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INSIDE ▼

THEME | COVID 19: TELEMEDICINE AND REVOLUTIONARY HEALTHCARE

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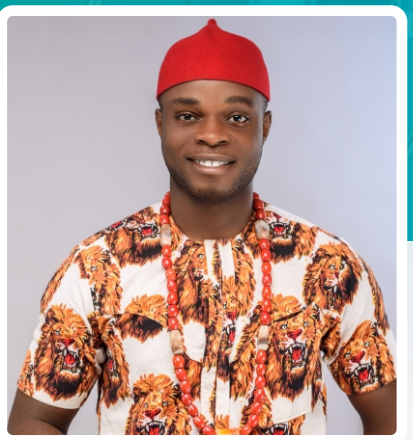

"Learning is not attained by chance; it must be sought for with ardour and attended to with diligence." It is in keeping with this that the MEDIKKA journal under the auspices of University of Nigeria Medical Students' Association has over a span of 46 years diligently sought to feed its readers with high-quality, up-to-date,and original research publications. This both underscores and emboldens the vision of our forebears, specifically Prof. Jonathan Azubuike whose brainchild MEDIKKA is, and upon whose shoulders we still stand. MEDIKKA has since 1975 strived to serve the dual function of providing a platform for students to contribute to the academic discourse surrounding medical issues all over the world, while also equipping them with the much-needed publication skills.

By any measurable standard, MEDIKKA has been successful and increasingly so. Over the years, countless articles of relevance by both students and established scholars, domestic and international authors have been published. We have also seen a steady increase in readership and citations of our published articles, especially with the introduction of the e-copy of the journal. In the same vein, we have grown in less quantifiable ways; our reputation and visibility within the academic community continues to broaden, especially as each successive edition has become increasingly vibrant, engaging, and accessible.

This year, under the leadership of Editor-in-Chief, Angelica Uwaezuoke, MEDIKKA continued its mission of advancing scholarship and understanding of health issues as reflected in the theme for this edition: **"COVID-19: Telemedicine and Revolutionary Healthcare".**

The 2021 edition of MEDIKKA has come to fruition only because of the concerted efforts and tripartite synergy of our editorial advisers/consultants, University of Nigeria College of MedicineAlumni (UNCOMA), North America and the indefatigable Editorial Board. Special thanks to the editorial adviser, Professor Christopher Eke, and the board of editorial consultants for their guidance, wisdom, and devotion to the project. We are grateful to UNCOMA, North America whose financial support was indispensable to the publication of this edition.

I appreciate in a special manner the editorial committee led by Uwaezuoke Angelica for their hardwork and diligence. This edition has lived up to the standards set by previous editions largely due to the team's ability to develop a financially sustainable and reader-friendly approach, continually assessing and revising the editorial process to ensure efficiency and to provide the best experience for our readers.

Thank you.

Iferikigwe, Victor Chidera
President, University of Nigeria Medical Students Association (2020/2021)

Editorial

An equitable, responsive and affordable health care where every citizen, irrespective of social class, academic pedigree or financial status, has timely access to quality care, essential medications and vital procedures is the dream of every Nigerian. Health interventions in a developing country like ours rely on partnerships, political commitment, innovative ideas and efficiency in the use of limited available resources to build sustainable, inclusive and standardized systems that primarily improve health.

The coronavirus disease has highlighted the importance of infection prevention, preparedness and swift action rather than a reactionary approach to apparently non-threatening situations as escalation could only be a manner of time. It is on this note that I present the 2021 edition of MEDIKKA tagged: **COVID-19: Telemedicine and Revolutionary Healthcare** which is not only educative but showcases the intellectual pragmatism, creativity and versatility of the individual contributors.

The Editorial board expresses her earnest gratitude to the Editorial board adviser, Prof. Christopher Eke, for his unreserved support and dedication to the success of this publication. We appreciate the University of Nigeria College of Medicine Alumni Association (UNCOMAA) for their financial backing, and in a special way, Prof. Bond Anyaehie who reached out on our behalf. The series of meetings scheduled by Dr. Chukwuani Francis, and pieces of advice proffered therein contributed significantly to this edition.

My editorial team worked tirelessly to ensure that only the best version of this journal is produced, and they have earned my deepest respects. Excellence scarcely describes what we have done. *Daalụ.*

Uwaezuoke, Angelica Chinecherem
Editor-in-Chief,
MEDIKKA 2021 edition

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PREVALENCE OF *PLASMODIUM FALCIPARUM* MALARIA AMONG INFANTS IN NSUKKA METROPOLIS, SOUTHEAST NIGERIA AND TO ASCERTAIN RELIABILITY OF AVAILABLE DIAGNOSTIC TECHNIQUES.

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ABSTRACT

Background: *Malaria infection is of public health concern accounting for 90% annual deaths among under-5 children in sub-Saharan Africa region. The study aimed to determine the prevalence of Plasmodium falciparum among infants in Nsukka metropolis and also ascertain the more effective diagnostic choice.*

Methods: *Three private hospitals and one government hospital were purposively selected for the study. A total of 150 infants aged 2 - 12 months, were sampled between August to September 2019 and January to March 2020 to represent the two main seasonal episodes in Nigeria. Demographic and health related data were obtained from the infants' parents/guardians using a structured pre-tested questionnaire. Presence of P. falciparum was screened in the blood samples drawn from these infants using microscopy (thick and thin films) and the Rapid diagnostic test kit (RDT).*

Results: *Our findings showed that out of the 150 samples obtained from the infants, 47(31.3%) were positive to P. falciparum when counted all together (RDT and microscopy), 31(20.7%) were positive in both microscopy and RDT. However, 46(30.7%) and 32(21.3%) tested positive for RDT and microscopy respectively. For gender, 33(22.0%) males and 15(10.0%) females tested positive in both RDT and microscopy. The highest infection burden was seen in infants 8-12months, 23(15.3%), majority of the positive results obtained in the rainy season, 39(26.0%) in both microscopy and RDT with no significant difference 150.000(0.000).*

Conclusion:*The prevalence of P. falciparum among infants in Nsukka was moderately high 47(31.3%) and the two diagnostic methods used in the study were equally effective.*

Keywords: *Malaria, Plasmodium falciparium, Infants, Diagnostic methods.*

BACKGROUND

World Health Organization (WHO) malaria report 2019, stated that children under 5 years accounted for 67% (272 000) of malaria deaths worldwide in 2018.[1] A total of 6 countries accounted for half of all malaria cases worldwide in 2018, and among these countries, Nigeria had the highest (25%) malaria burden.[1]Malaria is caused by parasites of various *Plasmodium* species (*P. falciparum, P. malariae, P. ovale, P. vivax,* and *P. knowlesi*) transmitted by thebite of various *Anopheles* infected female mosquitoes.[2] *Plasmodium* falciparum produces a high level of blood-stage parasites in critical organs which occur in all age groups. *P. falciparum* has the highest malaria burden in sub-Saharan Africa as over 24 million children in 2018 were infected and 1.8 million of them were estimated to likely have severe anemia.[1]

Infants less than 6 months of age are known to have a high immunity against malaria [3,4] due to the antimalarial IgG antibodies acquired from the mothers during pregnancy.[5,6,7] These maternal antimalarial antibodies acquired by infants fade with time as the infants grow, which makes them vulnerable to malaria.[7]

In most malaria-endemic areas, prevention, diagnosis, and treatment are often less satisfactory which mostly make the fatality rate for malaria cases as high as one in ten.[8] Due to the challenges of the unavailability of highly skilled personnel and facilities for microscopy, rapid diagnostic tests (RDTs) are then used for confirmation of malaria parasite infection in some countries in sub-Sahara Africa[8] before treatment with anti-malarial drugs.[9] Though some of these RDT kits are readily available but have been reported to have low specificity and sensitivity.[10] The main antigens malaria RDT kits detect are *Plasmodium falciparum* Histidine Rich Protein 2 (*pf* HRP-2), parasite Lactate Dehydrogenase (pLDH), and parasite Aldolase (pAldo).[10] Malaria infection of low density as (1–500 parasites/μL) in infants could result in anemia if not detected early and promptly treated [11]. Hence, ensuring the availability of RDTs with a combination of multiple protein targets such as pLDH/PfHRP-2 due to their high sensitivity is significant.[12] RDTs with pLDH identifies malaria parasites with hrp2-gene deletion, also differentiates current infections from healing ones and able to also identify infections that persist due to treatment failure.[13, 14]There is a dearth of public health records on the prevalence of *Plasmodium falciparum* among infants in Nsukka metropolis, which has necessitated this study.

METHOD

Study area

The study was carried out at Nsukka metropolis, Enugu state, located at the South-East geopolitical region in Nigeria. Enugu state has seventeen (17) local government areas, which Nsukka is one of them,[15] with an area of 1,810km^2 and having an estimated population of 417,700 in 2016.[16] This state is estimated to have 71,196 number of children aged 0-9 years based on the 2006 census.[17] Nsukka town has the first indigenous Nigerian university, University of Nigeria Nsukka. This university is located at 6^0 51'24"N 7^{0}23'45"E, the university has rural area known as Nsukka campus with 871 hectares (2,150 acres) and the urban area known as Enugu campus with 200hecctares (490 acres).[18] The major paediatric hospital in Nsukka town (Chidubem hospital), one government hospital (Nsukka health centre) and two private hospitals (St. Anthony's and Good shepherd hospitals) were purposively selected for the study.

Study design and population

The study was a cross-sectional descriptive study whereby the study population consisted of male and female infants aged zero (0) to 12 months presenting symptoms of malaria and were admitted in the hospitals during the rainy season "August to September" of 2019 and the dry season "January to March" of 2020 to represent the two main seasonal episodes in Nigeria.

Ethical statement

Ethical consideration was obtained from the Health Research Ethics Committee of the University of Nigeria Teaching Hospital, Enugu state. The participants (the parents/ guardian of the infants) were informed of the purpose of the research and that their data will be protected. Written, signed and verbal informed consent was obtained from hospitals and participants (the parents/ guardian of the infants). Participation was voluntary and confidentiality was assured.

Sample Size Determination

Minimal sample size (N) was determined by the formula below [17]

$$n = \frac{Z^2\, pq}{d^2}$$

Where: Z = the standard deviate usually set at 1.96 which corresponds to 95% confidence level

p = prevalence rate of malaria in Enugu state.[19]

d = maximum tolerable error for the prevalence estimate

n = the number that met the minimum standard for acceptance.

$$n = \frac{(1.96)^2 X\ 0.105\ X\ 0.895}{(0.05)^2}$$

$$n = \frac{3.8416\ X\ 0.093975}{0.0025}$$

n = 144.4057 approximately 144

Recruitment and Data collection

Structured questionnaires were administered to the parents/guardian of the infants after obtaining informed consent. Information on the children's ages, sex, method of vector control and drug use etc. Hundred (100) blood samples of enrolled infants were collected during the rainy season "July to September" of 2019 while another fifty (50) blood samples were collected during the dry season

"January to March" of 2020. The collection of the blood samples was carried out by medical laboratory scientists and transported to University of Nigeria Nsukka microbiology laboratory for analysis. This was done according to the Standard Operating Procedures for sample collection, transport, and analysis. About two millimeters (2mls) of blood was collected by venipuncture and then emptied into a sterile EDTA (ethylene diaminetetraacetic acid) container. This study utilized a total of 150 PfHRP-2/PfLDH based RDT kits, as well as 300 blood smears containing thick and thin film prepared according to standard procedure ref.

Laboratory Process

Preparation of blood film

The thick and thin film was used for malaria parasite identification.[20] The thick film allows for the screening of a large volume of blood and is more sensitive. A small volume of blood (5.0µL) was used on a grease-free slide.For a thick film, the blood was mixed for 20-30 sec, using a spreader to de-fibrinate the blood and to obtain a r ound smear of about 1cm in diameter.[20] For the thin film, a blood smear was made, having a head and a tail. The films were allowed to air-dry.

Staining of blood film

The field stain A and B were used for the thick film. The slides were placed on staining racks and 5ml of field stain A was poured onto each slide. Contact was maintained for 3minutes, and the slides were carefully washed off with distilled water. Then field stain B was added to each of the slides and contact was maintained for 2sec, then the slides were carefully washed with distilled water. Slides were allowed to air-dry.[20]

Leishman stain was used for the thin film. It was carried out by pouring 5ml of Leishman stain on each of the slides on the rack. Contact was maintained for 2min; distilled water was added to each slide to cover the stain. The contact was maintained for 8min. Then the slides were washed with water and air-dried.

Rapid diagnostic test (RDT)

The test used to determine the prevalence of *Plasmodium falciparium*(P*f*) specie among the infants was SD Bioline Malaria Antigen P*f* (HRP2/pLDH). It contains a membrane strip, precoated with mouse monoclonal antibodies specific to HRP2 and LDH of *P.falciparum*. There were three bands representing control line (C), HRP2 (T1), and LDH (T2). With a capillary pipette (5ul), whole blood was drawn from the EDTA container and transferred to the sample well on the RDT kit strip. Then 4 drops of assay diluents (buffer) were dispensed into the well next to the sample well, the result was read after 15-20 min. The result was interpreted
.

Data analysis

Data from the test result were analyzed along with 90 answered questionnaires administered to the subject's parent/guardian. The analysis was done using the Statistical Package for Social Sciences (IBM SPSS Statistics 22). Descriptive analysis of data was done on an item-by-item basis. Frequencies and percentages were reported. Also, a test of association of variables was performed using chi-square and statistical significance was set at $p<0.05$.

RESULTS

A total number of 90(60%) males and 60(40%) females' blood samples were collected and screened for malaria parasitemia within the study period. Twenty-four (24) infants were aged between 2-4months, 39 of them aged 5-7 months and 87 were ages 8-12 months. From the table it showed that as their age category increased, the number of infants increased too, 24(16.0%), 39(26.0%), 87 (58.0%) for 2-4months, 5-7months and 8-12months respectively. Table 1 shows the demographic characteristics of the infants with the age mean and standard deviation of 2.42 and 0.753 respectively.

See table 1 below.

Table 1: The demographic characteristics of the infants screened for malaria parasitemia

Variables N = 150	*Frequency (n)*	*Percent (%)*
Age category		
2-4months	24	16.0
5-7months	39	26.0
8-12months	87	58.0
Mean	2.42	
Standard deviatio	0.753	
Gender		
Male	90	60.0
Female	60	40.0
Season		
Rainy	100	66.7
Dry	50	33.3

Table 2 shows the frequency and percent of the two different malaria diagnostic methods used in this study (microscopy and RDT). The prevalence of malaria in the infants varied in the two diagnostic methods, RDT was 46(30.7%) and microscopy was 32(21.3%) as shown in table 2 below.

Table 2: Prevalence of malaria parasitemia by diagnostic methods,gender and age.

Variables N = 150	**Positive Frequency (%)**	**Negative Frequency (%)**
Total number of all positive and negative cases	47(31.3)	103(68.7)
Rapid Diagnostic Test (RDT)	46(30.7)	104(69.3)
Microscopy	32(21.3)	118(78.7)
Cases positive in both RDT and Microscopy	31(20.7)	

Age Category		
2-4months	10(6.7)	14(9.3)
5-7months	15(10.0)	24(16.0)
8-12months	22(14.7)	65(43.3)
Gender		
Male	33(22.0)	57(38.0)
Female	14(9.3)	46(30.7)

The results indicated that there was no statistically significant difference between the age category, gender, and the two malaria diagnosis methods, (p-value < 0.05). Season (rainy and dry) showed to have significant difference with the two diagnostic methods used in this study (RDT and microscopy), which are (0.006) and (0.005) respectively. There was also a significant difference between microscopy and antimalarial drug, which is (0.028). Table 3 highlights the relationship between the demographic characteristics (age category and gender, season), vector control, antimalarial drug, and the two malaria diagnostic methods used in the study (Microscopy and RDT).

Table 3: Demographic, vector control, and antimalarial drug correlates of microscopy and RDT.

Variables N = 150	**Microscopy**		**Rapid diagnostic test (RDT)**	
	Positive Frequency (%)	Negative Frequency (%)	Positive Frequency (%)	Negative Frequency (%)
Age category				
2-4months	8(25.0)	16(13.6)	9(19.6)	15(14.4)
5-7months	8(25.0)	31(26.3)	15(32.6)	24(23.1)
8-12months	16(50.0)	71(60.2)	22(47.8)	65(62.5)
X^2 (p-value)	2.524(0.283)		2.826(0.243)	

Gender				
Male	22(68.8)	68(57.6)	32(69.6)	58(55.8)
Female	10(31.3)	50(42.4)	14(30.4)	46(44.2)
X^2 (p-value)	1.298(0.255)	2.529(0.112)		
Season				
Rainy	28(87.5)	72(61.0)	38(82.6)	62(59.6)
Dry	4(12.5)	46(39.0)	8(17.4)	42(40.4)
X^2 (p-value)	7.945(0.005)*		7.588(0.006)*	
Antimalarial drug				
Artemisinin combination therapies(ACT)	8(25.0)	56(47.5)	15(32.6)	49(47.1)
Local herbs	0(0.0)	4(3.4)	0(0.0)	4(3.8)
No drug	24(75.0)	58(49.2)	31(67.4)	51(49.0)
X^2 (p-value)	7.137(0.028)*		5.307(0.070)	
Vector control				
Yes	27(84.4)	110(93.2)	41(89.1)	96(92.3)
No	5(15.6)	8(6.8)	5(10.9)	8(7.7)
X^2 (p-value)	2.488(0.115)		0.407(0.524)	

*p value < 0.05

DISCUSSION

The susceptibility of infants to malaria was well established in this study, which assessed the prevalence of *Plasmodium* falciparum among infants in Nsukka hospitals and clinics. The more effective method of diagnosis and factors that affect the degree of parasitemia in these infants was determined. *P. falciparum* has the highest malaria burden in sub-Saharan Africa.[1] In Nigeria, infants aged 6-11 months accounts for 97.1% malaria prevalence, and in south-eastern part of Nigeria, children aged 0-5 years account for 95.4% malaria burden.[21] This indicates high prevalence of malaria among children in Nigeria. Similarly, the result gotten from this study, showed malaria prevalence of the infants to be slightly high. The study finding reveals

that the prevalence rate of malaria increased with age of the infants, just as showed in the result section. The increase in prevalence rate of malaria in infants from 6 months of age could be due to the antimalarial IgG antibodies transferred to the fetus by the mother during pregnancy.[7] The antimalarial IgG antibodies and the immunity from breastmilk protect infants from early infections and wane at 6 months of age.[4,5,7]Hence, the vulnerability of the infants from 6 months of age to infections including malaria infection becomes high.

In the two different diagnostic methods used, RDT and microscopy, the prevalence rate indicated a high level of malaria parasitemia among the infants using RDT than in microscopy screening. This corresponds with another Nigerian study which found out that RDT available in kits appears to be the most rapid, and sensitive method for malaria diagnosis study.[22] The diagnosis of malaria is preferably diagnosed using microscopy as the gold standard, but this malaria microscopy needs an adequate power supply and highly skilled personnel for the detection of these parasites, which has been a challenge largely in the developing world.[8] Malaria RDTs have been recommended by WHO when reliable microscopy is not available, to fill the gap and the challenges that most developing countries face in malaria diagnosis.[8] The deletion of the HRP2 gene by human malaria parasites as reported by recent articles [10] have shown that RDTs that target both HRP2 and pLDH antigens perform better than those that target only HRP2 protein.[10] This is in line with this study, where the malaria RDT used targeted both HRP2 and pLDH antigens of *P. falciparum* to have a reliable result.

The study showed that more males than females tested positive. This finding is similar with other studies,[23, 24] which stated that though there was no significant difference between males and females but that malaria parasitemia was slightly higher in males than females. This could be because females have more X chromosome which contains a high density of genes involved in immunity than males.[25]

The prevalence rate of malaria was found to be higher in the rainy season than in the dry season and some infants that were on antimalarial drugs also tested positive with significant difference between the two diagnostic methods (microscopy and RDT).[26] From the findings, majority of the infants using vector control tested positive; this could be because of mishandling/ mismanagement of the vector control.[25, 26] Vector control should be highly recommended for infants because prevention of mosquito bites and disease transmission by these vector controls can help in reducing the malaria burden.[25, 26]

CONCLUSION

The prevalence of *P. falciparum* among infants in Nsukka was moderately high and the two diagnostic methods used in this study were equally effective. However, collection of blood samples across the various age categories of the study population was quite tasking. This is because of the strong immunity most breastfeeding infants acquire from their mothers hence, limiting the number of hospitalized infants. Creating awareness and providing of more effective vector controls will help in eliminating malaria.

Availability of data and materials
Additional data from research project could be made available by the corresponding author on reasonable request.

Competing interests
The authors declare that there is no competing interest.

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KNOWLEDGE, AWARENESS, AND UTILIZATION OF TERTIARY INSTITUTIONS SOCIAL HEALTH INSURANCE PROGRAMME (TISHIP) AMONG TERTIARY INSTITUTIONS STUDENTS IN ENUGU, SOUTHEAST, NIGERIA.

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INTRODUCTION

The Tertiary Institutions Social Health Insurance Programme (TISHIP) is a social security system whereby the health care of students in tertiary institutions is paid for from funds pooled through the contributions of students.[1] It is a programme committed to ensuring access to qualitative healthcare service for students of tertiary institutions thereby promoting the health of students with a view to creating conducive learning environment.[1] It takes cognizance of the current practices and challenges faced by students in accessing care both during and out of session, as well as the potential of the current tertiary health facilities to maximize access to quality health care.

In the push for global health reforms, no initiative has been as uniting as the call for Universal Health Coverage (UHC). Nigeria's journey to achieving UHC has been long and eventful. The country's first attempt at building a healthcare system was made in 1962, when the then Federal Minister of Health, Dr. M.A. Majekodunmi, presented a bill in parliament for its enactment in Lagos, but it was rejected. In 1988, the Minister of health commissioned a committee that recommended the template for the present-day National Health Insurance Scheme (NHIS). The law was signed on May 1999 but became operational in 2005.[2] The National Health Insurance Scheme (NHIS) of Nigeria was established over a decade ago with the sole aim of facilitating access to quality healthcare for all Nigerians.

Although a relatively new concept in the health sector in the country, insurance itself is not a novel phenomenon to Nigerians. The concept of insurance as it applies to various aspects of the Nigerian life has been in existence since the country's independence. But 10 years after the launching of the NHIS, no significant progress has yet been made. Only about 10% of the Nigerian population is covered by the scheme with the vast majority still left to fend for their health needs.[3] The programme, which is compulsory for all students of tertiary institutions, has covered about a million students and is funded by a community rated sum of NGN2,000 (about USD12) per academic session for each student. The TISHIP benefit package includes the management of prevailing ailments among students of tertiary institutions in Nigeria.[4] The purpose of TISHIP is to cater for the health care needs of Nigerian students in tertiary institutions who due to their studentship status cannot benefit under other health insurance programmes. The

population under the TISHIP scheme constitutes a very large percentage of the country's population. By virtue of their age and their status as students, most of them cannot benefit from the public sector programme as enrollees or dependents of enrollees.

PROBLEM STATEMENT

Health care delivery in Nigeria is bedeviled with the problems of the quality of care and accessibility to care. But aside from that, the current, lack of knowledge, awareness and poor implementation has kept our health system backwards, hence poor access to quality and effective health care by Nigerian tertiary students.

OBJECTIVE

General Objective

The general objective of this research is to ascertain the knowledge, awareness, attitude, and utilization of the TISHIP among Nigerian students in Tertiary Institutions in Enugu, Southeast Nigeria.

Specific Objectives

1. To ascertain the level of knowledge of the TISHIP among Nigerian students
2. To determine the level of awareness of the TISHIP among Nigerian students
3. To obtain the attitude of Nigerian students towards the TISHIP
4. To find out the level of utilization of the TISHIP scheme by Nigerian Students.

JUSTIFICATION AND RATIONALE

The knowledge of TISHIP, its acceptance, and utilization by the students as well as, its proper implementation in the health care facilities is crucial for the actualization of its goals and general benefits. Previous studies revealed that students barely visit institutions' health care facilities due to high costs of medical services, poor working conditions and inadequate referral services[5] most of which TISHIP is meant to address. It has also been shown that most Nigerian policies such as this, are often poorly understood with a resultant low level of knowledge about its standard procedures and regulations[6].This study, therefore, is designed to assess students' knowledge, awareness and attitude to TISHIP as well as to assess the level of implementation of the scheme among Nigerian Universities Medical Centre healthcare workers.

LITERATURE REVIEW

Health insurance is financial protection against the risk of incurring medical expenses by individuals. By estimating the overall risk of health care and health system expenses, among a targeted group, an insurer can develop a routine finance structure, such as a monthly premium or payroll tax, to ensure that money is available to pay for the health care benefits specified in the insurance agreement[7].

Health insurance is defined as the ability to get health services when the need arises without having to pay fully because a fixed and regular amount is being contributed by the insured, his/her employer, or both (prepayment plan). The money is pooled by the provider of the insurance to pay for all those needing health care. Widespread “out-of-pocket" spending on health was seen as a great challenge to attaining a good state of health for the general public; thus, the need to eliminate the "out-of-pocket" payment as the main goal of health

insurance[8].

However, children above 18 years who are in tertiary institution such as the undergraduates are considered to be covered under a different scheme.[9,10]The health care needs of the undergraduate in Nigeria tertiary institutions are piloted under the TISHIP; which pays attention to their health needs at a very low cost. This scheme applies to students in universities, colleges of education, polytechnics, schools of nursing and midwifery, and other specialized colleges[11].

PURPOSE OF TISHIP

The purpose of TISHIP is to cater for the health care needs of Nigerian students in tertiary institutions who due to their studentship status cannot benefit under other health insurance programmes. This population constitutes a very large percentage of the country's population.

Challenges and factors affecting TISHIP

A study was aimed at determining the prospects and challenges of the student targeted NHIS in University of Jos health centre.[12]

A facility based cross sectional study was conducted to obtain a quantitative data from the clinic records of students of the University of Jos registered under the TISHIP scheme between its inception in July 2010 to April 2013 (the study period); and a qualitative assessment of the programme package was obtained through an in depth interview with the NHIS desk officers and of both the University Health Centre and TISHIP of the University of Jos. Only the full-time students were considered eligible and registered under the TISHIP. Variety of health services ranging from preventive care to diagnosis and treatment are provided at the health centre. About 6308 students have been enrolled under the TISHIP scheme from its inception. Referrals were made to other tertiary institution where the enrolee pays 10% of charges incurred[12].

It was obtained that 17.9% of the total number of students under the University NHIS were referred to other higher facilities for continuation of care in the year under review. The relative low number of referred cases seen among the student enrolee may be explained by skilled manpower at the University health centre, delay in receiving the referral codes from the HMO without which an enrolee cannot be attended to once referred, unwillingness of the referred enrolee as a result perceived inability to pay 10% of the cost to be incurred at the referred hospital, immediate health seeking behaviour of the students at an early stage of their illness or may be due to low patronage by the students which may be attributed to the location of the school clinic[12].

MATERIALS AND METHOD

Study Area

The study was carried out in Enugu, Enugu State. Enugu state is located in south-eastern Nigeria. It is within the sub-tropic rain forest belt at longitude (6.5^0N, 7.5^0E).

The study involved 4 Tertiary Institutions in Enugu State, 2 Public Schools and Two Private Schools. They Include University of Nigeria Enugu Campus(UNEC), Enugu State University (ESUT), Godfrey Okoye University and Renaissance University, Enugu.

Study Population.

These were the registered undergraduate students of the 4 institutions mentioned

above, irrespective of the course of study, level, sex, ethnic group, sociocultural or economic differences

Study ParticipantsInclusion criteria

1.Students around when questionnaire was being shared

Exclusion criteria

1.Non-students.

2.Post graduate students.

Study Design

This study is a descriptive cross-sectional study on the knowledge and awareness and attitude towards the Tertiary Institutions Social Health Insurance Programme. The study involved students from four randomly selected departments from each institution.

Sample Size

This was estimated using the result of a previous study in which the proportion of respondents who had good knowledge of TISHIP was 63.1%.

The sample size was calculated using the formula:

$N=z^2pq/D^2$

Where:

N = minimum sample size

z = level of confidence=1.96

p = prevalence on knowledge of universal health coverage (from a similar study) = 63.1%

D = degree of error margin=5%

q = 1-p

Thus, $N = (1.96)x(0.631)x(1-0.631)/(0.05)^2$

$N = (0.8945)/(0.05)^2= 358$

An additional 10% of the minimum sample size was added to mitigate for non-response:

(10/100) = 36

Total sample size = 358 + 36 = 394 but was made up to 400 so as to get a uniform result.

Data Collection

A questionnaire was administered. The questionnaire was developed based on the study objectives, and review of relevant literature. Ambiguous questions will be reconstructed or removed entirely. Four Departments were randomly selected using Random Number Generator from a list of all departments in the different respective schools. The questionnaires were shared among the selected departments; each department got 25 questionnaires. The questionnaires were shared among students of the respective departments using a stratified sampling method, where 6 questionnaires went to the first-year students, 13 questionnaires to other years and the remaining 6 shared among the final year students**.**

Data Analysis

Data was analyzed using the statistical package for social sciences (SPSS) software version 25.0 to obtain frequencies, percentages, and descriptive statistical results.

Ethical Considerations

Ethical approval to conduct this research was obtained from the health research ethics committee of the University of Nigeria Teaching Hospital. This was written and obtained from all participants before administering the questionnaire.

RESULTS

Here, we present results of our findings from 400 respondents from the 400 questionnaires shared of which all were properly filled and returned.

4.1 SOCIODEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS

Table 4.1: Sociodemographic characteristics of respondents

Variable	*Value*	*Frequency (N=400)*	*Percentage (%)*
Age	**15 to 18 years**	40	10.0
	19 to 22 years	239	59.8
	23 to 26 years	105	26.3
	27 to 30 years	13	3.3
	> 30 years	3	0.8
Sex	**Male**	161	40.3
	Female	239	59.8
MaritaStatus	**Single**	392	98.0
	Married	8	2.0
Religion	**Christian**	386	96.5
	Muslim	4	1.0
	Others	10	2.5
School			
UNEC	**Architecture**	25	6.3
	Marketing	25	6.3
	Medicine and Surgery	25	6.3
	Law	25	6.3
ESUTH	**Agric. science and Educatio**	25	6.3
	Medicine and Surgery	25	6.3
	Electrical/ Electronic Engineering	25	6.3
	Education Integrated Scienc	25	6.3
GO-UNI	**Industrial Chemistry**	25	6.3
	English and Literary studies	25	6.3
	Music	25	6.3
	Mass communication	25	6.3
RENAISSANCE	**Accounting**	25	6.3
	Industrial Mathematics	25	6.3
	Science Education	25	6.3
	Business Administration	25	6.3
Level of Study	**1st year**	89	22.3
	2nd year	92	23.0
	3rd year	95	23.8
	4th year	77	19.3
	5th year	35	8.8
	6th year	12	3.0

Table 4.1
The table shows the socio demographic characteristics of the respondents. Most respondents are within the age range of 19- 22yrs. The male to female ratio is 2:3, most are single, and most are Christians. Two private (GO-UNI and RENAISSANCE) and 2 public tertiary institutions (UNIVERSITY OF NIGERIA ENUGU CAMPUS AND ENUGU STATE UNIVERSITY TEACHING HOSPITAL).

