equipment and medications. Therefore, the questions here are: do PHC centers in Zamfara State offer all the required components of ANC and child immunization services? Are the PHC centers comply with WHO recommendations on the required number of ANC visits? Are midwives available to render ANC services in the facilities? Against the backdrop, this study assessed PHC centers on readiness of antenatal care and child immunization services in Zamfara State, Nigeria.

Statement of the problem

Available reports have shown that Zamfara State is one of the Nigerian States with lowest coverage of ANC and child immunization services. Only 35.2% of prospective mothers received antenatal care from skilled provider, 37.4% took iron tablets or syrup, 19.9% received two or more ante-tetanus injections, 10.8% delivered at health facility, and only 13.4 received postnatal check during the first two days in the State. The report further asserted that only

12.2% children age 12-23 months received measles vaccination, 16.2% received BCG vaccine, 17.1% received DPT1 vaccine, 15.2% received polio3 vaccine and only 7.4% received all basic vaccinations in the State (NDHS, 2018; NNHS, 2018). Explanations for low patronage of ANC and child immunization services by clients should begin with a critical assessment of primary healthcare centers regarding availability of the services which many studies ignored.

Different studies conducted in Nigeria (Odusanya, Alufohai, Meurice & Ahonkhai, 2008; Gidado *et al.*, 2014; Gunnala *et al.*, 2016; Njidda *et al.*, 2017; NDHS, 2018; NNHS, 2018; Abubakar, 2019), have shown that no effort was made in the studies to investigate institutional factors and explain whether or not immunization facilities were available. Furthermore, most of the studies reviewed regarding ANC (Tenkorang, 2016; Adgoy, 2018; Atuhaire & Mugisha, 2020) provided a macro summary of ANC services without explaining the components of ANC that were either available or not.

Undoubtedly, all components of ANC services and required vaccines for under-five children must be available in primary healthcare centers for effective maternal and child healthcare delivery. It is important for PHC centers to provide adequate and competent preventive, curative and promotive healthcare services to women during and after pregnancy as well as under-five children in respect of socio-economic status. Owing to non-availability of essential medications and qualified medical healthcare providers, the facilities may not be able to render the services to the clients which militate against the range of maternal and childcare. For instance, where there are ANC facilities but midwives are not available and the available health personnel lack the required skills to render the services, it will be difficult for the PHC centers to offer competent services to women during pregnancy.

Furthermore, As Nigeria follows WHO recommendation on the required number of ANC visits which have been adjusted over the years. From the early 1900 on-ward, antenatal care was based on traditional approach model, in 2001 it was revised to focused antenatal care (FANC) which was further reviewed in 2016 and arrived at a new model called 2016 WHO ANC model consisting of eight visits. The problem is that many PHC centers in the State may not comply with the model.

Arising from the specified problems, this study assessed PHC centers on readiness of antenatal care and childhood immunization services in Zamfara State. The Specific objectives of the study were: to identify the ANC and childhood immunization services available in PHC centers, to find out whether midwives are available in the facilities, to examine the facilities' compliance to 2016 WHO ANC model on number of ANC visits in the State.

Literature review

There is a dearth of literature on availability of ANC and immunization facilities. Jegede (2002) discovered inadequate supply of physicians, poor/unequal distribution of health facilities, inadequate essential equipment

and drugs, poor infrastructure facilities, attitude of health care providers, poor health education strategy among others, militated against successful operations of health facilities in Nigeria over the years. Similarly, study by Esan & Fatusi (2014) on performance needs assessment of maternal and newborn health service delivery in urban and rural areas of Osun State, Nigeria, reported that none of the selected health facilities provided all components of basic emergency obstetric care in the rural areas and only 21.4% provided in the urban areas. Furthermore, only 10% and 14.3% of health facilities with satisfactory status of essential drugs and consumable in the rural and urban areas respectively. On the quality of healthcare providers, the study revealed percentages of health care providers with satisfactory knowledge of ANC (45.8% and 51.2%), with satisfactory knowledge of management of obstetric complications (20.3% and 21.4%), with satisfactory knowledge of management of postpartum haemorrhage (37.3% and 34.5%) in the rural and urban areas respectively.

