

# Assessment of Preparedness and Response Plan to the Risk of Covid-19 Pandemic in Hospitals and Community Pharmacies in Benue State

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**Abstract— Background:** Following the spread of COVID-19 cases in many countries across continents, COVID-19 was characterized as a pandemic on 11th March 2020. Health workers (both in hospitals and pharmacies) are at increased risk of acquiring the disease. Studies in Italy showed that a lot of health care workers continue to experience high morbidity and mortality. Healthcare workers (HCWs) are always on the frontline, whether it is an elective treatment, a medical emergency, or dealing with a pandemic like COVID-19. This places HCWs at the greatest risk of getting exposed to infection. Pharmacies and Hospitals have been practicing innovative infection control measures during COVID-19 pandemic. With the absence of a definitive pharmaceutical treatment, infection prevention and control measures which hinges on preparedness and response plans are imperative.

**Objectives:** The objective of the study was to conduct an assessment of preparedness and response plan to risk of COVID-19 pandemic in hospitals and community pharmacies in Benue State.

**Methods:** The study was a cross sectional survey of the hospitals and community pharmacies in Benue State. The Federal Medical Centre (FMC) Makurdi and the Benue State University Teaching Hospital (BSUTH) and all the general hospitals were conveniently used. Registered pharmacies across the three senatorial zones were included in the study. The world health organization (WHO) rapid hospital readiness checklist for COVID-19 was used for hospitals. The Pharmacists Defence Association (PDA) risk assessment tool for Community Pharmacies was employed for the community pharmacies. Data was collected across the 3 senatorial zones of the state. Data was coded and analyzed using IBM statistical product and service solutions (SPSS). Appropriate descriptive and inferential statistics were used in data analysis. P-value of  $\leq 0.05$  was considered as significant.

**Results:** Twenty-five (25) Hospitals and seventy-eight (78) Community Pharmacies were used. The study revealed that 60% of the tertiary hospitals were located in urban settlements and pharmacies were densely located in urban areas (98.7%). There was good Preparedness by Hospitals (Mean=59.667  $\pm$  20.224%) and Community Pharmacies (Mean=53.766 $\pm$ 7.824%) in managing the COVID-19 pandemic in Benue State. The assessments showed that response plan for Hospitals were fully and partially functional in most areas (Mean=72.500 $\pm$ 25.259%). Similarly, Community

Pharmacies have response plan in some areas and none in other areas to the risk of COVID-19 pandemic in Benue State (Mean=52.308% $\pm$ 10.620%). Hospitals and Community Pharmacies characteristics have a strong and positive relationship on their preparedness to COVID-19 pandemic ( $p=0.020$ ). The relationship between Hospitals and Community Pharmacies characteristics and their response plan to the risk of Covid-19 pandemic showed a strong relationship ( $r=0.407$ ,  $p<0.0001$ ).

**Conclusion:** Hospitals in Benue state had moderate preparedness plan and high response plan to the risk of COVID-19 pandemic. Community Pharmacies had moderate preparedness and moderate response plan to the risk of COVID-19 pandemic. Hospitals preparedness was strongly associated to their response plan. Community Pharmacy characteristics was strongly associated to their preparedness plan.

**Index Terms—**Covid-19, preparedness, response plan, hospitals, community pharmacies.

## 1. Introduction

The novel corona virus is currently an outbreak of respiratory disease worldwide that is caused by severe acute respiratory syndrome-coronavirus-2. The virus causes Corona virus Disease 2019 (COVID-19) which has been declared a global pandemic by the world health organization (WHO) on March 11, 2020. Currently, COVID-19 is found to be one of the most contagious and virulent viruses that challenged the globe<sup>2</sup>. It has spread to the entire globe and brought substantial health crisis and continues to pose a global threat<sup>3</sup> making it a global pandemic. Healthcare workers (HCWs) are on the frontline of treating patients infected with COVID-19.

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However, data related to its infection rate among HCWs are limited<sup>4</sup>. COVID-19 tremendously imparted the world negatively. High mortality has been recorded in different part of the world across all continents and regions. Health workers are particularly at risk because they attend to sick people prior to diagnosis. Hospitals and Community pharmacies are an essential public service facility; providing readily accessible healthcare advice and supply of prescription and other medicines to the broad population<sup>5</sup>.

The health and socioeconomic effects of the corona virus disease (COVID-19) pandemic are being felt globally and it demonstrates that, while some countries are facing more devastating effects than others, no single health system was fully prepared to meet this challenge. Essential health services such as those for communicable and non-communicable disease, mental health, sexual and reproductive health, maternal and child health, nutrition and immunization have been disrupted in countries of all income levels and across all geographic regions<sup>6</sup>.

Community Pharmacists are often the first point of contact within the health system for people seeking information about health-related concerns<sup>5</sup>. During the current crisis, healthcare facilities have roles in managing the COVID-19 pandemic whilst also ensuring ongoing provision of business-as-usual services. This includes ensuring a safe environment for both the public and staff. Timely and appropriate referral of patients who presents at the facility, with potential COVID-19 symptoms. Informing, counseling and educating the public about disease prevention and infection control. Stock management, maintenance of supply of prescription medicines, devices, other pharmaceuticals and infection control items<sup>5</sup>.

Health-care workers (HCWs) are a vulnerable population for corona virus disease 2019 (COVID-19), and their protection is a priority to maintain health-care service provision for the public. While data varies, reports from the United States of America and Italy showed that up to 20% of HCWs in the worst-affected regions have been found to have COVID-19<sup>7</sup>. Retrospective studies from China found that 3–4% of HCWs were infected, including 23 HCWs who died<sup>8</sup>.

On 30th January 2020, the Director-General of the World Health Organization, declared the COVID-19 outbreak to be a global public health emergency of international concern under the International Health Regulations<sup>8</sup>. Following the spread of COVID-19 cases in many countries across continents, COVID-19 was characterized as a pandemic on 11th March, 2020 by the Director-General, upon the advice of the International Health Regulations Emergency Committee. Pharmacies and Hospitals are healthcare entities where health-related issues are addressed and sorted out. In the event of this pandemic, their risk assessment, preparedness and response capacity is of utmost importance.

The ubiquitous and rapidly evolving nature of the COVID-19 pandemic requires healthcare facilities to have in place all essential preparedness measures. These measures may vary depending on the designated role of each facility and the way

in which they are linked to the country's overall plan for managing the pandemic while continuing to provide essential services to other patients who require care<sup>8</sup>. Risk prevention is a sine qua non for reducing infectivity and perhaps, mortality. In Nigeria, health facilities continue to implement measures prescribed by the presidential task force on COVID-19 and the Centre for Disease Control (CDC) on how to mitigate community transmission of infection.