4.2 AWARENESS AND KNOWLEDGE OF TISHIP

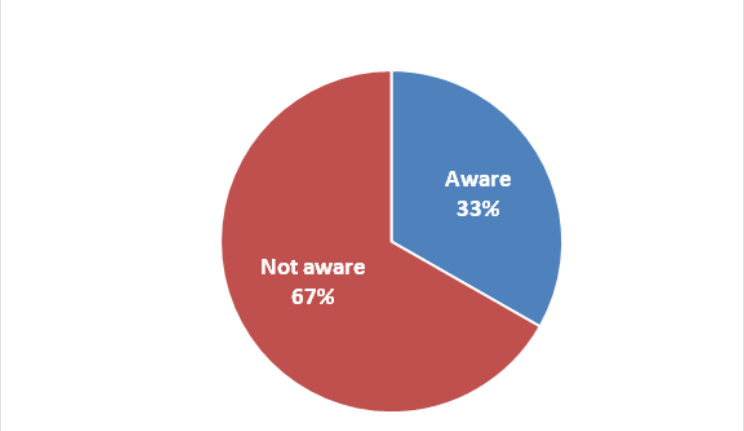

Fig 4.1: Awareness of TISHIP amongst respondents

Fig 4.1 shows that two-third of students had very poor knowledge and awareness of the TISHIP scheme while one third are aware of it.

4.3 RELATIONSHIP BETWEEN THE AWARENESS OF TISHIP AND THE SOCIODEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

Table 4.2: Relationship between the awareness of TISHIP and sociodemographic characteristics of respondents

		AWARE of TISHIP			*Chi-square*	*df*	*p-value*
		Yes (%)	**No (%)**	**Total (%)**			
Age	**15-18 yrs**	9 (22.5%)	31 (77.5%)	40 (100.0%)	5.905	4	0.206
	19-22 yrs	76 (31.8%)	163 (68.2%)	239 (100.0%)			
	23-26 yrs	40 (38.1%)	65 (61.9%)	105 (100.0%)			
	27-30 yrs	7 (53.8%)	6 (46.2%)	13 (100.0%)			
	>30 yrs	1 (33.3%)	2 (66.7%)	3 (100.0%)			
Sex	**Male**	50 (31.1%)	111 (68.9%)	161 (100.0%)	0.584	1	0.445
	Female	83 (34.7%)	156 (65.3%)	239 (100.0%)			

School	**UNEC**	67 (67.0%)	33 (33.0%)	100 (100.0%)	110.873	3	0.000
	ESUTH	47 (47.0%)	53 (53.0%)	100 (100.0%)			
	GO UNI	11 (11.0%)	89 (89.0%)	100 (100.0%)			
	RENAISSANCE	8 (8.0%)	92 (92.0%)	100 (100.0%)			
Where do you access health care?	**At school medical center**	71 (64.5%)	39 (35.5%)	110 (100.0%)	66.954	1	0.000
	Outside school medical center	62 (21.4%)	228 (78.9%)	290 (100.0%)			
How frequently do you fall sick?	**I don't fall sick**	23 (27.4%)	61 (72.6%)	84 (100.0%)	7.200	4	0.126
	1-3 times	79 (34.2%)	152 (65.8%)	231 (100.0%)			
	4-6 times	23 (39.0%)	36 (61.0%)	59 (100.0%)			
	7-9 times	2 (13.3%)	13 (86.7%)	15 (100.0%)			
	> 10 times	6 (54.5%)	5 (45.5%)	11 (100.0%)			

Table 4.2 shows the relationship between the awareness of TISHIP and sociodemographic characteristics of respondents. There was no significant correlation between age and sex of respondents and awareness of TISHIP but there is a significant relationship between the universities and awareness of TISHIP.

4.4 Relationship between the awareness of TISHIP and the school, department and study level of respondents

Table 4.3: Relationship between the awareness of TISHIP and the school, department and study level of respondents

		AWARE of TISHIP			*Chi-square*	*df*	*p-value*
		Yes (%)	**No (%)**	**Total (%)**			
School	**UNEC**	67 (67.0%)	33 (33.0%)	100 (100%)	110.873	3	0.000
	ESUTH	47 (47.0%)	53 (53.0%)	100 (100%)			
	GO UNI	11 (11.0%)	89 (89.0%)	100 (100%)			
	RENAISSANCE	8 (8.0%)	92 (92.0%)	100 (100%)			
UNEC	**Architecture**	21 (84.0%)	4 (16.0%)	25 (100%)	128.219	15	0.000
	Marketing	16 (64.0%)	9 (36.0%)	25 (100%)			

	Medicine/ Surgery	14 (56.0%)	11 (44.0%)	25 (100%)			
	Law	16 (64.0%)	9 (36.0%)	25 (100%)			
ESUTH	**Agric. Science**	10 (40.0%)	15 (60.0%)	25 (100%)			
	Medicine/ Surgery	18 (72.0%)	7 (28.0%)	25 (100%)			
	Engineering	8 (32.0%)	17 (68.0%)	25 (100%)			
	Integrated Science	11 (44.0%)	14 (56.0%)	25 (100%)			
GO-UNI	**Industrial Chem.**	3 (12.0%)	22 (88.0%)	25 (100%)			
	English studies	2 (8.0%)	23 (92.0%)	25 (100%)			
	Music	4 (16.0%)	21 (84.0%)	25 (100%)			
	Mass comm.	2 (8.0%)	23 (92.0%)	25 (100%)			
RENAISANCE	**Accounting**	3 (12.0%)	22 (88.0%)	25 (100%)			
	Mathematics	4 (16.0%)	21 (84.0%)	25 (100%)			
	Science Education	0 (0.0%)	25 (100%)	25 (100%)			
	Business Admin.	1 (4.0%)	24 (96.0%)	25 (100%)			
Study level	**100 level**	14 (15.7%)	75 (84.3%)	89 (100%)	46.820	5	0.000
	200 level	22 (23.9%)	70 (76.1%)	92 (100%)			
	300 level	33 (34.7%)	62 (65.3%)	95 (100%)			
	400 level	31 (40.3%)	46 (59.7%)	77 (100%)			
	500 level	24 (68.6%)	11 (31.4%)	35 (100%)			
	600 level	9 (70.5%)	3 (25.0%)	12 (100%)			

Table 4.3 shows relationship between the awareness of TISHIP and the school, department and study level of respondents. There is a significant relationship between the awareness of TISHIP and the tertiary institutions, departments and study level

4.5Relationship between awareness of TISHIP in public and private schools, First years, other years and final years, and between the medical students to other students in other departments

Table 4.4: Relationship of the awareness of TISHIP between public and private schools, First years, other years and final years, and between the medical students to other students in other departments

		AWARE of TISHIP			*Chi-square*	*df*	*p-value*
		Yes (%)	**No (%)**	**Total (%)**			
Public and Private schools	**UNEC/ ESUTH**	114 (57.0%)	86 (43.0%)	200 (100%)	101.659	1	0.000
	GO UNI/ RENAISSANCE	19 (9.5%)	181 (90.5%)	200 (100%)			
First years, other years and final years	**First years**	16 (16.8%)	79 (83.2%)	95 (100%)	19.082	2	0.000
	Other years	75 (34.9%)	140 (65.1%)	215 (100%)			
	Final years	42 (46.7%)	48 (53.3%)	90 (100%)			
Medical students in public schools and other students	**Medical students in public schools**	32 (64.0%)	18 (36.0%)	50 (100%)	24.345	1	0.000
	Other students	101 (28.9%)	249 (71.1%)	350 (100%)			

Table 4.4: Comparing the awareness of TISHIP between public and private schools, First years, other years and final years, and between the medical students to other students in other departments. There is a significant relationship between the awareness of TISHIP between public and private schools, First years, other years and final years, and between the medical students to other students in other departments.

4.6 Sources of information on TISHIP

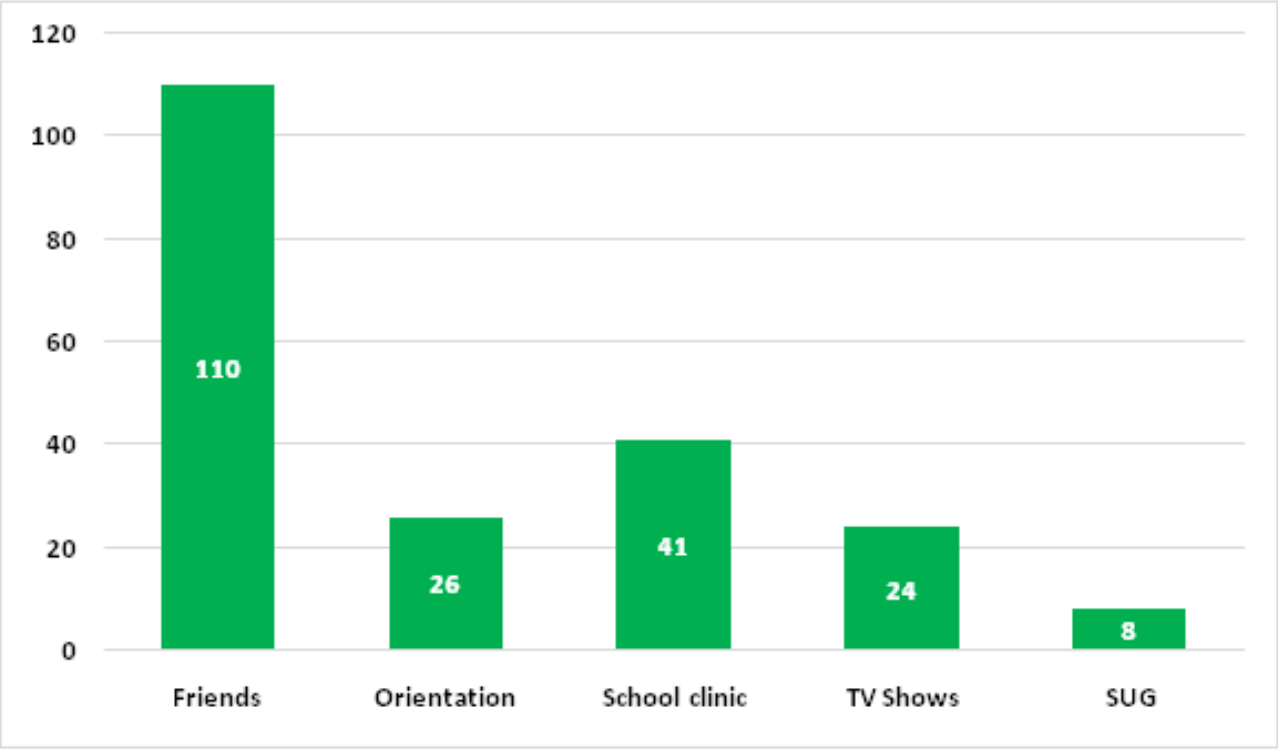

Fig 4.2: Sources of information on TISHIP

Fig 4.2 depicts that out of the one third of our study respondents who were aware of TISHIP, most got their information from friends, followed by school clinic then from orientation programme, and Students Union Government SUG, being the least source of information about the TISHIP.

4.7 Level of knowledge of TISHIP amongst respondents

Table 4.5: Level of knowledge of TISHIP amongst respondents

Variable	*Value*	*Frequency (N=400)*	*Percentage (%)*
Meaning of TISHIP	**Tertiary Institution Social Health Insurance Program**	148	37.0
	Today's Institution Social Health Insurance Program	4	1.0
	Today's Institution Student Health Insurance Program	14	3.5
	Tertiary Institution Social Health Students Program	26	6.5
	I don't know	208	52.0
Function of TISHIP	**Takes care of student's health**	96	24.0
	Subsidized health services for students	122	30.5
	Poverty alleviation scheme	5	1.3
	Free Medical services	60	15.0
	I don't know	131	32.8
Services covered by TISHIP	**Free medical consultation**	191	47.8
	Free hospital admission	82	20.5
	Free/ Subsidized laboratory investigation	92	23.0
	Free/ Subsidized drugs	129	32.3
	Free/ Subsidized surgeries	38	9.5
	Free/ Subsidized dental therapeutics	34	8.5
	Others	30	7.5

Also, On the level of Knowledge of the TISHIP scheme, more than half of the students who responded being aware only knew that there was a health insurance scheme but does not know it is called TISHIP nor know the meaning of TISHIP or the services available for students under the health insurance scheme.

4.8 Health seeking behavior of respondents

Table 4.6: Health seeking behavior of respondents

Variable	*Value*	*Frequency (N=400)*	*Percentage (%)*
Frequency at which respondents fall sick in school	**1-3 times**	231	57.8
	4-6 times	59	14.8
	7-9 times	15	3.8
	>10 times	11	2.8
	I don't fall sick	84	21.0

Common illnesses amongst respondents	**Diarrhea**	18	4.5
	Malaria	278	69.5
	Sexually transmitted diseases	7	1.8
	Skin infections	26	6.5
	Eye problems	20	5.0
	Toothache	11	2.8
	Others	40	10.0
Health facilities where respondents access healthcare	**Hospital outside school**	209	52.3
	School Medical center	110	27.5
	Patent Medicine vendor	76	19.0
	Church/ Pastor/ Imam	9	2.3
	Herbalist/ Herbal Medications	19	4.8
	Others	37	9.3

Table 4.6 shows health seeking behavior of respondents. 57.8% students fall sick up to 3 times in a semester. Malaria is the most common illness among respondents (69.5%) and 52.3% of students seek for treatment in facilities outside the campuses.

4.9 Respondents who have registered for TISHIP

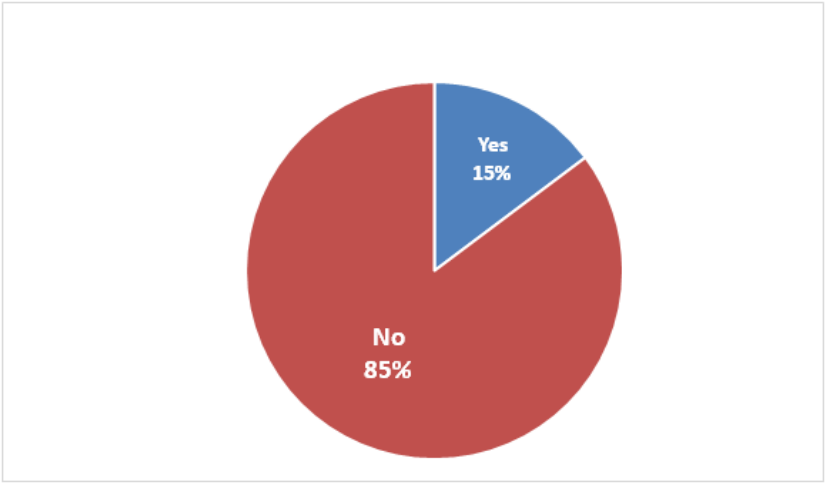

Fig 4.3: Respondents who have registered for TISHIP

4.10 Respondents who have received health care via TISHIP

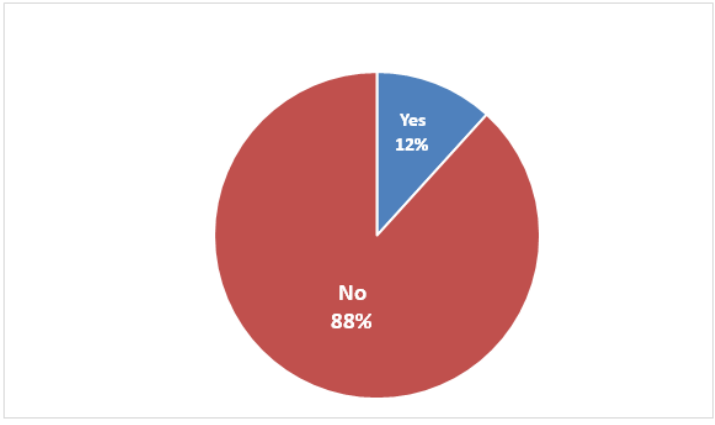

Fig 4.4: Respondents who have received health care via TISHIP

4.11 TISHIP services used by the respondents

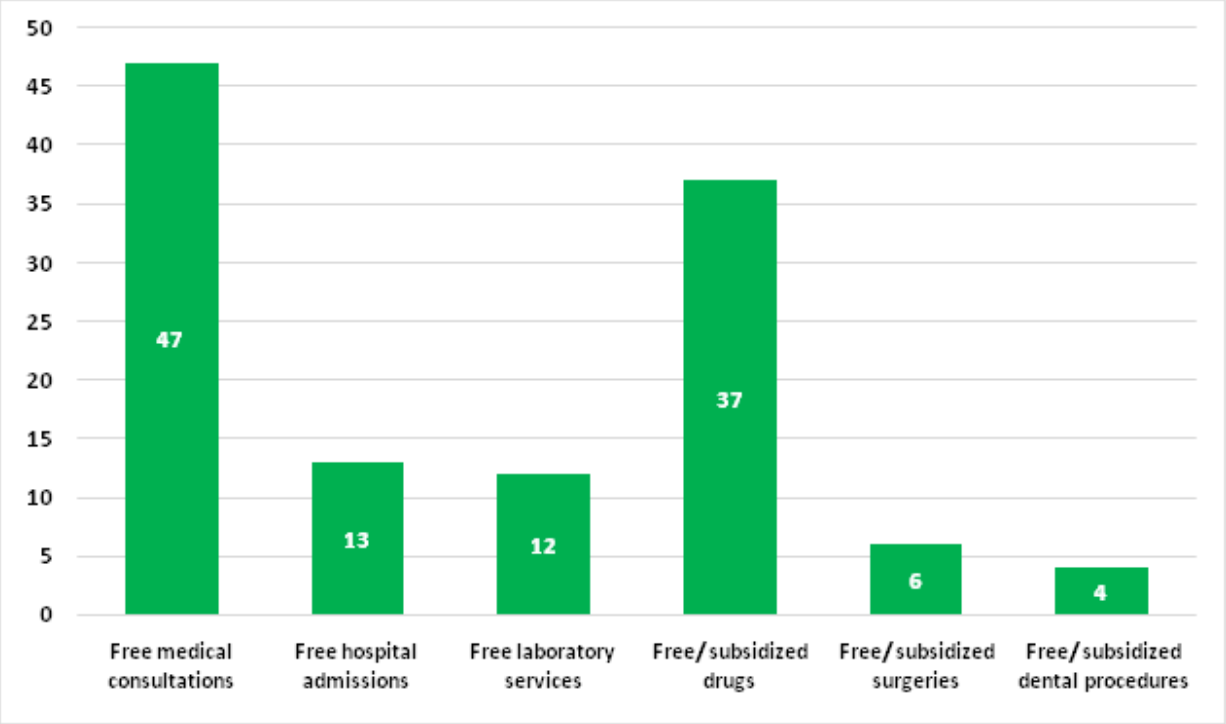

Fig 4.5: TISHIP services used by the respondents

4.12 Level of utilization of TISHIP amongst respondents

Table 4.7: Level of utilization of TISHIP amongst respondents

Variable	*Value*	*Frequency (N=400)*	*Percentage (%)*
Frequency at which respondents received healthcare via TISHIP	**1-3 times**	36	9.0
	4-6 times	5	1.3
	7-9 times	4	1.0
	>10 times	2	0.5
	Never	353	88.3
Reasons for not registering for TISHIP	**I don't need it**	36	9.0
	I don't fall sick	35	8.8
	I don't know how to register	129	32.3
	Prefer to use a private clinic	67	16.8
	Difficult registration process	17	4.3
	No reason	106	26.5

Reason for not receiving healthcare via TISHIP in school	**I am not registered**	123	30.8
	I don't know of it	162	40.5
	I prefer to pay for my services	30	7.5
	I get better services if I pay	23	5.8
	No reason	82	20.5
Amounts respondents are willing to pay for TISHIP	**<N100**	260	65.0
	N100-N500	77	19.3
	N500-N1000	39	9.8
	N1000-N1500	19	4.8
	>N1500	5	1.3

Table 4.7: Shows Level of utilization of TISHIP amongst respondents. 88% of students have never received health care services, 32% don't know how to register and have not registered, 16% prefer to use private clinic while 26% of students have no reason for not registering for TISHIP. 65% of respondents are willing to pay less than N100 for TISHIP.

4.13 Factors affecting utilization of TISHIP

Table 4.8: Factors affecting utilization of TISHIP

Variables	*Values*					*Mean*	*Remark*
	SD (%) [1]	**D (%) [2]**	**U (%) [3]**	**A (%) [4]**	**SA (%) [5]**		
Long waiting time	3 (0.8%)	8 (2.0%)	217 (54.3%)	111 (27.8%)	61 (15.3%)	3.55	Significant
Attitude of health personnel	1 (0.3%)	12 (3.0%)	226 (56.5%)	102 (25.5%)	59 (14.8%)	3.52	Significant
Availability/ coverage of essential drugs	2 (0.5%)	13 (3.3%)	214 (53.5%)	109 (27.3%)	62 (15.5%)	3.54	Significant
Previous experience/ satisfaction	5 (1.3%)	17 (4.3%)	244 (61.0%)	101 (25.3%)	33 (8.3%)	3.35	Mostly Undecided
Coverage of more medica conditions	4 (1.0%)	15 (3.8%)	229 (57.3%)	107 (26.8%)	45 (11.3%)	3.44	Mostly Undecided

Factors affecting utilization of TISHIP. Long waiting time, attitude of health personnel and availability/coverage of essential drugs are significant factors affecting utilization of TISHIP. Previous experience/satisfaction and coverage of more medical conditions were mostly undecided.

4.14RELATIONSHIP BETWEEN THE UTILIZATION OF TISHIP AND THE SOCIODEMOGRAPHIC CHARACTERISTICS OF THE RESPONDENTS

4..9: Relationship between the Registration of TISHIP and sociodemographic characteristics of respondents

		REGISTERED FOR TISHIP			*Chi-square*	*df*	*p-value*
		Yes (%)	**No (%)**	**Total (%)**			
Age	**15-18 yrs**	0 (0.0%)	40 (100.0%)	40 (100.0%)	11.716	4	0.020
	19-22 yrs	31 (13.0%)	208 (87.0%)	239 (100.0%)			
	23-26 yrs	11 (10.5%)	94 (89.5%)	105 (100.0%)			
	27-30 yrs	4 (30.8%)	9 (69.2%)	13 (100.0%)			
	>30 yrs	1 (33.3%)	2 (66.7%)	3 (100.0%)			
Sex	**Male**	14 (8.7%)	147 (91.3%)	161 (100.0%)	2.424	1	0.119
	Female	33 (13.8%)	206 (86.2%)	239 (1000%)			
School	**UNEC**	34 (34.0%)	66 (66.0%)	100 (100.0%)	74.522	3	0.000
	ESUTH	13 (13.0%)	87 (87.0%)	100 (100.0%)			
	GO UNI	0 (0.0%)	100 (100.%)	100 (100.0%)			
	RENAISSANCI	0 (0.0%)	100 (100.%)	100 (100.0%)			
Where do you access health care?	**At school**	37 (33.6%)	73 (66.4%)	110 (100.0%)	70.089	1	0.000
	Medical center	10 (3.4%)	280 (96.6%)	290 (100.0%)			
	Outside school medical center						
How frequently do you fall sick?	**I don't fall sick**	4 (4.8%)	80 (95.2%)	84 (100.0%)	7.617	4	0.107
	1-3 times	29 (12.6%)	202 (87.4%)	231 (100.0%)			
	4-6 times	11 (18.6%)	48 (81.4%)	59 (100.0%)			
	7-9 times	1 (6.7%)	14 (93.3%)	15 (100.0%)			
	> 10 times	2 (18.2%)	9 (81.8%)	11 (100.0%)			

Table 4.9: shows relationship between the Registration of TISHIP and sociodemographic characteristics of respondents. There is a significant relationship between tertiary institution attended and number of registered respondents as well as a significant correlation between where to access healthcare and number of registered respondents

4.15Relationship between the usage of TISHIP for health care and sociodemographic characteristics of respondents

Table 4.10: Relationship between the usage of TISHIP for health care and sociodemographic characteristics of respondents

		Used TISHIP to access health care?			*Chi-square*	*df*	*p-value*
		Yes (%)	**No (%)**	**Total (%)**			
Age	**15-18 yrs**	0 (0.0%)	40 (100.0%)	40 (100.0%)	9.415	4	0.052
	19-22 yrs	36 (15.1%)	203 (84.9%)	239 (100.0%)			
	23-26 yrs	19 (18.1%)	86 (81.9%)	105 (100.0%)			
	27-30 yrs	3 (23.1%)	10 (76.9%)	13 (100.0%)			
	>30 yrs	1 (33.3%)	2 (66.7%)	3 (100.0%)			
Sex	**Male**	18 (11.2%)	143 (88.8%)	161 (100.0%)	2.731	1	0.098
	Female	41 (17.2%)	198 (82.8%)	239 (100.0%)			
School	**UNEC**	44 (44.0%)	56 (56.0%)	100 (100.0%)	100.422	3	0.000
	ESUTH	14 (14.0%)	86 (86.0%)	100 (100.0%)			
	GO UNI	1 (1.0%)	99 (100.%)	100 (100.0%)			
	RENAISSANCI	0 (0.0%)	100 (100.%)	100 (100.0%)			
Where do you access health care?	**At school**	42 (38.2%)	68 (61.8%)	110 (100.0%)	66.249	1	0.000
	Medical center	17 (5.9%)	273 (94.1%)	290 (100.0%)			
	Outside school medical center						
How frequently do you fall sick?	**I don't fall sick**	6 (7.1%)	78 (92.9%)	84 (100.0%)	6.978	4	0.137
	1-3 times	42 (18.2%)	189 (81.8%)	231 (100.0%)			
	4-6 times	8 (13.6%)	51 (86.4%)	59 (100.0%)			
	7-9 times	1 (6.7%)	14 (93.3%)	15 (100.0%)			
	> 10 times	2 (18.2%)	9 (81.8%)	11 (100.0%)			

Table 4.10 shows relationship between the usage of TISHIP for health care and sociodemographic characteristics of respondents. There is significant relationship between tertiary institution of respondent and usage of TISHIP.

4.16 Relationship between the utilization of TISHIP and the school, department and study level of respondents

Table 4.11: Relationship between the utilization of TISHIP and the school, department and study level of respondents

		Used TISHIP to access health ca Yes (%)	No (%)	Total (%)	*Chi-square*	*df*	*p-value*
School	**UNEC**	44 (44.0%)	56 (56.0%)	100 (100%)	100.422	3	0.000
	ESUTH	14 (14.0%)	86 (86.0%)	100 (100%)			
	GO UNI	1 (1.0%)	99 (100%)	100 (100%)			
	RENAISSANCE	0 (0.0%)	100 (100%)	100 (100%)			
UNEC	**Architecture**	12 (48.0%)	13 (52.0%)	25 (100%)	107.341	15	0.000
	Marketing	10 (40.0%)	15 (60.0%)	25(100%)			
	Medicine/ Surgery	12 (48.0%)	13 (52.0%)	25 (100%)			
	Law	10 (40.0%)	15 (60.0%)	25 (100%)			
ESUTH	**Agric. Science**	5 (20.0%)	20 (80.0%)	25 (100%)			
	Medicine/ Surgery	2 (8.0%)	23 (92.0%)	25 (100%)			
	Engineering	1 (4.0%)	24 (96.0%)	25 (100%)			
	Integrated Science	6 (24.0%)	19 (76.0%)	25 (100%)			
GO-UNI	**Industrial Chem.**	0 (0.0%)	25 (100%)	25 (100%)			
	English studies	0 (0.0%)	25 (100%)	25 (100%)			
	Music	0 (0.0%)	25 (100%)	25 (100%)			
	Mass comm.	1 (4.0%)	24 (96.0%)	25 (100%)			
RENAISANCE	**Accounting**	0 (0.0%)	25 (100%)	25 (100%)			
	Mathematics	0 (0.0%)	25 (100%)	25 (100%)			
	Science Education	0 (0.0%)	25 (100%)	25 (100%)			
	Business Admin.	0 (0.0%)	25 (100%)	25 (100%)			
Study level	**100 level**	0 (0.0%)	89 (100.0%)	89(100%)	36.618	5	0.000
	200 level	8 (8.7%)	84 (91.3%)	92 (100%)			
	300 level	18 (18.9%)	77 (81.1%)	95 (100%)			
	400 level	17 (22.1%)	60 (77.9%)	77 (100%)			
	500 level	12 (34.3%)	23 (65.7%)	35 (100%)			
	600 level	4 (33.3%)	8 (66.7%)	12 (100%)			

Table 4.11 shows relationship between the utilization of TISHIP and the school, department and study level of respondents. There is a significant relationship between the utilization of TISHIP and the school, department and study level.

4.17Relationship of the utilization of TISHIP between public and private schools, among first years, other years and final years, and between the medical students to other students in

other departments

Table 4.12: Comparing the utilization of TISHIP between public and private schools, First years, other years and final years, and between the medical students to other students in other departments

		Used TISHIP to access health car			*Chi-square*	*df*	*p-value*
		Yes (%)	**No (%)**	**Total (%)**			
Public and Private schools	**UNEC/ ESUTH**	58 (29.0%)	142 (71.0%)	200 (100%)	64.596	1	0.000
	GO UNI/ RENAISSANCE	1 (0.5%)	199 (99.5%)	200 (100%)			
First years, other years and final years	**First years**	1 (1.1%)	94 (98.9%)	95 (100%)	18.688	2	0.000
	Other years	40 (18.6%)	175 (81.4%)	215 (100%)			
	Final years	18 (20.0%)	72 (80.0%)	90 (100%)			
Medical students in public schools and other students	**Medical students in public schools**	14 (28.0%)	36 (72.0%)	50 (100%)	7.978	1	0.005
	Other students	45 (12.9%)	305 (87.1%)	350 (100%)			

Table 4.12: Comparing the utilization of TISHIP between public and private schools, First years, other years and final years, and between the medical students to other students in other departments. There is significant relationship between utilization of TISHIP between public and private schools, First years, other years and final years, and between the medical students to other students in other departments.

