HEALTH INFRASTRUCTURE AND IMPLEMENTATION OF HEALTH POLICY IN NIGERIA: A CASE OF NHIS IN FCT, ABUJA

OKAFOR, IKECHUKWU JOSEPH (PhD)
Department of Public Administration
Faculty of Management Sciences
University of Abuja
iikennaiyk@yahoo.com
+2348036785625

Abstract
Health policies are an integrated approach towards achieving desired targets. Every nation desirous of healthy citizenry articulates critical approach towards addressing healthcare issues for her citizens over a determinable period of time. Like other policies, successful implementation of health policies are preconditioned by the provision of implementation factors as well as enabling environment. Healthcare infrastructure is one of the critical criteria for successful implementation of healthcare policies. In Nigeria, empirical findings have indicted poor health infrastructure as the bane of health policy failure. This study sought to join the debate by investigating the extent to which healthcare infrastructure has enabled/disabled the implementation of National Health Insurance Scheme (NHIS) which is an offshoot of the National Health Policy in Nigeria. The study which is a survey research was anchored on Andersen’s Health Behaviour Theory and employed the instrument of questionnaire to elicit data from Health workers and NHIS enrollees in nine health institutions spread across four Area Councils in Abuja, namely, AMAC, Gwagwalada, Kuje and Kwali. The data was analysed using Statistical Package for Social Science (SPSS). The study observed the existence of inadequate health infrastructure like hospital bed space inhibits effective utilization of health facilities by enrollees and also that electricity supply to the health facilities are epileptic thereby leading to poor service delivery by health workers to enrollees. It concludes that the problem of poor health infrastructure affects the effective implementation of NHIS and that the issues of health infrastructure are very critical to the effective implementation of NHIS in FCT and Nigeria in general. The paper recommends among others, state of emergency should be declared on health infrastructure; that statutory provisions should be made to consolidate the provision of health infrastructure; A stronger collaboration between the government and Civil Society Organization and indigenous research establishments; and finally special attention to be paid to the power sector in Nigeria.

Keywords: Health Infrastructure, Healthcare Policy, Effective Implementation, NHIS, Nigeria.

Introduction
Infrastructure is, collectively, the underlying foundation that supports a larger structure; the intrinsic framework of a system or organization and the ‘substructure’ that underpins the ‘superstructure’. They determine the capacity and capability of the system to carry out its core functions and deliver on their core mandates and the corresponding quality of the care and
accessibility to health care delivery in a society. To ensure quality service delivery, the World Health Organization (WHO) has recommended that health care infrastructure should be ‘formal and enduring’, requiring a mandated strategic focus that is maintained over time on a sustainable basis. The expectation of formal and enduring infrastructure is that their sustenance and maintenance should be endorsed as the statutory and systematic responsibility of government; rather than being ad hoc or disjointed.

The National Health Insurance Scheme (NHIS) is an offshoot of the Nigerian National Health Policy (NHP) and it was established by Decree 35 of 1999 (Now Act 35) and became operational in 2005. It is a social health insurance programme designed by the Federal Government of Nigeria to complement sources of financing the health sector and to improve access to health care for the majority of Nigerians (Mbaya, 2009). It guarantees the provision of needed health services to persons without them having to pay fully at the time of need, because payment has previously been made by regular contribution by the insured or his employer or both. The scheme is statutorily mandated to ensure that Nigerians have access to affordable health care regardless of their social status. The programmes of the scheme are designed to cover the formal sector (Public Sector: Federal, State and Local Government; organized private sector, Armed forces, police and other uniformed services); the informal sector (Community Based Social Health Insurance Programmes, Voluntary Contributors Social Health Insurance Programmes; and the Vulnerable Group Social Health Insurance Programme for physically challenged persons, prisoners inmates, under five children, refugees, victims of human trafficking, internally displaced persons and pregnant women) (NHIS, 2013).

The NHIS has existed for well over a decade and opinion is polarized among its clients as to whether the scheme has the capacity to guarantee universal coverage and access to adequate, effective and affordable health care for millions of Nigerians. The question of the level of satisfaction derived by NHIS enrollees has become a big issue. It is against this background that this study investigates the role of health infrastructure in the implementation of NHIS in the Federal Capital Territory (FCT) of Nigeria between 2005 and 2015.