In December 2019, a cluster of atypical cases of pneumoniae were reported in individuals who had come in contact with the Huanan Seafood Market in Wuhan, China. The causative agent was soon identified to be SARS-CoV-2 – a novel member of the  $\beta$ -coronaviridae family. By the end of January 2020, the World Health Organization (WHO) had declared the outbreak a Public Health Emergency of International Concern (PHEIC), and by March 11th, 2020, a full-blown pandemic. On February 27th, 2020, Nigeria recorded its first case of COVID-19 in an Italian man who had gained entry into the country over 48 hours earlier and travelled inter-state before developing symptoms and eventually deciding to self-isolate<sup>9</sup>.

This incident marked the onset of the COVID-19 outbreak in Nigeria, resulting in 46 577 confirmed cases and 945 deaths by August 10, 2020.

This viewpoint evaluates some of the preparedness/response strategies deployed by the Nigerian Government to flatten the curve 10.

These strategic roles include:

- Testing people for COVID-19 and managing early investigations to identify confirmed cases that require hospital care.
- Providing treatment for COVID-19 cases.
- Continuing to provide routine essential health services.
- Preventing patients from acquiring COVID-19 while in hospital.
- Communicating information on COVID-19 as part of the country's risk communication strategy in coordination with the central response system and communities, with the aim of containing and mitigating the pandemic 8.

As a matter of fact, the novel corona virus is threatening the existence of man on the surface of the earth. Thus, all hands must be on deck to curtail its devastating effect. This can be achieved through research and development, capacity building and health systems strengthening and putting preparedness and response plans on the front burner of health priorities China were infected, including 23 HCWs who died<sup>8</sup>.

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response plans on the front burner of health priorities.

Since the emergence of the novel corona virus-2019 (NCOVID-19) in Wuhan, China, the world has not known peace and because of increasing mortality and morbidity and our existence has been shrouded in fear and trepidation. Especially for health workers (both in hospitals and pharmacies) who use their expertise to solve health-related problems of clients that seek their services. Studies in Italy showed that a lot of health care workers continue to experience high morbidity and mortality<sup>7</sup>. Healthcare workers (HCWs) are always on the frontline, whether it is an elective treatment, a medical emergency, or dealing with a pandemic like COVID-19. This puts HCWs at the greatest risk of getting exposed to infection<sup>4</sup>. A study in Bayelsa, South-South, Nigeria showed that health workers are at risk because of the nature of their job during this covid-19 pandemic<sup>11</sup>. Pharmacies have been practicing innovative infection control measures during COVID-19<sup>12</sup>. To the best of our knowledge, no study has been done in Benue State on risk assessment of hospitals and community pharmacies. It is on this pedestal we stand to carry on with this study. COVID-19 is novel, so all effort in terms of risk prevention that can help in bringing the rampaging virus and its devastating effects to a halt should be expedited.

A study conducted by Saqif et al on preparedness and response plan from 109 countries reported the Covid-19 Preparedness and Response Plans (CPRPs) were developed in response to the ongoing COVID-19 pandemic that has caused significant disruptions to health services worldwide. Although many CPRPs are largely aligned with the relevant global guidance, there is a need to promote operational integration between health service continuity and emergency response through proactive planning with health systems resilience considerations in countries across all income groups. This contributes to reducing health services disruptions and the associated excess mortality and morbidity during emergencies<sup>6</sup>.

Another study by Bwire et al, affirms that the pandemic has brought to the surface inadequacies in resilience capacity—the ability to sustain the provision of essential health services during shock events. The resilience of a health system is driven by the need to ensure continuity of essential service provision. Resilience brings together the work of emergency preparedness and health systems security and universal health coverage (UHC) goals. The fear of COVID-19 affected health service delivery and utilization because health workers and communities avoided going to health facilities. The repurposing and diversion of human, financial, and material resources to the COVID-19 response deprived other priority health programs<sup>13</sup>.

The expanded role of the Pharmacist was brought to the fore during the Covid-19 pandemic as pointed out by Brazzagi et al in their research titled: 'The Role of Hospital and Community Pharmacists in the Management of COVID-19: Towards an Expanded Definition of the Roles, Responsibilities, and Duties of the Pharmacist'. The coronavirus has caused a dramatic toll of deaths and imposed a severe burden, both from a societal and

economic point of view. COVID-19 has challenged health systems, straining and overwhelming healthcare facilities and settings, including hospital and community pharmacies. On the other hand, COVID-19 has propelled several changes. During the last decades, pharmacy has shifted from being products-based and patient-facing to being services-based and patient-centered. Pharmacies have transitioned from being compounding centers devoted to the manipulation of materia medica to pharmaceutical centers, clinical pharmacies and fully integrated “medical-pharmaceutical networks”, providing a significant range of non-prescribing services<sup>14</sup>. Moreover, roles, duties and responsibilities of pharmacists have paralleled such historical changes and have known a gradual expansion, incorporated new skills and reflected new societal demands and challenges. The COVID-19 outbreak has unearthed new opportunities for pharmacists: community and hospital pharmacists have, indeed, played a key role during the COVID-19 pandemic, suggesting that a fully integrated, inter-sectoral and inter-professional collaboration is necessary to face crises and public health emergencies. Preliminary, emerging evidence seems to suggest that, probably, a new era in the history of Pharmacies (“the post-COVID-19 post-Pharmaceutical care era”) has begun, with Community Pharmacists acquiring more professional standing, being authentic heroes and frontline health workers<sup>14</sup>. A study by Adesanya, O.A, opined that government preparedness and response efforts to this pandemic have not been outstanding; they have certainly been instrumental towards the recent flattening of the epidemic curve. However, one cannot but wonder how many lives could have been saved, should some of the mistakes highlighted have not been made<sup>15</sup>.

## 2. Method

The study was a cross sectional survey of the hospitals and community pharmacies in Benue State, North Central Nigeria. The study was conducted in Benue State. Hospitals and community pharmacies in the three senatorial zones of the state were used to carry out the study. Benue state is located between Longitude 7° 47' and 10° 0' east, and Latitude 6° 25' and 8° 8' north, and is bounded to the North by Nasarawa state, to the West by Kogi State, to the East by Taraba state and the Cameroun Republic, and to the South by Cross-River and Enugu states. Created on 3rd February, 1976, the State has 23 LGAs and 3 Senatorial Districts, with Makurdi as its capital (Family Search, 2022). The three Senatorial districts are divided into three zones namely Benue North-East (Zone A) which has seven local governments (Katsina-Ala, Konshisha, Kwande, Logo, Ukum, Ushongo and Vandeikya). The Benue North-West (Zone B) also, consists of seven local governments (Buruku, Gboko, Guma, Gwer, Gwer-West, Makurdi and Tarka). Benue South (Zone C) has nine local governments (Ado, Agatu, Apa, Obi, Ogbadibo, Ohimini, Oju, Okpokwu and Oturkpo). Benue State was named after the Benue River and was formed from the former Benue-Plateau State in 1976, along

with Igala, and some part of Kwara State. Also, in 1991 some areas of Benue state (majorly Igala area), along with areas in Kwara state, where carved out to become part of the new Kogi State. Traces of Igbo people and tribes are found in the boundary areas of Ebonyi state and Enugu state in local government areas like Obi<sup>16</sup>.