4.18 Respondents perception of TISHIP

Table 4.13: Respondents' perception of TISHIP

Variables	*Values*					*Mean*	*Remark*
	SD (%) [1]	**D (%) [2]**	**U (%) [3]**	**A (%) [4]**	**SA (%) [5]**		
TISHIP is very important in Nigeria	3 (0.8%)	13 (3.3%)	98 (24.5%)	156 (39.0%)	130 (32.5%)	3.99	Mostly positive
TISHIP knowledge and awareness is good enough	31 (7.8%)	58 (14.5%)	111 (27.8%)	147 (36.8%)	53 (13.3%)	3.33	Mostly Undecided
More diseases and drugs should be covered	3 (0.8%)	9 (2.3%)	111 (27.8%)	141 (35.3%)	136 (34.0%)	3.99	Mostly positive

TISHIP should be compulsory for all students	17 (4.3%)	48 (12.0%)	145 (36.3%)	114 (28.5%)	76 (19.0%)	3.46	Mostly Undecided
TISHIP should cover all lab investigation and surgeries	6 (1.5%)	26 (6.5%)	128 (32.0%)	121 (30.3%)	119 (29.8%)	3.80	Mostly positive
TISHIP will revive the health care delivery	3 (0.8%)	8 (2.0%)	120 (30.0%)	140 (35.0%)	129 (32.3%)	3.96	Mostly positive
I access medical care better than before with the introduction of TISHIP	30 (7.5%)	49 (12.3%)	189 (47.3%)	91 (22.8%)	41 (10.3%)	3.16	Mostly Undecided
TISHIP has reduced my spending on health care	32 (8.0%)	44 (11.0%)	184 (46.0%)	93 (23.3%)	47 (11.8%)	3.20	Mostly Undecided
TISHIP ensures that every student in higher institution has access to quality health care	18 (4.5%)	35 (8.8%)	154 (38.5%)	131 (32.8%)	62 (15.5%)	3.46	Mostly Undecided
TISHIP ensures that parents are protected from the financial hardship of huge bills	24 (6.0%)	26 (6.5%)	158 (39.5%)	138 (34.5%)	54 (13.5%)	3.43	Mostly Undecided
NGOs and governments contribute in TISHIP	12 (3.0%)	28 (7.0%)	185 (46.3%)	130 (32.5%)	45 (11.3%)	3.42	Mostly Undecided
TISHIP should be continued	7 (1.8%)	12 (3.0%)	133 (33.3%)	123 (30.8%)	125 (31.3%)	3.87	Mostly positive

Table 4.13 shows respondents' perception of TISHIP where most students agree that TISHIP is very important, that more diseases and drugs should be covered, that TISHIP should cover all lab investigation and surgeries, that TISHIP will revive the health care delivery and TISHIP should be continued. Most were undecided concerning if TISHIP knowledge and awareness is good enough, if TISHIP should be compulsory for all students, if they access medical care better than before with the introduction of TISHIP, if TISHIP has reduced their spending on health care, and if NGOs and governments contribute in TISHIP.

4.19 Respondents who are willing to pay for TISHIP

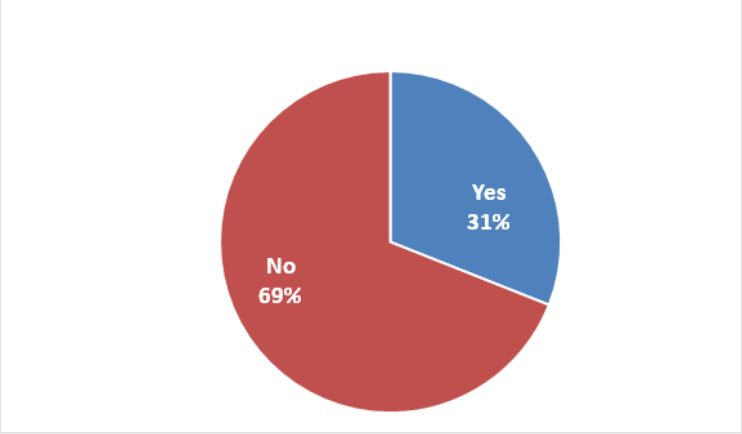

Fig 4.6: Respondents who are willing to pay for TISHIP

DISCUSSION

From table 1, the study indicated that age range of 19-22yrs had the highest percentage followed by ages 23 to 26yrs and covered four tertiary institutions, 2 private and 2 public tertiary institutions.

The study covered 2 private and 2 public Universities, although similar to the study done by Aniwada et al in 2019, in Enugu State, which was done among students of Enugu State University Teaching Hospital by random selection of students. Our study better represents a wide scope of Nigerian students as can be seen by our methodology, which covered 4 institutions, different levels among the 16 different departments sampled and also reflected the situation of health insurance among students who are in private tertiary institutions.

On Knowledge and awareness of the TISHIP Scheme by Nigerian Students, our study stated two-third of students had very poor knowledge and awareness of the TISHIP scheme and one-third of our study respondents who were aware of TISHIP got their information more from friends.

Our study revealed that 33% of tertiary students are aware of TISHIP. In comparison with the study done in Enugu state university of science and technology by Aniwada et al in 2019[13] and another study in Nnamdi Azikiwe University Medical Centre[1], the result is otherwise different as almost half of the student indicated that they are aware of the TISHIP scheme. This difference may be due to the fact that only one school was used in both studies.

Furthermore, from our study, a significant relationship was obtained in the degree of awareness among different schools: UNEC (67%), ESUTH (47%), Go-Uni (11%) and Renaissance (8%), between public (57%) and private schools (9.5%), among different departments with medical students having 67% and among students of different levels with 46.7% of final years being the highest.

Also, on the level of Knowledge of the TISHIP scheme, more than half of the students who responded being aware only knew that there was a health insurance scheme but does not know it is called TISHIP nor know the meaning of TISHIP or the services available for students under the health insurance scheme.

Concerning attitude or perception of Nigerian students on TISHIP, our findings showed that students generally had poor attitude toward the TISHIP scheme. This can be further buttressed by the fact from our findings that only 31% of our respondents are willing to pay for TISHIP and just 15% of our respondents have registered for TISHIP.

On utilization of the TISHIP scheme, our findings also indicated that the available services of the TISHIP scheme is underutilized by Nigerian students as only 12% of respondents have received health care via TISHIP although only 15% have registered. The poor utilization of some services is not just from the side of the students but may also be due to the unavailability of these services to as much students as needs it as some of these procedures are expensive and even when available, require students to pay additional amount to use them.

The main reasons for not receiving health care via TISHIP include lack of registration (30.8%), lack of knowledge of TISHIP (40.5%), preference to pay for health (7.5%), preference for better health services (5.8%) and no reason (20.5%).

Furthermore, from our study, we observed that only 27.5% of respondents have access to healthcare through the school's medical centre where TISHIP is obtainable, 52.3% of respondents accessed healthcare in hospitals outside school, 19.0% use patent medicine dealers, 4.8% use herbal medicine and 2.3% visited their spiritual leaders. All these shows poor utilization of TISHIP scheme recorded in our study.

On factors affecting the utilization of TISHIP, long waiting time, attitude of health personnel, availability/coverage of essential drugs were significant.

CONCLUSION

In conclusion, it can be said that the Tertiary Institutions Social Health Insurance Programme (TISHIP) has been faced with poor level of knowledge, awareness, attitude and utilization among Nigerian Tertiary Institutions Students in Enugu State, Southeast Nigeria, hence the aim of providing health insurance and quality health services to all Nigerian Tertiary Institutions students been affected.

RECOMMENDATIONS

We encourage subsequent studies to cover the 6 geopolitical zones of the country to a holistic view of the status of TISHIP scheme in the country.
We encourage continuous research on the TISHIP scheme to ensure that its services are properly utilized, and Nigerian students are aware and all registered on the scheme.
There is need for total reassessment of the TISHIP scheme in the country by the Federal Government as the reason for its establishment is yet to be achieved as many Nigerian students are yet to receive health insurance.

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AN ASSESSMENT OF THE KNOWLEDGE AND PRACTICE OF TELEMEDICINE AMONG MEDICAL DOCTORS IN UNIVERSITY OF NIGERIA TEACHING HOSPITAL (UNTH), ITUKU-OZALLA, ENUGU STATE, NIGERIA.

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A) ***ABSTRACT***

Background:*The outbreak of the novel SARS-COV-2 virus, created a paradigm shift in the practice of medicine, a speciality well known for its integration of clinical expertise and manual dexterity in the management of its patients. Telemedicine, a previously less conventional approach in developing countries, has now come to the forefront of patient care. This study assessed the knowledge and practice of telemedicine among doctors in the University of Nigeria Teaching Hospital, Ituku-Ozalla in Enugu state.*

Methodology: *A questionnaire-based survey was used to obtain relevant information among 149 doctors in the University of Nigeria Teaching Hospital (UNTH), including their knowledge and awareness of telemedicine, its relevance and impact on the clinical outcomes of patients as well as factors limiting its use. Data was analyzed and presented in tables, graphs and pie charts.*

Results: *There were 149 doctors, who were mostly aged 15 – 30 years (63%). Most 146 (98%) have heard about telemedicine but only 100 (67.3%) have consulted using telemedicine. Doctors were more likely to employ telemedical consultation for follow-up and emergency scenarios but least likely to use telemedicine for first-time visits and the management of chronic diseases.*

Conclusion: *There is a good knowledge of telemedicine among medical doctors in UNTH but ICT illiteracy, inadequate patient-doctor interaction, patients' preference, lack of internet access, high cost of set-upand maintenance and ethical issues were some of the factors limiting its practice.*

B) INTRODUCTION

Accessing health care services in Nigeria is embattled by a myriad of problems like dilapidated and poorly equipped health care centres, insufficient medical personnel who are poorly remunerated, unviable road networks and poor funding. Therefore, any innovative solution that connects health care professionals to patients in the shortest period, reduces costs and improves clinical outcomes will markedly improve the quality of life of Nigerians.

Telemedicine has been shown to close the gap of barriers that limits access to health care services in both developed and developing countries. As the first electrical telecommunication tool in

the history of humanity, the telegraph was first used for medical purposes (teleconsultation) in Australia in 1874.[1]

Thomas Bird was the first to formally define telemedicine as "the practice of medicine without the usual physician-patient confrontation. … (via an interactive audio-video communications system."[2] The World Health Organization defines telemedicine as the delivery of health care services, where distance is a critical factor, by all health care professionals using Information and Communication Technologies for the exchange of valid information for the diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care provider, all in the interests of advancing the health of individuals and their communities.[3]The essence of telemedicine is to cut down promptly deaths, morbidity or unproductivity resulting from inaccessibility to specialist care, inaccurate or slow patient information transmission and the use of alternative but harmful healthcare which sometimes involve self-medication, quackery and herbal concoctions.

In 2015, the Federal Ministry of Health and Federal Ministry of Communications Technology jointly developed the National Health Information and Communications Technology (Health ICT) Strategic Framework which articulates the collective vision and necessary actions of stakeholders involved in the health system in Nigeria. It encompasses three phases: phase one (set-up), phase two (deploy, maintain and support) and phase three (consolidate and continuous review) to leverage current and future ICT investments to build an integrated national health information infrastructure and enable universal health coverage by 2020.[4]

Its implementation was projected to achieve this through: improved access to health services through the effective use of telemedicine and other information and communication technologies for health worker training and support; improved coverage of health services as well as tracking demand and supply of health services and commodities; increased uptake of health services through the effective use of mobile messaging and cash transfer incentives for demand creation; improved quality of care through the effective use of information and communication technologies for decision support within the continuum of care; increased financial coverage for health care services through the effective use of Information and communication technology for the National Health Insurance Scheme and other health-related financial transactions and increased equity in access to and quality of health services, information and financing through the effective use of information and communication technologies for delivering appropriate health services for those who need them.

Currently, there are no updates as to the successful outcome or otherwise of these resolutions.

The emergence of the deadly COVID-19 has further reduced the need for physical contact between health caregivers and patients who encountered difficulties in communicating due to the physical distance, mask, personal protective equipment and often did not understand the instructions given by the doctors.[5] Therefore, maintaining an optimal telemedical service delivery

requires a fast, and uninterrupted internet service since most telemedicine services involve medical data processing, retrieval of up-to-date information and real-timecommunication between patients and experts. In 2020, UNTH entered a partnership with the Federal Ministry of Health to introduce telemedicine hospital response services which will enable regular patients dial-in to access critical health information and consultations with medical practitioners.[6]Physician's knowledge, attitude and acceptance are considered some of the main challenges for telemedicine [7] while poor internet connection, lack of education about telemedicine, instability of basic infrastructure with special emphasis on the electric supply in Africa top the ladder of challenges faced by African countries in the establishment of a good telemedical network. [8]A study revealed that about 75% of telemedicine projects in developed countries and 90%in developing countries are abandoned or fail outrightly.[9]In Nigeria, this hesitancy in the full implementation of telemedicine has been linked to the lack of a national telemedicine policy and regulatory bodiesas well as low internet connectivity, the initial huge start-up cost of information and communication technology infrastructure and malpractice-related issues.

C) OBJECTIVES OF THE STUDY

1.**General Objective:** To assess the knowledge and practice of telemedicine by medical doctors in the University of Nigeria Teaching Hospital (UNTH), Ituku-Ozalla, Enugu.

2.**Specific Objectives:**

a.To determine the level of telemedicine services/systems available at the University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu.

b.To ascertain the quality of care delivered using telemedicine in this hospital.

c.To evaluate the clinical outcomes associated with the practice of telemedicine in this hospital.

d.To identify the factors that limit the complete adoption of telemedicine in this hospital.

D) METHODOLOGY

Study area: This study was carried out at the University of Nigeria Teaching Hospital, Ituku-Ozalla, Enugu State. A major referral centre for hospitals within South-East Nigeria. It provides in-patient and out-patient services to its clients and offers both emergency and long-term healthcare to residents of Enugu and its environs. Itislocated along Enugu-Port Harcourt expressway, 21 kilometres from Enugu capital city and occupies an area of about 747 acres.[10] It has been in existence for over 50 years. Enugu is the largest state by landmass in the South-East geopolitical zone.[11]It lies between 6°27′10″N 7°30′40 ″E / 6.45278°N 7.51111°E / 6.45278; 7.51111 and has an estimated population of 4, 411,119in 2016 [12]with an annual growth rate of 2.8% and a density of 1,300 per km^2. The study duration was between July and August 2021.

Study population: Medical doctors practising at the University of Nigeria Teaching Hospital, Ituku-Ozalla,Enugu who gave informed written consent for the study.

Study design: The study design employed was a cross-sectional epidemiological study of the descriptive type. A simple random sample was done.

Sample size determination: A minimum sample size was determined using the formula:

$n = Z^2pq/d^2$

Where,

n = sample population:

Z =standard deviation of 1.96

p =prevalence; q = 1 – p

d = standard error of 0.05

Using the study by Ashfaq et al. [13], 80.7% of doctors know about telemedicine.

Hence,

p = 0.807

q = 1 – 0.807

d = 0.05

Therefore,

n = 1.96 x 1.96 x 0.807 x 0. 193/0.05 x 0.05

n = 239

Using N (final)= n/ (1 + n/N)for a study with a sample population

< 10,000

Where,

N = estimated total of the population

N = 556 (Number of doctors working in UNTH)[14]

N (final) = 239/ 1 + (239/556)

N (final) = 167

Minimum sample size will be 167.

A 10% allowance for non-responders = 17

The Sample size for the study will be 184

Due to scarcity of resources, a convenience sampling was doneto include 150 doctors. One doctor declined consent hence, data from 149 doctors was analyzed.

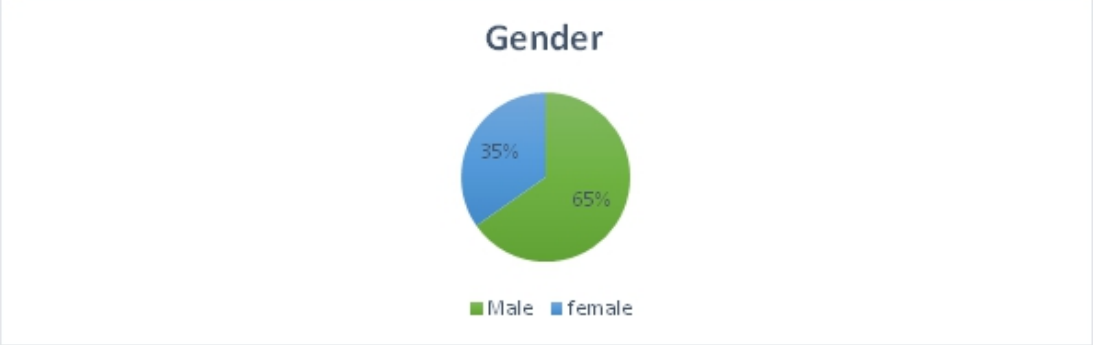
Data collection methods: Data was collected using a self-administered questionnaire. It was adapted using a Likert-type scale with items answered on a five-point scale and telemedicine assessment tools such as Technology Acceptance Model and Telehealth Usability Questionnaire. Brief questionnaires are preferable to improve response rates as studies using long questionnaires based on Technology Acceptance Model have reported low response rates.[15] The questionnaire had five sections comprising of socio-demographic and socio-economic characteristics of participants, awareness of telemedicine and source of information, perception and practice of telemedicine, factors limiting telemedical practice and recommendations for rectifying identified factors.

E) DATA MANAGEMENT:

After collection, the data was analyzed and presented in tables, graphs and pie charts. Then, conclusions were drawn from it.

1.Socio-demographic characteristics:

Gender: There were more male doctors (65%) than female doctors (35%).



Age: Most of the respondents were between the ages of 15 and 30 (63%).

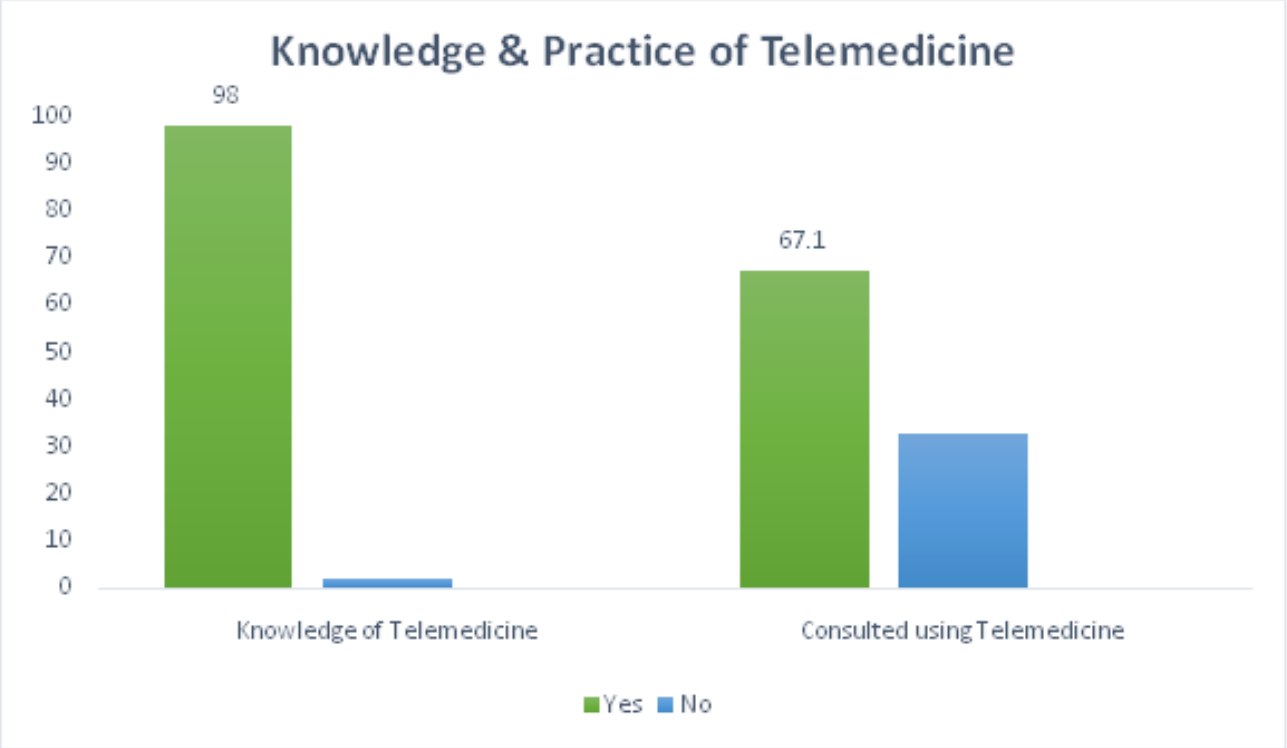
Age (Years)	Frequency	Percentage
[illegible]	94	63
31 – 45	34	23
46 –60	21	14
60 and above	0	0
Total	149	100

Department: This is widely distributed with the least percentage of doctors working in the department of Paediatrics (6.3%) and the highest percentage working in the department of Medicine (52.1%).

Department	Frequency	Percentage
Medicine	78	52.1
Surgery	40	27
Obstetrics & Gynaecology	22	14.6
Paediatrics	9	6.3
Total	149	100

2. Awareness of telemedicine and source of information:

Even though most of the respondents (98%) had previous knowledge of telemedicine, only 67.1% have consulted using telemedicine.



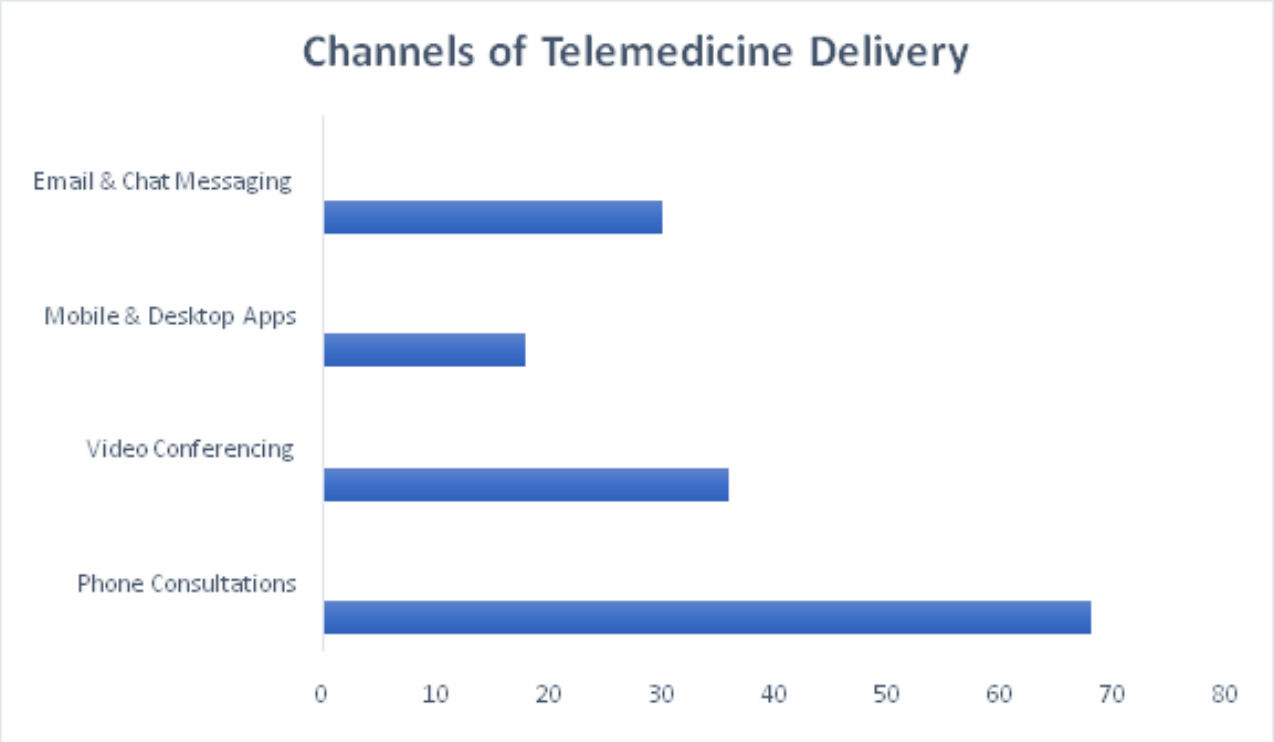
Most respondents heardof telemedicine through social media (32%), followed by colleagues (26%) and conferences (19%) while it was least heardof through academic journals (6%).

How did you hear of telemedicine?	Frequency	Percentage
Social media	47	31.5
Conferences	27	18
Journal	9	6
Hospital training	25	17
Colleagues	38	25.5
Total	146	98

OBJECTIVE 1: TELEMEDICINE SERVICES AVAILABLE IN UNTH

3. Perception and practice of telemedicine:

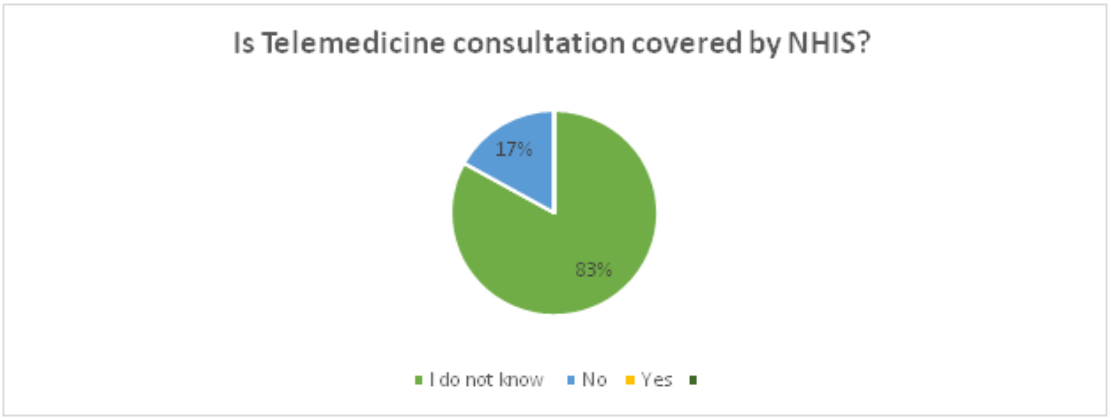
Channels of telemedicine delivery: Most respondents (68%) deliver telemedical services using phone consultations.



Most participants volunteered that telemedicine services available at the hospital were essentially more of interactive sessions (65.1%) than of remote monitoring (25.6%) and storing-and-forwarding (9.3%).

Type of telemedicine available	Frequency	Percentage
Interactive medicine	97	65.1
Store-and-forward	14	9.3
Remote patient monitoring	38	25.6

A majority (83%) reported that they did not know if the use of telemedicine consultation was covered by the National Health Insurance Scheme (NHIS).



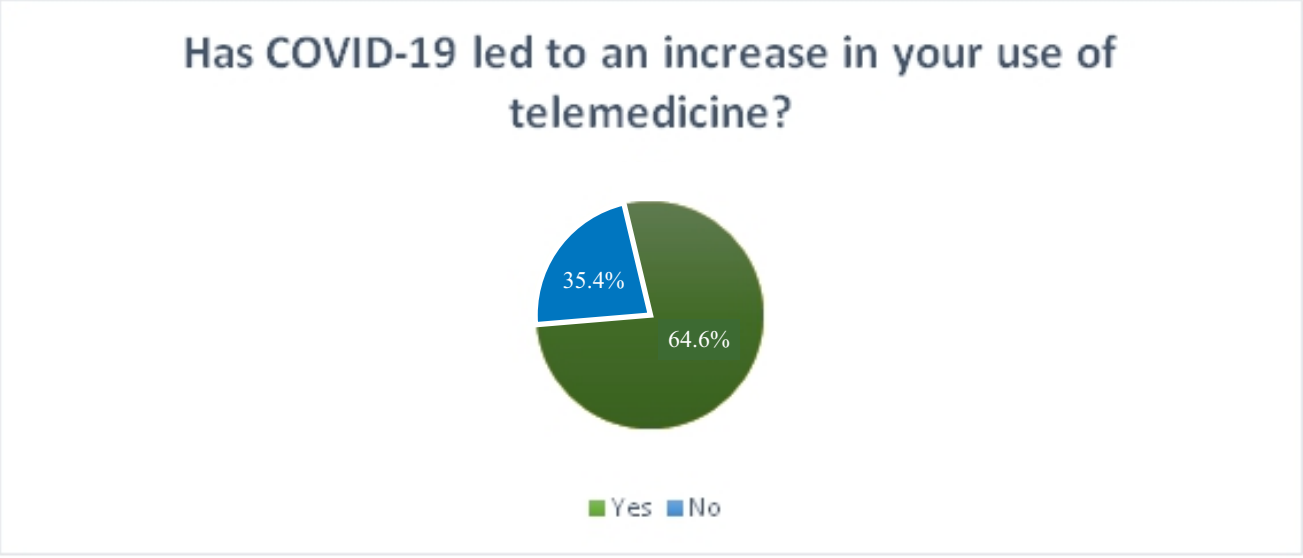
OBJECTIVE 2: QUALITY OF CARE AT UNTH USING TELEMEDICINE

Most of the respondents (57%) spend an average length of 15minutes withone patient.