Statement of the Problem

Nigeria as a nation operates a pluralistic health care delivery system (orthodox and traditional health care delivery systems). Orthodox health care services are provided by private and public sectors. However, the provision of health care in the country remains the functions of the three tiers of government: the federal, state, and local government. The primary health care system is managed by the 774 local government areas (LGAs), with support from their respective state ministries of health as well as private medical practitioners. The secondary health care system is managed by the ministry of health at the state level. The tertiary primary health care is provided by teaching hospitals and specialist hospitals. The secondary and tertiary levels, also work with voluntary and nongovernmental organizations, as well as private practitioners (Adeyemo, 2005).

In 2017, the Federal Ministry of Health (FMoH) estimated a total of 23,640 health facilities in Nigeria of which 85.8% are primary health care facilities, 14% secondary and 0.2% tertiary. 38% of these facilities are owned by the private sector, which provides 60% of health care in
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the country. In spite of the availability of this huge number of healthcare facilities and advancement in technology the health sector in Nigeria has witnessed various turbulent with its attended negative effects. As affirmed by Obansa and Orimisan (2013), with the country’s teeming population, it is still struggling with the provision of basic health services. According to HERFON (2006), health infrastructure (health centers, personnel, and medical equipments) are inadequate in the country, particularly in rural areas. This of course clearly explains the high mortality rate in children, maternal and even adults over the years. It is on the basis of these that this study attempts to examine to role of health infrastructure in the implementation health policies in Nigeria taking the implementation of National Health insurance Scheme as study guide.

Theoretical Framework
This study adopted Anderson’s health behaviour theory because of its compatibility with the study’s objective. Andersen (1968) developed a theory of health care utilization which looks at three categories of determinants for health care service utilization. These include: (i) predisposing characteristics, (ii) enabling characteristics and (iii) need based characteristics.

i) Predisposing Characteristics: This category represents the proclivity to utilize health care services. According to Andersen (1968), health care utilization is determined by certain predisposing factors which include demographic factors such as age, sex, etc; social structure such as education, occupation, ethnicity, social network, social interactions and culture. The social position of an individual within the society in terms of aforementioned factors determines access to and use of health services. Another element of the predisposing characteristics is the health belief factors which include attitudes, values and knowledge that people have concerning and towards the health care system. An individual who believes health services are useful for treatment will likely utilize those services.

ii) Enabling Characteristics: This category, according to Andersen includes resources found within the family, community and health facility levels. Family or personal resources include income, health insurance coverage, location and quality of social relationships. The first two factors-income and health insurance coverage are particularly important because the level of family or personal income determines the amount of money that would be available to take care of health expenditure. Also health insurance coverage enhances an individual’s access to and use of health services. Resources at the community level include available health facilities, health personnel and medical equipment. Health facilities, including health infrastructure must be present for use to take place. Also health personnel and medical equipment must be available within the health facilities for effective utilization of health care services. Adequate availability of health infrastructure reduces patients waiting times and improved health care services utilization.

iii) Need-based Characteristics: The third category of Andersen health behavioural theory includes the perception of need for health services and evaluated perceptions of need. According to Andersen (1968), perceived need is how people view their own general health and functional state, as well as how they experience symptoms of illness, pain
and worries about their health and whether or not they judge their problems to be of sufficient importance and magnitude to seek professional help and evaluated perception of need represents professional judgment about people’s health status and their need for medical care.

The underlying assumptions of Andersen’s behavioural theory of health care services utilization is congruent with the objective and thrust of this study which is to assess the factors that may be militating against the successful implementation of NHIS in FCT. Community, family or personal enabling resources must be available for health care utilization to take place. First, community resources like health facilities must be available and these facilities must have the required personnel for adequate health care services utilization. Also families or individuals must have the means and know-how to access and use health care services. This includes availability of income, health insurance coverage and regular source of care. Where these are lacking or inadequate, health care utilization is bound to be low.

Conceptual Review

Public Policy

It would be proper to first clarify the concept of public policy. This is because the NHIS, which is an offshoot of national health policy can be located within the broad spectrum of public policy. No unanimity can be found on a precise definition of public policy (Cochran and Malone, 2014). Scholars have viewed public policy from different perspectives. According to Dye (1972), public policy is whatever governments choose to do or not to do. This definition in the opinion of Egonmwan (1991) is limited to the extent that in many political systems, there may be a divergence between what governments decide to do and what they actually do. This observation is instructive, especially in the developing countries of the world, where there exist a serious gap between policy formulation and policy implementation.