In the same vein, study carried out in some other countries (Tenkorang, 2016; Adgoy, 2018; Atuhaire & Mugisha, 2020) also revealed number of institution based factors including accessibility of health facility, condition of health facility, satisfaction with services by the staff, hospital delay, improper health care delivery and friendliness of healthcare providers as important determinants of utilization of ANC services.

On immunization, the question of whether or not under-five children received required doses of vaccines lies on availability of such facilities. Researchers over the years, continue to ignore availability of immunization facilities as a factor affecting women's effort to utilize immunization services. A review of some studies (Odusanya, Alufohai, Meurice & Ahonkhai, 2008; Gidado *et al.*, 2014; Gunnala *et al.*, 2016; Njidda *et al.*, 2017; NDHS, 2018; NNHS, 2018; Abubakar, 2019 among others), shows that no effort was made in these studies to investigate institutional factors to determine whether or not immunization facilities were available. Their main focus was primarily on influence of individual factors like knowledge of immunization, place of residence, socio-economic factors and other cultural factors on utilization of immunization services. Furthermore, most of the studies reviewed regarding ANC provided a macro summary of ANC services without explaining the components of ANC that were available or not. This study was specific in determining the types of ANC services available in health facilities. In furtherance to that none of the reviewed studies joint ANC and child immunization in one study; hence, this present study becomes important.

Theoretical framework: Political Economy of Health Care (PEHC)

Political Economy of Health Care underpinned the study. While political economy of health originated from works of Engels, titled Condition of the Working Class in 1844 which described the dangerous living and working conditions that created bad-health among the working class; PEHC is the second aspect of political economy of health identified by Baer in 1982 (Amzat

& Razum, 2014). According to Baer, PEHC is concerned with the influence of structural inequality on the production, distribution, and consumption of health services and the impact of class relations within which medical organizations are embedded.

Sharp inequality exists in terms of distribution and consumption of healthcare resources between rural and urban areas as well as social classes in capitalist societies. As Nigeria is moving towards capitalism, its urban areas are characterized by concentration of health facilities (both public and private) and healthcare personnel at expense of the rural areas. Healthcare services are becoming commodity accessible to only those who can pay for it. The public healthcare facilities are confronted with many challenges including shortage of drugs, personnel and other essential equipment.

Methodology

The study was conducted in Zamfara State, Northwest Nigeria. According to Zamfara State Ministry of Health (2021), there is a total of 678 primary health care across the State, out of which only 237 are rendering ANC services. The State is mainly populated by Hausa and Fulani ethnic groups who are largely Muslims. Other ethnic groups found in the State included Yoruba, Igbo, Igala, Buzaye etc. from within and outside Nigeria (Government of Zamfara State, 2007). Agriculture is the main occupation of people in the State. The respondents were drawn from three locations - urban, semi-urban and rural areas. The State capital was considered as urban, local government headquarter was considered as semi-urban while other villages were considered rural areas. The study population included heads of public PHC centers, women of childbearing age, household heads/fathers, traditional rulers and healthcare officials. Multi-Stage Cluster Sampling technique was used for the study as follows: Stage one, the State was grouped into three Senatorial Districts (SDs) namely: Zamfara Central Senatorial District (ZCSD), Zamfara North Senatorial District (ZNSD), Zamfara West Senatorial District (ZWSD). In stage two, simple random sampling was used in selecting two LGAs from each of the three SDs. In stage three, five PHC centers were selected from each of the selected LGAs using simple random sampling.

The study adopted both quantitative and qualitative methods of data collection. A total of 30 copies of semi structured questionnaire were administered to heads of PHC centers, 12 sessions of Focus Group Discussion (six sessions each for women of child bearing age and household heads), 10 Key Informant Interview (KII) was conducted for traditional rulers, healthcare personnel and household heads as well as observation of ANC and childhood essential equipment in the visited PHC centers were conducted in gathering the needed data. Analysis of the quantitative data was based on 30 copies of the questionnaire that were retrieved. Descriptive statistics was used for the analysis using the Statistical Package of Social Science (version 23). The qualitative data were carefully transcribed, translated and analysed thematically using ATLAS ti8 software and presented.