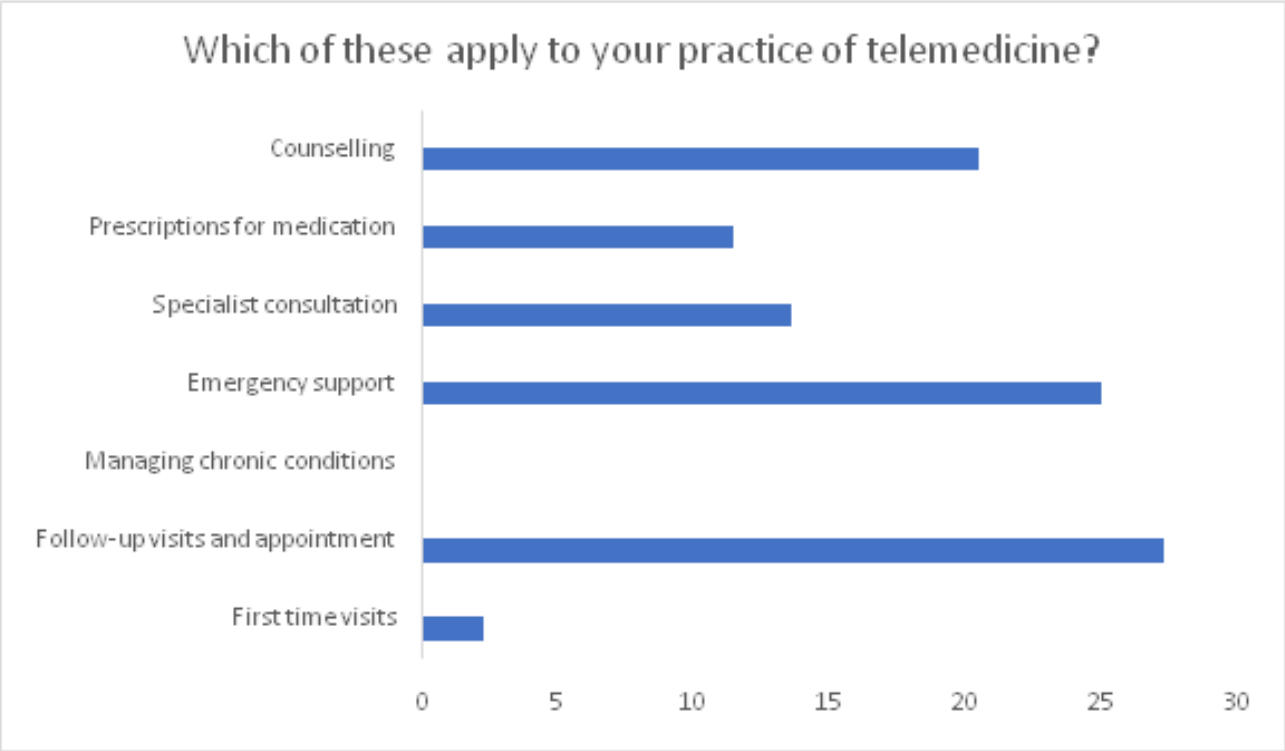
Average time spent on one patient	Frequency	Percentage
15 minutes	86	58
30 minutes	45	30
1 hour	18	12
More than 1 hour	0	0
Total	149	100

OBJECTIVE 3: CLINICAL OUTCOMES ASSOCIATED WITH THE PRACTICE OF TELEMEDICINE

When asked if they thought COVID-19 has led to an increase in their use of telemedicine,96 (64.6%) ticked 'yes' while 53 (35.4%) ticked 'no'.



Out of the 100 respondents who consult using telemedicine, the majority reported that they used telemedicine for follow-up (27.3%) and counselling (20.5%) while they never used it to manage chronic medical conditions.

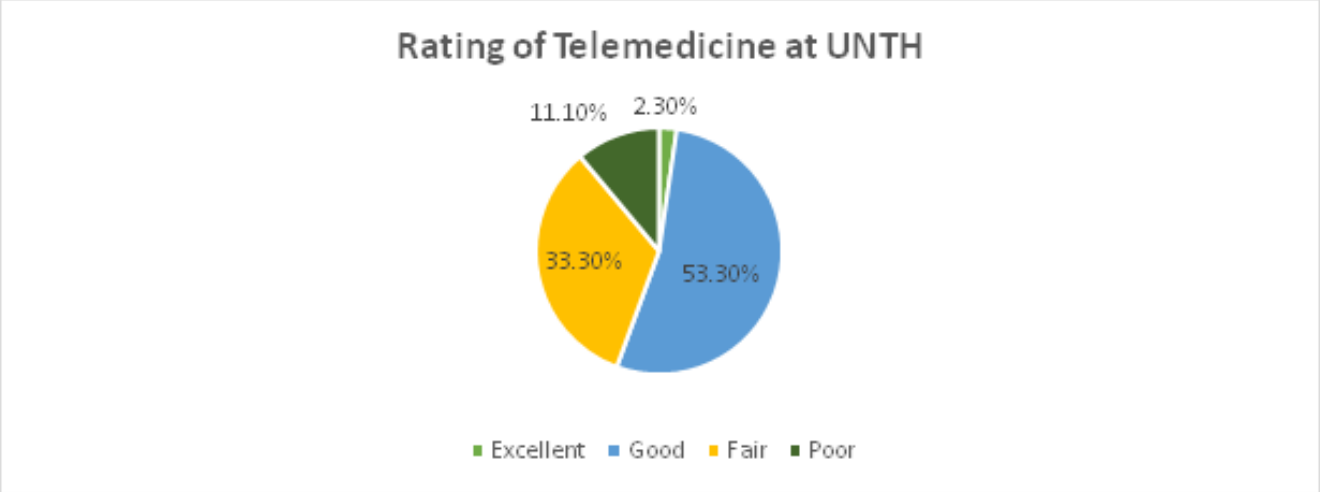


The table below shows the attitude and acceptability of telemedicine by the respondents:

Statements	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Telemedicine improves my patients' access to healthcare services	0	4.4%	15.6%	55.6%	24.4%
Telemedicine is convenient to use compared with the in-person visits	0	28.9%	15.6%	37.8%	17.8%
I am satisfied with this telemedicine system	4.2%	12.8%	36.2%	36.2%	10.6%
I would use telemedicine services again	0	2.1%	17%	53.2%	27.7%
I will recommend the use of telemedicine to my colleagues	0	0	21.3%	53.2%	25.5%
Telemedicine is needed in emergent situations such as COVID-19	0	2.1%	12.5%	50%	35.4%
Telemedicine is needed regardless of emergent situations such as COVID-19	0	2%	18.8%	50%	29.2%

Telemedicine can partially replace in-person visits	6.3%	10.4%	16.7%	52.1%	14.6%
I know the purpose of telemedicine	2.2%	2.1%	19.6%	56.5%	19.6%
I understand the advantages and disadvantages of telemedicine	0	2.2%	13%	58.7%	26.1%
I can check patients' conditions through telemedicine as in-person visits	4.2%	27.1%	37.5%	20.8%	10.4%
I can explain patients' medical conditions well enough as in-person visits	6.5%	13%	19.6%	39.1%	21.7%
I think patients can understand their condition during telemedicine as in-person visits	10.6%	19.1%	23.4%	34%	12.8%
I feel comfortable during each telemedicine consultation	0	8.5%	46.8%	31.9%	12.8%

More than half of the participants (53.3%) gave a good rating for telemedical practice at the centre while the remainder of the distribution goes thus:



100 doctors (67.3%) stated that the use of telemedicine improved the clinical outcome of their patients in the following ways:

Clinical Outcome	Frequency	Percentage
Promotes continuity of care (especially in chronic diseases)	100	67.3
Reduces cost of care	96	64.3

Reduces patient waiting time	85	57.1
Patients are included in the decision -making process	75	50
It allows the healthcare provider to see more patients	53	35.7
Minimizes patients' exposure to infectious diseases like COVID - 19	96	64.3

OBJECTIVE 4: FACTORS LIMITING THE COMPLETE ADOPTION OF TELEMEDICINE IN UNTH

All 149 respondents volunteered that there are hindrances to the use of telemedicine at the hospital and attributed some of these hindrances to be:

Hindrances to the use of telemedicine	Frequency	Percentage
ICT illiteracy of medical personnel and patients	124	83
Lack of awareness of the availability of telemedicine services	130	87.2
High cost of set-up and maintenance	108	72.3
Low and expensive internet connectivity	117	78.7
Lack of trust in the telemedicine system	98	66
Privacy and medico-legal concerns	70	46.8

4. Factors limiting the general practice of telemedicine

This table shows respondents' thoughts on the limitations of telemedicine

Statements	Frequency	Percentages
It doesn't allow for proper examination and interaction	136	91.3
Some patients prefer in -person visitati ons and respond better to it	139	93.5
Unstable internet access and difficulty using new technology	146	97.8
Ethical issues may arise	110	73.9

5. Recommendations by respondents

According to the respondents, some factors that can improve the use of telemedicine are:

Statements	Frequency	Percentage
Provision of a national telemedicine policy and monitoring agency	135	90.7
Training medical professionals and patients on the use of telemedicine	139	93
Use of electronic health records	135	90.7
Inclusion of telemedicine services in the National Health Insurance Scheme	125	83.7

F) DISCUSSION

There is a good knowledge of telemedicine (98%) among doctors practising at the University of Nigeria Teaching Hospital (UNTH), although only about 67.3% have consulted using telemedicine.

In keeping with the objectives of this study, the quality of care delivered using telemedicine received a good rating and remarkably improved the clinical outcome of their patients by ensuring that patients are included in decision making, exposure to infectious diseases are minimized, cost of accessing medical care is reduced and continuity of care is promoted. Our results correspond with another study [16] that telemedicine cannot replace personal medical care in all cases, especially in severe or unstable conditions or whenever the physician's examination is needed. Most of the doctors admitted that they understood the advantages and disadvantages of telemedicine but a profound demerit of telemedicine from our study is that it does not allow the healthcare provider to see more patients. This could be attributed to technicalities from the machinery, the longer time required to effectively communicate by both parties and the unstable and often, chaotic internet connectivity.

Therefore, to achieve a telemedicine system in Nigeria that meets the high standards of conventional medicine, telecommunication bodies, public and private organizations must collaborate to ensure a seamless telemedicine service. Also, proper legal framework and guidelines must be laid down by appropriate bodies and government agencies because telemedicine encompasses general legal matters like data protection, consent, informed consent, privacy, medical negligence, contracts, medical ethics and more specific medico-legal concerns like e-advising, e-consultation, e-prescribing, e-dispensing and e-consent[17]because transmitting patient files via the internet threatens patient

privacy.[18]These should be addressed by formulating a national telemedicine policy or at least, revisiting and updating previous policies, incorporating telemedicine services in the National Health Insurance Scheme and addressing the ethical concerns of healthcare professionals and patients through a vetting process that checks and eliminates substandard health practices.

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ASSESSMENT OF COMMON OCCUPATIONAL HAZARDS AMONG HEALTH CARE WORKERS AT THE DEPARTMENT OF HEALTH SERVICES, FEDERAL UNIVERSITY OF TECHOLOGY, OWERRI, SOUTHEAST, NIGERIA.

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INTRODUCTION

1.1BACKGROUND TO THE STUDY

Occupational Safety at Health Care Sector is an issue of major concern in public health. Globally, the healthcare workforce represents 12% of the working population.[1,2,3] Healthcare workers operate in an environment that is considered to be one of the most hazardous occupational settings. [2] These hazards include exposure to ionizing radiation, stress, injury, infectious agents, and chemicals. The acquired immunodeficiency syndrome epidemic has created additional occupational hazards and has focused attention on the problem of occupational hazards to health care workers. [1]Concern over the nosocomial transmission of the human immunodeficiency virus has contributed to efforts to implement universal infection control precautions and to decrease needle stick injuries. [1] In addition to the usual workplace related exposures, healthcare workers encounter diverse hazards due to their work-related activities. [4]There are well-established guidelines to prevent exposure to occupational hazards, including blood and blood borne pathogens. These include educating healthcare workers on safer use of devices, procedures and management of exposures. [5,6]

Furthermore, the World Health Organization (WHO) has instructed governments to transition to the exclusive use of safety injection devices by 2030. [3,7] While developed countries have heeded this recommendation, the vast majority of sub-Saharan African countries have failed to enact legislation to protect healthcare workers.[8] Apart from provider behaviors that increase exposure to occupational hazards, system-level barriers increase the risk of exposure to hazards in the healthcare setting.[9] Unsafe conditions in the healthcare environment, lack of personal protective equipment (PPE), and high provider to patient ratio increase the risk of exposure to blood borne pathogens and cause preventable infections.[10] In spite of this knowledge, the healthcare work environment continues to be neglected by governments and organizations.[11] A higher annual prevalence of back pain (77%) among healthcare workers compared to other occupational groups has been reported.[1,2] In fact, ergonomic related injuries pose a significant health risk to workers and yet it is the most prevalent occupational injury in healthcare industry.[10] Healthcare workers are exposed to blood-borne infections which usually expose them to diseases such as HIV, TB, and hepatitis B and hepatitis C.[12] Substantial morbidity and mortality among these workers inevitably lead to loss of skilled personnel and adversely impact healthcare services which are already

strained in many low and middle income countries.[6]

The World Health Organization (WHO) and the Federal Ministry of Health (FMOH) realized the need to strengthen the nationwide Infection Control Program in order to enhance the preparedness of health care workers, so that they would be able to respond to outbreaks of highly transmissible infectious diseases and more importantly, to prevent and reduce occurrence of health care-associated infections among patients. [3,12,13]

In sub-Saharan Africa, the scarcity of human resource for health is described as a humanitarian resource crisis due to significant emigration of trained professionals, difficult working conditions, poor salaries, low motivation, and high burden of infectious diseases, particularly HIV/AIDS. [4,14]

Evidence from sub-Saharan Africa indicates that healthcare workers are frequently exposed to chemical, biological, physical, and psychosocial occupational hazards. [1,7] They are constantly in contact with patients that expose them to infections and thus require proper protective measures to reduce their risk of acquisition of disease or injury. [2] Data on occupational hazards among healthcare workers and their mitigation measures remain scarce in most of sub-Saharan Africa and Nigeria in particular. [2,15]Understanding the predisposing factors for occupational hazards among healthcare workers is needed to inform occupational health and safety policy and programs for healthcare workers. [13]

This study uncovers common occupational among health care workers Department of Health Services, Federal university of Technology Owerri.

STATEMENT OF THE PROBLEM

Healthcare workers provide patient care in environments that are considered to be one of the most unsafe occupational settings. [6,16] Occupational hazards that include biological, chemical, physical, ergonomic, psychosocial, fire and explosion, and electrical hazards threaten healthcare worker lives, safety, and well-being. [17,18] Globally, it is estimated that 1 in 10 healthcare workers, experience a sharp injury every year. [14,19] In the year 2010, sharps injuries to healthcare workers resulted in 16,000 hepatitis C virus (HCV) infections, 66,000 hepatitis B virus (HBV) infections, and 1,000 human immunodeficiency virus (HIV) infections. [20]The impact of these infections is seen to be significant. Between 2010 and 2030, these infections are estimated to cause 145 premature deaths due to HCV, 261 premature deaths due to HBV, and 736 premature deaths due to HIV. [19,21]In sub-Saharan Africa, the limited studies conducted have demonstrated that healthcare workers are frequently exposed to iological, chemical, and physical occupational hazards. [12,16] Despite these efforts by several health care organizations and ministries, occupational hazards remain a burden to public health of workers.

AIMS/OBJECTIVE OF THE STUDY

1.1.General Objective

The general objective of the study is aimed at assessing the Common Occupational Hazards among Healthcare workers at Department of Health Services, Federal University of technology Owerri.

1.2. Specific Objectives

1.To determine the level of knowledge of common occupational hazards among healthcare workers at Department of Health Services, FUTO.

2.To find out biological

Hazards among healthcare workers at Department of Health Services, FUTO.

3.To determine the non-biological hazards among healthcare workers at Department of Health Services, FUTO.

4.To find out the commonly adopted safety measures of occupational hazards among healthcare workers at Department of Health Services, FUTO.

2.LITERATURE REVIEW

Health service delivery systems that are safe, accessible, high quality, people-centered, and integrated are critical for moving towards universal health coverage. [22]Service delivery systems are responsible for providing health services for patients, persons, families, communities and populations in general, and not only care for patients. While patient-centered care is commonly understood as focusing on the individual seeking care (the patient), people-centered care encompasses these clinical encounters and also includes attention to the health of people in their communities and their crucial role in shaping health policy and health services. [23]

Service delivery systems should also consider the whole spectrum of care from promotion and prevention to diagnostic, rehabilitation and palliative care, as well all levels of care including self-care, home care, community care, primary care, long-term care, hospital care, in order to provide integrated health services throughout the life course. [24]They cover emergency, preventative, rehabilitative, long-term, hospital, diagnostic, primary, palliative, and home care. These services are centered around making health care accessible, high quality, and patient-centered. Many different types of care and providers are necessary in order to offer successful health services. Health care industries around the world employed over 43 million health workers in 2015, including 9.8 million physicians and 20.7 million nurses/midwives. [14]

Health care workers have potential exposure to many occupational hazards which put them at risk of different injuries and disorders. To reduce the risks that threatens the health of this working group, it is important to identify the hazards, and define which hazards are predominant and in priority. Training approaches should be developed and appropriate prevention strategies should be considered to reduce the risks and minimize the hazards. [2]

The occupational cause of occupational hazards is often overlooked by healthcare providers.[25] This is due to several special characteristics of occupational disease that may obscure its occupational origin:

a.The clinical and pathological presentation of most occupational hazards is identical to that of non-occupational hazards: e.g., asthma

b.Occupational hazards may occur after the termination of exposure: e.g., asbestos-related mesothelioma which can occur 30 or 40 years after the exposure.

c.The clinical manifestation of occupational hazards is related to the dose and timing of exposure; e.g., at very high airborne concentrations, elemental mercury is acutely toxic to the lungs and can cause pulmonary failure, while at lower levels of exposure, elemental mercury has no pathologic effect on the lungs but can have chronic adverse effects on the central and peripheral nervous systems.

d.Occupational factors can act in combination with non-occupational factors to produce disease; e.g., exposure to asbestos alone increase the risk of lung cancer five-fold; and the long-term smoking of

cigarettes increases the risk of lung cancer between 50 and 70 fold.

MATERIALS AND METHODOLOGY

3.1 Study Design

A hospital based cross sectional study design was used for the study on common occupational hazards among healthcare workers at Department of Health Services, Federal University of Technology, Owerri.

3.2 Area of the Study

Department of Health Services is a health center located at Federal University of Technology Owerri, located in Owerri West local government area, Imo state. It is the foremostfederal university of technology in South East and South-Southregion of Nigeria. The health center offers primary and secondary healthcare and serves as a training centre for medical, nursing and paramedical internship personnel as well as a research center for students at the university. Department of Health services offer her services to the University community at large including bordering communities. The total number of workers in the healthcare facility is one hundred and twenty-four (124); which includes eight (8) doctors, fifty-seven (47) nurses, 24 medical laboratory workers, nineteen pharmaceutical workers and other non-clinical healthcare workers. The coordinates of Federal University of Technology Owerri, where the health center is located are 5.4006° N, 7.0122° E.

3.3 Study Population

The study includedboth clinical and non-clinicalhealthcare workers at Department of Health Services, FUTO.

3.3.1 Inclusion Criteria

This study included and was limited to both clinical and non-clinical health workers at Department of Health Services, Federal University of technology Owerri.

3.3.2 Exclusion Criteria

This study excluded clinical and non-clinical health workers at Department of Health Services, Federal University of technology Owerriwho have less than Six (6) months experience in healthcare workforce. This study also excluded Interns at the facility during the time of the study.

3.4.Sample Size Calculation

There was no sample size calculation for this study because the respondent was recruited through purposive sampling method.

3.5. Sample Sampling Methods

Purposive sampling technique was used for this study. All the categories of health workers (clinical and non-clinical)were sampled without omitting any cadre of workforce at the facility. The particular type of purposive sampling used was Total Purposive Sampling.

3.6 Instruments for Data Collection

Self-administered questionnaire was used to gather the data for this study. The questionnaire was divided into four sections: the socio demographics of the respondents, knowledge of the health workers regarding common occupational hazards, questions on biological and non-biological hazards and commonly adopted safety measures of occupational hazards among health workers at Department of Health Services, FUTO. The questionnaire was a Yes or No questionnaire designed for easy comprehension by the respondents.

3.7. Reliability of Instrument

Reliability of the instrument was determined using test-retest

method. 15 copies of the questionnaire were given to some health care workers at Federal Medical Center, Owerri, which is outside the area of study by the researcher. This area shared similar organizational characteristics with Department of Health Services, Federal University of Technology Owerri that was used for this study. Chrombach alpha test was used to test for the reliability of the questionnaire and a reliability coefficient of 0.8 was obtained.

3.8. Method of Data Collection

One field assistantwas recruited and trained by the researcher. The researcher and the research assistants visited the hospital until all the questionnaires was administered face to face to the health workers and retrieved.

3.9 Method of Data Analysis

Descriptive statistics was used to analyze the data obtained from questionnaires. Data entry and analysis was done using Statistical Package for Social Science (SPSS 20.0). Descriptive statistics from this study was presented information on the mean data of various variables and present data in pie charts, tables and percentages.

Ethical Consideration of the Study

A letter of introduction and ethical clearance was obtained from the Department of Public Health Ethical clearance committee before the research was conducted. The purpose of the research was explained to each respondent and verbal informed consent obtained from them before inclusion into the study. Also, anonymity of the respondents was assured and ensured. The confidentiality of the information they gave was also maintained.

RESULTS

Table 4.1 Socio Demographic Characteristics of Respondents

Characteristics	Frequency (n=94)	Percentage (%)
Age		
>21yrs	0	0.0
21-30	10	10.6
31-40	31	33.3
41-50	28	29.8
Above 50	25	26.6
Total	**94**	**`100**
Gender		
Male	24	25.5
Female	70	74.5

Total	**94**	**100**
Marital Status		
Single	13	13.8
Married	74	78.7
Separated	1	1.1
Widowed	6	6.4
Total	**94**	**100**
Religion		
Christianity	89	94.7
Islam	1	1.1
Traditional	1	1.1
Others	3	3.2
Total	**94**	**100**
Ethnicity		
Igbo	88	93.6
Hausa	0	0.0
Yoruba	1	1.1
Fulani	0	0.0
Others	5	5.3
Total	**94**	**100**
Cadre of Heath Worker		
Doctor	8	8.5
Nurse	34	36.2
Med Lab Scientist	18	19.1
Pharmacist	12	12.8
Health Assistant	13	13.8
Others	9	9.6
Total	**94**	**100**
Duration in Healthcare Service		
6-12 months	11	11.7
1- 5years	41	43.6

5-10years	32	34.0
Above 10years	10	10.6
Total	**94**	**100**

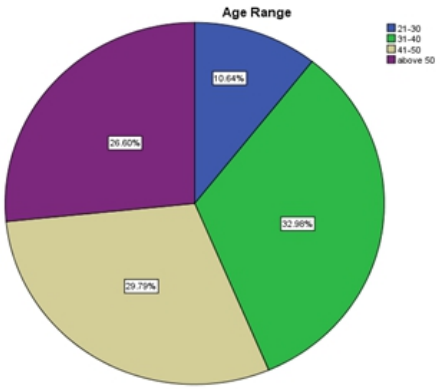


Figure 1: Age Range of respondents

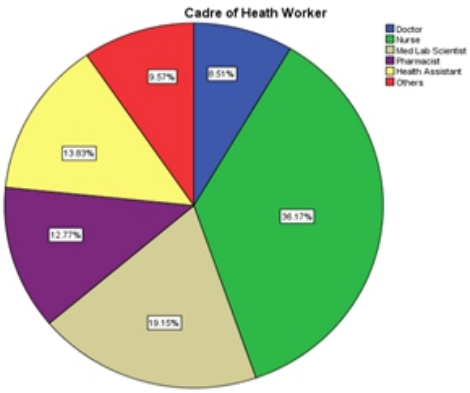


Figure 2: Cadre of Health Worker

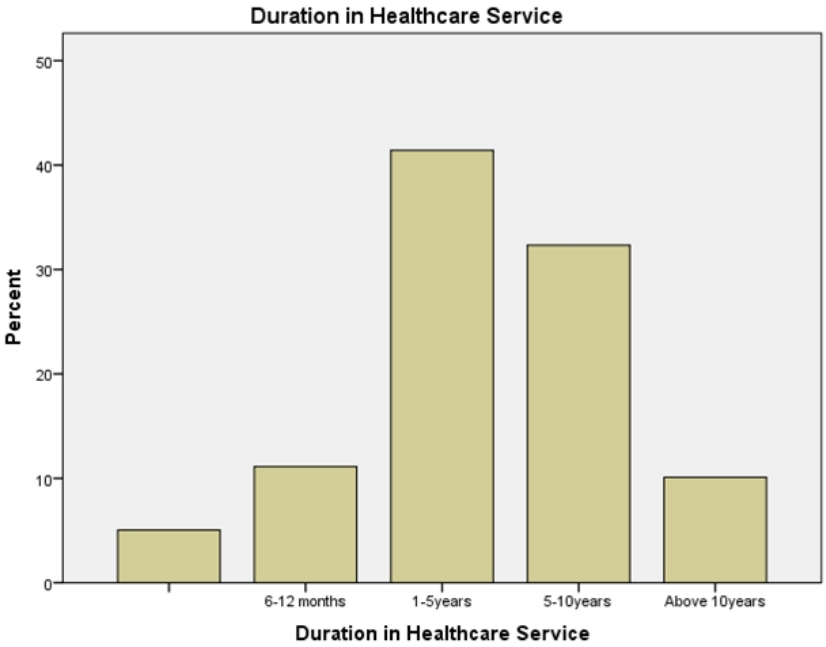


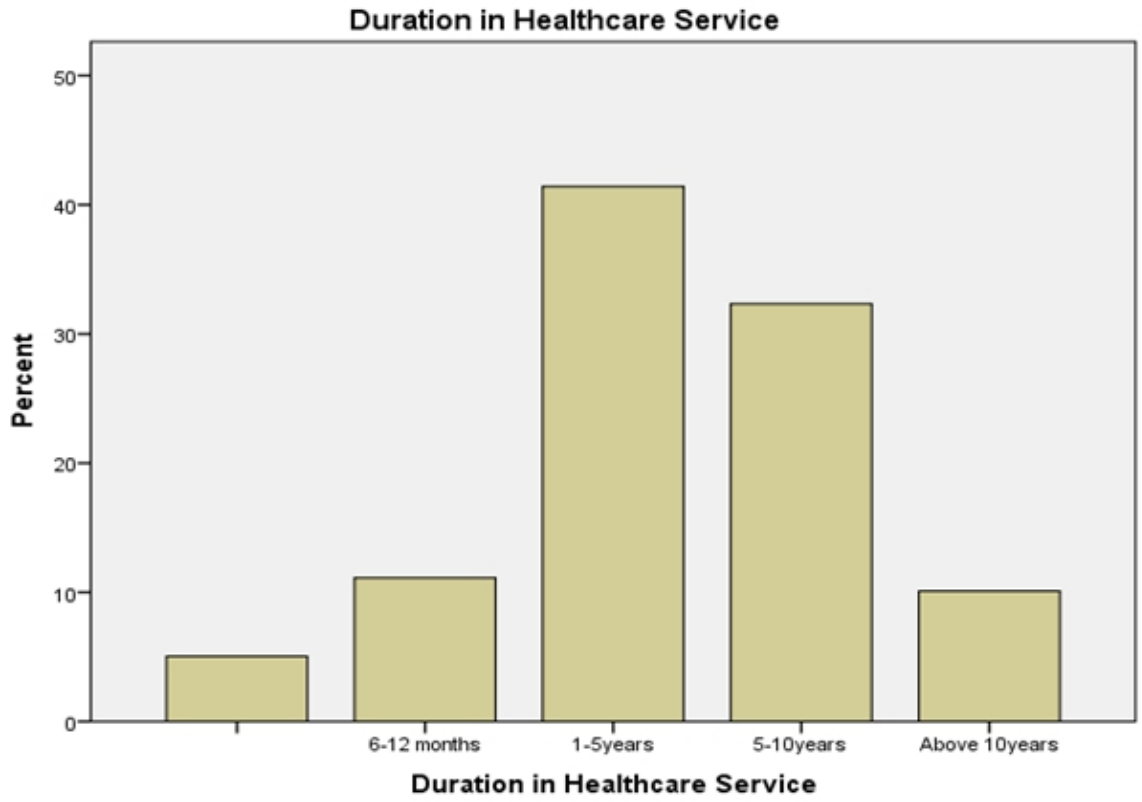
Figure 3: Duration in Health Service among Respondents

4.2 Knowledge of Common Occupational Hazards among Respondents

Table 4.2: Knowledge of common occupational hazards among Respondents

Variables	Frequency (n=94)	Percentage (%)
Heard of occupational hazards		
Yes	87	92.6
No	7	7.4
Total	**94**	**100**
Source of Information of Occupational Hazards		
During my training	55	58.5
Post-employment professional workshop	3	3.2
Ward rounds/clinics	0	0
Pre- employment orientation	13	13.8
Through posters and hand bills at the hospital	4	4.3
Media	15	16.0
Others	4	4.3
Total	**94**	**100**
Type (s) of Occupational hazards aware of		
Physical Hazards	75	79.8
Chemical Hazards	80	85.1
Biological Hazards	76	80.9
Ergonomic Hazards	62	66.0
Mechanical Hazards	54	57.4
Others	20	21.3
Total	**94**	**100**
NOT an occupational hazard		
Noise	18	19.1
Needle stick injuries	5	5.3
Early arrival at work	71	75.6
Body Contamination with Patients body fluids	0	0
Total	**94**	**100**
NOT an occupational infection		
HBV	9	9.6

HIV	4	4.3
Chicken pox	2	2.1
Malaria	79	84.0
Total	**94**	**100**
MOST likely source of occupational infection		
Air-borne	3	3.2
Faces and urine	4	4.3
Blood and bodily fluids	80	85.1
Body contact	6	6.4
Total	**94**	**100**
Activities in which needle stick injury is MOST likely to occur		
Recapping	81	86.2
Transporting to the sharps disposal safety box	10	10.6
Handling equipment before use	1	1.1
Handling equipment after disposal	2	2.1
Total	**94**	**100**
Which violates the standard precautions		
Aspirating for blood before intramuscular injections	28	29.8
Recapping needles after use	8	8.5
Leaving needles attached to syringes after use	35	37.2
None	23	24.5
Total	**94**	**100**
Hand washing is good to prevent occupational cross infection after procedures		
Yes	91	96.8
No	3	3.2
Don't Know	0	0.0
Total	**94**	**100**



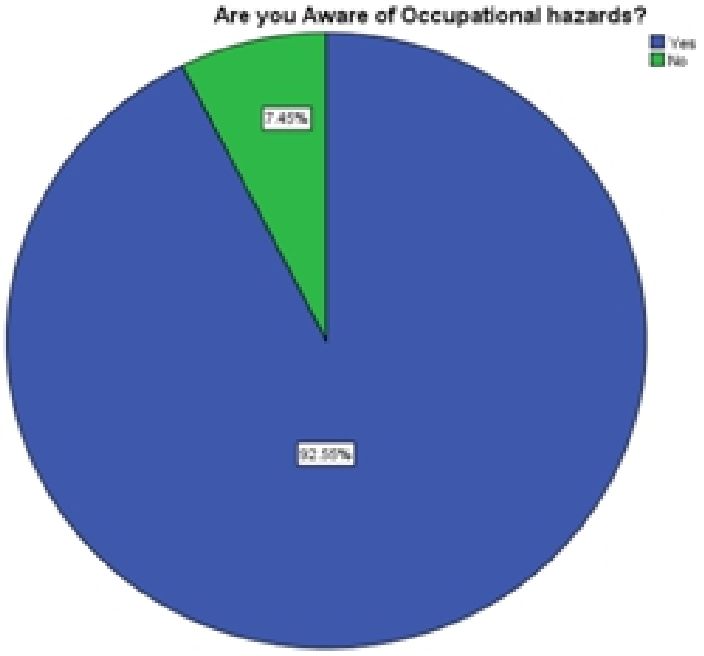


Figure 4: Awareness of Occupational Hazards

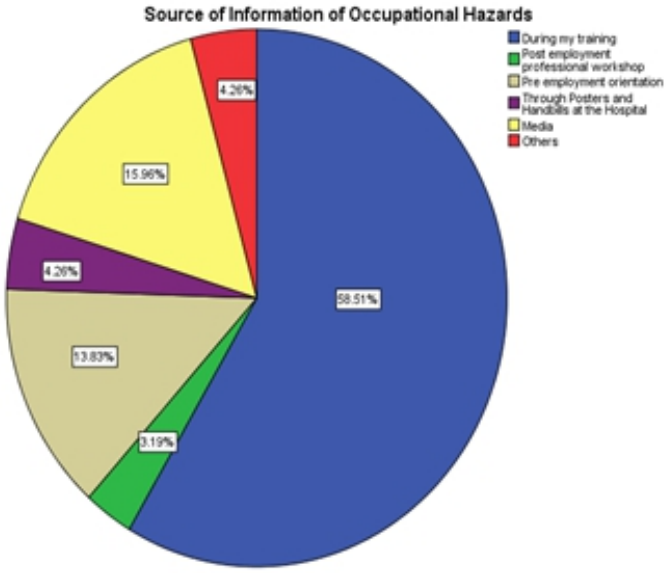


Figure 5: Source of Information on Occupational Hazard

4.3 Biological Hazards among Respondents

The table 3 below in regards to biological hazards among respondents. Concerning biological hazards experienced, 47.9% (45) have had cuts and wounds, and the next frequency with 29.8% (28) was direct contact with contaminated specimens /hazardous materials. 26.6% (26) of the respondents have had sharp related injuries, 18.1% (17) have had injuries not mentioned but label "others", 17.0% (16) have encountered airborne diseases, 11.7% (11) blood borne pathogens and the lowest with 8.5% (8) infectious diseases/infections.