Jenkins (cited in Egonmwan, 1991) presented a more encompassing perspective on public policy. He conceives of public policy as a set of interrelated decisions by a political actor or group of actors concerning the selection of goals and the means of achieving them within a specified situation where those decisions should, in principle be within the power of those actors to achieve. This definition brings to fore the important place of policy implementation in the public policy process. Decisions by a political actor or group of actors are not complete until the public can feel the tangible impact of those decisions through adequate and effective implementation process.

In the opinion of Dlakwa (2008), perspectives on public policy could be classified broadly into three: (i) policy as a statement of intention, (ii) policy as a set of activities, and (iii) policy as a process of decision-making or choice.

i) Policy as a statement of intention: Seen from this perspective, Dlakwa (2008) submits that public policy is regarded as an embodiment of official pronouncements on what governments would want to do or to be done on behalf of the citizenry. It consists of a series of guidelines for actions to be taken in order to improve the welfare of the citizenry prepared by government or its designated agent. Viewed from this direction, public policy can be regarded as all the legal and official pronouncement of government, such
as Act of parliament, development plans and programmes and other officially
documented pronouncements of government.

ii) Policy as a set of governmental activities: From this perspective, Dlakwa opined that
public policy is defined as a dynamic process that is characterized by a course or pattern
of activities carried out with the aim of achieving predetermined objectives. Public
policy thus consists of all the constellation of activities carried out by governmental
agencies, or their representatives, with the sole purpose of achieving stated objectives.
In essence, stating an objective alone does not constitute a policy. It becomes a policy
only at the point when the appropriate institutional framework is put in place to
translate the wishes into concrete activities that can produce tangible deliverables
(goods and services).

iii) Policy as the process of decision-making or choice: According to Dlakwa (2008) any
government wishing to succeed in its official endeavour would have to make a concerted
effort at determining the desirable objectives to pursue for its people. This, according to
Jones (1977:27) entails the taking of initiatives “to set goals, develop plans, implement
and evaluate programmes”. Dlakwa (2005) concluded that the three perspectives on
public policy are interlinked, as there cannot be any meaningful statement of intention
without elements of decision making coming into play. Nor could there be any activity
carried out to realize an objective without the objective being specified in the first place.
Neither could the carrying out of activities be effectively done without decisions made
in the first place.

In the view of Cochran and Malone (2014) Public policy can be described as the overall
framework within which government actions are undertaken to achieve public goals. They
also view public policy as purposive courses of action devised in response to a perceived
public problem. On a general note, public policy can be described as the chains of activities
by the government or its designed agent to meet the aspirations and yearnings of the people
(public).

Health Infrastructure
Health infrastructure is understood in both qualitative and quantitative terms to mean the
quality of care and accessibility to health care delivery within a country. It is judged by the
quality of physical, technological and human resources available at a given period. Physical
structure entails the buildings and other fixed structures such as pipe borne water, good
access roads, electricity and so on within the healthcare environments, whilst the technology
is about the equipments meant specifically for hospital use including surgeries (Erinosho,
2006).

This also includes computer equipments and consumables while human resource comprises
the health professionals including doctors, pharmacists, nurses, midwives, laboratory
technologists, administrators, accountants and other sundry workers. All these put together
form the structure upon which the healthcare delivery is anchored in any society and the
determinants of its infrastructure. Health infrastructure is a part of a larger concept of the
health system which contains the health policy, budgetary allocation, implementation and
monitoring (Adebayo and Oladeji, 2006). This is larger in concept and more robust than a mix of facilities, medical consultation in terms of diagnosis, treatment and compliance. It also involves the healthcare consumers and other factors associated with or adjunct to health-care delivery.

Furthermore, health infrastructure, from these all-inclusive criteria, has to do with people, institutions and legal framework, all interacting systematically to mobilize and allocate resources specifically for health management, prevention and care of diseases, illnesses and injuries. On one hand, it can be inferred that the structure of healthcare delivery intricately intertwined with the quality of health personnel, efficient management, effective financing and communication. An equally crucial factor is a willing government in active support of and participation in the health system for the overall benefit of the society. Discussion of healthcare infrastructure in sub-Saharan Africa and Nigeria in particular has recognized the existence of different types and practices. There are traditional, biomedical/orthodox and synthetic types. However, our focus in this paper is on the bio-medical or Western orthodox healthcare with its expansive bureaucratic ethos within the context of hospital structure.