The population of the State grew from 2,780,393 persons in 1991 to 4,138,166 persons in 2006 and a projected figure of 5,485,019 persons in 2014 using an annual growth rate of 3%. The ethnic and socio-cultural composition of the population is diverse, comprising the Tiv, Idoma, Igede, Etulo, Jukun, and Hausa, as well as other ethnic nationalities<sup>19</sup>. There are 3 levels of health care delivery in Benue state. They are tertiary, secondary and primary levels. The second largest River in Nigeria (the Benue River) is by far the most prominent geographical feature in the State. The area is well drained and has a temperature that fluctuates between 23°C to 34°C for most part of the year<sup>20</sup>. With a mean annual rainfall of between 150mm to 180mm and an estimated area of 30,955 km<sup>2</sup>, Benue state stretches across the transition belt between the forest and savannah vegetation, covering a vast and fertile landmass which is worked by a farming population<sup>18</sup>. Benue is a rich agricultural region; popularly grown crops include: oranges, mangoes, sweet potatoes, cassava, soya bean, guinea corn, flax, yams, sesame, rice, groundnuts, and Palm Tree<sup>16</sup>.

### A. Eligibility Criteria

#### Hospitals

- Hospital with minimum of secondary facility status were included
- Only Government hospitals were used for the study
- Primary healthcare facilities were excluded from the study
- Regularity (always available) of operations was essential for inclusion

#### Community pharmacies

Pharmacies which had pharmacist council of Nigeria (PCN) registration were included

Pharmacies which had a Superintendent Pharmacist were included

Unregistered pharmacies were excluded from the study.

Regularity of operations was essential for inclusion.

#### Ethical Consideration:

The ethical clearance was obtained from Federal Medical Centre Makurdi research and ethics committee with reference number FMH//FMC/HRE/vol.1.

### B. Sampling

All the Tertiary and Secondary Hospitals in the State were included. The Federal Medical Centre (FMC) Makurdi, and the Benue State University Teaching Hospital (BSUTH) and all the 23 General Hospitals. Registered pharmacies across the three senatorial zones were included in the study. The list of registered Pharmacies was obtained from the Pharmacist Council of Nigeria (PCN) Benue State area office. After



scrutiny, a total of 78 Community Pharmacies met the Eligibility criteria and were recruited.

### C. Study Instrument

The world health organization (WHO) rapid hospital readiness checklist for COVID-19 (WHO, 2020) was used for hospitals. The checklist has 12 key components that are essential (Appendix 1). The checklist caters for preparedness and response. The preparedness of the facility was measured using 12 items from the checklist. The response plan was measured using 4 items from the checklist. (See appendix 1).

For community Pharmacies, the Risk Assessment tool of the Pharmacists Defence Association (PDA) was employed. The assessment tool for reducing the risk of covid-19 in community pharmacies has five sections:

#### 1. The design, operation and layout of the pharmacy

- Prevention measures
- Workforce assessment – both collective and for individual staff
- Contingency planning in the event of staff being exposed to Covid-19
- General Infection control measures

The first section has eight (8) items for assessment. The second section has four (5) components. The third section has three (3) items. The fourth section has eight (8) items and the fifth section has twelve components (12).

### D. Data Collection

Data was collected across the 3 senatorial zones of the state. Trained research assistants were used in data collection. Data was collected from hospitals using the WHO hospital readiness checklist (2020). Data from community pharmacies were collected using the Pharmacist Defence Association (PDA) assessment tool for reducing the risk of covid-19 pandemic in Community Pharmacies (2020). A total of 25 hospitals (2 tertiary and 23 secondary hospitals) were used. Data was collected from Seventy-eight (78) community pharmacies that met the eligibility criteria.

### E. Data Analysis

Data was coded and analyzed using IBM statistical product and service solutions (SPSS). The components of the checklist were scored using a likert scale of 0-2. The assessment of the components was done using the rating of zero (0) for not available (i.e. planned but has not started or does not exist), one (1) for partially functional (i.e. exists but is not comprehensive enough to achieve the entire core elements required to perform the action) and two (2) for fully functional (i.e. effectively and efficiently operational, complying with standard approaches). Descriptive statistics was used to summarize findings (frequency, percentage, mean, standard deviation) from hospital and community pharmacies. Pearson chi-square was used to analyze association between characteristics of the Centre, number of staff, and age of the facility against individual performance. The composite score for each facility

was computed and grouped into 0-24; 25-49, 50-74 and 75-100 percent with, rating of poor, fair, good and excellent respectively. P-value of  $\leq 0.05$  was considered as significant.

## 3. Result And Discussion

The characteristics of the hospital are as shown in table 3.1. Hospitals that were located in the rural areas were 20(80%). The Hospitals were spread across the three senatorial districts: with North-East 7(28%), North-West 9(36%) and Southern Senatorial district 9(36%). The mean age of the hospitals was  $26.72 \pm 8.394$  years.

### A. Hospitals

Table 3.1: Description of the Facilities (N = 25)

		Frequency	Percentage
Location	Urban	5	20.0
	Rural	20	80.0
Senatorial District	North-East (7 LGs)	7	28.00
	North-West (7 LGs)	9	36.00
	South (9 LGs)	9	36.00

Characteristics	Mean $\pm$ SD
Age of Facility	26.72 $\pm$ 8.394
Number of Physicians	12.64 $\pm$ 31.048
Number of Pharmacists	3.04 $\pm$ 6.925
Number of Nurses	36.92 $\pm$ 59.686
Number of Beds	51.52 $\pm$ 46.846
Number of Laboratories	1.56 $\pm$ 1.557

### B. Measurement of the Preparedness of the Facilities (Hospital) (N = 25)

The hospitals showed a partially functional leadership, 18(72%) and ability to respond to the emergence of Covid-19. Timely dissemination of information between Staff and hospital management was fully functional 18(72%). The surveillance and public awareness measure to communicate the risk of Covid-19 was partially functional 16(64%). Measures to prevent the spread of fake news about covid-19 was fully functional 10(40%), partially functional 12(48%) and not available in some hospital facilities 3(12%).