Table 4.3: Biological Hazards among Respondents

Variables	Frequency (n=94)	Percentage (100%)
Biological Hazards Experienced		
Sharp related Injuries (Such as needle sticks)	26	26.6
Cuts and wounds	45	47.9
Direct Contact with contaminated specimens/hazardous materials	28	29.8
Airborne Diseases	16	17.0
Infectious Disease/infections	8	8.5
Blood borne pathogens	11	11.7
Others	17	18.1
Total	**94**	**100**

Multiple selection*

4.4 Non Biological Hazards among Respondents

Table 4 below on the non biological hazards among respondents when asked about non-biological hazard experienced, 44.7% (42) have slipped, tripped or fallen, 35.1% (33) have been stressed, 22.3% (21) reported that they have had physical trauma due to noise or verbal abuse, 12.8% (12) said "musculoskeletal injuries", 10.6% (10) have had hazards not mentioned but label "others", 6.4% (6) have had fractures, 5.4% (5) said they have experienced chemical spills, burns and radiations and the lowest with 2.1% (2) chose the option 'sexual abuse'.

Table 4.4: Non biological Hazards among Respondents

Variables	Frequency (n=94)	Percentage (%)
Non Biological Hazards Experienced		
Stress	33	35.1
Physical trauma due to noise or verbal abuse	21	22.3
Sexual abuse	2	2.1
Musculoskeletal injuries	12	12.8
Slip, trips or falls	42	44.7
Fractures	6	6.4
Chemical spills, Burns and radiations	5	5.4
Others	10	10.6
Total	**94**	**100**

Multiple selection*

4.5 Safety Measures of Occupational Hazards among Respondents

Table 4.5: Safety measures of occupational hazards among respondents

Variables	Frequency (n=94)	Percentage (%)
Eye goggle		
Yes	15	16.0
No	79	84.0
Total	**94**	**100**

Regular Hand washing		
Yes	81	86.2
No	13	13.8
Total	**94**	**100**
Face Mask		
Yes	80	85.1
No	14	14.9
Total	**94**	**100**
Hand glove		
Yes	74	78.7
No	20	21.3
Total	**94**	**100**
Helmets		
Yes	5	5.3
No	89	94.7
Total	**94**	**100**
Ear plug		
Yes	3	3.2
No	91	96.8
Total	**94**	**100**
Apron		
Yes	17	18.1
No	77	81.9
Total	**94**	**100**
Boots		
Yes	5	5.3
No	89	94.7
Total	**94**	**100**

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1.1 Socio Demographic Characteristics of Respondents

Considering the socio demographic characteristics of the respondents at department of Health services FUTO, findings from the study revealed that majority 33.3% (31) of the respondents were aged 31-40 years. This finding is in accordance with a study [26] among health care workers in Bida, North central Nigeria. The mean age in the study was found to be 36years. Socio-demographic finding from the study demonstrated that 78.7% (74) were married. This could be due to a cultural sensitivity on divorce. The study revealed that a bulk of the informants 94.1% (89) were Christians and majority 96.3% (88) were of Igbo origin. This is due to the fact that the study was conducted in the South eastern part of Nigeria where the Department of Health Services, FUTO is located.

5.1.2 Knowledge of Common Occupational Hazards among Respondents

The study revealed level of knowledge of common occupational hazards that majority 92.6% (87) of the health workers at Department of Health Services, FUTO had heard of occupational hazards. This finding corroborates another study [27] assessing the workplace hazards and safety practices by selected HCWs in a typical health care facility (HCF) in Nigeria that 90.5% of the health workers have heard of occupational hazards. This is due to the fact that health workers in DHS are tasked with various training sessions and educational programs. This study also revealed that 58.5% (55) reported they heard about occupational hazards during training which agrees with another study[28] that 56.7% of health care workers at District Council, Tanzania heard about occupational hazards through Training but this contradicts another study [27] that denoted 34.7% of health workers heard about occupational hazards from pre-employment orientation. The study revealed that 85.1% (80) of the health workers at Department of Health services were aware of the chemical hazards, 80.9% (76) of the biological hazards, 79.8% (75) of the health care physical hazards, 66.0% (62) of the ergonomic hazards, and 57.4% (54) said they knew of the mechanical hazards. This finding on the awareness of various types of hazards at the facility corroborates with a finding [29] carried out at a tertiary care center of Central Nepal which showed awareness of various occupational hazards among health workers to be 76.9% biological hazards, 81.6% physical hazards, and 73.7% ergonomic hazards. Findings from the study showed that majority 75.6% (71) correctly concurred that early arrival at work was not an occupational hazard. When asked about occupational infections, the study revealed that 84.0% (79) said malaria was not an occupational infection. This finding agrees with a publication [31] that showed that majority 79.5% of health workers at Kumasi Health Facility agreed malaria is not an Occupational infection. Furthermore, findings from this study showed that majority 85.1% (80) of health workers had good knowledge that blood and bodily fluids was surely the likeliest source of occupational infection. This contrasts with another study[31] in which 54.7% of health care workers in Singida District Council, Tanzania have knowledge of blood and bodily fluids was surely the likeliest source of occupational infection. The study

revealed also that majority of 86.2% (81). Health workers at Department of health care services FUTO on activities in which needle stick injury is most likely to occur came in as a said "recapping". This agrees with a previous study among health workers in Warsaw Teaching Hospital [32] that 89.8% of hospital workers have good knowledge of recapping as a likely source of occupational infection and hazards. As regards to knowledge of range of options that violates standard precautions, 37.2% (35) said "leaving needles attached to syringes after use". This disagrees with study [33] that demonstrated a proportion of 74.1% of health workers who identified leaving needles attached to syringes after use as a violation to standard precautions. A good number 96.8% (91) of the informants affirmed that hand washing was necessary to prevent occupational cross infection after procedures in line with a study [27] that demonstrated 88.3% of health workers had good knowledge of hand washing as a method of preventing occupational cross infection.

5.1.3 Biological Hazards among Respondents

The findings of this study with regards to biological hazards experienced, 47.9% (45) have had cuts and wounds which goes in line with a study [34] that found 51.7% of health workers at Trigay, Ethiopia have had cuts and wounds. This study showed 29.8% (28) of the health workers had direct contact with contaminated specimens/ hazardous materials, but contrasts with a study[35] which showed that 67. 4% of health workers had direct contact with contaminated specimens. The finding of this study showed that 26.6% (26) health workers at DHS have had sharp related injuries. This contrasts with a publication [36] on health workers at the obstetrics and gynecology unit in OAU Teaching Hospital that (75.6%) of health workers have had needle and sharp related injuries. 17.0% (16) of health workers at Department of Health Services have encountered airborne diseases which goes in Contrast with a recent publication [37] that showed that 48.5% of health workers had air bone diseases as occupational hazard.

5.1.4 Non-biological Hazards among Respondents

In terms of non-biological hazard experienced, the findings from this study revealed that 44.7% (42) of health workers at DHS have slipped, tripped or fallen, this finding is similar to a previous study [36] that showed 37.4% of Health workers at the unit of Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife, Nigeria experienced slips as an occupational hazard. The study demonstrated that 35.1% (33) have been stressed in contrast with another study [36] that demonstrated work-related stress (83.3%) among health workers in Ife, Osun State. This study among health workers at DHS revealed that 22.3% (21) of health workers reported that they have had physical trauma due to noise or verbal abuse and also 12.8% (12) of the workers said they experienced "musculoskeletal injuries", These findings align with another study [38] in which 14.7% Health workers experienced physical trauma due to abuse and 19.4% musculoskeletal injuries. The study revealed also that 5.4% (5) said they have experienced chemical spills, burns and radiations in line with a study[35] that showed that 2.2% health workers at Bhutan experienced chemical spills, burns and radiations.

5.1.5 Safety Measures of Occupational Hazards among Respondents

The study revealed based on safety measures of occupational hazards that 84.0% (79) affirmed they do not use safety eye goggles. Majority 86.2% (81) of health workers at Department of Health Services wash their hands regularly and this corresponds with a study[39] that found that 90.2% of health workers at Kampala Teaching Hospital wash their hands regularly. The study revealed that 85.1% (80) concurred they use face masks in corroboration with multiple studies [7,39,40]. The study also showed that 78.7% (74) of the health workers at DHS, FUTO use hand gloves which corroborated a similar study [41] that found that 83.2% of health workers at a governmental hospital in the Kingdom of Saudi Arabia use hand gloves. Findings from this study also revealed that a majority 94.7% (89) of the health workers do not use helmets. This is because of the nature of the study. A large number 96.8% (91) do not use safety plugs as noted by the health workers in line with another study [39] in which 87.6% of health workers in Kampala do not use safety plugs. The study also showed that a bulk 94.7% (89) of the health workers at DHS, FUTO said "No" when they were asked if they used boots this could be due to the nature of clinical activity by health workers at the Facility.

CONCLUSION

This study among health workers at Department of Health Services, Federal University of Technology Owerri showed that majority of the healthcare workers both clinical and non clinical experienced one type of occupational hazard or the other ranging from biological and non-biological hazards. The results could have been affected by recall bias as respondents were required to recall past experience. This being a cross sectional study, cause effect could not be established. Nevertheless, this study provides useful information on occupational health hazards in this Facility.

RECOMMENDATIONS

Based on the study findings, the following recommendations are suggested by the researcher:

1.The knowledge of occupational hazard should be enhanced by organizing more awareness campaign at the facility among workers through training and workshops.

2.Furthermore, health workers who are occupational hazard survivors should be invited to campaigns at health training locations to share their experiences or testimonies to the audience. This is because these experiences sharing could motivate or inspire and eventually trigger the others to become very careful during work activity.

3.Health workers in the department should ensure that they put on their necessary personal protective equipment to forestall the occurrence of future occupational hazards.

4.Health workers should motivate and counsel patients on occupational hazards during their consultations/ routine body check-up by sharing with them the factors that might predispose them to occupational infection or hazards.

5.The university, government and policy makers should revise and implement actions to provide health workers at DHS with equipment to encourage safety in work activity.

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THE CURRENT STATE OF THE NIGERIAN HEALTHCARE: ASCENT OR DECLINE

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Abstract:
It is vital to evaluate the present state of healthcare in Nigeria, particularly in relation to regional, national, and global goals and targets, in order to give evidence-based guidance for creating interventions that will be utilized to enhance the country's healthcare systems. Our research aims to answer the research topic of whether Nigeria's healthcare system is improving or deteriorating. To answer this query, we reviewed the literature study on the state of healthcare system using qualitative research method. Our findings (what instruments were used to arrive at the conclusion?) indicated that healthcare systems in Nigeria are not functioning properly. The allocation and utilization of healthcare resources are neither results-driven nor evidence-based. Resources are not distributed evenly or in a way that reduces waste and increases efficiency. None of the strategies adequately protects households/individuals against catastrophic healthcare costs. Social health insurance issues transcend legislative frameworks and the usage of Health Maintenance Organizations (HMOs). As a result, achieving Universal Health Coverage is significantly jeopardized through which activities. Furthermore, because health funding is one of the pillars of the healthcare system, its degree of functionality has a direct impact on the entire operation of the system. The health finance building block, which is defined by high out-of-pocket spending, a high incidence of catastrophic health spending, and immiseration owing to healthcare cost, is a persistent and severe weakness of the country's healthcare system.

Keywords:
Healthcare, Health Maintenance Organization, Health Insurance, Nigeria, Universal Health Coverage.

1Introduction

Nigeria's healthcare system has deteriorated from being comparable to the rest of the world in the 1970s and early 1980s to one of the world's most unreliable, underfunded, inefficient, and fragile.[(1)] Nigerian health care falls short on several metricswhile the COVID-19 pandemic has worsened those issues, signaling a turning point for action in the country.[(2)]

While the Nigerian government has proposed a number of reforms to resolve a variety of issues in the healthcare system, they have yet to be enforced at the local and state level.[(3)] According to the 2009 communiqué of the Nigerian national health conference, the health care system continued to deteriorate, as indicated by a poor coordination, scarcity of resources, including drugs and supplies, insufficient and deteriorating infrastructure, inequity in resource distribution, and poor access to and quality of care. The lack of clarity of roles and responsibilities across the many levels of government has also exacerbated the problem, according to the statement.[(4)]

The Nigerian National Health Insurance Scheme (NHIS) was formed in 1999 and formally started in 2005 to safeguard citizens from financial risk and to decrease the enormous burden of out-of-pocket expenditures (OOPs) on individuals and households. The NHIS includes a range of initiatives to guarantee that no one is left out, including social health insurance for formal sector employees using various insurance methods such as community-based health insurance, private health insurance, and volunteer health insurance.[5] The NHIS goal of guaranteeing universal access to excellent health care for all Nigerians has also been seen as a good step toward attaining universal health coverage (UHC).[6,7] However, data from [8]suggests that the NHIS has not met the targeted population coverage with financial risk protection. Out-of-pocket expenses account for almost 90% of total private health spending, putting a considerable strain on households, while around 60% of all health spending is paid directly by households without insurance.[9] Ichoku et al. argue that inequitable resource allocation in Nigeria has an impact on the healthcare system, notably OOPs.[10]

This article delves into the Nigerian healthcare system to ascertain its improvement or deterioration. This article also offers some recommendations to the country's health-care situation as the need may arise.

2 Methodology

The present state of key healthcare processes in Nigeria was investigated using a qualitative method in this study. Google Scholar, Medline (Medical Literature Online), Cumulative Index to Nursing and Allied Health Literature (CINAHL), Google, and Science Direct were used to find relevant publications. Asearch was conducted to find the most relevant papers that addressed issues with quality care delivery and the Nigerian healthcare system.

3 Nigeria's healthcare system: the facts and myths

3.1 Scarcity of doctors

Nigeria has 3.8 doctors per 10,000 people or 0.38 doctors per 1,000 people. According to the Global Goals, a set of standards established by the United Nations in 2015, countries should aim for a minimum of one doctor per 1,000 people implying that Nigeria will require at least 200,000 doctors to adequately serve its 200 million population. Despite the scarcity of physicians at our disposal, Nigerian medics continue to travel to other countries in search of greener pastures and access to necessary facilities. Approximately 60% of Nigerian medical doctors traveled to the United Kingdom, 10% to the United States, 29% to Canada, and 1% to Qatar. Nigerian doctors make up 3.9 percent of the 137,000 foreign staff of 202 nationalities working alongside British doctors, according to data from the British Government in 2018 It is clear that the number of doctors in the country is insignificant in comparison to the country's population, putting citizens' health at risk. Also, the fact that Nigerian elites (politicians) rely on foreign treatment rather than domestic treatment demonstrates how little they believe in the competence of Nigerian medics.[11]

3.2Underfinanced healthcare system

Despite an agreement by African heads of state in

2001, known as the Abuja Declaration, to allocate at least 15% of the national budget to health care, successive Nigerian governments have routinely dedicated less than 10% of their budgets to health care since then. Nigeria, with about 24,000 hospitals accounts for 20% of all mortality rates in 2019.[12]This covers people from the age of 18 and above.

On a government budget of less than $4 million in 2018, the Nigeria Center for Disease Control (NCDC) struggled with. In comparison, the US Centers for Disease Control and Prevention (CDC) budget for the same year was $11 billion. In comparison to the CDC's $33 per American, the figure comes to less than 0.02 cents per Nigerian every year.[13] Nigeria is the African giant, thus the comparison with one of the world giants, the United States of America.

Nigeria, like the United States and other world powers, has adequate resources to care for its people, but corruption has won the day. [14]

	Government budget	**OOP**	**FSSHIP**	**CBHI**	**Donor funding**
Effectiveness	Inefficient to the extreme. Funding is insufficient and is distributed unfairly between staff and service delivery. The allocation is not based on epidemiological or demographic data. As a result, there is no financial value.	The system is regressive and inefficient. The operating expenses are significant.	The NHIS has improved its efficiency, but the FSSHIP is still inefficient because employees are yet to start contributing.	The pool's efficiency is limited due to its modest size.	Opinions differed. Efficient because it uses a cost-cutting method to have a high impact, and regulatory and accountability requirements are stringent. Inefficient because resources are frequently squandered as a result of poor coordination of donor monies.
Sustainability	Funding predictability in terms of time and amount. Due to economic and political conditions, seen to be predictable in time but unpredictable in amount.	This is not a viable option. It is contingent on the users' capacity to pay for health care.	The present legislative practice of the FG is untenable. Rather than being compensated for productivity, HMOs are compensated depending on the number of subscribers they have.	Without cross-subsidization, it is not feasible.	It's not viable. Some state governments do not pay or pay late on counterpart funding. Donor weariness is apparent.

Healthcare standard	In general, suboptimal, although it varies by facility. In tertiary hospitals, the quality of care is superior.	Affordability and accessibility of services are inextricably connected.	The benefits package is insufficient, and the quality of treatment is inadequate.	It is contingent on the implementation plan and procedure.	Considered to be significantly high.
Fairness	It mostly finances tertiary institutions at the expense of much-needed primary care. There is no equity in the regional allocation of resources.	The capacity to pay determines access to healthcare. Hence, inequitable.	Only FG employees and beneficiaries are eligible. The majority of Nigerians are uninsured.	Because coverage is limited, it is inequitable.	Donor fund are designated for specialized services that are not available to everyone.

Acronyms: Formal sector social health insurance program (FSSHIP)

3.3 Out of pocket financing

According to the World Health Organization (WHO), 77 percent of healthcare spending in Nigeria is paid for out of pocket. This implies that the majority of Nigerians lack any kind of health insurance, and the poorest Nigerians have severely restricted access to high-quality health care. According to a 2020 issue of the Journal of Public Health, policymakers and political actors must increase public health expenditure to reduce the significant reliance on out-of-pocket health care expenditures as a way of supporting the Nigerian health system. In 2018, the National Health Insurance Scheme (NHIS) website featured just 52 Health Management Organizations (HMOs), indicating a lack of health insurance alternatives.[13] Nigeria needs a minimum of 180 HMOs considering its population, at least 5 per state. There are three different types of HMOs operating in Nigeria. They are those with a national structure, which are allowed to operate in all states, including the Federal Capital Territory; those operating in each of the country's six geopolitical regions (north central, northeast, northwest, southeast, southwest, and south-south); and those operating within a single state. To operate as a State, Regional, or National HMO, HMOs must deposit a minimum share capital deposit of N100 million, N200 million, or N400 million. HMOs are intended to have comparable responsibilities across the board, whether at the state, regional, or national level. The NHIS standards specify how HMOs should function.

3.4 Inadequate record-keeping and data collection

Nigeria lacks a comprehensive social register, and practically the entire Nigerian healthcare industry still uses analogue record-keeping and data collection methods. The majority of data about Nigeria's healthcare system is produced by worldwide organizations such as UNICEF, foreign nonprofits, and the WHO. Numbers provided by the government and institutional agencies frequently differ, and there is no known central or comprehensive database of Nigeria's health indices.[15] This makes it more difficult to keep track of everything within the system.

3.6 Medical Tourism

Medical tourism is a familiar phenomenon, but the rate at which Nigerians leave Nigeria to seek for medical treatment has increased, despite the increased cost of these treatments and the untold adverse effects of these travels, on not just the country's economy, but on

the health sector. More often than not, Nigerians leave Nigeria to seek for medical treatment because of a lack of trust in the healthcare system, or a complete unavailability of the desired treatment.[16,17] Nigerians spend an average of $1 billion per year on medical tourism for a variety of healthcare needs, according to the Nigerian Sovereign Investment Authority (NSIA). Oncology, orthopaedics, nephrology, and cardiology account for 60% of the total. According to a PwC survey of Nigerians, more than 90% of respondents associate advanced healthcare delivered in Nigeria with "low quality". Each new report of poor clinical care has reinforced the public's belief that Nigerian healthcare is subpar and should be avoided whenever an alternative is available.

4 Discussion

Based on the literatures examined in this study, Nigeria's healthcare system is not performing effectively. Furthermore, the use of various healthcare finance strategies is not evidence-based or results-driven. Other research [18] has revealed that resources are not allocated equally or in a way that avoids waste and enhances efficiency. Risk protection measures have a relatively low coverage rate and disproportionately favour the wealthy. Households and individuals are not adequately protected from catastrophic health costs by any of the systems.

In Nigeria, out-of-pocket payment was shown to be the most common method of health funding, as reported by earlier research [7,19] OOP is an extremely regressive method of accessing healthcare, and it has the greatest potential for catastrophic health expenditure of any other health funding system. Regardless, there is no mechanism in place to properly harness and utilize OOP to provide residents with equitable and high-quality healthcare. People access healthcare from whoever they can afford and wherever they can get it. As a result, it does not encourage consumerism or choice, and it must be replaced by more effective health-financing systems.

The effectiveness of the government budget is influenced by issues, including the low budgetary allocation to health and a relatively large part of the budget allocated to personnel costs at the expense of real services. Although epidemiological research and prediction tools have been shown to assist service planners in allocating resources to support health services.[7] In other countries, health budget allocation is not based on epidemiological data. As a result, healthcare quality is subpar, and treatments are neither patient-centered nor need-based.

Generally, this study shows that Nigeria's healthcare system is deteriorating. The government's health budget has to be increased. Advocacy for extra funds, as well as result- and evidence-driven finance, should include key decision-makers. Amendments to the legislation that established the NHIS, which made health insurance voluntary rather than compulsory, are among the essential reforms in social health insurance. Coverage should be increased to include the informal sector, and suitable advocacy mechanisms should be established and utilized to negotiate with labour unions so that government employees may begin contributing on their own.

To reduce the perceived distrust between the Federal and State governments, NHIS and FMOH should assist State governments in creating and maintaining State Health Insurance Schemes (SHIS), and HMOs should be managed appropriately. Increased budget allocation to health, with an emphasis on expanding domestic health resources, can increase efficiency in the government budget. Spending on health care should be more outcome-driven and evidence-based. In order to create and implement health funding plans, multi-sectoral collaboration is also necessary.

5 Conclusion

Nigeria's healthcare system is underdeveloped and has been hampered by several factors, particularly at the local government level. There is no development of adequate and functional monitoring systems, and thus no tracking system to monitor communicable disease outbreaks, bioterrorism, chemical poisoning, etc. To achieve success in health care in this modern period, a system

based on routine surveillance and medical intelligence as the health sector's backbone is required, in addition to competent management and strong leadership principles. A good healthcare system is essential in any country, not just for maintaining a healthy population, but also for national security reasons. A healthy country is a prosperous country with a robust people resource that can be invested in to propel the country forward. It is critical that all stakeholders work together to create a viable healthcare system that would be the pride of every Nigerian.

6 Recommendations

The quality of health-care services as currently provided is deplorable and continues to be a major cause of concern. Due to insufficient budgetary allocation, the majority of PHC facilities that are meant to fulfil the health requirements of the poor and rural people are in disrepair.[20,21]

1.Policymakers and political players must design healthcare changes to meet the poor and vulnerable people' lack of social and financial security. The expansion of the NHIS is a component of this reform. All residents should be required by law to have access to health insurance. Making health insurance optional for states has hampered the NHIS's capacity to improve the amount of coverage for people over time.

2.As a complement to the mandated CBHI programme, state governments could enroll impoverished citizens in private health insurance plans and carry the burden of paying the monthly payment per person to Health Maintenance Organizations (HMOs). It is not sufficient to establish a national health insurance policy; it is also necessary to ensure that health insurance coverage is offered to the poorest and most vulnerable people as a matter of human health rights.

3.Nigeria has yet to implement novel approaches to protecting the poor and vulnerable populations from the financial risk of illness. It is critical to ensure that all Nigerian citizens have the right to health care under the law. Although the National Health Act (NHA), which was signed into law in 2014, declared that all Nigerians are entitled to a bare minimum package of health care services, it is unclear if the measures included in the NHA are capable of attaining UHC in Nigeria. Furthermore, the NHA has yet to be implemented, although it was signed into law over two years ago.

4.Policymakers, political actors, and all stakeholders in the health sector should create a government-funded social and financial risk protection scheme for the poor and vulnerable via a general tax financing system, and engage in basic healthcare infrastructure in rural areas to ensure high-quality healthcare service delivery. UHC plans are critical for resolving the issues of inadequate coverage, restricted access to health care, and inadequate quality of treatment.

5.Another method to safeguard poor and vulnerable populations from social and financial risks is to create a legal framework for a UHC programme and set aside funding for it. Evidence from Thailand shows that UHC plans delivered through PHC improve access to health care for the poor and vulnerable people.[22,23] UHC programmes have also been shown to enhance health care utilization and health status.[22]

6.There should be an increase in the budget allocated to the health sector. This will help with the procurement of new infrastructure, adequate payment of health workers, and maintenance of the health sector.

7.There should be investment in relevant research, training and re-training of health workers.

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WHY WOMEN IN NIGERIA ARE NOT OFFERED PAIN RELIEF WHEN IN LABOUR: A LITERATURE REVIEW

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Background

Labour pain has been described by many women as the most excruciating of all pains that could be experienced by anybody. It may be the most severe pain that a woman will experience in her life time [1, 2] hence, women are always concerned about the amount of pain they would have to go through during child birth. [3] With labor pain there is a reflex increase in heart rate, oxygen consumption and blood pressure which are mediated by release of endogenous catecholamines. [4] These could lead to a drastic reduction in the blood supply to the uterine tissue and possible death of foetus. [9]

Whereas relief of labor pain can be achieved by pharmacologic methods, non-pharmacologic methods may involve low-back massage, acupuncture and breathing exercise. [5,6] Thus, not only is the use of analgesics during labour beneficial to the parturient, it also provides for a positive delivery in which stillbirth is prevented. [7] Nevertheless, despite the many concerns of labour pain, many women still undergo childbirth without any form of pain relief. In the developed countries of the world, most women are aware and would prefer labour analgesia to experiencing the pains of child birth. However, in developing countries like Nigeria, with her rich cultural and ethnic background, women have divergent views about labour pain and analgesia. In a study of pregnant women attending antenatal clinics at the University of Nigeria Teaching Hospital and Enugu State University Teaching Hospital both in Enugu, Nigeria, more than half of them wanted labour pain to be alleviated. [5] This review will be looking at the general childbirth procedure in Nigeria with a focus on

pain relief and its use during labour. Analysis will be of existing relevant literature on the subject matter.

Objectives of the study

The aim of this study is to ascertain the root causes of non-usage of labour analgesia Nigeria. It will identify the problems associated with labour analgesia (if any) in Nigeria. The study will also deduce the implications of non- usage of pain relief in labour and eventually render some recommendations. Answers to the following questionswill be attempted.

- Is there enough awareness of childbirth pain relief options?
- Are the available pain relief drugs enough and available to those in need of it?
- Are there other issues impeding the use of labour analgesia in Nigeria?

Justification of the study

Even with less parity and prolonged inter-pregnancy intervals, there has been sufficient awareness and acceptance of pain-free labour in the developed countries of the world, with concerns drifting from availability to quality of the pain relief. In the developing countries like Nigeria where women are faced with high pregnancy rates and short time intervals between pregnancies, pain relief awareness and acceptance in labour remains low. Although substantial literature exists on perception and level of acceptance of pain relief during labour, there is scarce evidence on the reasons why only a few Nigerian women are offered pain relief when in labour. Thus this study seeks to identify the major reasons why women in Nigeria are not offered labour analgesia.

MATERIALS AND METHOD

Search Strategy

Based on the research topic *Why women in Nigeria are not offered pain relief when in labour*, the following keywords were identified "Nigeria" "pain relief" "labour" The following synonyms to the keywords were also identified "analgesia" "obstetrics" “problem” “factors affecting” “barriers.” Both the keywords and their synonyms were used to search for matching publications in the following databases PubMed, ResearchGate. Details are as below:

Table 1: Search strategy table.

Database used: Research Gate, PubMed.

Search engine: Google

Database	Search keyword/ synonyms	Filters/limit	Boolean	Number of hits	Inclusion criteria	Literature selected
ResearchGate	Pain relief. Labour, Nigeia	Publication	“OR“ “AND”	100 +	Perception of pain relief in labour; usage of pain analgesia;Peer reviewed; published between 2000 - 2021; Focus on Nigeria.	16

PubMed	Factors, labour, analgesia Nigeria.	2000-2021		7	Peer reviewed; published between 2000-2021; Focus on Nigeria; perceptions of pain, pain relief and extent of usage.	6
	Pain relief OR analgesia in labour AND Nigeria	2000-2021	"OR" "AND"	1706		4

Inclusion and Exclusion Criteria

For a study to be chosen it had to meet any of the following criteria: must be a peer-reviewed publication on labour pain analgesia in Nigeria; pain relief in labour; factors affecting use of pain relief during labour on women in Nigeria; effects of labour analgesia; Nigerian obstetricians' perception of labour analgesia; Nigerian women's perception of labour pain; practice of obstetrics in Nigeria; maternal health care in Nigeria; or qualitative and mixed-method research; with a publication date from 2000 to April 2021.