Findings

This section presents the findings of this study which covers the health facilities visited, ANC and immunisation services available in the facilities as well as the quality and quantity of healthcare providers in the facilities.

Table 1: Distribution of health facilities visited

Senatorial District	LGA	Health Facility	Location
ZCSD	Gusau	Wanke health facility	Rural
		Jangeme health facility	Rural
		WCWC health facility Tudun wada	Urban
		Damba health facility	Urban
		Shagari health facility	Urban
	Tsafe	Dauki health facility	Rural
		Keta health facility	Rural
		Yankuzo health facility	Rural
		Magazu health facility	Rural
		Kwaringanuwa health facility	Rural
ZNSD	Kaura Namoda	Kurya health facility	Rural
		Kyambarawa health facility	Rural
		Kasuwar Daji health facility	Rural
		KWCWC health facility Kaura Namoda	Semi-urban
		MDG health facility Sabon gari	Semi-urban
	Zurmi	Mayasa health facility	Rural
		Kanwa health facility	Rural
		Kuturu health facility	Rural
		Zurmi health facility	Semi-urban
		Magarya health facility	Rural
ZWSD	Anka	K/Maje health facility	Rural
		WCWC health facility Anka	Semi-urban
		Galadunci health facility	Rural
		Wuya health facility	Rural
		OLPC health facility Anka	Semi-urban
	Maradun	Dosara health facility	Rural
		Maradun health facility	Semi-urban
		OLPC health facility Maradun	Semi-urban
		Gidan goga health facility	Rural
		Gidan Dawa health facility	Rural

Table 1 indicates that 30 primary health facilities were visited. Health facility questionnaire was administered to all the 30 health facilities, 3 copies were administered in urban area, 7 in semi-urban areas while 20 in rural areas. All the health facilities visited offered both ANC and child immunization services except one that offered only child immunization due to lack of trained health staff to render ANC services.

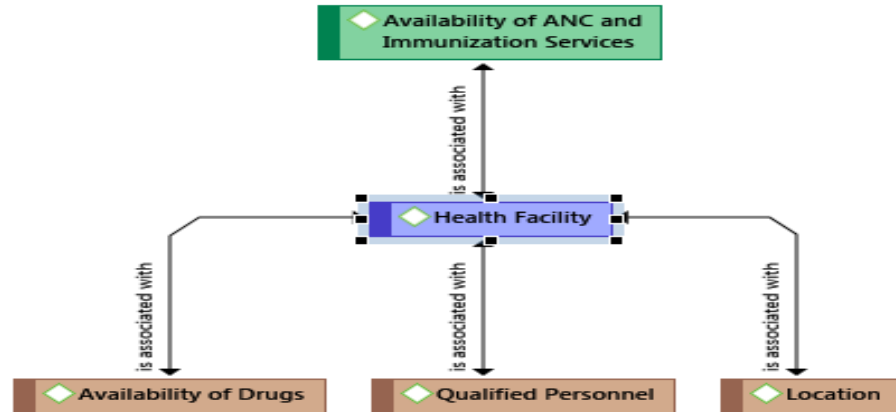


Figure I: Availability of ANC and Immunization Services

Figure I illustrate that health facility, availability of drugs, and qualified health care staff as well as location of health facilities were the sub-themes developed from analysis of the qualitative data.

Availability of drugs

Availability of drugs has to do with the extent at which essential drugs for ANC and child immunization services were available in PHC centres and accessible by the clients.