The continuity of service was fully functional in the facilities 10(40%). A quarter of the hospitals do not have plans of ensuring continuity of service 6(24%). The capacity to ensure adequate service delivery and respond to the challenge of Covid-19 was partially functional 15(60%). Preparedness to handle increased workload due to covid-19 was partially functional and fully functional 7(28%) in some facilities. Partial functionality of continuity of essential services such as medical, pharmaceuticals and logistics was seen in most of the

hospitals 14(56%). Routine hospital services such as patient flow, medical, treatment and pharmaceutical services were fully

Table 1  
Table 3.2: Measurement of the Preparedness of the Facilities (Hospital) (N = 25)

S/No	Question	Not Available	Partially functional	Fully Functional
Frequency (Percentage) n (%)				
1	Does the facility have good leadership and functioning emergency team for COVID-19?	0(0.0)	18(72.0)	7(28.0)
2	Is there coordinated and timely information dissemination between staff and management?	1(4.0)	6(24.0)	18(72.0)
3	Is there surveillance and public awareness to communicate risk of COVID-19 to the public?	3(12.0)	16(64.0)	6(24.0)
4	Is there means of passing accurate information and stop the spread of fake news about COVID-19?	3(12.0)	12(48.0)	10(40.0)
5	Is there plan to ensure continuity of service?	6(24.0)	9(36.0)	10(40.0)
6	Does facility has adequate and competent human resources to deliver service and respond to challenge posed by COVID-19?	3(12.0)	15(60.0)	7(28.0)
7	Is the facility prepared to handle increased workload and demand for essential supplies as seen in COVID-19 outbreak?	3(12.0)	15(60.0)	7(28.0)
8	Does the facility have the capacity to continue essential services such as medical, pharmaceutical and logistics?	2(8.0)	14(56.0)	9(36.0)
9	Does the facility have capacity such as diagnosis, treatment, patient flow, tracking and pharmaceutical service?	2(8.0)	8(32.0)	15(60.0)
10	Is there any effort to reduce mental and psychosocial stress to both staff and clients and the community as a result of COVID-19	14(56.0)	9(36.0)	2(8.0)
11	Is there a rapid laboratory or testing facility available for COVID-19 pandemic?	13(52.0)	3(12.0)	9(36.0)
12	Measures taken for infection, prevention control (waste mgt, physical distance, use of face mask, hand sanitizer etc.)	0(0.0)	17(68.0)	8(32.0)

Table 3.3: Measurement of the Response Plan of the Facilities (Hospital) (N = 25)

S/No	Question	Not Available	Partially functional	Fully Functional
Frequency (Percentage) (n/%)				
1	Has training been organized on how to respond to emergency situation such as COVID-19?	3(12.0)	10(40.0)	12(48.0)
2	Has infection prevention measures water, sanitation and hygiene (WASH), personal protective equipment (face mask, hand sanitizing solution etc) been provided?	1(4.0)	12(48.0)	12(48.0)
3	Has security and safety measures been taken for staff, clients and the community?	3(12.0)	10(40.0)	12(48.0)
4	Has a measure to ensure continuity of service amid the COVID-19 pandemic been taken?	1(4.0)	7(28.0)	17(68.0)

Mean Response Score:  $72.500 \pm 25.259\%$  (Good Response = 18 (72.0%); Poor Response = 7 (28.0%))

functional in the hospitals 15(60%). Efforts to reduce mental and psychological stress to both staff and clients were not available 14(56%). Laboratory and testing facility for Covid-19 was not available in facilities 13(52%). Infection control and prevention measures were partially functional 17(68%).

The mean preparedness was seen to be:  $59.667 \pm 20.224\%$ . Good preparedness was at 13 (52.0%). Poor Response was

### C. Measurement of the Response Plan of the Facilities (Hospital) (N = 25)

Training on how to respond to emergency such as covid-19 was organized fully in some of the hospitals 12(48%) and partially in others 10(40%). Some hospitals do not have emergency training 3(12%). Infection prevention and control

measures and non-pharmaceutical measures were implemented

Table.3.4: Relationship between the Location of the Facilities (Hospital) with the Levels of Preparedness and Response Plan

		Location		Total	$\chi^2$ (df)	p-value
		Urban	Rural			
Preparedness	Poor	4(33.3)	8(66.7)	12(100.0)	2.564(1)	0.109
	Good	1(7.7)	12(92.3)	13(100.0)		
	Total	5(20.0)	20(80.0)	25(100.0)		
Response Plan	Poor	3(42.9)	4(57.1)	7(100.0)	3.175(1)	0.075
	Good	2(11.1)	16(88.9)	18(100.0)		
	Total	5(20.0)	20(80.0)	25(100.0)		

Table 3.5: Association between the Characteristics of the Hospitals with the Levels of Preparedness and Response Plan

		I	II	III	IV	V	VI	VII	VIII
Hospital Preparedness (I)	R	1							
	P-value								
Hospital Responses (II)	R	.742**	1						
	P-value	0.000							
Age of Facility (III)	R	0.081	-0.121	1					
	P-value	0.700	0.563						
No Physicians (IV)	R	-0.177	-0.137	-0.106	1				
	P-value	0.397	0.515	0.615					
No Pharmacists (V)	R	-0.163	-0.092	-0.207	.976**	1			
	P-value	0.437	0.663	0.321	0.000				
No Nurses (VI)	R	-0.236	-0.159	0.077	.970**	.930**	1		
	P-value	0.255	0.447	0.713	0.000	0.000			
No Beds (VII)	R	-0.230	-0.131	0.202	.629**	.703**	.708**	1	
	P-value	0.268	0.531	0.332	0.001	0.000	0.000		
No Labs (VIII)	R	-0.085	0.064	0.016	.645**	.736**	.640**	.768**	1
	P-value	0.685	0.763	0.941	0.001	0.000	0.001	0.000	
N		25	25	25	25	25	25	25	25

R: Pearson Correlation Coefficient; \*\*: Correlation is significant at the 0.01 level (2-tailed); \* Correlation is significant at the 0.05 level (2-tailed).

fully in some hospitals 20(48%) and partially in others 20(48%). Security and safety measures were fully available in many of the hospitals 12(48%) and partially available in others 10(40%). Security arrangements were not available in some facilities 3(12%). Measures to ensure continuity of service was fully put in place in hospitals 17(68%).

#### 4. Community Pharmacy

##### A. Description of the Community Pharmacies (N = 78)

A total of seventy-eight (78) Community Pharmacies spread across the three senatorial districts of the state were accessed. The locations were delineated into urban and rural area. The

Community Pharmacies were located in urban area 77(98.7%). The Pharmacies were densely located in Makurdi 59(75.6%) which is the state capital. The two other major cities of Gboko and Oturkpo has a Pharmacy spread of 9(11.5%) and 8(10.3%) respectively. The pharmacy sizes were 50-100 square meters 42(53.8%). The minimum age (in years) or period of existence of a Community Pharmacy was one (1) and a maximum of twenty-nine (29) with a mean value of 7.49. The minimum number of Pharmacist found in Pharmacy premise was one (1) and a maximum of five (5) and a mean value of 1.45 Other staff employed by the pharmacy was minimum of two (2) and maximum of thirty-one (31) with mean value of 5.47.