**Methodology of Study**

This study made use of both secondary and primary data. Secondary data was obtained through a review of existing literature relevant to implementation of NHIS in Nigeria. Primary data was generated through questionnaire which was distributed to stakeholders in the implementation of NHIS in FCT as shown in Table 2. The questionnaire was modeled on Rensis Likert Scale of a five point rating and adopted to suit the objective of the study. The scale provides five options: Very High Extent (VHE), High Extent (HE), Undecided (U), Low Extent (LE) and Very Low Extent (VLE). The numerical values assigned to the rating are as follows: Very High Extent (VHE)5, High Extent (HE)4, Undecided (U)3, Low Extent (LE)2, and Very Low Extent (VLE)1. The decision rule guiding this Likert scale is given as:

\[
\frac{X}{5} = \frac{5 + 4 + 3 + 2 + 1}{5} = \frac{15}{5} = 3.0
\]

Where \(X\) is the average and the Likert 5-scale average for decision making = 3.0. The decision rule is given as: On the one hand, if a mean score of a statement is 3.0 and above, the decision is positive. This means that the mean score lies on the high to very high extent side of the continuum. On the other hand, if a mean score of a statement is below 3.0, the decision is negative. This means that the mean score lies on the low to very low extent side of the continuum.

The stakeholders are of two dimensions- institutional and public populations. The institutional stakeholders are the health workers who are the primary focus of the study and are in position to report the situation in healthcare centres, while the second dimension of the stakeholders- the public population are the enrollees of NHIS scheme who are the intended beneficiaries of the NHIS scheme and are in position to evaluate the availability of personnel in healthcare centres. Since the Study Area is FCT, Abuja. Table 1 below shows the breakdown of the stakeholders who together form the population of this study.
Table 1: Population of Health Workers and NHIS Enrollees across the selected Area Councils and Health care providers in FCT

<table>
<thead>
<tr>
<th>Area Council</th>
<th>Health care Provider</th>
<th>Health Workers</th>
<th>NHIS Enrollees</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMAC</td>
<td>National Hospital</td>
<td>1369</td>
<td>22,000</td>
</tr>
<tr>
<td></td>
<td>Wuse General Hospital</td>
<td>253</td>
<td>5926</td>
</tr>
<tr>
<td></td>
<td>Nyanya General Hospital</td>
<td>177</td>
<td>8,892</td>
</tr>
<tr>
<td>Gwagwalada</td>
<td>UATH</td>
<td>857</td>
<td>30,892</td>
</tr>
<tr>
<td></td>
<td>Gwagwalada Town Hall Clinic (PHC)</td>
<td>27</td>
<td>2,151</td>
</tr>
<tr>
<td>Kwali</td>
<td>Kwali General Hospital</td>
<td>99</td>
<td>2685</td>
</tr>
<tr>
<td></td>
<td>Kwali PHC</td>
<td>14</td>
<td>472</td>
</tr>
<tr>
<td>Kuje</td>
<td>Kuje General Hospital</td>
<td>126</td>
<td>2533</td>
</tr>
<tr>
<td></td>
<td>Kuje PHC</td>
<td>23</td>
<td>398</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>2,945</strong></td>
<td><strong>75,250</strong></td>
</tr>
</tbody>
</table>

Source: -National Hospital (2017)
- Wuse General Hospital (2017)
- Nyanya General Hospital (2017)
- UATH, (2017)
- Gwagwalada Town Hall Clinic (2017)
- Kwali General Hospital (2017)
- Kwali PHC (2017)
- Kuje General Hospital (2017)
- Kuje PHC (2017)

The study adopted Taro Yamani’s formula and proportional sampling technique to determine the sample size of the respondents. These allows for fair representation of the population. The details are presented below:

**Determination of Sample Size of Health Workers based on the total Population of 2,945**

Using Taro Yamani’s formula:

\[
n = \frac{N}{1 + N(e)^2}
\]

Where:
- \(n\) = Sample Size
- \(N\) = Population Size (2,945)
- \(e\) = Level of Significance (0.05)
- \(I\) = Constant

Therefore,

\[
n = \frac{2,945}{1 + 2,945 (0.05)^2}
\]

\[
= \frac{2,945}{1 + 2,945 (0.0025)^2}
\]

\[
= \frac{2945}{1 + 7.362} = 352
\]
Total Sample Size of all Health Workers = 352