Table 2: ANC services available in the health facilities

	Response	Frequency	Percentage (%)
Recommended number of ANC visits for normal pregnancy	4 visits	13	43.4
	5 visits	2	6.7
	6 visits	1	3.3
	8 visits	10	33.3
	10 visits	3	10
	No response	1	3.3
	Total	30	100.0
Measurement of weight	Yes	27	90.0
	No	3	10.0
	Total	30	100.0
Height measurement	Yes	21	70.0
	No	9	30.0
	Total	30	100.0
Checking blood pressure	Yes	29	96.7
	No	1	3.3
	Total	30	100.0
Urine test	Yes	26	86.7
	No	4	13.3
	Total	30	100.0
Hepatitis B test	Yes	14	46.7
	No	16	53.3
	Total	30	100.0
HIV test	Yes	22	73.3
	No	8	26.7
	Total	30	100.0
Breasts examination	Yes	12	40.0
	No	18	60.0
	Total	30	100.0
Folic acid and iron supplement	Yes	27	90.0
	No	3	10.0
	Total	30	100.0
TT injection	Yes	29	96.7
	No	1	3.3
	Total	30	100.0
Antimalarial drugs	Yes	22	73.3
	No	8	26.7
	Total	30	100.0
Diet related advice	Yes	25	83.3
	No	5	16.7
	Total	30	100.0
Family planning related advice	Yes	27	90.0
	No	3	10.0
	Total	30	100.0
Breast feeding related advice	Yes	25	83.3
	No	5	16.7
	Total	30	100.0
Insecticide treated net	Yes	12	40.0
	No	18	60.0
	Total	30	100.0

As depicted in Table 2, inconsistency exists on number of ANC visits among the studied health facilities. Nigeria currently follows 2016 WHO ANC model that recommends a minimum of eight ANC visits but more than 50% of the health facilities recommended less than 8 visits, with majority (43.3%) complying with old FANC model developed in 2002 which restricted ANC visits to only 4 contacts. This shows that most PHC centers in Zamfara State did not comply with most recent WHO recommendation of 8 ANC visits during pregnancy. More than 80% of PHC centers offered various components of ANC services including measurement of weight, checking blood pressure, urine test, folic acid and iron supplement, TT injection, diet, breast feeding and family planning related advices. However, hepatitis B test, breast examination and insecticide treated nets were grossly inadequate as only 46%, 40%, and 40% of the health facilities providing such services respectively.

Data from observation, confirmed the above findings because it has been observed that majority of health facilities offered all the aforementioned components of ANC services. One thing very stimulating was how health talks were organized and conducted weekly in most PHC centers, where prospective mothers received lectures on health tips including eating habit, exclusive breast feeding, family planning among others. Also finding from observation confirmed the quantitative data. It was observed that many PHC centers did not offer breast examinations, hepatitis B tests because according to heads of affected facilities, kits for rendering such services were not available. Insecticide treated nets are important in protecting pregnant women from mosquito bites and malaria. As observed in this study, majority of health facilities had no insecticide treated nets that are given to women coming for ANC.

In contrast, most traditional rulers and healthcare staff interviewed argued that essential drugs for women and children were adequate in health facilities across the State. An informant also a government official explained thus:

The State government has established a department of medicines and medical consumables, which is responsible for procurement and distribution of all necessary drugs. Any hospital or PHC that needs medications for women and children usually goes to this department. Furthermore, non-governmental organizations such as UNICEF, Save the Children, and Center for Disease Control among others provide such drugs to PHC clinics throughout the State in order to reduce maternal and child morbidity and mortality. Additionally, Board of zakkah, Red Cross, and other organizations occasionally help in promoting excellent mothers and children healthcare delivery in the state. The fact remains that only God can ensure things reach everyone at all times and in sufficient quantities, but government is doing everything possible to ensure that every village, regardless of distance or location, has

a dispensary with qualified staff and a continuous supply of necessary drugs. (*Healthcare personnel, 55 years*)

It is obvious from the above quotation that ANC services were available in health facilities. Traditional rulers in the State also expressed similar opinion that “government and international donor agencies have provided appropriate ANC and immunization essential equipment in our facilities. The only obstacle is that our people have a negative mindset” (Traditional ruler, 72 years). However, due to current insecurity challenges, essential drugs for ANC and child immunization were not available in some communities as reported by another traditional ruler thus:

Previously, appropriate pharmaceuticals were available in rural hospitals, but today is no longer the case due to insecurity situation, which has harmed not just health sector but also commercial activities, agriculture, and so on. Insecurity prevents necessary pharmaceuticals from being transported to remote areas. Sometimes drugs might be available but healthcare personnel not available in health facilities owing to insecurity. (*Traditional ruler, 82 years*)

Findings from FGD sessions unveiled that many discussants reported inadequate essential drugs for ANC in some healthcare facilities in the State. According to a female discussant:

Even tetanus toxoid (TT) injection that is given to pregnant women is not always sufficient in our hospital. My reason is that I had two TT injections during my previous pregnancy and was told that two more should be given after birth. When I returned to pick them up after delivery, the healthcare providers informed me that TT injection was not available. They gave me another appointment, when I returned, still I was unable to receive the injections. (*FGD9*)

Reason for dissonance between findings of FGDs and IDI could be attributed to the fact that it is women that receive ANC services, thus, their knowledge and experiences are more credible. Secondly, the traditional rulers may and may not have a clear picture of stock of ANC essential drugs in health facilities. Observation conducted found that many health facilities had no folic acid and iron supplements that ideally are given to women coming for ANC free of charge, thereby giving prospective mothers instruction to buy from markets.

On child immunization, all the 30 health facilities offered child immunization services, the table below shows the various antigens offered by the facilities.

Table 3: Views of respondents on immunization services available in the facilities

	Response	Frequency	Percentage
BCG vaccine	Yes	29	96.7
	No response	1	3.3
	Total	30	100.0
HepB vaccine	Yes	29	96.7
	No	1	3.3
	Total	30	100.0
OPV vaccine	Yes	29	96.7
	No	1	3.3
	Total	30	100.0
PCV vaccine	Yes	27	90.0
	No	3	10.0
	Total	30	100.0
Penta vaccine	Yes	29	96.7
	No	1	3.3
	Total	30	100.0
Rota vaccine	Yes	2	6.7
	No	28	93.3
	Total	30	100.0
IPV vaccine	Yes	25	83.3
	No	5	16.7
	Total	30	100.0
Measles vaccine	Yes	29	96.7
	No	1	3.3
	Total	30	100.0
Yellow fever	Yes	29	96.7
	No	1	3.3
	Total	30	100.0
Meningitis vaccine	Yes	23	76.7
	No	7	23.3
	Total	30	100.0
Vitamin A	Yes	26	86.7
	No	4	13.3
	Total	30	100.0

Majority of healthcare facilities offered all immunization antigens except ROTA vaccine that are recommended for Nigerian under-five children by NPHCDA. The reason for most PHC centers did not offer ROTA vaccine according to a government official is that “ROTA is one of the costliest vaccines, officially, ROTA immunization has not yet begun in Zamfara State, but government is committed to implementing ROTA immunization across the State by 2022” (Healthcare personnel, 55 years).

As depicted in the table, only 2 health facilities offered ROTA vaccines and these facilities based on observation conducted were located in areas such as Anka LGA where Medicins SAN Frontieres (MSF) also known as Doctors without border delivered emergency medical humanitarian services including ROTA vaccines to people affected by insecurity in the LGA.

Furthermore, findings from observations conducted show that with exception of ROTA vaccine, all antigens contained in Table 4 were available in all the PHC centers which were preserved using solar refrigerators. As discovered from the quantitative data, majority of health facilities (77%) had refrigerators which were used in preserving vaccines, 7 PHC centers had no refrigerators but used to collect the vaccines either directly from local government secretariat or from other PHC centers on every immunization day. Thus, there is agreement between quantitative and qualitative data on availability of vaccines in various PHC centers across the State.

Contrary to the above findings, some discussants during FGD sessions argued that not all the required vaccines were always available in health facilities, in buttressing the assertion, a discussant explained that “the scarcity of certain medications discourages us from using immunization services. When our spouses go for immunizations, sometimes certain vaccines are not available, forcing healthcare providers to schedule another appointment, which many clients do not honor” (FGD6).