### B. The Design, Operation and Layout of the Pharmacy

For the Pharmacies, work place assessment showed that the 2m rule could be maintained within the dispensary 76(97.4%). Staff working at the counter could also keep to the 2m rule 77(98.7%). The staff and the members of the public also maintained the 2m rule 73(93.6%). The Pharmacies had no

that staffing levels were not increased 66(84.6%) and working hours were also not reduced 67(85.9%). Home service was 10(12.8%).

There were no signage or posters restricting entry to the pharmacy to members of the public with suspected Covid-19 case 74(94.9%). Floor markings to ensure 2m rule were not in place 75(96.2%). A one in one out entry protocol was in place 68(87.2%). A hatch to manage entry was available 59(75.6). Isolation facility was available in some Community Pharmacies 8(10.3%). Measures to encourage telephone call was not available 64(82.1%). The Pharmacies do not have measure for drug delivery to patients isolating at home 69(88.5). Response plans for infection prevention and control were observed. Hand sanitizers were available 76(97.4).

The Pharmacy staff washes and sanitizes their hands after handling items from members of the public 77(98.7%). Disposable hand towels were available 40(51.3%). The Pharmacy staff wears gloves to protect them from items touched by members of the public 33(42.3%). There was

Table 3.6: Description of the Community Pharmacies (N = 78)

Characteristics		Frequency	Percent
Location	Urban	77	98.7
	Rural	1	1.3
Local Government	Gboko	9	11.5
	Gwer East	1	1.3
	Markudi	59	75.6
	Oturkpo	8	10.3
	Ukum	1	1.3
	Dimension of the Pharmacy (Square meters)	50 to 100	42
	101 to 150	17	21.8
	151 to 200	6	7.7
	201 to 250	7	9.0
	Above 250	6	7.7

	Min.	Max.	Mean ± Standard Deviation
Age of Facility (years)	1	29	7.49±5.575
No. of Pharmacists	1	5	1.45±0.696
Total No. of Staff	2	31	5.47±3.463

designated place for suspected Covid-19 case 78(100%). Infection prevention and control was in place through hand washing 63(80.8%). No pharmacy does payment through cashless means alone 78(100%). Preventive measures put in place were adequately communicated to the staff 78(100%).

The Pharmacies use their consultation rooms 76(97.4%) and social distancing was possible in the consultation room 74(94.9%). An interpreter was also available in most of the pharmacy premises 53(67.9%). Pharmacy consultation rooms were not used as isolation space for suspected Covid-19 case 78(100%). The consultation rooms were routinely cleaned after each consultation 87(85.5%). Workload assessment showed

documented cleaning process 61(78.2%) and a routine deep rocess for counter and frequently touched surfaces76 (97.4%). The pharmacy staff wears the relevant face mask 72(92.3%). The wearing of a visor was not common 75 (96.2%). Staff reported that they were encouraged to wear personal protective equipment (PPE) 75(96.2%). The pharmacy was able to secure cleaning process 75(96.2%). There was routine disinfection PPE and cleaning material 57(73.1%).

There was ventilation available at the Pharmacies 72(92.3%)

Mean preparedness= 53.766±7.824%

Mean response=52.308±10.620%



Table 3.7: The Design, Operation and Layout of the Pharmacy

S/N	<b><u>Work Place</u></b>	<b>No</b>	<b>Yes</b>
		<b>(Frequency Percentage)</b>	
1	Can staff in the dispensary maintain the 2m rule?	2(2.6)	76(97.4)
2	Can staff working on the counter maintain the 2m rule?	1(1.3)	77(98.7)
3	Can staff working on the counter maintain the 2m rule with the public?	5(6.4)	73(93.6)
4	Is there a designated isolation space for suspected Covid-19 case?	78(100.0)	0(0.0)
5	Is there hand washing after collecting cash payment?	15(19.2)	63(80.8)
6	Does the Pharmacy accept only card payment?	78(100.0)	0(0.0)
7	Is the card payment system contactless?	78(100.0)	0(0.0)
8	Have preventive measures been communicated to all staff of the pharmacy?	0(0.0)	78(100.0)
	<b><u>Consultation room</u></b>		
1	Does the pharmacy use the consultation room at all?	2(2.6)	76(97.4)
2	Is it possible to socially distance in the consulting room in the pharmacy?	4(5.1)	74(94.9)
3	Can a chaperone be provided in a socially distanced manner?	25(32.1)	53(67.9)
4	Is the room used for consulting/ isolation space for suspected covid-19 case?	78(100.0)	0(0.0)
5	Is the room routinely cleaned after each consultation?	11(14.1)	67(85.9)
	<b><u>Work load</u></b>		
1	Are staffing levels being increased to reflect increased cleaning and workload?	66(84.6)	12(15.4)
2	Is the pharmacy reducing its working hours to meet up dispensing/cleaning?	67(85.9)	11(14.1)
3	Is home delivery service operated by the pharmacy?	68(87.2)	10(12.8)
	<b><u>Response Plan (Members of the Public)</u></b>		
1	Does signage and posters advice not to enter if there are symptoms of covid-19?	74(94.9)	4(5.1)
2	Are floor markings to ensure 2m rule in place?	75(96.2)	3(3.8)
3	Is there a one in one out protocol in place?	10(12.8)	68(87.2)
4	Is there hatch to manage entry?	19(24.4)	59(75.6)
5	Is there isolation facility for clients showing signs of covid-19?	70(89.7)	8(10.3)
6	Are their measures for telephone call instead of physical presence?	64(82.1)	14(17.9)
7	Are there measures for drug delivery to patients isolating at home?	69(88.5)	9(11.5)
8	Are there measures for signing prescription exemptions?	73(93.6)	5(6.4)
	<b><u>Response Plan (Infection control)</u></b>		
1	Are hand sanitizers available for patient use?	2(2.6)	76(97.4)
2	Do staff wash/sanitize hands after handling items from the public?	1(1.3)	77(98.7)
3	Are disposable hand towels available at all times?	38(48.7)	40(51.3)
4	Do staff wear gloves to protect them from items touched by patients?	45(57.7)	33(42.3)
5	Is there a documented cleaning process in the pharmacy?	17(21.8)	61(78.2)
6	Is there a routine deep clean process in the pharmacy?	3(3.8)	75(96.2)
7	Is there routine disinfection process for counter and frequently touched surfaces?	2(2.6)	76(97.4)
8	Do staff wear the relevant face mask?	6(7.7)	72(92.3)
9	Do staff safely wear a visor?	75(96.2)	3(3.8)
10	Are staff being discouraged or prevented from wearing PPE?	75(96.2)	3(3.8)
11	Is the pharmacy able to secure PPE and cleaning materials?	21(26.9)	57(73.1)
12	Is there any ventilation available in the pharmacy?	6(7.7)	72(92.3)