**Determination of Sample Size of Enrollees based on total Population of 75,250**

Using Taro Yemani’s formula:

\[ n = \frac{N}{1+N(e)^2} \]

\[ = \frac{75,250}{1+75,250(0.0025)^2} \]

\[ = \frac{75,250}{1+189.125} \]

\[ = \frac{75,250}{189.125} = 398 \]

Total Sample Size of Enrollees = 398

The Study employed purposive sampling technique to choose 4 out of the 6 Area Councils in FCT. These are Abuja Municipal Area Council (AMAC), Gwagwalada, Kwali, and Kuje. In each of the Area Councils, various health institutions were chosen for study to generate the views of stakeholders. In AMAC, the institutions of choice were National Hospital, Wuse General Hospital and Nyanya General Hospital; in Gwagwalada, University of Abuja Teaching Hospital and Gwagwalada Town Hall Clinic were sampled, while in Kwali, Kwali General Hospitals and Kwali Primary Health Centre (PHC) were chosen and in Kuje, Kuje General Hospital and Kuje PHC were sampled. Breakdown of the sample size as drawn from population of various units of the study were presented in Table 3 below.
Table 2: Sampled population of Health Workers and NHIS Enrollees across the Selected Area Councils and Health care Providers in FCT

<table>
<thead>
<tr>
<th>Area Council</th>
<th>Health care Provider</th>
<th>Population of Health Workers</th>
<th>Sample size of Health Workers ( \frac{SP \times SS}{GP} )</th>
<th>Population of NHIS Enrollees</th>
<th>Sample size of NHIS Enrollees ( \frac{SP \times SS}{GP} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMAC</td>
<td>National Hospital Wuse General Hospital Nyanya General Hospital</td>
<td>1369</td>
<td>164</td>
<td>22,000</td>
<td>116</td>
</tr>
<tr>
<td></td>
<td></td>
<td>253</td>
<td>30</td>
<td>5926</td>
<td>31</td>
</tr>
<tr>
<td></td>
<td></td>
<td>177</td>
<td>21</td>
<td>8892</td>
<td>47</td>
</tr>
<tr>
<td>Gwagwalada</td>
<td>UATH Gwagala Town Hall Clinic (PHC)</td>
<td>857</td>
<td>102</td>
<td>30,193</td>
<td>160</td>
</tr>
<tr>
<td></td>
<td></td>
<td>27</td>
<td>3</td>
<td>2,151</td>
<td>12</td>
</tr>
<tr>
<td>Kwali</td>
<td>Kwali General Hospital Kwali PHC</td>
<td>99</td>
<td>12</td>
<td>2685</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14</td>
<td>2</td>
<td>472</td>
<td>3</td>
</tr>
<tr>
<td>Kuje</td>
<td>Kuje General Hospital Kuje PHC</td>
<td>126</td>
<td>15</td>
<td>2533</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td></td>
<td>23</td>
<td>3</td>
<td>398</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>2,945</td>
<td>352</td>
<td>75,250</td>
<td>398</td>
</tr>
</tbody>
</table>

The study also utilized proportional sampling technique to prorate the sample size for each study unit according to the strength of their contribution to the general population of the respondents’ category. The formula for this proportional allocation is given as:

\[
\frac{SP \times SS}{GP}
\]

Where:
- \( SP \): Specific Population of a Study Unit
- \( SS \): Sample Size of Respondents’ Category
- \( GP \): General Population of Respondents’ Category

Data generated from the questionnaire instrument were analysed using Version 25 of statistical package for Social Science (SPSS) and independent two sample t-test was used to test the hypothesis.

**Hypothesis**

The study was guided by the following hypothesis:

- \( H_0 \): The opinion of enrollees and health workers do not vary significantly regarding the problem of poor health infrastructure as hindrance to the effective implementation of NHIS in FCT.
- \( H_1 \): The opinion of enrollees and health workers vary significantly regarding the problem of poor health infrastructure as hindrance to the effective implementation of NHIS in FCT.