Another discussant added that “my first child was immunized against many infections but all the vaccines were received at a health facility located in a neighbouring village due to shortage of drugs in our clinic” (FGD10).

The findings could be associated with findings from observation, that some health staff reasoned that clients could only find some vaccines out of stock in health facilities when those vaccines have run out and others are still being deployed from LGA headquarters. Furthermore, quantitative data revealed that local government area NPI office was a common place where required vaccines are being deployed to PHC centers. About 87% of the respondents said vaccines were always adequate, while 13% argued that vaccines such as meningitis, measles and BCG had not always been adequate in their facilities.

Qualified Health Personnel: Are competent people with required skills and experiences to offer healthcare services to patients. A table below describes the quantity and quality of healthcare personnel that offered maternal and child health services in the healthcare centers.

Table 3: Factors related to healthcare staff handling ANC services

	Response	Frequency	Percentage
Number of estimated clients per week	1 – 50 clients	16	53.3
	51 – 100 clients	8	26.7
	101 – 200 clients	5	16.7
	No response	1	3.3
	Total	30	100.0
Number of healthcare providers in the facility	1 – 5 staff	16	53.3
	6 – 20 staff	10	33.3
	21 – 40 staff	3	10.0
	No response	1	3.3
	Total	30	100.0
Midwives in the facility	Yes	14	46.7
	No	16	53.3
	Total	30	100.0
Number of healthcare providers with Satisfactory knowledge of ANC services	1 – 3 staff	21	70.0
	4 – 7 staff	5	16.7
	8 – 11 staff	1	3.3
	No response	3	10.0
	Total	30	100.0
Number of healthcare providers with Satisfactory knowledge of management of obstetric complications	1 – 3 staff	18	60.0
	4 – 7 staff	2	6.7
	8 – 11 staff	1	3.3
	No response	9	30.0
	Total	30	100.0
number of healthcare providers with Satisfactory knowledge of management of postpartum hemorrhage	1 – 3 staff	16	53.3
	4 – 7 staff	2	6.7
	8 – 11 staff	1	3.3
	No response	11	36.7
	Total	30	100.0

Source: PHC Centers, 2021

It is obvious that 1 to 50 clients visited majority of PHC centers (53.3%) for ANC on a weekly basis, 26.7% and 16.7% of the health facilities attended 51-100 and 101–200 ANC clients respectively. Majority of health facilities (53.3%) had a total number of healthcare providers ranging from 1-5, 33.3% of the facilities had between 6 and 20 healthcare providers, while 10% of the PHC centers had between 21 and 40 healthcare practitioners. Although adequate number of midwives is essential for effective maternal healthcare delivery, 53.3% of these health facilities mostly from rural areas had no midwives therefore midwives were grossly inadequate. This finding was confirmed by observation conducted which unveiled that midwives were not available in most facilities especially those located in rural areas. As a result of which ANC services were being handled by specialists of other areas. Even though each PHC center might have had one or more staff with satisfactory knowledge of ANC, or management of obstetric complications or management of postpartum hemorrhage as depicted by Table 3, most of these staff were not professional midwives but other specialists such as environmentalists, senior or junior

community health workers, lab technicians among others who found it necessary to perform such roles, hence the midwives were not available.

Despite the fact that maternal healthcare delivery in some health facilities was handled by non-midwives' specialists, findings from FGDs and IDIs conducted from different LGAs in the State showed that many PHC centers especially in the rural areas were understaffed as argued by a discussant:

We have health facility in our community, but healthcare providers aren't always available in the facility because they don't live in the community. They don't come to the facility every day and when they come, they come from their places of abode in the morning and close at 6 p.m. Our pregnant women that need any medical assistance at night must travel to a nearby village or perhaps our local government or State headquarter. (FGD6)

Some PHC centers were affected by both shortage of drugs and healthcare personnel. However, most discussants that reported inadequate or lack of drugs and healthcare providers in their facilities believed that insecurity was main reason the health personnel suspended coming to their duty posts as highlighted by a participant that "Inadequate health personnel and shortage of vital pharmaceuticals in our health facility were caused by insecurity. This is because our healthcare providers are not living in our community but are residents of Tsafe town and insecurity has prevented them from reporting to their duty post for the past three months" (FGD10).