Table 3.8: Relationship between Pharmacy Characteristics with Levels of Preparedness and Response Plan

	Poor	Good	Total	$\chi^2$ (df)	p-value
Frequency (Percentage)					
LG Vs. Preparedness					
Gboko	4(12.5)	5(10.9)	9(11.5)	3.771(4)	0.438
Gwer East	1(3.1)	0(0.0)	1(1.3)		
Markudi	24(75.0)	35(76.1)	59(75.6)		
Oturkpo	2(6.3)	6(13.0)	8(10.3)		
Ukum	1(3.1)	0(0.0)	1(1.3)		
	32(100.0)	46(100.0)	78(100.0)		
Size Vs. Preparedness					
50 to 100	12(37.5)	30(65.2)	42(53.8)	11.667(4)	0.020
101 to 150	6(18.8)	11(23.9)	17(21.8)		
151 to 200	5(15.6)	1(2.2)	6(7.7)		
201 to 250	5(15.6)	2(4.3)	7(9.0)		
Above 250	4(12.5)	2(4.3)	6(7.7)		
	32(100.0)	46(100.0)	78(100.0)		
LG. Vs. Response plan					
Gboko	4(10.5)	5(12.5)	9(11.5)	2.078(4)	0.721
Gwer East	1(2.6)	0(0.0)	1(1.3)		
Markudi	29(76.3)	30(75.0)	59(75.6)		
Oturkpo	4(10.5)	4(10.0)	8(10.3)		
Ukum	0(0.0)	1(2.5)	1(1.3)		
	38(100.0)	40(100.0)	78(100.0)		
Size Vs. Response					
50 to 100	18(47.4)	24(60.0)	42(53.8)	2.819(4)	0.589
101 to 150	8(21.1)	9(22.5)	17(21.8)		
151 to 200	3(7.9)	3(7.5)	6(7.7)		
201 to 250	5(13.2)	2(5.0)	7(9.0)		
Above 250	4(10.5)	2(5.0)	6(7.7)		
	38(100.0)	40(100.0)	78(100.0)		

Table 3.9: Association between Pharmacy Characteristics with Levels of Preparedness and Response Plan

	R	I	II	III	IV	V	VI
Preparation (I)	R	1					
	P-value						
Response Plan (II)	R	0.407**	1				
	P-value	<0.0001					
Age of Facility(III)	R	0.023	0.209	1			
	P-value	0.845	0.066				
Number of Pharmacists (IV)	R	-0.150	0.174	0.324**	1		
	P-value	0.189	0.127	0.004			
Number of Staff (V)	R	-0.049	0.134	0.285*	0.713**	1	
	P-value	0.671	0.242	0.012	<0.0001		
Size of Pharmacy (VI)	R	-.260*	-0.118	0.215	0.328**	0.364**	1
	P-value	0.021	0.302	0.058	0.003	0.001	
	N	78	78	78	78	78	78

R: Pearson Correlation Coefficient; \*\*: Correlation is significant at the 0.01 level (2-tailed); \* Correlation is significant at the 0.05 level (2-tailed)

The study assessed the Preparedness and Response Plan of Hospitals and Community Pharmacies in Benue State to Risk of COVID-19 pandemic. It was found that most of the hospitals were located in the rural areas. However, the two tertiary institutions were located in the urban areas. This is similar to research by Israel and Sunday<sup>21</sup> that pointed out the lopsided location of tertiary health facilities in favor of urban areas in Nigeria. A resilient health system is one that can prepare for, respond and adapt to disruptive public health events while ensuring the continuity of quality and essential health services at all levels of the health system<sup>8</sup>. In contrast to Hospitals, it was found that most of the Community pharmacies were located in the urban areas of the state. This is consistent with the study carried out in Port-Harcourt, South-West Nigeria that reported a dense population of Community Pharmacies in urban areas<sup>22</sup>. The capital city (Makurdi) leads with a high Community Pharmacy population density. A study carried out in Canada also showed a similar trend with most Pharmacies located in Ontario, the capital city<sup>23</sup>. All the Pharmacies were located in only five of the twenty-three local government of the State. This further confirms the uneven distribution of Pharmacies in Nigeria. This unevenness is caused by more availability of infrastructure in the urban areas, Government presence and technological advancements<sup>24</sup>. Efforts must be made to ensure equitable or near equitable distribution of health care facilities so that universal health coverage can be achieved in the shortest possible time.

### C. Preparedness and Response Plans of the Hospitals

The study showed a good level of preparedness by Hospitals. The response plans of the Hospitals to the risk of Covid-19 were good. A study in 2019 reported that significant improvement is required in the level of preparedness and response of Hospitals to public health emergencies. Considering the rather, weak health system in most African countries. The level of preparedness and response plan demonstrated by the hospitals can be built upon and improved<sup>21</sup>. Pertinently, wide range of issues were brought to light by this research, including the need to provide continuing care to patients with acute or chronic illnesses; the laboratory services needed; the relevant blood supplies and services; the need to provide community health outreach activities (such as immunization and antenatal care); the distribution, tracking and security of medicines and medical supplies; how hospitals manage information; the need to train staff and other personnel; security challenges, including the protection of health care workers, patients and visitors; and the needs for mental health and psychosocial support for all hospital staff i.e. medical and non-medical<sup>8</sup>.

The study showed a statistically insignificant relationship between the location of the facility and their preparedness and response plan. This points to the fact, that, the location of the Hospital has no impact on their preparedness and response plan to the Covid-19 pandemic.

Findings from the study showed a strong and direct association between Hospital characteristics and its level of

preparedness and response plan. This relationship was statistically significant. A study conducted in 2019 by Isreal and Sunday affirms this finding. The age of a hospital facility, the number of clinical staff (Pharmacists, Doctors, and Nurses), number of other staff, number of beds and Laboratories all have a direct impact on a hospital facility's preparedness and response plan<sup>21</sup>.

### D. Preparedness and Response plan of Community Pharmacies

Findings from the study showed a moderate level of preparedness and response plan by the community Pharmacies in Benue State to the risks of COVID-19 pandemic. Community Pharmacies responded by ensuring continuity of care in line with standard best practice as stipulated by the world health organization. During the outbreak, pharmacists have continued to ensure a stable supply of drugs and medicines, establishing close contacts with pharmaceutical companies and manufacturers when necessary, and providing new medicine refill services, such as home delivery of pharmaceuticals for the elderly, immune-suppressed patients or those suffering from chronic-degenerative disorders, or direct supply via community pharmacies instead of accessing outpatient or hospital pharmacies. Besides refill extensions, therapeutic substitution has been another service provided by pharmacists during the outbreak. Guaranteeing continuity of care is, indeed, extremely important during crises, especially in rural and underserved areas<sup>14</sup>.