**Data Presentation and Interpretation**

Out of the 352 copies of questionnaire distributed to Healthcare workers only 311 copies were retrieved and found usable; and of the 398 copies of the questionnaire distributed to NHIS enrollees, only 361 copies were returned and found usable. Therefore analysis of data is based on the questioned retrieved.
Table 3: Descriptive Analysis of the Extent to Which Poor Health Infrastructure Affects The Effective Implementation Of NHIS In FCT

<table>
<thead>
<tr>
<th>S/N</th>
<th>STATEMENT</th>
<th>CATEGORY</th>
<th>RESPONSE CATEGORIES</th>
<th>TOTAL</th>
<th>MEAN SCORE</th>
<th>DECISION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Inadequate hospital beds space inhibits effective utilization of health facility by enrollees.</td>
<td>NE HW</td>
<td>VHE (5) HE (4) U (3) LE (2) VLE (1)</td>
<td>361</td>
<td>4.34</td>
<td>High extent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>361</td>
<td>3.10</td>
<td>High extent</td>
</tr>
<tr>
<td>2</td>
<td>Electricity supply to the health facility is epileptic thereby leading to poor service delivery.</td>
<td>NE HW</td>
<td>137 62 152 31 24 116 17 16</td>
<td>361</td>
<td>4.02</td>
<td>High extent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>361</td>
<td>3.19</td>
<td>High extent</td>
</tr>
<tr>
<td>3</td>
<td>Absence of standby generating set in the case of power outage.</td>
<td>NE HW</td>
<td>116 68 102 57 51 122 35 32</td>
<td>361</td>
<td>3.59</td>
<td>High extent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>361</td>
<td>3.03</td>
<td>High extent</td>
</tr>
<tr>
<td>4</td>
<td>Lack of clean and regular water supply creates enormous hardship to patients (enrollees).</td>
<td>NE HW</td>
<td>116 61 80 41 74 123 80 41</td>
<td>361</td>
<td>3.38</td>
<td>High extent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>361</td>
<td>2.92</td>
<td>Low extent</td>
</tr>
<tr>
<td>5</td>
<td>Lack of Ambulance in the health facility inhibits effective delivery of service.</td>
<td>NE HW</td>
<td>85 52 103 40 76 122 57 52</td>
<td>361</td>
<td>3.23</td>
<td>High extent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>361</td>
<td>2.77</td>
<td>Low extent</td>
</tr>
<tr>
<td>6</td>
<td>Deplorable condition of access roads to the health facility imposes hardship to health personnel and enrollees.</td>
<td>NE HW</td>
<td>79 47 103 39 78 123 62 53</td>
<td>361</td>
<td>3.16</td>
<td>High extent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>361</td>
<td>2.73</td>
<td>Low extent</td>
</tr>
<tr>
<td>7</td>
<td>Existence of inadequate hospital buildings to accommodate the different segments of the health facilities.</td>
<td>NE HW</td>
<td>101 48 101 53 40 44 78 113 41 53</td>
<td>361</td>
<td>3.39</td>
<td>High extent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>361</td>
<td>2.77</td>
<td>Low extent</td>
</tr>
<tr>
<td>8</td>
<td>Existence of inadequate office rooms/space for the health personnel in the health facility.</td>
<td>NE HW</td>
<td>85 48 122 76 46 34 73 105 35 48</td>
<td>361</td>
<td>3.41</td>
<td>High extent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>361</td>
<td>2.91</td>
<td>Low extent</td>
</tr>
<tr>
<td>9</td>
<td>Lack of good maintenance culture in the health facility adds to the problem of poor health infrastructure.</td>
<td>NE HW</td>
<td>90 53 160 81 34 40 47 102 30 35</td>
<td>361</td>
<td>3.64</td>
<td>High extent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>361</td>
<td>3.05</td>
<td>High extent</td>
</tr>
<tr>
<td>10</td>
<td>Generally, enrollees and health personnel are not satisfied with the extent of service delivery in the health facility because of poor health infrastructure.</td>
<td>NE HW</td>
<td>98 65 165 87 33 32 34 85 31 42</td>
<td>361</td>
<td>3.73</td>
<td>High extent</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>361</td>
<td>3.15</td>
<td>High extent</td>
</tr>
</tbody>
</table>

\[
\text{Grand mean} = \frac{\text{NHIS enrollees (NE)}}{\text{Health workers (HW)}} = \frac{96}{59.3} = \frac{3.59}{2.96} = \frac{\text{High extent}}{\text{Low extent}}
\]

Source: Field Survey, 2018

Table 3 above presents the item by item descriptive analysis of NHIS enrollees and health workers’ response to the statements on the extent to which the existence of poor health infrastructure affects the effective implementation of NHIS in FCT. The mean score of the items for the two categories of respondents were all greater than 3.0, except the response of
the health workers to items four to eight (with means = 2.92, 2.77, 2.73, 2.77 and 2.91) that were less than 3.0.