A study was excluded if it met any of the following criteria: publication before year 2000; bleeding control in labour; and use of labour analgesia in country other than Nigeria.

RESULTS

Among the various studies analyzed for this review, common factors considered include; level of awareness, availability and accessibility of labour analgesia, culture, religion, educational level and cost of pain relief etc.

Level of Awareness

Despite the availability of pain relief interventions for childbirth in the developed parts of the world, many women in Nigeria are unaware of their existence therefore do not demand same when in labour. [7, 8] In a study conducted on 300 pregnant women who were attending antenatal clinic at State Specialist Hospital, Akure in western Nigeria, only about 63 of them (21%) were aware of labour analgesia. [9] Nevertheless, over 243 of them (81%) were desirous of pain relief when in labour. This report however, did not investigate the educational status of these respondents. A similar study was conducted in northern Nigeria. [8] The study found that of the 400 pregnant women studied; only 15 percent were aware of at least one form of labour analgesia. However, more than 315 of these participants (78.8%) said they would want labour pain relief in their current pregnancy. Also, in a study of 255 women, over 206 of them (80.8%) had no knowledge of pain relief in labour but same would want labour pain alleviated. [7] Similarly, from a study of 268 participants in southern Nigeria, that more than half (59%) of the women did not know that pain-free labour was achievable. But about 81 percent of them affirmed that they would want pain relief in their next delivery. [10] Furthermore, in a similar study conducted in eastern Nigeria, majority of the respondents had no prior knowledge of labour analgesia, yet over 70% of them would want labour analgesia. [11]

According to a different study, more than half of 153 Nigerian women in a survey knew about pain relief in labour. [3] Similarly, it was reported that over 60 percent of the 129 women studied in Eastern Nigeria were aware of labour analgesia. [5] These reports are in line with [1] who reported that in about 350 women studied to ascertain level of awareness and use of epidural analgesia in labour, over 200 (57%) of them had knowledge of pain relief in labor. This is also consistent with earlier studies which affirm that of the 245 participants in a study carried out to obtain level of awareness of pain relief in labour, up to 166 (67%) of them were aware of non- pharmacological pain relief methods. [12] Similarly, it has been reported that most Nigerian women were aware of the availability of labour analgesia and almost all of them would want pain relief offered them in their next or current pregnancy. [13, 14, 15]

Availability/Cost.

Access to quality maternal care has been identified as a major factor contributing to satisfactory obstetrics and gynaecological service and lack of access to health facilities is the most important cause of labour complications. [16] If labour pain is not adequately controlled, it may compromise maternal and child health and progression of labour. [17] However, satisfactory alleviation of labour pain can only be achieved in a good health facility with skilled professionals. Unfortunately, only few women in Nigeria have their babies delivered in a health facility. In fact, according to the Nigerian Demographic and Health Survey of 2018, although about 67% of pregnant Nigerian women attended antenatal care, only 39% of deliveries are in health care facilities. [18] This report however, failed to outline the major reasons why the women did not use health facilities. On the other hand, cost and non-availability of equipment/ components of pain relief and late presentation at labour were identified as some of the reasons given by health care practitioners for not offering labour analgesia. [19,20] The main factor that drastically hindered the use of labour analgesia was its unavailability. [14] Compromised access to means of transportation in the forms of long distance, lack of access roads and/or means of transportation were reported as major factor contributing to why pregnant women may not be able to access quality antenatal/ maternal healthcare. [16] Cost of healthcare is reportedly very high especially, for the teeming low socio-economic population in Nigeria. [2,19] Many women cannot afford the cost of maternal healthcare hence; they resort to delivering their babies in their homes.

Educational background

According to the Nigeria Population Commission education is a major factor that influences an individual's behavior and views about social issues. [18] There seems to be a significant association between level of education and perception of labour pain and use of analgesia in labour. It has been reported that women who have tertiary education, are more aware of pain relief in labour and are willing to accept or request same when in labour. [1,5,17,21,22,23] More than half of the women, who requested for and were given epidural analgesia during a survey, had higher levels of education. [24] Women who were educated were better informed about their reproductive health and trends in health care. [23,24] Higher levels of education

have been reported as an important factor influencing the perception of labor pain, because the more educated people are exposed to information that change their orientation. [25] Thus, the more educated a woman is, the more likely it is that she would not believe in certain myths about labour.

Culture and Religion

Nigeria is a country with rich cultural diversities and deeply rooted religious beliefs. With its diverse cultural background, women have divergent views about labour pain and analgesia. In some cultures, women are made to believe that labor pain is a normal occurrence and the ability to embrace and endure it is a sign of full womanhood. [1] This trend is commoner among the Hausa ethnic group. [22] With the strong belief grounded in culture and religion that pain is acceptable in labor, some women do not request pain relief when in labour. In some Nigerian cultures, women care more about the delivery process and health of their baby than the labour pain. [21,26] While, Yoruba women of Southwestern Nigeria are reported to have low threshold for pain and thus tend to express it, Hausa woman of Northern Nigeria are trained to endure labor pains without showing it. For the Igbo culture vaginal delivery is sacrosanct and many women are taught from childhood on the significance of childbirth through this route, no matter the pain. Womanhood is judged on the basis of the ability of the woman to deliver successfully through the vagina. With this culture deeply inculcated, the Igbo woman is more concerned about a successful vaginal delivery than the pains of labour. In a study of 500 women of the Igbo ethnic group, about 32% of them would want nothing done to their labor pain while 38% never request labour analgesia. [22] Religious belief may also have influence on perception of labour pain and analgesia, because many Nigerian women view pain as an inherent and inexcusable part of childbirth birth that is also stated in the bible. [14]

DISCUSSION

Childbirth is pleasant and fulfilling when one considers the fact that a new human is being added to the world, but the process of labour is by no means enjoyable, especially for the woman. Therefore, pain management during labour is an important part of good maternal healthcare care. [27] To most women the experience of labour is a nightmare. The most important problem associated with labour is the intense pain of uterine contraction. It results in generalized autonomic hyperactivity, with a spike in blood pressure, heart rate and breathing rate. [3] However, even with the pains and intense experience associated with child birth, there is a chance for a pain-free labour and it is possible for a woman to deliver her baby without the experience of labour pain. This is provided for in labour analgesia. Some of the currently available pain reliefs that find use in labor include epidural analgesics, parenteral opioids such as, pentazocine and pethidine. Although these drugs have found wide use and application in the developed countries of the world, there is yet a huge gap to its acceptance and use in the developing nations like Nigeria. The question then becomes; why are women in Nigeria not offered pain relief when in labour.

This study reviewed available literature within the last 20 years, which explored the major factors

for non-usage of pain relief in Nigeria. From the studies reviewed, majority concluded that unawareness was the most important reason why women in Nigeria are not offered pain relief when in labour. In one study, nearly four fifth of the population studied had no prior knowledge of pain relief in labour. [9] The findings are in line with the result of previous studies. [7,8,10,11] These studies opine that the women are not aware of the possibility of a pain-free labour, and therefore do not request such during childbirth. Most of these women make do with only the words of their husband or caregiver to assuage their pain. These point to the gap in maternal health education as regards the possibility and availability of labour analgesia, and the women's right to request such during childbirth. However, other reports argue that a good number of Nigerian women are aware of obstetric analgesia. [1,3,5,13,14,15] Further research is therefore needed to verify the awareness of women in Nigeria about pain relief in labour.

Another factor reported as a barrier to use of pain relief in Nigeria is the scarcity of these drugs in Nigerian health facilities. [22] This report is in line with a previous study which argue that pain relief drugs are scarce in some Nigerian health facilities. [19] The fear of the harmful effects of some of thepain reliefs used in labour was also identified as a factor mitigating the use of labour analgesia in Nigeria. [28] Cost of the drugs was identified as another factor contributing to why women are not offered pain relief when in labour. [20] The fact that only few women in Nigeria have access to health facilities, mean that only this few will have the opportunity of childbirth that is assisted by trained professionals. [18] Thus, lack of health facilities in the rural areas or inaccessibility of the existing ones were also factors identified for the non-usage of pain relief in Nigeria. Inaccessibility ranges from poor of access roads to lack of means of transportation. [16]

In some Nigerian cultures, women care more about the delivery process and health of their baby than the labour pain. [21] These women therefore do not request pain relief when in labour. This report is line with the findings of earlier studies which opined that cultural background of most women has hindered them from requesting for pain relief when in labour. [1,22] This is because in some cultures labour pain is seen as a sign of womanhood, also, strong religious beliefs, for example on the biblical assertion that “in pain shall you give birth to children” has also been identified as an important problem militating the acceptance of pain relief by women in Nigeria. [14] A good number of the traditional birth attendants believe that labour pain is normal and was designed by God. [29] By implication, the notion that the pain of labour is normal may be a factor limiting widespread application of labour pain relief in Nigeria.

Widely documented also, is the association between level of education and such factors as perception of labour pain, level of awareness of labour analgesia and its use. Women who have higher levels of education were reported to show positive attitude towards acceptance of pain relief when in labour. [17] This finding had earlier been documented by. [21,25] Thus, low level of education among women in Nigeria may be a factor contributing to non-usage of analgesia in obstetrics.

It is safe to say therefore, that with adequate education, many women in Nigeria will accept the use of labour analgesia. [23] Fear of side effects has also been identified as one of the reasons why health professionals do not offer pain relief during labour. [30,31] Although health practitioners had sufficient knowledge about labour analgesia, such as epidural, only a few prescribe same or administer them to women when they are in labour. [20] Also, although some women knew about pain relief in labour, they would accept such only when they are prescribed by a health professional. [32] These women indicated fear of complications to their babies as a major deterrent against labour analgesics. It then behooves on the healthcare providers to take necessary steps towards ensuring that the practice of use of labour analgesia becomes a norm in Nigeria's health facilities.

Strength and Limitations

This study has some limitation that are worthy of consideration. Only published and peer reviewed works were included. It is not unlikely therefore, that several other reasons contributing to why women in Nigeria are not offered pain relief when in labour are captured in other means, such as conference papers, publications of international organizations etc. While there are over 250 ethnic groups in Nigeria, the reports included in this review were findings of studies carried out on mostly, members of the three major ethnic groups viz; Igbo, Hausa and Yoruba, hence there is no knowing whether the reports are applicable to people of the other ethnic groups. This review however, adds to existing body of knowledge on factors contributing to non-usage of labour analgesia in Nigeria. The selection of works which focused majorly on the perspective of women and relevant health professionals provided the basis for a thorough analysis of the various obstacles perceived by both women and health professionals.

Conclusion

The findings of this research have revealed that many women in Nigeria desire pain relief when in labour. Low level of awareness of the availability of labour analgesia was found to be the major impediment to the use of pain relief by women in labour in Nigeria, according to the findings of this study. Therefore, there is need for massive sensitization of the general population, especially women, on the different forms of analgesics currently available. Also, women should be encouraged to attend antenatal clinic and to deliver in healthcare institutions under the care of a skilled birth attendant, as evidence suggest that many women in Nigeria deliver their babies outside health facilities. [2,19]

The study has shown that women look up to health professionals for expert advice on whether or not to accept labour analgesics. Low level of education among women in Nigeria was also found to be an impediment to the acceptance of pain relief when in labour. Strong cultural and religious belief among various ethnic groups was found to be an important obstacle hindering the use of labour analgesic in Nigeria.

The adoption and use of pain relief in labour in Nigeria is likely to challenge existing cultural and religious beliefs on the significance of labour pain. There is therefore, need for proper widespread sensitization and education across communities. The government has work to do

to ensure that quality primary health care facilities are provided to encourage more hospital deliveries, especially in the rural areas.

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A CRITICAL EXAMINATION OF THE NIGERIAN HEALTHCARE SYSTEM

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Healthcare system from the World Health Organization is the organization of people, institutions and resources that deliver healthcare services to meet the health needs of the target population. Responsible and responsive nations must design and develop a workable health system in accordance with their resources, although common elements in virtually all health systems are primary healthcare and public health measures. The goals of healthcare systems according to the United Nations are good health for all citizens, responsiveness to the expectations of the population, and a fair means of funding operations. Any progress in achieving such goals depends greatly on how those systems execute the four vital functions of provision of healthcare services, resource generation, financing and stewardship.[1]The continuity of healthcare is a major role. Nigeria has brainy health personnel than most countries but there are on ground fewer health workers per unit population than are required to provide effective health services to the entire nation. Unfortunately, the brain drain of health practitioners to other countries especially to systems that work is on the rise.

The Nigerian National Healthcare system is decentralized into three-tier structure with responsibilities at the Federal, State and Local Government Levels. The nation has about 33,303 registered general hospitals, 20,278 primary health centres and posts, and 59 teaching hospitals and federal medical centres. The Federal Government has the sole responsibility of coordinating the affairs of the teaching hospitals and federal medical centres, the state governments coordinate the management of the various general hospitals while the local governments focus primarily on dispensaries which is under the fulcrum of the primary healthcare. The healthcare system is divided into four nested levels: the individual patient, the care system which comprises of the professional care providers such as the Clinicians, Pharmacists and others to also include the patient and the patient and the patient's family members and the Organization.

CATEGORIES OF HEALTHCARE

The medical practitioners/ professionals divide the healthcare sector into four categories: primary care, secondary care, tertiary care and quaternary care. Each category is related to the complexity of the medical conditions being treated as well as the skills, specialties of the providers/ practitioners.

Primary care

This is the first stop for symptoms and medical concerns. Patients visit primary care doctor when they notice a new symptom or are concerned about a

cold flu, or some other bacterial or viral disease; a broken bone, a sore muscle, a skin rash or any other medical problem.
They are typically responsible for coordinating care among specialists across all levels of care. The Primary Care Providers (PCP) include the doctors, nurse practitioners or physician assistants, pediatricians, geriatricians, and community health extension workers. The primary care is a beneficial aspect of the healthcare system as they offer enhanced access to healthcare services, better health outcomes with reduced hospitalization.[2]

Secondary care
This level of care mostly receives referrals from the PCP and the implication is that the patient is taken care of in a better-equipped health care facility and by more experienced hands in the management of the presenting ailment. The specialists focus primarily on the specific system of the body or specific disease or condition presented with.

Tertiary care
Tertiary care refers to highly specialized equipment and expertise. At the tertiary level, procedures like coronary artery bypass surgery, renal or hemodialysis, plastic surgery, enlargement, or neurosurgeries are carried out. The PCP and the Secondary Care providers may not be able to handle such complex conditions.

Quaternary care
This can be called an extension of tertiary care as it is most specialized and highly unusual. Not every hospital or healthcare facility offers this level of care. This type of care is usually for particular medical conditions or systems of the body.

THE PROBLEM WITH THE PROBLEM OF THE HEALTHCARE

i.The system, leaders and managers
The system includes the government and its agencies managing the health facilities, ministries and parastatals, schools, etc. There is a lack of political will on the part of the managers and drivers of the healthcare system. The Government pays little or no attention to the health of its citizens and that is the reason we hear health workers embarking on industrial actions. These strike actions are allowed to linger and rather than resolve the issue, they use uncouth languages on the striking health workers, whose meagre salaries are not paid as and when due.

ii.Lack of advancement opportunities
Fifty-onepercent of healthcare workers noted lack of advancement opportunities posed a significant challenge in their current or previous position. The number was slightly lower among nurses: 49% of nurses identified advancement opportunities as a challenge, compared to 52% of other healthcare professionals**.**
CareerBuilder survey asked healthcare professionals if their current or most recent employer offered a number of different employee development programs, including in-house skills training, education reimbursement, technology training and opportunity for innovation. Of the 10 programs listed, only one — in-house skills training — was answered "yes" by more than 50% of survey takers. Interestingly, employers felt differently: in response to the same question, more than 50% of employers said they offered in-house skills

training, education reimbursement, flexible work schedules, cross-training and the opportunity to mentor others.

iii.Work overload

According to the CareerBuilder survey, the provider shortage is hitting every healthcare organization in the country — especially when it comes to nurses. 40% of healthcare workers responded that they felt challenged by work overload at their jobs; the number jumped to 48% when the pool was limited to only nurses. The survey also identified a key turnover issue in healthcare workers taking on additional responsibilities above their comfort level. The provider shortage means fewer staff members must divide a significant workload, pushing some employees to the brink of exhaustion, burnout and decreasing job satisfaction considerably.

iv.Poor salary

Forty percent of healthcare employees believed poor salary was an issue at their jobs. CareerBuilder researchers found it interesting that salary was ranked so low; while 40% identified the problem as a major challenge, almost as many people (37%) said the poor culture of the organization was a challenge. While administrators might assume that salary is the number one driver behind employee retention, the results suggest otherwise: creating a work environment where employees are encouraged to pursue goals is more important than providing competitive pay. For nurses, poor salary was less of an issue, with 35% of nurses citing salary as a problem compared to 42% of other healthcare workers.

v.Poor staffing to patient ratio

In a typical Nigerian hospital, one can find 1 nurse attending to 10 patients and this you will find in even accident and emergency ward which the standard ratio should be 1 nurse to 4 patients, in teaching hospitals the standard ratio is 1 nurse to 3 patients but what is obtainable is 1 nurse to close to 10 patients, in a surgical ward which should have a standard ratio of 1 nurse to 5 patients our system ends up having 1 nurse to 11 patients while in a critical care ward which should have 1 nurse to 2 patients can have as much as 1 Nurse to 7 patients. This situation in the Nigerian Healthcare system encourages burn out of the workers as lack of funds limits staffing.

vi.Lack of standardized care

Inadequacy of trained medical personnel and specialist care has led to quackery, patronage of unqualified technicians in the private sector because the bodies who are responsible for the monitoring of healthcare practices are lacking in their duties.

vii.Poor organizational culture

Poor culture was cited as a challenge by 37% of respondents, with 41% of nurses calling it a problem compared to 34% of other healthcare professionals. Factors that contribute to culture — such as opportunity for innovation, autonomy in an employee's position and flexible work schedules — were listed as available by less than 50% of employees in all cases, and only one-quarter of healthcare workers thought opportunity for innovation was encouraged at their institutions. CareerBuilder concluded that offering such programs plays a huge role in recruitment and retention, as well as making employees aware of available opportunities. This suggests that many healthcare workers are not aware that

their organizations offer development and incentive programs.

viii.Lack of mentoring

Twenty-fivepercent of healthcare employees felt their organization offered too little mentoring. Only 37% of employees thought their organizations provided the opportunity to mentor others, compared to 59% of employers. This discrepancy suggests that mentoring opportunities are available but not well-publicized.

ix.Lack of equipment/tools/ materials

A common problem across many health care provider portals is the lack of basic diagnostic equipment such as first aid boxes, oxygen cylinders, ultrasound and x-ray machines, dental chairs, fluid and blood giving sets, and electricity to preserve medicines and vaccines. Where these are available, they are often non-functioning, old, broken, sub-standard and quite few. New machines are either abandoned due to non-availability of an operator or left to rust.

Students and practitioners as a result of the lack of diagnostic tools at all levels they resort to improvision (which is dangerous because A cannot be B and something that looks like A cannot be A) to provide treatment, examination to patients.

x.Lack of interdisciplinary harmony

Almost one-quarter of healthcare workers reported a lack of inter disciplinary harmony among health workers in the hospital to provide standard care for the patients. There is an unhealthy disagreement between practitioners and whose decision the patient should follow or adhere to. A doctor might prescribe a certain medication for the patient andthe pharmacist will vary the said prescription without consulting the doctor and this leaves the patient at their mercy.

xi.Limited access to technology

As healthcare organizations struggle to implement technology while maintaining efficient operations, their workers suffer. Twenty-three % of healthcare professionals felt they had insufficient access to technology; the number was slightly higher for registered nurses at 29%. About half of all employees felt that their organization offered technology training; interestingly, the perception was more common among employees than employers. Only 38% of employers thought the facility offered technology training to enhance telehealth. The authors think that primary healthcare centres and general hospitals lack and have no hope of using Telecare since tertiary hospitals are still struggling with training their staff, availability of data, proper use of Telecare, continued power outage, illiteracy, gross incompetence, etc.

xii.Lack of training

Inadequate training can leave employees frustrated and confused about their job description. The CareerBuilder study concluded that nurses, doctors and dentists especially are "more concerned with doing their job well in a good environment than with the amount of money they make," suggesting that training is essential to improving job performance and thereby, satisfaction. Most health workers lack clinical experience as a good number are not exposed to the current situations in the healthcare. In-house skills training was one of the most commonly available programs for workers, with 57%reporting that their facility offered such

programs; cross-training was more limited, and only 40% of employees believed they could take advantage of training in other areas. Veterinary doctors observed that there is no precise industrial training for them as they are hardly recognized by the government and so, are easily neglected.

xiii.Not enough time with patients

Twenty percent of healthcare professionals felt challenged by an inadequate amount of time spent with patients, according to the survey. Based on a poll, 57% of healthcare professionals said the number of providers per patient had gotten worse in the last 12 months (compared to 32% who thought it had stayed the same, and 11% who thought it had improved). When nurses were asked the same question, 69% said the provider-patient ratio had gotten worse, and only 4% thought it had improved. The lack of time with patients may be exacerbated by an overload of administrative tasks or non-clinical assignments; 19% of workers felt challenged by too many administrative tasks, while 14% were frustrated by a lack of interesting assignments.

CROSS BORDER EXPERIENCES/SITUATIONS

Developed countries across the globe are taking serious and concerted efforts to ensure that health workers comply to the required guidelines to protect both workers and patients alike. Health monitoring teams and agencies move around the clock to ensure that workers, industries and bodies operating in the health sector maintain standardized practice. Below are some examples:

i.Public-private provision of care

In most health care systems, a professional regulatory framework governs the network of civil servants delivering health care. These civil servants operate alongside autonomous, self-governed, private providers—independent for-profit physicians and health clinics and nonprofit nongovernmental organizations (NGOs). Two conclusions arise from the often-heated debate about the right balance between public and private services. First, private practitioners provide a significant amount of care in developing countries. Second, though there is no one prescription for striking the right public-private mix, in some cases the public regulatory framework has led to private provision of higher-quality care. The government of Senegal successfully contracted with community-based groups for preventive nutrition services. Eighteen months after nutrition services were implemented, severe malnutrition disappeared among children aged 6 to 11 months.[3] The success of this program led to its expansion nationwide.

ii.Sharing information on quality improvement technology

Worldwide interest in quality has given rise to new professional bodies, scientific publications, and institutions dedicated to sharing ideas and innovations in quality improvement. Organizations such as the Robert Wood Johnson Foundation, the Nuffield Trust, and the Institute for Healthcare Improvement cultivate ideas for improvement, bring people and organizations together to learn from each other, and take action to achieve results. Although the sharing of information on quality health care practices has long been an established part of provider education and training networks, the sharing of

information on successful system wide policies for process improvements could potentially accelerate the scale-up of quality practice.

One organization active in developing countries is the Council on Health Research for Development (COHRED), which promotes, facilitates, and evaluates the Essential National Health Research strategy in such countries as Benin, the Arab Republic of Egypt, and Indonesia. COHRED aims to develop a system of effective health research to improve health services, including quality of care. The Quality Assurance project funded by the U.S. Agency for International Development has studied and shared information about quality in the developing world since 1990. Under the Quality Assurance project umbrella, researchers have studied and implemented quality measurement and improvement interventions and have used these case studies to develop a library of tools and articles to promote global quality improvement.

iii.Targeted education and professional retraining

Continuing medical education is a common approach to improving clinical practice, but it neither changes clinical practice nor advances health outcomes.[4] Newer techniques—targeted education, case-based learning, and interactive and multi-model teaching approaches—have had some success. In Guatemala, distance education targeting diarrhea and cholera case management increased accurate assessment and classification of diarrhea cases by 25%. Rehydration did not improve, however, and improvements in counseling were insignificant.[5] In Tanzania, training staff in the control of acute respiratory infections of young children yielded reductions in under-five mortality within two years.[6]

iv.Organizational change

In recent years, organizational change in the health care system has been shown to influence quality of care by focusing on the continual design and redesign of systems. The emphasis is on developing organizational and individual capabilities where they most profoundly affect the process of care. Design and redesign interventions assume that simply adding a new resource or a new process in isolation will not improve care because better care is the product of many processes working together. Although change interventions have not been widely used in the developing world because they require large investments to plan and implement, four related models of organizational change have been successful in changing provider practice in developing nations:

a.Total quality management in health care

Advances in business management practices to continually design and redesign systems for quality improvement have been effectively adapted for health systems. In Total Quality Management, also known as Continuous Quality Improvement, teams use mutually reinforcing techniques, a cycle of planning, implementing, evaluating, and revising to improve the quality of clinical and administrative processes. These techniques include process mapping, statistical quality control, and structured team activities. In rural Bihar, India, private practitioners who treat sick children were provided with standard case-management information, given feedback on their performance, and

tracked and monitored over time. This strategy produced significant improvements in practitioners' case-management skills.[7] In Malaysia, anesthesia safety has been improved through the implementation of consensus-based protocols that emphasize (a) communication among the operating, recovery, and ward team members; (b) individual feedback; and (c) frequent monitoring to identify areas for improvement.[8]

b.Collaborative improvement model

The early success of Total Quality Management techniques gave rise to a related model, the Collaborative Improvement Model. It addresses broad and complex systemic processes within health care systems and facilitates the scale-up of quality improvements. This model, designed to continuously improve organizational and individual performance, comprises four elements: definition of an aim, measurement, innovation, and testing to see whether the innovation meets the original aim. This approach strikes a pragmatic balance between the need for action and the need to be scientifically grounded. It has been used with success in Peru and Russia. In Peru, the collaborative improvement model was used by multidisciplinary teams in 41 clinics to design approaches to tuberculosis care. The preliminary results led to impressive changes in the process of accessing care, but it is too early to determine whether they have been effective in improving overall qualityof care.[9]

c.Plan-Do-Study-Act cycle

This is an action-oriented learning cycle in quality improvement. Team members use the PDSA model to design a quality-improvement intervention (plan), implement it on a small scale (do), evaluate the results (study), and implement or alter the intervention accordingly (act). Often, multiple PDSA cycles are necessary before the appropriate improvement method can be identified. All improvement techniques that involve the design and redesign of systems use some form of the PDSA cycle. Successful scale-up of a PDSA prototype is possible with careful leadership oversight.
A team of investigators in Russia's Tula province developed a series of successful interventions for adults who have poorly controlled hypertension. The interventions, which were started in 20 clinics, were expanded to 500 clinics within 18 months. The result was a sevenfold increase in patients receiving hypertension management at the primary care level and an 85% reduction in admissions for hypertension. In Tver province, the same group addressed issues related to prenatal care. They began with 5 hospitals and scaled up to cover all 42 hospitals and all maternity clinics in the province. The result was a 99% reduction in newborns with hypothermia and a reduction in pregnancy-induced hypertension from 44% to 6%.[10] Although the experience of researchers implementing interventions that are based on system redesign in the developing world has been largely positive, it is not clear whether the resources and leadership exist to bring these interventions to scale through country or regional policies. Further evidence is needed concerning the real-world feasibility and cost-effectiveness of system redesign.

d. Internal enabling environment

Creating the right environment for change

involves leadership and leadership training, clinicians empowered to make quality improvement decisions, and resources for quality improvement planning activities.[11]
The internal enabling environment in Costa Rica promoted strong leadership that led to the adoption of structural adjustment loans in the early stages of health sector reforms. The loans were used to maintain such public health programs as mother and child nutrition, even though public spending dropped and prices increased dramatically.[12]
An enabling environment can also be created by teams of individuals, each representing different stakeholder groups (physicians, nurses, staff members, patients, and so forth) or simply by a strong leader with an interest in teamwork and the resources to support a discrete quality improvement function for team members.

CONCLUSION

The research recommends that for the Nigerian healthcare industry to thrive well and meet the recommended minimum standards of the World Health Organizations (WHO), there must be a sporadic and systemic improvement in the manpower, training and retraining, sporadic improvements in infrastructure, financing, improved information management among the healthcare workgroup, increased monitoring beginning from secondary schools wherein the training and grooming resumes in the physics, chemistry, biology laboratories which will launch up to the different fields of the healthcare industry, development of proper and genuine robust succession plan, increased welfare of the health workers at all levels and proper personnel in the industry. Government at all levels should fund the hospitals and clinics within their juridical control properly so that equipment, machines, tools and materials be available. The leaders and managers of the healthcare facilities and institutions should employ the funds meant for these facilities for use in improving their current state. As a matter of urgency, a serious and responsive monitoring team should be endorsed to weed out quackery in the healthcare system as this has deepened in the healthcare system and ravaging it beyond repair especially in the private health sector where ill qualified personnel and technicians are misdiagnosing and killing patients with reckless abandon. Students in our Universities and Collages of Health and Medicine must be properly trained on the use and handling of machines, equipment, tools and materials in the Hospitals to avert the continued break in the chain of responsive succession plan. Qualified technicians must be readily available to install, maintain and teach the students and practitioners on the proper use of the machines and equipment in the healthcare facilities. Old and tired senior health workers at all levels should leave the stage or be assigned minimal or no control of the activities as they are no longer up to date and cannot catch up with the current development in the global healthcare system.
Technology drives healthcare through Telemedicine and Telecare. Improving health status does not have to rely solely on macroeconomic growth or other long-term development indicators. Health outcomes can be rapidly improved in the short term by ensuring the appropriateness of the circumstances or setting under which the health care encounter occurs (structural improvement) or by

increasing the likelihood that health care providers behave in ways most beneficial to patients under the prevailing circumstances (process improvement). However, this improvement will not occur spontaneously or routinely, despite the best intentions of beneficiaries, providers, and governments. Quality improvement tools and technologies and information on successful quality improvement policies must be consistently shared among developing countries to build local capacity. Funding and incentives must also be consistent with high quality. Finally, the political will to ensure that quality becomes a top priority on the health reform agenda must be sustained.

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RECENT TRENDS IN THE GLOBAL AND LOCAL HEALTHCARE SECTOR

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INTRODUCTION

A lot of transformation has been happening – both on a global and local scale – which has been greatly escalated by the COVID-19 pandemic. This health crises placed great stress on the healthcare sectors around the world and, at the same time, resulted in the rapid evolution of a "new normal" in a bid to douse the raging pandemic. Today, both healthcare professionals and patients have shown increasing enthusiasm towards the digitalization of healthcare services as it has proven to be a promising and better option for the delivery of quality healthcare and optimization of consumer satisfaction. Asides the digitalization of health services, several other strategies have been burgeoning to optimize patient care. These evolving methods of dispensing and promoting the quality of health services are discussed in the next train of paragraphs.