From the design, operation and layout of the Pharmacy, it was found that the 2m rule could be maintained. The Pharmacies had no designated place for suspected Covid-19 case. This is not a surprise because Community Pharmacies were not designed to handle emergencies such as the Covid-19 pandemic. More so, that the Covid-19 took many health systems unawares. The COVID-19 is truly an infectious disease that within the period of 11 months have claimed over a million lives worldwide. Till now, there is no generally acceptable medical remedy than simply changing our lifestyle in a careful but not fearful way. The promised vaccine also attracts suspicions<sup>25</sup>. The Pharmacies use their consultation rooms for more enhanced quality pharmaceutical service delivery. Infection control measures were adequately available and the use of Personal Protective Equipment (PPE) was available as stipulated by the world health organization. This is in line with World Health Organization recommendations<sup>26</sup>.

The findings from this study highlighted the need for greater focus on strengthening sub national level capacities for service delivery. Consideration for maintaining essential health services at the community or primary care level within plans is limited and predominantly in reference to the provision of COVID-19-related healthcare or a specific type of service (e.g. non-communicable diseases or mental health). National planning can support local decision-making and enable the maintenance of essential health services at the sub national levels incorporating a primary health care approach. This is in

line with the findings of Saqif *et al* in 2022, that such considerations should be part of the policy process throughout emergency planning and can enable learning towards health systems resilience<sup>6</sup>.

Infection, prevention and control (IPC) were a key strategy that was put in place by the Community Pharmacies and it was a strong measure in reducing the Spread of the Covid-19 virus. Due to the acute and infectious nature of COVID-19, the explicit focus of planning was on IPC. Consideration of other domains of quality and safety in health services is necessary to ensure improved community engagement, trust and utilization of essential health services as opined by Saqif in their research<sup>6</sup>.

The study showed that there is a statistically significant relationship between pharmacy characteristic (size of the pharmacy) and their preparedness plan to risk of Covid-19 pandemic. Most of the Pharmacy premises met the minimum size requirement of at least 50 square meters set by the Pharmacist council of Nigeria<sup>27</sup>. Obviously, when the size is right, then, there is room for infection, prevention and control activities (physical distancing, hand washing etc).

The study showed a strong and positive association between pharmacy characteristics and their preparedness and response plan to risk of Covid-19. This association was statistically significant. It shows that pharmacy characteristic feature plays a key role in level of preparedness and response plan to emergency situations such as Covid-19. To instill confidence in both the staff who work in a pharmacy and the public who frequent it, employers must have in place processes that reduce the risk of Covid-19. The Pharmacist Defense Association (PDA) also shares this view. For this to be achieved each pharmacy must first be risk assessed to establish the current position, it then becomes possible to establish measures that reduce the risks in the workplace that may underpin the confidence that the public expect<sup>28</sup>. A study by carried out in 2020 also reported the importance of preparedness in the fight against Covid-19<sup>29</sup>.

## 5. Conclusion

Hospitals in Benue had moderate Preparedness in managing the COVID-19 pandemic. This is for policy makers to make efforts in building health systems that are ready to handle health crises as most of these crises occur without warning like a bolt from the blue. Preparedness measures would go a long way in mitigating the impact of such occurrence.

The Response plans of Hospitals to the risk of covid-19 in Benue State were high. There is no reason to rest on our oars but to continue to improve until the health system attains a level of resilience that can be taken for stability.

Community Pharmacies had moderate Preparedness plan to the risk of COVID-19 pandemic in Benue State. The pandemic brought to the fore the ability of community pharmacies and indeed pharmacists to respond to public health emergencies. With adherence to guidelines from the world health organization (WHO), the international pharmaceutical

federation (FIP) and local regulatory authorities, the public health pharmacy practice can be tremendously improved.

The response plan of Community Pharmacies to the risk of Covid-19 pandemic was also moderate. Community pharmacies will now look to improve their practice with special emphasis on emergency response in terms of architectural design and personnel.

Hospitals' preparedness is strongly associated to their response plans. Preparedness and response are like Siamese twins. Improving one leads to an improvement in the other. Thus, public health response of hospitals should be strengthened.

Community Pharmacies characteristics such as size is moderately associated to their preparedness plan to the risk of Covid-19 pandemic. With the rapidly changing role of the pharmacy profession to meet present day healthcare challenges, it is pertinent to also improve the practice setting to accommodate these changes.

## References

- [1]. Alemu S. and Gebrile M. (2020). The Pandemic SARS-COV-2/COVID-19 and insights from previous homology related corona viruses/SARA-COV and MERCOV outbreaks: their molecular biology and Potential therapeutic targets. BMC health Service Research.
- [2]. Erku BA, Abrha S, Sinnollareddy M, Thomas J, Steadman KJ, Tesfaye (2020). When fear and misinformation go viral: Pharmacists' role in deterring medication misinformation during the 'infodemic' surrounding COVID-19. Res Soc Adm Pharm.
- [3]. Kasahun G.G., Kahsay G.M, Asayehegn A.T., Demoz G.T, Desta D.M, and Gebretekle G.B. (2020). Pharmacy Preparedness and Response for the Prevention and Control of Coronavirus Disease (Covid-19) in Aksun, Ethiopia, a qualitative exploration. BMC Health Service Research. 2020;913.
- [4]. Ali S, Noreen S, Farooq I, Bugshan A, Vohra F. Risk Assessment of Healthcare Workers at the Frontline against COVID-19. Pak J Med Sci. 2020; 36(COVID19-S4): COVID19-S99-S103.
- [5]. Department of health (DOH) (2020). Novel coronavirus (COVID-19) pandemic. Guidance for community pharmacies, April, 2020. Government of Western Australia.
- [6]. Saqif Mustafa, Yu Zhang, Zandile Zibwowa, Redda Seifeldin, Louis Ako-Egbe, Geraldine McDarby, Edward Kelley, Sohail Saikat (2022). COVID-19 Preparedness and Response Plans from 106 countries: a review from a health systems resilience perspective, Health Policy and Planning, Volume 37, Issue 2, February 2022, Pages 255–268.
- [7]. Remuzzi, A and Remuzzi, G. (2020). COVID-19 and Italy: what next? Lancet 2020. 11th April. 395(10231): 1225-8.
- [8]. WHO (2020). World health organization. Coronavirus disease 2019(Covid-19): Situation Report, 102. World health organization may 2020.