Table 3 also showed that the grand mean rating of NHIS enrollees (mean = 3.59) was higher than the grand mean rating of the health workers (mean = 2.96). Since the grand mean of NHIS enrollees (i.e. 3.59) is greater than 3.0, the result implies that respondents are of the opinion that poor health infrastructure affects the effective implementation of NHIS in FCT to a high extent. Furthermore, since the grand mean of Health workers (i.e. 2.96) is less than 3.0, the result implies that Health workers are of the opinion that poor health infrastructure affects the effective implementation of NHIS in FCT to a low extent.

Specifically, item one revealed that there is an agreement between the NHIS enrollees and health workers (mean score = 4.34 and 3.10 respectively) that to a high extent, the problem of inadequate hospital bed space inhibit effective utilisation of health facilities by enrollees. Agreement also exists in the responses of both categories of respondents concerning item two that to a high extent, electricity supply to the health facility is epileptic thereby leading to poor service delivery. This is demonstrated by the mean score of 4.02 and 3.09 for enrollees and health worker respectively. Similarly, regarding item three, agreement exists between the two categories of respondents that to a high extent, there is the absence of standby generating set in the case of power outage. The mean scores of 3.49 for NHIS enrollees and 3.03 for health workers validate this opinion.

In the case of item four on table 3 above, variation exists on the opinion of the two categories of respondents concerning lack of clean and regular water supply causing enormous hardship to patients (enrollees). While the NHIS enrollees are saying that the problem exists to a high extent, the health workers on the other hand are of the opinion that the problem exists to a low extent. This is justified by their mean scores (NHIS enrollee = 3.38, health workers = 2.92). Also, there is variation in the opinion of both categories of respondents to item five on whether lack of ambulance in the health facility inhibits effective delivery of health services. While the NHIS enrollees agreed that the problem exist to a high extent, the health workers on the other hand are saying that the problem exists to a low extent. The mean score of 3.23 and 2.77 for enrollees and health workers respectively underscore this evidence.

Difference in opinion also exist between the two categories of respondents on item six which captures whether deplorable condition of access roads to the health facility imposes hardship to health personnel and enrollees. NHIS enrollees agreed that the problem exists to a high extent (mean score = 3.16) while the health workers are saying that the problem exists to a low extent (mean score = 2.73). Variation also exists in the opinion of the two categories of respondents regarding item seven which relates to the existence of inadequate hospital buildings to accommodate the different segments of the health facilities. NHIS enrollees are of the opinion that the problem exists to a high extent (mean scores = 3.39) while the health workers are of the opinion that the problem exists to a low extent (mean score = 2.77). Similar to this, is the disagreement in opinion between the two categories of respondents on item eight which has to do with the existence of inadequate office rooms/space for the health personnel in the health facilities. While on the one hand, the NHIS enrollees agree that the problem exists
to a high extent (mean score = 3.41), the health workers on the other hand, are of the opinion that the problem exists to a low extent (mean score = 2.91).

There exists an agreement in opinion between NHIS enrollees and health workers on item nine which has to do with whether lack of good maintenance culture in the health facilities adds to the problem of poor health infrastructure. Both agree that the problem exists to a high extent. This is justified by their mean scores (NHIS enrollees = 3.64, health workers = 3.05). Also agreement exists in the opinion of both categories of respondents regarding item ten, which is concerned with whether, generally, enrollees and health personnel are not satisfied with the extent of service delivery in the health facilities because of poor health infrastructure. Both agree that the problem of dissatisfaction with poor health infrastructure exists to a high extent (Mean score – NHIS enrollees = 3.73, health workers = 3.15).

**Test of Hypothesis**

To find out if the view of NHIS enrollees and health workers differ significantly, regarding the problem of poor health infrastructure as hindrance to the effective implementation of NHIS in FCT, the mean response from the enrollees and health workers were subjected to a descriptive Statistics and an independent two sample t-test analysis as presented in Table 4 below.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Total</th>
<th>Mean</th>
<th>Std. deviation</th>
<th>T- test Result</th>
<th>D.F.</th>
<th>P – Value</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrollees</td>
<td>361</td>
<td>3.59</td>
<td>1.009</td>
<td>-7.772</td>
<td>670</td>
<td>0.000</td>
<td>-0.786 to -0.469</td>
</tr>
<tr>
<td>NHIS Health workers</td>
<td>311</td>
<td>2.96</td>
<td>1.078</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Interpretation of Results**

The results from the table above indicate that health workers have statistically significant lower mean response to the statement on the problem of poor health infrastructure as hindrance to the effective implementation of NHIS in FCT (2.96± 1.078) compared to enrollees (3.59± 1.00), with mean difference = 0.63, t(670) = -7.77 and p = 0.000.