1.TELEMEDICINE AND VIRTUAL CARE

Telemedicine has become a major tool in modern day medicine for providing specialized and widespread care at convenience. With the COVID-19 pandemic, a new era of telemedicine has been established is increasingly being accepted by both health care providers and patients, especially as it offers affordable, effective and attractive options. Recently, the center for Medicare and Medicaid services reported that between mid-March to mid-October 2020, more than 24.5 million of 64 million eligible patients received a telemedicine service covered by Medicare. Telemedicine has also proven vital in follow up of chronic illnesses like mental health counseling and consultation as it is often as effective as in-person visits.

Benefits of telemedicine include:

i.Comfort and convenience for both patients and healthcare workers.

ii.Control of infectious diseases.

iii.Better patient assessment.

iv.Family relativity and connection.

v.Primary care in a holistic manner.

Nonetheless, virtual medicine is not without shortcomings, some which are as stated below:

i.Over-utilization of expensive investigations, in the absence of physical examinations, to diagnose, follow up and treat patients.

ii.Disparities from exaggeration due to utilization of different healthcare apps.

iii.Under-utilization of med care guidelines for products since virtual vendors may market products with no limit to accessibility.

2.ARTIFICIAL INTELIGENCE AND MACHINE LEARNING

Technology has so advanced over the years that machines can be programed to remember their experience, learn from it and use their knowledge to tackle subsequent tasks.

Artificial Intelligence (AI) was introduced as an academic discipline in the year 1956 and since then, it

has experienced various waves of development. AI research has tried various approaches ranging from simulating the brain, modeling human problem solving, employing formal logic, inputing large data base of knowledge, and imitating animal behavior. It has various sub-fields, each tackling a specific goal using specialized tools.

The goals of AI include reasoning, knowledge representation, planning, learning, natural language processing, perception and the ability to move and manipulate objects. In the 21st century, Artificial intelligence has progressed to machine learning which entails machines being able to learn by themselves, rather than being taught everything they know by humans. There are three types of machine learning:

a.Supervised

b.Unsupervised

c.Reinforcement learning

This technology has played, and is still playing, a great role in making clinical decisions and tackling complex health problems by providing data to help healthcare providers make diagnosis. Currently, machine learning is helping to narrow administrative processes in hospitals, map and treat infectious diseases and personalize medical care. In the words of Fatima Paruk, CMO of the Chicago-based All scripts Analytical (2017), "A.I. is the future of healthcare."

3.CYBER SECURITY

The healthcare sector is faced with an array of security-related challenges that compromise the integrity of the system. Oftentimes as IT and cyber security specialists work tirelessly to improve patient care and treatment methods, their efforts are sabotaged by cyber criminals working to take advantage of the system. Cyber security in healthcare entails the protection of electronic information and assets from unauthorized access, use and disclosure. There are three goals of cyber security which includes: protecting the confidentiality, integrity and availability of information; this is known as the CIA triad. The safety and privacy of patient information is at the core of cyber security, and they must be protected to ensure continuity of quality health care delivery. With the rapidly increasing scope of Internet of things (IOT) on virtual medicine, cyber security has seen a dramatic change recently. Areas where cyber security aid in modern healthcare include:

i.Medical device penetration testing and securing

ii. Network partitioning for medical equipment

iii. Device inventory and risk analysis

iv. Detection of vulnerability and immediate response.

v. Medical device risk analysis

vi. Vendor risk assessment

4.BLOCKCHAIN AND SECURITY

Block chain is a method of securing transfers, storage and virtual activities through a decentralized peer to peer system. Since the publication of Satoshi Nakamoto's white paper on Bitcoin in 2008, the Blockchain technology has attracted global attention and is continuously gaining popularity. Blockchain is a reliable method of securing cyber information as it makes such information difficult to alter, hack or falsify. It is a digital ledger of transaction that is duplicated and available across the entire network of computer systems. Whereas a database stores its information in tables and can be altered, Blockchain stores them in

form of "chains of blocks" and is permanent and viewable to anyone. Information in Blockchain is stored in blocks and each block is chained to the previous blocks chronologically.

Different types of information are stored in the Blockchain system, the most common of which is storage of digital financial transactions. However, it is also used in securing medical data.

5.VIRTUAL, AUGMENTED, AND MIXED REALITY

Augmented reality (AR) is an enhanced version of the real physical world that is achieved using digital visual elements, sound, or other sensory stimuli delivered via technology. It uses a real world setting and can be assessed with a smartphone.

Virtual reality is an artificial environment that is created with software and presented to the user in such a way that the user suspends belief and accepts it as a real environment. It is completely virtual and requires a headset device.

From simulating the brain to form varying degrees of imaginary images of anatomy and function to creating an opportunity for learning and expertise development, augmented and virtual realities help improve patient quality of patients care in the following ways:

i.They help physicians plan their treatment and even pre-test it to know the possible ways their patients could react to it.

ii.They also help surgeons learn the anatomy of their patients.

iii.They enhance the teaching of medicine in colleges by providing students with internal view incorporation of the human body.

iv.They also help in visualization of things not visible to the normal human eyes like when using a microscope to magnify images.

6.PATIENT'S INCOPRATION

Patient incorporation entails interacting with and engaging patients in the management of their own health. This can be done in various ways and can be addressed under the following headings:

a.Patient centered health care

Patient centered care was introduced in 1970 to describe an approach to patients care that went beyond the traditional disease centered or doctor centered method. This method is a guide to exploring patient problem that allows physicians and patients to define problems and decide together on the management.

b.Patient consumerism

Patient consumerism simply means the decision of patients to take full charge and responsibility for their health care by paying and actively participating in the decision-making process concerning their health. This also involves consumers bypassing physicians to directly obtain information, devices and products to manage their own health.

For the provider, this means more input into ensuring patients satisfaction, especially as they are paying out of pockets, which will therefore increase their expectation in choosing where their money goes to and picking the absolute best.

This was achieved partly by creating applications and technologies that will enable the consumer to navigate his way better while shopping for healthcare products and interacting with the system. Efforts were made at more efficient communication between the provider and the consumer thereby creating understanding and building trust. The prices

of their services are also made very transparent and affordable to help overcome challenges of out of pocket payment and to make informed choices.

Benefits

i.Consumers will be very confident in their ability to make decisions in their health care process, manage and sustain their own health which will bring about greater satisfaction and trust in the healthcare system.
ii.They will be more willing and compliant with the treatment and care plan that has been mapped out for them leading to better health outcomes.
iii.Consumers are more informed and have better health seeking behaviours which has an impact in both immediate and long-term health conditions.

Disadvantages

i.Consumers may be acting with distorted information leading to choices and practices that could be very harmful to the patient.
ii.In a case where consumers with misconstrued information is the chief decision maker in his/her health care, this may pose as a difficulty to the physician in executing his services as the consumer may not be willing to be guided through better decision making.

7.BUSINESS GROWTH

This is being achieved through various strategies as outlined below:

a.Revenue generation diversification

Revenue is a company's earned income per time. Sources of it in healthcare organizations are from provision of services to patients, health insurance claims and government med-care allocations. Diversification of revenue sources as observed by both providers and patients is very crucial to the functioning of our modern-day healthcare organization. It brings about increased cash inflows and accelerated growth.
As opposed to the misconception that diversification can shift focus from the core areas of health care practice, it can protect the core areas and increase its efficiency. Means of revenue diversification include:
i.Taxation: tax increments on products, societal and public problems like cigarettes, alcohol, junk foods (sin taxes) and penalizing citizens for behaviours that put them at risk of ill health like obesity, not wearing bicycle helmet, driving at high speed will in no doubt generate income that could help in offsetting the rising cost of healthcare services.
ii.Private financing: some countries have allowed various private insurance to cover some citizens thereby alleviating some healthcare expenses of citizens.
iii.Diversification of public financing: this appears to be the most effective method of revenue diversification and includes social insurance scales where both employees and employers are mandated to pay a certain amount of money depending on their incomes.

Benefits

i.Bold steps taken by organizations towards diversification of incomes bring about profits.
ii.With realization of greater revenue, better health care services can be made available to the patient like adequate spacing in healthcare facilities, better equipment and technology, thereby optimizing patient healthcare.
iii.With revenue generation, diversification potentials of non-Core healthcare areas are harnessed and utilized to create better services to

patients.

b.Merging and integration

Merging and integration in healthcare is one of the methods which improves value-based healthcare. When healthcare professionals integrate care across a network of facilities including utilization of community resources, it improves value of healthcare delivered to the patient. When large number of healthcare professionals merge, they work towards a common goal of minimizing cost, increasing efficiency and higher value-based care but usually, this is not without its shortcomings; for instance, there will be lesser number of competitors, which will in turn increase cost of health care services.

c.Collaborative health care system

It is defined by the World Health Organization (WHO) as multiple health workers from different backgrounds working together to deliver the highest quality of care to patients, families, careers (caregivers) and community. Collaborative health care is when a management service organization partners with multiple independent healthcare providers to provide a more value-based healthcare to their patients. Collaborative health care provides more comprehensive care by being more patient-centered while working with them, their families, careers and community in a closely coordinated manner.

This system is so important in our modern-day health care as it has helped improve patient healthcare experience, reduce redundancies and insufficiency in medical practice, and even cut down costs of health care. Collaboration brings about a shift from volume-based care to value based care. This includes enhanced patients doctor relationship.

In Collaborative health care, local teams and tools are made available to the doctors so they can focus on just caring for their patients in a holistic manner. It plays a great role in the treatment of chronic illness where different inputs and integrated management are required from different specialties under the coordination of the primary healthcare physician.

This method of healthcare requires efficient communication and transfer of data among doctors, nurses and other specialists which are all required to personally interact with the patient. This meets the obstacle of inherent power struggle usually present among the professionals.

Therefore, to achieve these, professionals must drop their pride and ego to foster efficient communication among each other, create sustainable and reliable working relationships, and also utilize and balance the wide and deep systemic insights and different experiences of the individual partners.

The benefit of collaborative healthcare is as exemplified: Say a patient comes into the outpatient clinic and upon being seen by the primary physician is discovered to have chest pain, dyspnea, and pedal oedema, the next step would be to refer the patient to a cardiologist for better assessment and expert management. If it is also discovered during assessment that patient has raised blood glucose and a diabetic foot, the endocrinologist and the plastic surgeon will have to be involved in managing the patient. As treatment progresses, the dietician and physiotherapist are invited to review and contribute their quota to patient management. All these culminate in the

comprehensive care of the patient.

d.Industrial consolidation

Industrial consolidation is a stage in industrial evolvement where competing industries begin to merge for the common goal of securing a greater part of the total market base. When these industries join capitals, they increase their scale of function which brings about lower cost of production and administration, increased care coordination and decreased duplication there by redistributing care to also create more access to immediate local care.

Consolidated industries that function in synergism will have more access to external resources which will increase growth.

Despite the endorsement for collaborations in health sector, there are so many limitations ranging from insufficient understanding between the collaborating industries to unrealistic expectations leading to frustrations.

There are also problems of organization, execution, sustainability, coordination that comes with large scale businesses which constitutes challenges.

Consolidating industries therefore need to create a balance between their different goals, expectations and sense of equality which will lead to constructive administration by achieving the aim of consolidation including quantum profit and better societal services.

e.Strategic and active supply chain

Supply chain is the process by which goods and services are procured and made available to the consumer. Supply chain management can be demanding with strict supply and preservation rules as seen in cold chain storage. Improved efficacy of the supply network can be achieved in the following ways:

i.Knowing your target customers.

ii.Understanding the cost of procurement.

iii.Improving visibility and accessibility.

Advantages of effective supply chain strategy includes

i.Improved safety: rapidly growing industries are more vulnerable to counterfeit products but with more effective supply chain management. These problems can be minimized by reassuring patients of the safety and authenticity of their original products.

ii.Decreased cost: strategic and efficient supply chain will help reduce cost as it bypasses the numerous middlemen and hence making products available at a cheaper rate.

iii.Enhanced access: better supply management will help avert the problem of scarcity which in-turn prevents unnecessary hicks in cost of procurement.

f.Competition as a workable strategy

Competition in healthcare care plays a key role in moderating cost, improved efficiency and innovation. It helps overcome problems of inefficiency thereby reducing cost of production which could have been directly imposed on the patient system.

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IMPORTANCE OF TELEMEDICINE IN DISPENSING MEDICARE.

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According to the constitution of the World Health Organization;
"The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition."[1]
This entails that health is a fundamental human right.[1]
Access to quality healthcare services is indispensable to the survival of an individual and the nation at large. Quality Medicare ensures that the citizens are entitled to their fundamental human right- good health. Also access to quality medical care can explicitly or indirectly accentuate the growth and development of other economic sectors of countries. Over the years, orthodox medical practices have been improved on to provide the best medical care to patients. However, with the arrival of high-speed internet and improvements in information and communication technology[2], conventional medical and healthcare practices are being replaced by Telemedicine- "healing at a distance."[3] It is claimed that telemedicine ismore feasible than conventional medical practices in providing quality Medicare. This article aims to examine this claim and discuss how telemedicine can live up to these assertions.

TELEMEDICINE

•Telemedicine is the delivery of healthcare services, where distance is a critical factor, by all health professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of diseases and injuries, research and evaluation and for the continuing education of healthcare providers, all in the interests of advancing the health of individuals and their communities.[3]
•Telehealth is the distribution of health-related services and information via electronic information and communication technologies.[2]
These are some of the various, broad definitions of Telemedicine or Telehealth. Telehealth and Telemedicine are often interpreted in the same context or as distinct terms or they may be used interchangeably. However, these terms are more often used synonymously, with Telemedicine being the preferred term by healthcare practitioners.
According to the World Health Organization (WHO), there are four elements relevant to telemedicine;[3]
•Its purpose to provide clinical support to both the patients and health practitioners
•Its intent to overcome geographical barriers to provision of Medicare. A common scenario is when the patient and the health services provider and/or physician are not in the same physical location.
•It involves the use of various information and communication technologies ranging from broadband technologies to smartphones, pads, laptops, sophisticated medical equipment and artificial intelligence.
•Its ultimate goal to improve

healthcare delivery and health outcomes.

a.Brief History of Telemedicine.

Telehealth has its roots in primitive forms of communication and technology.[2] In Africa, for instance, villagers usedsmoke signals to warn neighboring villages of disease outbreak.[2] As technology developed and wired communication became increasingly commonplace, the idea of telehealth began to emerge. The earliest telehealth encounter can be traced to Alexander Graham Bell in 1876, when he used his early telephone as a means of getting help from his assistant Mr. Watson after he spilt acid on his trousers.[2] In the mid to late 19th century and early 20th century, electrocardiograph data were transmitted over telephone lines. Later on, in the mid-20th century, radios were used to provide medical advice on ships, particularly in the military sector.[2] During this time also, telemedicine was employed in the space technology sector.[2] One of the biggest historical milestones in telemedicine, was the use of closed-circuit television links for psychiatric consultations[2]. The advent of high-speed Internet, and the increasing adoption of ICT in traditional methods of care, spurred advances in telehealth delivery.[2] Recent advancements, sophistication and also increased availability of information communication technologies which include portable devices-smartphones and laptops; has been key to the boom of telemedicine in the global health system, creating new possibilities for health care service and technology.

b.Categories of Telemedicine.

Telemedicine is broadly applied in various areas of medicine and the healthcare system and it is categorized as such. The impact of telemedicine is squarely evident in some areas than in most other areas. Some of these areas include;

i.Teleradiology.

Teleradiology involves the transmission of radiographic images example; X-rays, from one location to another utilizing the adequate elements of information and communication technology.[2] Teleradiology is the most popular use for telemedicine and accounts for at least fifty percent of all telemedicine usage.[2]

ii.Telepsychiatry.

Telepsychiatry utilizes information communication technologies to provide psychiatric services for patients involved. It provides wide range of services to the patients and providers, such as consultation between the psychiatrists and patients, diagnosis and assessment, medication therapy management and routine follow-up meetings. Telepsychiatry is also one of the earliest forms of telemedicine and it is also one of the most popular categories of telemedicine usage.

iii.Telecardiology.

Telecardiology accounts for the earliest usage of telemedicine in healthcare delivery. It involved the transfer of ECG data via telephone lines.

iv.Telenursing.

Telenursing refers to the use of information and communication technology to provide nursing services in health care especially when there is a physical distance between the patient and the nurse or between any number of nurses.[2] Of recent, telenursing has achieved substantial growth rates globally as it is being adopted at significant speeds by governments and healthcare providers.

v.Telenutrition.
Telenutrition refers to the use of information communication technology to provide online consultation by a nutritionist.[2] Telenutrition therefore enhances the patient-nutritionist relationship, by eliminating the various barriers that breach easy access to quality nutritional advice and care. Telenutrition is also one of the most widely employed categories of telemedicine.

c.Methods of Telemedicine.
Telehealth requires a strong, reliable broadband connection, and broadband mobile communication technology of at least the fourth generation(4G) or long-term evolution (LTE) standard to overcome issues with video stability and bandwidth restrictions.[2] As broadband infrastructure has improved, telehealth usage has become more widely feasible.[2] These methods include;

i.Store and forward.
Store-and-forward telemedicine involves acquiring medical data (like medical images, biosignals etc.) and then transmitting this data to a doctor or medical specialist at a convenient time for assessment offline.[2] It does not require the presence of both parties at the same time. Dermatology, radiology, and pathology are common specialties that are conducive to asynchronous telemedicine. A properly structured medical record preferably in electronic form should be a component of this transfer. The 'store-and-forward' process requires the clinician to rely on a history report and audio/video information in lieu of a physical examination.[2]

ii.Remote monitoring.
Remote monitoring, also known as self-monitoring or testing, enables medical professionals to monitor a patient remotely using various technological devices. This method is primarily used for managing chronic diseases or specific conditions, such as heart disease, diabetes mellitus, or asthma. These services can provide comparable health outcomes to conventional in-person patient encounters, supply greater satisfaction to patients, and may be cost-effective. Examples include home-based nocturnal dialysis and improved joint management; using biometric measuring devices to monitor heart rate, blood pressure and blood glucose in those with acute and chronic illnesses. [2,3]

iii.Real time interactions
Electronic consultations are possible through interactive telemedicine services which provide real-time interactions between patient and provider. Video conferencing has been used in a wide range of clinical disciplines and settings for various purposes including management, diagnosis, counseling and monitoring of patients.[2]

d.Benefits of Telemedicine.
In telemedicine are diverse elements that make it potentially more beneficial to the healthcare system than the orthodox medical practices and forms of healthcare delivery. Some of these benefits include;

i.Telemedicine sidesteps impediments to accessing quality healthcare services.
Access to quality medical care is the fundamental right of any individual. Conventional Medical care remains the resort of many, but its usefulness is often limited by following barriers:

•Geographical barriers, especially in rural or isolated areas where the patients cannot access quality healthcare services because of the distance from healthcare providers or the associated financial and time

costs.

•Nature of disease the patient(s) may be suffering from. This applies to diseases that are easily contagious and those that limit the mobility of the patient and/or the health services providers

Using Information and communication technology (ICT), telemedicine bridges the gap between patients and healthcare providers in areas where geographical barriers exist, thus enabling easy access to healthcare. For instance, mobile teleradiology is utilized in villages in Botswana to communicate with radiologists in the capital city of Gaborone.[3] Also,Norway's teleECG initiative facilitates early diagnosis and treatment of suspected myocardial infarction in unhospitalized patients. This initiative was introduced in 1995; now, teleECG is available in over 100 ambulances and is offered throughout the country with plans for all districts to offer it within the next 5-10 years.[3]

In the same vein, realtime services like videoconferencing allows patients to get medical treatment, advice and care more quickly than through the traditional medical practices; it also cuts down the amount of money and time that would have otherwise been spent. Further still, diseases like COVID-19 which are easily contagious, and others like Lou Gehgrig's disease (Amyotropic Lateral Sclerosis) which incapacitates affected individuals, making it difficult them to walk, speak, or even breathe, make hospital visitations a worrisome venture.[4] Telemedicine eliminates these problems, by providing the means via which patients can access healthcare using ICT.

ii.Distance education.[2]

Telemedicine facilitates distance education between medical and health professionals and also for medical and health sciences students. Distance education is manifested in various forms some of which include;

•Continuing medical education.

•Grand rounds.

•Patient education.

•Connection of medical professionals to each other, allowing for efficient patient consultations, especially when the patient suffers from a condition whose diagnosis is pending because the aetiology cannot be pinned down and treatment is delayed. The medical professionals can connect to decide on what should be done for such a condition.[2]

•Telemedicine can also connect health professionals in rural or isolated areas who are in need of specialist advice to the specialists who may not be so close to the area.

•With telemedicine, students in low-income or isolated areas can connect to and get adequate medical training from specialists anywhere in the world. This will helpin curtailing the issue of brain drain, a common occurrence in low income economies.

•Telemedicine can also teach information communication technology literacy to both patient and health professional, hence facilitating the global cause to bridge the digital divide.

iii.Telemedicine as a panacea for the utilization of technology in other sectors of an economy.

Telemedicine can create new opportunities in other sectors of the economy and thus facilitate economic growth and development.

e.Limitations to Telemedicine Propagation.

Telemedicine wields great potential for reducing the variability of diagnosis as well as improving clinical management and delivery of healthcare services

worldwide; it can achieve this by enhancing access, quality, efficiency and cost-effectiveness.[3] Despite these potentials, application of telemedicine remains poor in both industrialized and developing countries. The following factors militate against routine utilization of telemedicine;

i.Sociocultural stereotypes and doubts.

Sociocultural factors are the major challenges to the widespread use of telemedicine.[3] Some patients and health workers resist adopting service models that differ from traditional approaches or indigenous practices due to doubts about the efficiency and effectiveness of the method for all health conditions, beliefs that telemedicine substantially reduces generation of revenue, linguistic barrier, and dearth of technical know-how.

ii.Legal considerations.

Legal considerations also impede the development oftelemedicine. Absence of an international legal framework that allows health officials to deliver services in different jurisdictions and countries, lack of policies that govern patient privacy and confidentiality vis-à-vis data transfer, storage and sharing between health professionals and jurisdictions, health professional authentication, and the risk of medical liability for the health professionals offering telemedicine services are but some of the legal issues that have to be tackled before telemedicine is wholly incorporated into the health system.[3]

iii.Technological challenges

Problems associated with the technology utilized in telemedicine can undermine efforts to enhance efficiency of medical care delivery. These challenges are as underlisted:

- **System failure:** the complexity of the systems used make them prone to malfunction and this can trigger software or hardware failure. If this occurs, there is bound to be a concomitant increase in morbidity or mortality of patients, as well as in the liability of health workers.[3]
- **Digital divide**: access to the internet is the backbone of telemedicine. Some of these isolated or rural areas are cut off from the internet completely or lack access to the modern internet facilities suitable for delivering healthcare services via telemedicine. The Digital divide is also a major obstacle to telemedicine propagation.

iv.Awareness.

Telemedicine is a popular development which most people are and/or will be willing to accept. Nonetheless, only a small percentage of people have access to the services offered by telemedicine. This is due to a lot of factors, some of which include reluctance of health professionals to accept telemedicine, legal limitations by the government, and access to the media and internet.

v.Financial constraints.

Although telemedicine is proven to be cost-friendly when in use, patients, health workers, and/or geographical areas may be unable to afford the necessary technologies.

TELEMEDICINE IN NIGERIA

Telemedicine is a global concept, which is widely acknowledged in both industrialized and developed countries. Albeit telemedicine is known, to an extent, in Nigeria, it is yet to be incorporated fully into the health sector. As it stands, Nigeria is one of the epicenters for many acute and chronic diseases including malaria, asthma, heart failure and diabetes

mellitus, and the middle and low-income classes are vulnerable to these diseases. Because of inadequate health infrastructure and the chains of industrial actions crippling the health sector, many of these diseases that would have otherwise been checked and managed early are left to progress uncontrolled.

With telemedicine most of these systemic issues can be averted, yet no significant progress has been made in establishing it in the Nigerian health sector. This is as a result of poor awareness, unstable or no internet connection, dearth of technological know-how, unfavorable or inadequate government policies, economic instability and political tensions. Regardless, Telemedicine remains potentially beneficial to the Nigerian populace, especially low-income earners and inhabitants of rural communities, in the following ways:

- Improved access to primary healthcare services.
- Facilitation of education by introducing rural health workers to modern medical practices. For both patients and health workers, it could help boost technological literacy.
- Telemedicine proves to be cost-effective and time-efficient also, promoting easy delivery of medical services to the patients, especially those in the rural areas.
- Other sectors of the economy could benefit from telemedicine if it's incorporated into the health sector. For instance, telemedicine in the Nigerian health sector could definitely benefit the educational sector and also lead to the expansion of the science and technology sector.

If the right framework for telemedicine usage is established, telemedicine could provide clinical support to the conventional medical practices and ultimately it could help reduce mortality rates.

RECOMMENDATIONS

The government should create a National telemedicine governing body or agency that will define the vision and objectives of national telemedicine policies and direct efforts towards development, implementation and evaluation of telemedicine solutions.[3] Such work would best be accomplished through collaboration between all stakeholders- policy makers, health administrators, health professionals, academic institutions and communities.[3] This could affirm the place of telemedicine in the current health system and identify the gaps in health care that telemedicine can address.[3] Also, medical and healthcare professionals should incorporate telemedicine into their practice. They should be able to determine which area of their specialty requires the services of telemedicine.

On the other hand, patients should be oriented via various platforms on the advantages of telemedicine over traditional medical practices.

CONCLUSION

Telemedicine, as aforementioned, is a benefits-laden method of efficiently delivering healthcare, especially in low-income to middle income countries, and in the face of geographical barriers or diseases that may limit the effective use of conventional methods of accessing healthcare. It is indubitable that developing telemedicine is key to securing the future of the health sector of any country.

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THE PROS AND CONS OF TELEMEDICINE IN THE FUTURE OF HEALTH CARE.

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The medical domain is a developing sphere. With technology, healthcare delivery and medical practice have become easier and more effective. One impact of technological advancement is telemedicine. Some people often dread going to the hospital not because they don't value their lives but because they are not mentally ready for the stress they would go through each time they visit the hospital. Sometimes visiting the hospital could mean spending an entire day there because a throng of patients are waiting to be attended to by a limited number of doctors. There is also the issue of other patients being given preferential treatments and the distance to the hospital. Others may dislike going to hospitals to avoid the nauseating smell of chemicals and drugs. Telemedicine has proven to be a solution to most of these problems. The recent pandemic which led to the restriction of movements and increased resort to digital healthcare services accentuated the importance of telemedicine in the future of health care.

Majority of telemedicine services, most of which focus on diagnosis and clinical management, are routinely offered in industrialized regions including but not limited to the United Kingdom of Great Britain and Northern Ireland, Scandinavia, North America, and Australia [1, 2].

THE CONCEPT OF TELEMEDICINE

Historically, telemedicine can be traced back to the mid to late 19th century [2] with one of the first published accounts occurring in the early 20th century when electrocardiograph data were transmitted over telephone wires.[3]With technological advancement came the offshoots of telemedicine and as technology keeps advancing, telemedicine will continue to grow and spread far and wide.

The term telemedicine which was coined in the 1970s literally means “healing at a distance.” [4] Telemedicine is often interchangeably used with telehealth or e-medicine although some may argue that there is a distinction between them. It involves the use of telecommunication to deliver healthcare services. Physical contact is not needed as healthcare providers can perform their medical duties such as treatment and diagnosis of patients over a screen.

The World Health Organization (WHO) defines telemedicine as, 'the delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for the diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities.'[5]Telemedicine has several definitions but the broadest one covers the use of services outside the traditional real-time interactive telecommunication health

service. This includes services such as store-and-forward, where camera images are stored and forwarded, all the while, the consultation is completed via the telecommunication system.[6]
It involves the use of electronic means to provide healthcare services without any physical contact between the health care personnel and the patient. It is often used for follow-up visits, and for patients with chronic diseases. In telemedicine, information is transmitted through different means such as videos, audio, texts or images depending on which is the most convenient for the problem at hand.

MERITS OF TELEMEDICINE

Because of its nature, telemedicine offers both the patient and medical specialist flexible options that make it easy for them to carry out their different roles. Some of the merits of telemedicine are:

•**Healthcare education and information**: Medical materials in form of images, texts, audio or videos, can be shared with various people irrespective of their locations. With telemedicine, people can be educated and provided with necessary information on healthyliving. A wide range of information is provided on several health matters, enabling patients gain more knowledge on the nature of their illness and how to manage it. Health Information is made readily available to a larger group of people through telemedicine.

•**Convenience**: this advancement in the medical field is very convenient, especially for people whose jobs restrict their movement to far places. It is easier for them to access medical care from medical professionals without stepping out of their workplaces. Instead of going to the hospital for tests and coming back later for the test results, one can have his or her test results forwarded online to him or her. This is a very convenient method of rendering and receiving healthcare services. Distance may no longer be a barrier for people in rural areas who often embark on long-distance journeys when they cannot get quality healthcare services in their localities. The ease of access to medical services makes it easier for the patients to follow the doctor's prescriptions. With telemedicine, the patients find it easier to consult their doctors on a particular issue without worrying. Likewise, a medical practice or hospital system can immediately expand access to niche medical specialists by employing telemedicine. This makes it easy for primary care doctors to consult medical specialists on a patient case, and for patients to see a needed specialist on a rare form of cancer, no matter their location. [7]

•**Safe atmosphere especially for shy patients**: Some patients may be shy about confiding in their doctors in a physical environment and telemedicine offers them a haven where they feel more comfortable sharing their problems with their specialists without any feeling of embarrassment. It also allows the patient to comfortably ask the specialist a lot of questions that have been bothering him or her with no sense of guilt.

•**Cost effective**: The lesser the time spent in the hospital, the lesser the cost for the patient. The patients are also less exposed to dangers on the road and travel expenses are saved. Sometimes too, the cost of consulting a doctor over the screen is cheaper than physical consultation.

•**Timesaving**: In telemedicine, not just cost

but time is saved. Patients can quickly get across to their doctors without spending time in traffic and struggling to stand in queues to see the doctor. Thus, patients have more time to engage in other profitable ventures.

•**Protection**: Telemedicine prevents large crowds in the hospital. Hence patients are protected from being exposed to contagious infections, diseases or infestations other patients may have come with. Virtual appointments help to prevent the spread of diseases amongst patients. The healthcare providers are minimally exposed to infectious diseases too.