- [9]. WHO (2020). World health organization: corona virus disease 2019(Covid-19): Situation report 133.
- [10]. WHO (2020) World health organization. Coronavirus disease 2019(Covid-19): Situation report 163. World health organization. 1/7/20. Accessed 24/11/22.
- [11]. Health Services During Emergencies.
- [12]. WHO (2020). Covid-19 weekly epidemiological update. World health organization. November 3 2020 pg. 13. Accessed 10/11/20.
- [13]. WHO (2021). World Health Organization. "Weekly bulletin on outbreaks and other emergencies". WHO. 31/10/21. Accessed 4/11/21.
- [14]. WHO, (2020). World health organization. Risk assessment and management of healthcare workers in the context of COVID-19. Interim guide. 2020
- [15]. WHO, (2020). World health organization. Rapid hospitals readiness checklist. Harmonized health service capacity assessments in the context of COVID-19 pandemic. June 2020
- [16]. WHO, (2020). World Health Organization. Coronavirus disease (COVID-19) outbreak: rights, roles and responsibilities of health workers, including key considerations for occupational safety and health: interim guidance, 19 March 2020.
- [17]. WHO, (2020) World Health Organization; COVID-19: operational guidance for maintaining essential health services during an outbreak: interim guidance, 25 March 2020.
- [18]. WHO, (2020). Coronavirus disease (Covid-19) technical guidance infection prevention and control/WASH.
- [19]. WHO, (2020). World Health Organization. The corona virus 2019(COVID-19) Strategic Preparedness and Response Plan for the WHO African Region. 1 February 2021 to 1 January 2022. Updated April 16 2021.
- [20]. WHO, (2020). World health organization. Rapid hospitals readiness checklist. Harmonized health service capacity assessments in the context of COVID-19 pandemic. June 2020
- [21]. WHO, (2020). World Health Organization. Coronavirus disease (COVID-19) outbreak: rights, roles and responsibilities of health workers, including key considerations for occupational safety
- [22]. WHO, (2020) World Health Organization; COVID-19: operational guidance for maintaining essential health services during an outbreak: interim guidance, 25 March 2020.
- [23]. WHO, (2020). World health organization. Risk assessment and management of healthcare workers in the context of COVID-19. Interim guide. 2020
- [24]. Adepoju, P. (2020). Nigeria responds to Covid-19, first case detected in sub-Saharan Africa. *Nat Med* 2020; 26: 444-8.
- [25]. Oluwafolajimi A. A. (2020). Government Preparedness and Response towards COVID-19 outbreak in Nigeria: *J Glob Health. A Retrospective analysis of the last six months.*
- [26]. Oghenekaro G E, Chika, D and Benedicta K. (2020). Knowledge, Attitude and Practice towards COVID-19 among workers of a Tertiary Hospital in Bayelsa State, Nigeria. *PanAfricanMedicalJournal*.2020,37(1):24.
- [27]. Zachary, Z and Charmane, JW (2021). Community Pharmacy Response to Infection Control During COVID-19 Pandemic. *A Cross Sectional Survey. Research in Social and Administrative Pharmacy*. Vol. 7, Issue 1 January 2021, Pp 1845-1852. Elsevier.
- [28]. Bwire Godfrey, Alex Rioplexus Ario, Patricia Eyu, Felix Ocom, Joseph F. Wamala, Kwadwo A. Kusi, Latif Ndeketa, Kondwani C. Jambo, Rhoda K. Wanyenze and Ambrose O. Talisuna. (2022). The Covid-19 Pandemic in the African Continent. *Biomed Central (BMC)* (2022). 20.167.
- [29]. Bragazzi, N, L; Mansour, M; Bonsignore, A and Ciliberti, R, (2020). The Role of Hospital and Community Pharmacists in the Management of Covid-19: Towards an expanded Definition of the Roles, Responsibilities and Duties of the Pharmacist. *Pharmacy*, 8(3). 140.
- [30]. Adesanya, O.A, (2020). Government Preparedness and Response towards Covid-19 outbreak in Nigeria: A retrospective analysis of the last six months. *J Glob Health*. 2020 Dec, 10(2): 020382.
- [31]. Family Search (2022). *Benue State Nigeria Genealogy*.
- [32]. NPC, (1991) National Population Commission. *National Population Census Figure 1991. Federal Government Printer, Lagos.*
- [33]. NPC, (2006). National Population Commission. *Legal Notice on Publication of the details of the Breakdown of the National and State Provisional totals. 2006 census. Federal Republic of Nigeria Official Gazette vol. 94 No. 24. Government Notice 2, May 15, 2007.*
- [34]. Fanan, U. and Felix K. (2014). Analysis of the Spatial Distribution of Health Facilities in Benue State, Nigeria, *Public Health Research*, Vol. 4 No. 5, 2014 Pp. 210-218.
- [35]. Ojanuga, AG. and Ekwoanya, M.A. (1994). *Temporal Changes in Land use Pattern in the Benue River Flood Plain and Adjoining Upland at Makurdi, Nigeria. 1994.*
- [36]. Isreal, A, A and Sunday O.A. (2019). Infrastructural distribution of health care services in Nigeria: An overview. *African journal of Geography and Regional Planning*.
- [37]. Ifeyinwa C. and Mark O. (2021). Distribution Pattern of Community Pharmacies in Port Harcourt Metropolis, Niger Delta. *Nigeria Journal of Pharmacy and Pharmacology Research* 5(2021): 188-199.
- [38]. Law, M.R, Dijkstra, A, D and Douillard J.A. (2011). Geographic accessibility of Community Pharmacies in Ontario. *Healthcare Policy* 6(2011): 36.
- [39]. Oseni Y.O. (2017). Pharmacists' distribution in Nigeria, implication in the provision of safe medicines and pharmaceutical care. *Int J. Pharm Sci*. 2017:(10).
- [40]. Egunjobi J.P. (2020). Effectiveness of Hand Washing, Face Masking, Social Distancing and Lockdown in preventing the spread of Covid-19. *The Psycho-Spiritual institute, Marist International University College, Nairobi, Kenya. Conference Paper.*

- [41]. WHO (2021). World Health Organization. “Weekly bulletin on outbreaks and other emergencies”. WHO. 31/10/21. Accessed 4/11/21.
- [42]. Ugbede E.G. (2021). Pharmacists Council of Nigeria Requirements for New Community Pharmacy Location Approval and Facility Inspection. 2021. DrugXpertblog. Accessed 5/1/23.
- [43]. PDA (2020). Pharmacists Defence Association. Reducing the risk of Covid-19 in the Community Pharmacy. A risk assessment tool.
- [44]. Mustapha J.O, Adedokun K.A and Nasir I.A. (2020). Public health preparedness towards Covid-19 outbreak in Nigeria. Asian Pac J Trop. Med. 2020.