Another factor in addition to health-care personnel and drugs shortage that disheartened members of communities to use ANC is government's neglect of some facilities. According to all the FGD10 participants, some clinics of the same status with their facility had adequate staff and drugs while their health facility had been neglected by the government and that provoked them not to send their women elsewhere for ANC. Furthermore, a participant in another session of FGD asserted that "There is staffing deficit for ANC in our health facility. The healthcare providers don't come to the facility every day because they are not living in our community but always come from Gusau, and have now stopped coming due to current security challenges in the area" (FGD12).

Similarly, an informant from the IDI stated that:

Despite many people are afflicted with various ailments in our community, healthcare providers who work at our PHC center are no longer available in the facility because they have stopped coming due to insecurity. Not only our community that was affected, I know some villages that people still reside in those villages and clinics exist but also confronting similar problems. (Household head, 30 years)

The foregoing shows that health facilities located in rural areas were the one mostly affected by shortage of both essential drugs and health personnel. The causes could be attributed to urban bias and insecurity, which hindered many healthcare employees especially who did not live in their PHC center host communities from reporting to their various PHC centers.

The proposition emerging from the foregoing findings indicates that first, there was urban bias in terms of distribution of healthcare staff across the State. Both human and material resources essential for child immunization were adequate in the urban, semi-urban and rural areas of the State as 87% of the respondents reported. While ANC services were available but essential human resources (midwives) and material resources (iron and folic acid supplements, TT injections, insecticide treated nets, kits for breast examinations and hepatitis B tests) were not adequate especially in health facilities located in rural areas of the State.

Health Facility: Health facility is a center that offers healthcare services. Health care centers must be available in a particular place before people access medical services. Findings from qualitative studies unveiled that in areas where health facilities were not available, people found it difficult to use ANC services as a participant said “I did not seek ANC when I was pregnant because my village lacks a health center, and I am afraid of being ambushed or kidnapped by bandits while traveling to another location” (FGD3).

Another participant added that:

I do not use ANC services because my village lacks a health facility and my husband doesn't have means of transport to take me where I can access the services. Worst part of it is that motorcycles used to be common means of transportation in my village, today there isn't a single one left. The main reason for not owning motorcycles is that whenever a person comes along with his motorcycle, bandits would seize it along the route and that enforced motorcycle owners to either sell their vehicles or take them to Zurmi town for safety. If a pregnant woman needs to go to hospital due to pregnancy-related difficulties, a local bed is utilized and transport her to hospital. Few days ago, two women went into prolong labor, ten men had to be deployed and took them to hospital located in Zurmi using local bed. (FDG11)

Due to lack of healthcare centers or functioning clinics in some areas, sometimes people tend to be confused on taking appropriate action in an emergency situation as stated by an informant that “I'm at a loss on what to do now. My wife is currently pregnant and informed me today that the fetus is not quickening, while our PHC is closed due to insecurity, and we are

finding it difficult to seek medical treatment at our local government headquarter” (Household head, 55 years).

Location: Location is concerned with positioning of an area/settlement whether urban or rural. Most of the participants argued that urban populace had not been confronted by serious challenges in accessing the services compared to rural dwellers. A participant reported thus:

People living in urban area have easy access to hospitals for ANC, delivery and child immunization. We in the village, access to all the required drugs and health workers for ANC services is difficult. That is why when woman is in labour, we often stay at home except there is complication. (FGDI)

The foregoing shows that presence of healthcare facility in an area and availability of essential drugs for ANC services are critical determinants of utilization. This is because most of the FGDs’ discussants who did not use ANC argued that it was not because they resisted ANC services but accessing the services was the main challenge. This means that easy access to the services can go a long way in improving uptake of the services.