This indicates that the mean response of enrollees and Health workers to the statement on problem of poor health infrastructure as hindrance to the effective implementation of NHIS in FCT are significantly different because the t(670) = -7.77 is less than the t critical = -1.96 and p-value = 0.00 is less than the level of significance =0.05 at 670 degree of freedom (d.f.). The null hypothesis is rejected and the alternative hypothesis accepted. This implies that the opinion of enrollees and health workers vary significantly regarding the problem of poor health infrastructure as hindrance to the effective implementation of NHIS in FCT.

**Discussion**

The hypothesis tested revealed that the opinion of NHIS enrollees and health workers vary significantly regarding the problem of poor health infrastructure as hindrance to the effective implementation of NHIS in FCT. For this reason the null hypothesis was rejected and the alternate accepted. In the case of the hypothesis, there are variations between the inferential
statistical analysis and the descriptive analysis as reflected in the grand mean scores (NHIS enrollees = 3.59, health workers = 2.96). This implies that to the enrollees, the problem of poor health infrastructure affects the effective implementation of NHIS in FCT to a high extent while the opinion of the health workers indicates that the problem exists but to a low extent. Analysis of specific items relating to health infrastructure (see table 3) shows that the opinion of health workers concerning items four to eight (mean = 2.92, 2.77, 2.73, 2.77 and 2.91) respectively is an indication that the issues raised affect them to a low extent. However, their opinion (health workers) on issues raised on items one to three and nine to ten (mean = 3.10, 3.19, 3.03 and 3.05, 3.15) respectively affects them to a high extent. One can conclude that the result of this investigation has produced in the end, a complex mesh of varying impressions.

Nevertheless, the study obviously discovered that inadequate health infrastructure like hospital bed space inhibits effective utilization of health facilities by enrollees and also that electricity supply to the health facilities are epileptic thereby leading to poor service delivery by health workers to enrollees. The study also revealed that in most of the facilities, there exists absence of standby generating sets in the case of power outage. Very instructive also, is the discovery that lack of good maintenance culture in the health facilities adds to the problem of poor health infrastructure. The study was able to establish that generally, enrollees and health workers are not satisfied with the extent of service delivery in the health facilities because of poor health infrastructure as revealed by the mean scores on this issue. In line with the outcome of this investigation, Jegede (2014) reported poor infrastructure as posing serious threat to the development and efficient performance of the Nigerian health care system.

5.0 Conclusion and Recommendations

This study concludes that the problem of poor health infrastructure affects the effective implementation of NHIS in the FCT, and the opinion of enrollees and health workers vary significantly regarding it. In this regard, the study submits that the issues of health infrastructure are very critical to the effective implementation of NHIS in FCT and Nigeria in general. As such, there is the urgent need for government and other policy agents to direct its activities towards ameliorating these issues in order to better reposition the NHIS and the Nigerian health sector in general for efficiency and effectiveness in the delivery of health care services to both NHIS enrollees and other seeking individuals. Hence the study made the following recommendations;

1. That there should be a state of emergency declared on healthcare infrastructure through Federal Government’s intervention. This intervention can be funded using the Presidential Infrastructure Development Fund- which fund is set aside by President Buhari to provide critical infrastructure in Nigeria.
2. Furthermore, a statutory provision should be made by an Act of Parliament to consolidate the funding of health infrastructure in Nigeria. This could be deducted at source from the federation account to the consolidated fund to ensure quick and hitch-free government intervention.
3. The government should also collaborate with Civil Society Organizations in the provisioning of health infrastructure. This is both in line with the need for a much needed partnership with the citizens and to ensure that high standard of quality is
maintained in the procurement of these infrastructures and equity is maintained in the distribution of these healthcare prerequisites.

4. The Federal Government should also collaborate with indigenous research institutes and establishments in order to identify and isolate infrastructural items to be externally sourced and those that can be found within.

5. Finally special attention should be paid to the power sector. The problem of electric power is more pronounced among the primary health care facilities investigated and it is advised that closer attention should be paid to primary health care centres by government in collaboration with other stakeholders, in the provision of functional stand-by generating sets in the case of public power outage.

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