Discussion of findings

Findings of this study show that although most health facilities did not comply with recommended 8 number of ANC visits, offered various components of ANC services such as measurement of weight, checking blood pressure, urine test, folic acid and iron supplement, TT injection, diet, breast feeding and family planning related advices but hepatitis B test, breast examination and Pansida for malaria prevention, free folic acid and iron supplements, insecticide treated nets, TT injection, weight scale and midwives were grossly inadequate. Insecurity, uneven distribution of healthcare resources were some of the factors responsible for the inadequacy. Data from observation have also confirmed that such services were available but some components were either not available or inadequate in many PHC centers. These findings on institutional factors affecting use of ANC services confirmed the findings of previous studies (Jegade, 2002; Esan & Fatusi, 2014; Onyeajam *et al.*, 2018; Atuhare & Mugisha, 2020) which discovered similar institutional factors that affected utilization of healthcare services in developing countries.

Although to the best of my knowledge no study found in Nigeria in general and Zamfara State in particular that investigated availability of vaccines in PHC centers, this study found that all the healthcare facilities visited offered all immunization antigens recommended by NPHCDA except ROTA vaccine which had not been officially started in the State. Most of the respondents said the vaccines and the staff handling immunization were always adequate in the facilities and that has also been confirmed by observation. Even though

meningitis, measles and BCG vaccines were not always adequate in few PHC centers.

Furthermore, the study found urban bias in terms of distribution of healthcare staff between urban area and other areas. This is because, despite there was no significant difference in anticipated number of women that used ANC in urban, semi-urban, and rural areas, majority of healthcare personnel, including midwives, concentrated in urban areas at the expense of rural sections of the State. The findings are in line with the theory underpinning the study. Influence of structural inequality on the production, distribution, and consumption of health services cannot be overemphasized. Healthcare facilities, essential drugs and healthcare personnel such as midwives are not equally distributed, higher percentage of such facilities and the most qualified healthcare personnel concentrated in urban areas where government officials and other privileged members of society reside at the expense of rural areas. The PEHC suggests that structural inequality related to distribution of healthcare resources such as health personnel including midwives, ANC essential drugs such as TT injections, machines for measuring blood pressure, weight and height, kits for HIV, malaria, hepatitis B tests, breasts examination kits among others as well as vaccines such as BCG, OPV, PCV, PENTA, ROTA, measles etc. and the location of the PHC center whether urban, semi-urban or rural play a significant role in influencing maternal and child healthcare delivery.

Conclusion and recommendations

This study assessed PHC centers on readiness of antenatal care and child immunization services in Zamfara State, Nigeria. Efforts have been made over the years by governmental and non-governmental organisations in revamping PHC centers through funding, pharmaceutical and financial assistances to improve healthcare delivery especially maternal and child health and reduce maternal and child mortality. Although the studied PHC centers offered ANC and child immunization services, the system was challenged by structural defects compounded by insecurity. Some components of ANC services and ROTA vaccines were not available in many PHC centers, WHO recommendation on the required number of ANC visits was not honoured by most PHC centers, ANC services in particular and maternal health services in general were handled/delivered by specialists such as pharmacists, environmentalists, dentists etc. rather than trained midwives. The few available midwives concentrated in health facilities located in urban areas at the expense of rural sections of the State. These flaws militate against effective maternal and child healthcare delivery in Zamfara State. In view of the above, this study recommends the following:

- NPHCDA in collaboration with Zamfara State Ministry of Health should organize seminar for health personnel working in PHC centers across the State and educate them on recent development in the areas of maternal and child health.

- Government, non-governmental organisations and donor agencies should urgently channel their efforts to PHC centers in Zamfara State and encourage them to offer all components of ANC and child immunization services in the State.
- In addition to fighting insecurity in the State, government should employ more midwives and send to PHC centers across the State particularly in the rural areas. Alternatively, if there are female volunteers in a facility, should be sponsored by either the government or the health facility's community development committee to attend six months program to enable them acquire skills pertaining maternal and child health services.

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