•**Fewer missed appointments and cancellations**: Some patients after considering the cost and the dangers they may be exposed to on the road, decide to cancel their appointments. Some other patients dread the large crowd at the hospital. With the advent of telemedicine, the patients are less stressed and there are fewer missed appointments and cancellations since the doctors can have virtual appointments with their patients. This is easier for both the doctor and the patient and further prevents long queues in the hospitals.

•**Interaction with other patients:** It creates an avenue through which people going through a particular condition get to have conversations together, share their experiences and help one another emotionally heal from all that the condition may have brought upon them. Through groups such as that for pregnant mothers, they share their experiences, and it helps them also realize that some things they may be facing are simply normal and may not be a reason to fret.

•**Better follow-up:** The ease with which doctors can communicate with their patients makes it easier for them to follow up with their patients.

•**An organized system**: With telemedicine, things seem to be a lot easier, and this makes the method of operation in the medical field to be highly organized. With patient's data collated and stored online, it is easier for such records to be retrieved for quick treatment. There is no need to crowd the hospitals, and everyone must follow due process to receive quality health care since the services are digitalized.

•**Bridging the gap**: People from far and near can easily have access to health care services through telemedicine. The ease of access to healthcare services helps to bridge the gap between those in rural and urban areas when it comes to healthcare.

•**Improvement in health care**: The overall benefit of telemedicine is the improvement and provision of quality health care. Most of the healthcare services rendered through telemedicine are aimed toward improving the quality of life and health outcomes.

It is indubitable telemedicine has revolutionized the medical field and is laden with untapped potentials. However, there are a few shortcomings of telemedicine too.

DEMERITS OF TELEMEDICINE

•**Cybersecurity**: Telemedicine is susceptible to hackers since it is an online form of healthcare delivery. Fraudsters and hackers can use it to dupe gullible individuals. The confidential details of patients may be exposed to hackers especially from unsecure sites. Healthcare providers face the problem of finding the right platform to ensure that the databases of their patients are stored on secure websites.

•**Cost**: Telemedicine may be

cost saving, but the problem of cost often arises because of several reasons. The problem of cost can occur on the part of the patient and on the part of the healthcare providers.

i)On the patient: Not everyone can afford all that is required to effectively use telemedicine. Sometimes, the purchase plans are not friendly, and the cost of data may also be a hindrance to telemedicine to the average Nigerian. The cost is especially higher for people whose insurance do not cover telemedicine, but progress is being made towards changing this.

ii)On the healthcare provider: There is a need for them to undergo training to get acquainted with the equipment, and most of these trainings require funding. Also, certain facilities need to be put in place for the smooth running of telemedicine. Some of these facilities are quite expensive and the cost of this may be a challenge on the part of the healthcare providers.

•**Language barrier**: People in different parts of the world speak different languages. This can be a barrier to effective communication during health care delivery. People in the rural areas who may not be properly educated, are greatly faced with this challenge and this denies them quality healthcare services.

•**Cultural barrier:** Cultural differences exist globally. This sometimes makes it difficult for doctors to render their services and for patients to accept and follow doctors' prescriptions.

•**Technological challenges**: A problem in any of the medical facilities can lead to the death of a patient or further complicate the health condition of the patient. Also, some people in remote areas are computer illiterate and are not conversant with technological devices. This hinders them from having access to telemedicine.

•**Poor network**: this prevents smooth communication between the patient and the healthcare provider, especially in local areas where the network connection is very poor or absent.

•**Distrust**: Some people need to have physical contact with someone before they can fully trust someone enough to tell them what they are going through. Telemedicine doesn't provide this hence some patients only tell the doctor what they feel the doctor should know leaving vital information that would have been used for proper diagnosis. This also prevents the doctor from connecting with the patient.

•**Nature of illness:** Some illnesses require physical assessment and telemedicine cannot be used for proper diagnosis in such cases. Telemedicine may also delay treatment for someone in an emergency.

•**Unsteady power supply**: The epileptic power supply in many developing countries like Nigeria hinders the operations of the technological devices used in telemedicine.

CONCLUSION

Telemedicine is very useful especially in this era where disease outbreaks occur very often. Telemedicine proves to be a highly convenient and effective means of providing quality health care to many people. It provides easy access to healthcare options and alleviates stress in several ways. The pros of telemedicine outweigh the cons, and this goes a long way to show that telemedicine is a welcome development. It is believed that in many years to come, health care delivery will be more efficient than it is now

because of telemedicine.

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DIGITAL HEALTH CARE STARTUPS: THE BEDROCK OF TELEMEDICINE

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In the wake of the current Coronavirus pandemic, the world has gradually evolved from the traditional medical practice to more advanced medical practices like telemedicine. While telemedicine makes sure that patients get the care they need, it also contributes to maintaining hospital capacities. Telemedicine, also referred to as telehealth or e-medicine, is the remote delivery of healthcare services, including exams and consultations, over the telecommunications infrastructure. Telemedicine allows healthcare providers to evaluate, diagnose and treat patients without the need for an in-person visit [1, 2].

UNDERSTANDING STARTUPS

The term "startup" refers to a company in the early stages of operations. Startups are founded by one or more entrepreneurs who develop products or services for which they believe there is demand. They are companies or ventures that are focused on a single product or service that the founders want to bring to market. [3]The healthcare market is projected to grow over 5% each year between 2017-2022 -to the tune of over $10 trillion in global spending. People are spending more money on their health and that means startups have lots of opportunities to revolutionize the stodgy world of healthcare.[4]

DIGITAL HEALTH STARTUPS

Digital health refers to the use of any hardware or software solution which aids healthcare professionals and patients in the promotion of health and wellness or in the optimization of disease management. Digital health is not a new concept, however with its constant evolution, it is a highly formative factor that contributes to shaping how healthcare is sought and delivered. The advent of the internet, the electronic health record, digital imaging, and countless other innovations have transformed not only patient care but medicine as a whole. Digital health is vast and encompasses a variety of subsections that include clinical informatics, telehealth, telemedicine, genomics, mobile apps, wearable technology, data analytics, behavioral change technologies, artificial intelligence, and much more. [5]

TELEMEDICINE STARTUPS IN NIGERIA

Nigeria is a developing country and yet to embrace some technology innovations like digital health startups. However, a few brilliant and passionate Nigerians have come up with incredible health startups which have improved the standard of health care in Nigeria. Some of the digital health startups currently operating in Nigeria include, but are not limited to the following:

SAFERMOM

SaferMom was established by Adeloye Olanrewaju and Cletus Ajibade with the aim of addressing the high maternal and infant mortality crises in Nigeria. This ground breaking program provides expectant/nursing mothers

with timely and personalized health information via a two-way SMS system and prerecorded voice services, in the dominant native languages. Other health campaigns delivered by SaferMom include malaria prevention, HIV/AIDS, tuberculosis control - all through low-cost mobile technologies.[6]

OMOMI

Omo mi, meaning 'my child' in Yoruba is a web and mobile-based childcare service developed by Owobu Emmanuel Osayi, Charles Akhimien Immanuel, and Raman Anurag to help mothers and expectant mothers by providing them with important maternal and child health information and providing parents with ample opportunity to easily monitor their children's health. The platform also has an interactive section where parents interact with parents of other children from different parts of the country who have had or are going through similar experiences. It also comes with a 'chat-a-doctor' feature that gives parents access to a doctor at an affordable cost. [6]

MOBIDOC

Mobidoc is an innovative mobile wellness platform that aids doctors in patients' consultations. It offers a user-friendly, mobile health consultation platform where people can easily receive medical consultation from verified healthcare professionals in the country. It was launched by Timi Aiyemo and Abiodun Okunola[6] with the headquarters located in Abuja to solve medical problems in the Nigerian using the internet.

EZZYCARE

Ezzycare is a novel medical solution to the challenges of both healthcare providers and healthcare seekers in Nigeria. The mobile app connects health care seekers to the closest providers in their vicinity using their geo location,just like how Uber connects drivers to riders. The platform consists of health care providers which enables urgent and non-urgent consultations with doctors of various specialties via video calls, urgent and non-urgent home and clinic visits between doctors and care seekers, home visit by nearby nurses, physiotherapists and massage therapists, all at the convenience of care seekers. It also has a medicine/pharmacy section where prescribed drugs can be ordered and have them delivered to one's residence. Lastly, care seekers can request laboratory tests from anywhere and nearby scientists and pathologists can visit to carry out the required tests. [9]

ISSUES FACED BY HEALTHCARE STARTUPS

In developing countries like Nigeria, digital innovations and businesses often encounter lots of challenges ranging from government laws and policies to issues like poor internet access, non-availability of funds, erratic power supply, etc. Some of theseare as underlisted:

1.Poor and expensive internet access

Not only is internet access poor in Nigeria, but it is also expensive. Since most digital health platforms require good and stable internet connectivity for maximum usage, people who live in places with poor internet connectivity and people that can't afford to purchase data may be unable to access these digital health platforms.

2. Trust issues

Trust is the expectation that the healthcare provider will do the best for the patient, and with good will, recognizing the patient's

vulnerability. It forms a fundamental basis in the provision of healthcare. [7]Many people are skeptical about giving out confidential information to a doctor or health care professional through a digital platform. People may also find it difficult to open up to a doctor they don't know personally. Difficulty in building trust with the public is huge problem for startups in all industries, but its peculiarity in conservative industries such as in health is because doctors rely on information obtained from patients to treat their disease conditions.

3.Funding

Financing a startup can be challenging, but the economic downturn amid the COVID-19 pandemic presents new challenges for entrepreneurs.

Most founders, especially young and female entrepreneurs fund their businesses through personal savings because they are denied loans and access to capital because of the early stages of their business. This means that they take on most of the financial management and risk themselves. These systemic barriers to receiving funding from banks and venture capitalists is a major issue for medical startups in Nigeria as most of them lack the funds to scale their businesses.

CONCLUSION

Telemedicine is an evolutionary trend in medical practice, a trend we should embrace as the benefits outweigh the risk. Telemedicine would be more effective with innovative digital health startups. We therefore need to pay more attention to health startups and consider them an alternative source of good health care.

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TELEMEDICINE AND HEALTH INSURANCE IN NIGERIA

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INTRODUCTION

Telemedicine (also known as t-medicine) is a platform that offers remote delivery of health care through telecommunication facilities. It encourages a virtual meet up with the health care provider. In this platform, the patient explains his or her symptoms and signs. From the well-presented information provided by the patient, the health care provider comes up with diagnosis and prescribe drug or suggest the next course of action. Telemedicine makes room for interaction between the patient and the health care provider using different telecommunication platforms which can emerge in form of video chatting, phone calls etc. The beauty of telemedicine is that it makes medical care easily accessible to all and sundry on a convenient note. The world of medicine has greatly improved, in that telemedicine is now a new frontier in medical practice. It's a game changerin this present era of technology.

Telemedicine had been greatly underutilized, until the outbreak of a novel beta-coronavirus which is known as Severe Acute Respiratory System Coronavirus 2 (SARS –COV-2). The virus (SARS-COV-2) which is caused by coronavirus disease 2019, globally known as COVID-19, became a global concern within months of its outbreak. It was declared a pandemic on March 11, 2020. Until then, the practice of telemedicine was not really making waves, at least in Africa. During the outbreak of COVID-19, its importance played out so well since the need to get medical care online without visiting a hospital became a priority. It is no longer compulsory that a patient visits the hospital over the slightest health challenge. The interaction between the patient and the health care provider using the telemedical service, can be organized through videos, e-mails, online portals or even phone cells, but videos make room for some examinations like skin conditions, etc.

TELEMEDICINE IN PRACTICE

The practice of telemedicine majorly comes in three different forms namely:

I.Store and forward

There is no need for physical examination in a care-givers examination room. This form is highly recommended in medical fields like dermatology or radiology where images of the patient's condition or investigations are taken, documented and sent to the receiving specialist. This form of telemedicine saves time and enables the healthcare provider to serve more patients.

ii.Remote monitoring

This a form of telemedicine gives room for good diagnosis because some technological devices are provided. The role of these devices is to monitor the health of patients and provide readings which are charted. This provides the health care giver with a clearer picture of the situation and helps in making correct diagnosis or modifying treatment plan

when necessary. Remote monitoring is useful in conditions like chronic obstructive pulmonary diseases and has a very low chance of error.

iii.Real time interaction

Here, the patient interacts actively with his or her health care provider, that is, in real-time. This means that immediate medical advice can be given to the patient by the healthcare provider and the clinician also gets to hear the patients' concerns concerning his symptoms or treatment.

When properly practiced, these three forms of telemedicine are very effective to health care providers and patients.

ADVANTAGES OF TELEMEDICINE

Telemedicine is highly beneficial to both the patient and the healthcare giver.

To the patients, telemedicine:

a.Lowers cost and saves time: Considering transportation cost, inconveniences of traffic jam, telemedicine makes things easier as you can have access to healthcare at the comfort of your home. Time is a costly commodity and telemedicine helps to save time, so that the patient can have more time for other necessary activities. Time, that would have spent on enroute the hospital, can be saved for other important things.

b.Convenience: Time spent in the waiting room and taking turns to see the doctor can be saved, as a patient can easily get on a platform that offers telemedicine services and get medical attention.

c.Professional and quality healthcare givers: Patients have the luxury of getting across to professional and quality healthcare givers who are licensed to practice telemedicine. It reduces the risk of quacks and inexperienced healthcare givers, thus making the dependence of patients on these health care givers safe. This is more interesting because these healthcare givers are licensed and registered, hence clearing the doubt of patients.

d.Improved access to healthcare: When telemedicine is practiced, it provides improved access to care. Access is made easier for all caliber of people including the disabled patients, older adults, people geographically isolated, imprisoned patients and every category of patients. With telemedicine, distance is bridged, making everyone capable of benefiting from the platform.

e.Reduction in the spread of infection: It is also very interesting to know that telemedicine helps reduce the spread of infection. The practice of telemedicine during the last COVID-19 outbreak proved this. The hospital is like a storehouse for all sort of diseases and infections, so the patient can save himself the risk of getting infected, by staying at his residence and getting quality medical help.

To the healthcare providers: some of the benefits of telemedicine are

a.Reduction of expenses: For the healthcare giver, over-head expenses are reduced drastically. There is no need to invest in more examination rooms, offices and overhead desks because most patients are connected to them online. This is a big relief to health care givers.

b.Increment of income: On the other hand, telemedicine serves as a source of additional income to the healthcare giver. The platform makes room for a larger number of patients to get health aid other than the ones that visit the health givers physically, thus supplementing the health giver's income.

c.Assurance of the healthcare giver's safety: In as much as health care givers offers

medical advice, they are also human that needs their health secured, so telemedicine also protect them from exposure to illness and infections. It makes them less vulnerable to diseases and infections.

d.Patient's satisfaction: Also, the happiness of every health care giver is that their patients are satisfied and happy. Therefore, when the care is provided to patients at their comfort, they are much happier, and this brings joy and satisfaction to the health care giver as well.

DISADVANTAGES OF TELEMEDICINE

To the patients:

a.Telemedicine is an online platform, and there is the risk of private medical data of patients being exposed because hackers and some criminals can gain access to this data. This tends to be a big challenge to the patients as their personal information is not completely safe.

b.Even though telemedicine is beneficial, health care can be delayed. This is not good for emergency situations.

c.Being an online platform, it will require a stable network connection. Without a strong network connection, the patient may not fully enjoy the benefits of telemedicine.

d.Some medical situations that require surgery and laboratory testing, telemedicine becomes limited as this practice can't be done online but will require the physical presence of the patient.

To healthcare providers: some challenges they face include

a.Firstly, licensing can be a problem. It will be impossible for a health care giver to get involved in telemedicine without being licensed. Therefore, for a health care giver to benefit from this platform, they must be registered and licensed and this involves a rigorous process.

b.Technological issues can pose a great problem such as finding the right platform because a lot of factors would be taken into consideration, such as security and privacy laws.

c.Inability to examine patients physically can be challenging and lead to making a wrong diagnosis. This will require the health care giver to spend more time on asking further questions enable him to get all the necessary information to make a correct diagnosis and give the right drug prescription.

HEALTH INSURANCE AND TELEMEDICINE IN NIGERIA

With the increasing awareness on telemedicine, many insurance programs will expand to cover telemedicine. To benefit fully from telemedicine, patients will be required to check and register for insurance plans that cover telemedicine services. Although some insurance plans may not cover all health specialties, this will help patients navigate through different telemedicine platforms and the services they provide. Patients can subscribe into any platform that suits their interestsand gain the maximum available benefits. To establish a viable telemedicine system, there is need for collaboration among the different stakeholders in the health sector and insurance companies to incorporate telemedicine into the insurance scheme. This will help connect different users, home and abroad, and ultimately generate revenue and supplement the instabilities in our healthcare system. There is need for investments in telemedicine and replicating the strategies that are being employed by countries where telemedicine is thriving.

Even though telemedicine doesn't completely eradicate physical hospital visits, it can help patients to get immediate healthcare in situations when they cannot get to a hospital or in places without hospitals. Its usefulness is much felt when you are far away from your health care giver. It is not only more accessible and affordable; in some cases, it reduces the time spent in the doctor's waiting and examination room.

CONCLUSION

The prevalent lack of proper education on telemedicine is a major reason why the practice of telemedicine in the country is low. The benefits of telemedicine are too enormous to be ignored. There are obvious limitations to the practice, but the advantages outweigh the disadvantages. With telemedicine, the limitations of conventional provision of healthcare are easily overcome. Telemedicine should be encouraged so that its benefits will be harnessed in our society.

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MUNCHAUSEN'S SYNDROME: A TALE OF SICKNESS SEEKING

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INTRODUCTION

Munchausen's syndrome is intentional production or feigning of symptoms or disabilities either physical or psychological (factitious) disorder imposed on self.[1] It is a psychological disorder where someone pretends to be ill or deliberately produces symptoms of illness in themselves with the aim of drawing sympathy, care and attention to themselves. Individuals with factitious disorder report their story dramatically but are quite vague when asked to provide further details.[2] The person feigns and exaggerate the symptoms and sometimes even harm themselves just to get the symptoms. Sometimes when the person is sick, he or she does things that delay the recovery process just to prolong the length of time they have to feel sick. Risk factors for this syndrome include females, unmarried people and health workers.[3] Munchausen syndrome was named in 1951 by Richard Asher after Karl Friedrich Hieronymus, Baron von Munchhausen, a German known for telling false and ridiculously exaggerating exploits.[4]

AETIOPATHOGENESIS OF MUNCHAUSEN SYNDROME

Munchausen's syndrome is complex and poorly understood. Certain factors that have been linked to Munchausen's syndrome are mostly psychological and they include:

Childhood trauma

People who experienced parental neglect and abandonment, or other childhood trauma may have the syndrome due to a compulsion to punish themselves because they feel unworthy or a need to feel important and be the centre of attention. People who received prolonged medical attention during childhood or their teenage years have also been observed to be more likely to develop Munchausen's syndrome later in life. This may be because they associate their childhood memories with a sense of being cared for. As they get older, they try to obtain the same feelings of reassurance by pretending to be ill.

Personality disorders

Different personality disorders thought to be linked with Munchausen's syndrome include antisocial personality disorder, narcissistic personality disorder and borderline personality disorder. It could also be that the person has an unstable sense of their own identity and therefore, has difficulty forming meaningful relationships with others. Playing the "sick role" allows them to adopt an identity that brings support and acceptance from others. Admission to hospitals also gives the person a clearly

defined place in a social network.[5]

SYMPTOMS OF MUNCHAUSEN SYNDROME

People with Munchausen syndrome deliberately produce or exaggerate symptoms in several ways. They may lie about or fake symptoms, hurt themselves to bring on symptoms, or alter tests (such as contaminating a urine sample). The main characteristics of factitious disorder are feigning of physical and/or psychological signs and symptoms and induction of injury or disease associated with identified fraud.[2] The course of this syndrome is rarely acute but can be limited to one episode.[6] Possible warning signs of Munchausen syndrome include:

- Dramatic but inconsistent medical history. Symptoms are often unclear, uncontrollable and become more severe or change in nature/presentation once treatment has begun.
- Predictable relapses following improvement in the condition.
- Appearance of new or additional symptoms following negative test results. [7]

TREATMENT FOR MUNCHAUSEN SYNDROME

People with Munchausen syndrome hardly admit to falsifying symptoms and this makes progress and possible treatment difficult. These patients are likely to waste the time of healthcare providers and the limited resources available on unnecessary investigations and assessments. Although prognosis is poor because patients deny their behaviours,[3] cognitive behavior therapy may help to change the person's beliefs and actions and involuntary psychiatric hospitalization can be used for patients who put themselves at risk.[2] Psychotherapy, pharmacotherapy and multidisciplinary approaches are often employed in managing these patients. Avoiding unnecessary tests and surgeries is important to reduce the risk of complications. [9]

MUNCHAUSEN SYNDROME BY PROXY

Munchausen syndrome by proxy also known as "factitious disorder imposed on another" is a mental illness in which a person acts as if an individual he or she is caring for has a physical or mental illness when the person is not sick. This is mostly inflicted by mothers on their children and is regarded as a form of medical child abuse. A typical scenario of Munchausen syndrome by proxy is portrayed in the movie "*Everything Everything"* where Maddy's immune disorder prevents her from interacting with the world. She soon discovers that the “immune disorder” was nothing but a way for her mother to control her: a twisted way of keeping her "safe." Management of this condition entails ensuring the victim's safety, reporting abuse to responsive bodies, psychotherapy for both perpetrator and victim, long-term monitoring and proper education of the persons involved.

CONCLUSION

A recognition of the presentation of this syndrome by clinicians will prevent unnecessary investigations which will not only consume the time of health personnel but extend hospitalization and increase health care expenditure.

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PEOPLE RISK MANAGEMENT STRATEGIES IN AN ERA OF CRISIS

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Extreme weather conditions, rising sea levels, new infectious diseases, thefts, terrorism, trans-national wars, technological disruptions, cyber-attacks; welcome to the era of crisis and greater uncertainty. It is no news that the world is changing rapidly than ever before. New business models are evolving daily. The dramatic convergence of technological and global forces to create more value in businesses have led to diverse risks emanating from the processes. Given the vulnerability of our interconnected global economy, there is a consistent rise in new risk and threats faced by organizations daily. As block-chains and vital service networks increase, the world is exposed to even more hazards and threats.

Accordingly, Maartje et al (2018) identified that these crises are undeniably large scale as they spread across geographical regions, bringing with it deep uncertainties and challenges that have defiled strategies and created tension amongst stakeholder due to their unexpected appearances. [1] As there is often no time for organizations to evaluate the threats uncertainties may pose for them, crises come with loads of pressure and risks become less palatable and uneasy to handle during these periods.

PEOPLE RISK IN AN ERA OF CRISIS

One prominent risk that tends to be hazardous to the growth of an organization during crisis is people risk. People occupy an undisputable position in our complex and contemporary business atmosphere. Human capital is termed an organization's most valuable asset and at the same time, her biggest risk. With its multi-faceted nature, people risk has been reported to be one of the biggest threats to the long-term success of any organization. [2]Ranging from bad business decisions to illegal activities and talent shortages, incompetence, unethical behavior, low morale, excessive absenteeism, sabotage, workplace violence, non-compliance to regulations, the narrative continues. The tendency that employees would deviate from their expected behavior in such a way that would affect the organization's performance and reputation negativity tends to rise above normal during crisis.

As artificial intelligence (AI) and robotics are leading changes in every sphere of business, there is the risk that many employees would not meet up with the necessary skill, as today's workplace requires a different skill set than what was needed decades ago, and this would continue to evolve for as long as technology exists.

The year 2020 ushered in a global financial and health crisis (COVID-19 pandemic) accompanied by all sorts of human related risks and displaced several businesses world-wide. Pivotal roles in organizations that have a high bearing on its profitability and goal

actualization created attrition risks, thereby, affecting the organization's profitability. This led to headcount reduction and pay cuts which in turn resulted in a less motivated workforce and hence, reduced productivity. Most organizations also had to resort to remote working in the heat of the pandemic, and we saw an almost total elimination of work-life balance; many employees worked round the clock with little or no rest. In the long run both the physical and mental health of the employees were adversely affected and some organizations ended up losing their best hands, creating a cascade of more losses.

PEOPLE RISK MANAGEMENT STRATEGIES

Organizations must not be complacent towards the unforeseen future because presently, many organizations consider systems and operational links with people as the last of the list, rather than give it priority. Businesses should take more proactive steps to make them resilient, and almost immune to people crisis and develop the capacity to tackle it head-on. Even with the seemingly unavoidable nature of people risk there are opportunities for evaluating and measuring the probabilities of employees' actions and inactions to cushion their effects.

Inclusive management structures, where everyone is part and parcel of the decision-making process, provide a better outcome as against the command control style, which can demoralize workers and bring disengagements. Having leaders who are accommodating to ideas and suggestions of employees would be liberating for organizations at such critical moments. Diversification and inclusion in selecting leadership of an organization will go a long way in mitigating risk that may arise from those quarters which may represent emerging markets. The face of leadership in an era of crisis should be receptive to new ideas and technology. The 2020 COVID-19 experience have deeply exposed the importance of digitalizing activities. Organizations need not be ignorant of more innovative ways to work; they should extenuate the risk that may arise from closing business premises by exploring new technologies. Taking into cognizance the ever-changing nature of business activities due to technological innovations, organizations should forecast and analyze the skill set its workforce would need for the next 5-10 years and strategize to enable them fill the most critical gap.

For most organizations, their inability to capitalize on an opportunity proves a bigger risk than unexpected disaster situations. Assessing risks and taking opportunities go a long way to ensure that businesses navigate through uncertain times. In order to escape the kind of situation that could adversely affect the value and reputation of the organization, especially in a period of global financial, social, climatic, and health crisis, the organization must put in place oversight structures to detect and correct fraudulent practices, operational errors and safety breaches before they escalate and becomes more damaging. One characteristic of reliable organizations is that they set guidelines of what is accepted and what is not accepted in the organization, training the employee to comply with these regulations. Integrity and transparency should be encouraged amongst employees. Providing them with

platforms to voice-out grievances and whistle blow when they see things going the wrong way. People risk have created an avenue for Human Resources (HR) to add to the new business dispensation worldwide. HR must work with risk managers to assist the organization to strategize how to cope with people risk in worst case scenarios. Events have shown that remarkable damages can be done to an organization's market value due to poor HR policy, understaffing and poor working conditions.[3] HR practitioners ensuring that the right people (with the right abilities, values and ethical culture) are hired, given the right trainings and equipped with the right tools would foster excellent performance even amidst crisis. There is need to ensure continuous and specific consideration of human and cultural factors and taking note of the perceptions, capabilities and intentions of people who may directly or indirectly deter the achievement of the organization objective, ensuring that the personal values of the employees align with the organization's overall objective. It is worthy to note that recruitment/hiring exposes the organization to potential risks as the prospects may turn out to be fraudsters or saboteurs. It is paramount that HR practitioners not only focus on functional competency but also recognize and assess the behavioral and cultural competency of new hires. Another form of people risk that may arise for an organization which can be catastrophic during crisis situation is a disengaged workforce who say negative things about the organization. This workforce can bring the organization's engagement and morale down and expose it to several risks. HR has a role to identify this workforce, analyze them and the potential risk they may pose and address them properly. HR must motivate employees to put in their best especially when the organization is facing crisis by using incentives, performance appraisal, encouraging team work and creating avenue for competition that would not drive negative behavior or lead to hoarding of knowledge and skills, ensuring that there are avenues for transmitting information to employees on and off work. Other strategies entail providing means for communication amongst employees and different levels of operations to encourage faster reporting and implementation of risk management strategies. Also, safety training and guidelines should be given to employees in case of natural disasters or health emergencies while compensation plans should be made for the loss of any employee during the crisis. Business continuity and succession planning should be made to avoid vacancies in key roles that may pose risk to the organization. Organizations should also focus on creating backup plans for handling attrition risk for key employees, prevent them from leaving the organization through motivation and performance appraisal and retaining competent talent who have the capacity of spearheading the bouncing back of the organization after crisis. Professional associations and trade unions have a role in ensuring professional and ethical conduct by their members who are employees of different organizations. Understanding the effects of their actions on their profession's reputation and that they may lose the right to practice as professionals or be sanctioned for any act

that is detrimental to the body would help keep the employees in check against unethical behavior that may pose as risk to the organization.

Baubion [4] posited that the government has an important role in alleviating the continuing anxiety that comes after a global crisis and encouraging the workforce to return to their workplaces after such events by improving crisis response, rebuilding and reassuring employees that they are not putting them at risk.

One way of fighting and winning a course is to fight the course from within. Mitigating the dramatic effects of human risk would require the involvement of the basic stakeholders-employees. Getting them to be at the forefront of the war against whatever risk they may pose for the organization, engaging them from the onset in the processes of setting risk measures and implementation of risk strategies would give the employees a sense of unity. There is need to move the focus from employers to employees and to change the narrative that only risk managers have the role of tackling risk. Educating the workforce on the importance of risk management and their role to play would be the starting point to maintaining relatively risk-free organizations.

CONCLUSION

Finally, just as human capital cannot be eliminated from businesses, so also human risk in its entirety cannot be eliminated, but when proper measures and strategies such as the ones highlighted above are considered and implemented, it would go a long way in mitigating the hiking effects of these risks occasioned by the increased vulnerability of our society today.

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CRYPTOCURRENCY: ITS CHALLENGES AND POTENTIAL IMPACT ON GLOBAL ECONOMY

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It's fair to say it has been an exciting year for crypto. From Bitcoin's peaking December at £14,450 to new contenders such as Ethereum, Ripple, and Bitcoin Cash entering the running. Cryptocurrencies have become the darling of investors and speculators everywhere, but it may not be all sunshine and rainbows ahead. Navigating the cryptocurrency realm requires skill and an understanding of the subtle ties of the market; it also comes with significant risk.

Cryptocurrencies are systems that allow for secure payments online which are denominated in terms of virtual "tokens," which are represented by ledger entries internal to the system. "Crypto" refers to the various encryption algorithms and cryptographic techniques that safeguard these entries, such as elliptical curve encryption and public-private keypairs. Bitcoin was launched in 2009 by an individual or group known by the pseudonym "Satoshi Nakamoto". As of August 2021,there were over 18.8million bitcoins in circulation with a total market cap of around $858.9billion, with the figure updating frequently. Only 21 billion bitcoins exist, preventing both inflation and manipulation. Some of the competing cryptocurrencies spawned by Bitcoin's success, known as "altcoins," include Litecoin, Peercoin, and Namecoin, as well as Ethereum, Cardano, and EOS. As of August 2021, the aggregate value of all the cryptocurrencies inexistence is over $1.8trillion—Bitcoin currently represents approximately 46.5% of the total value.

As there is no venture without its challenges, also cryptocurrency has its fair share of challenges which are as follows:

1.Government reactions to cryptocurrencies have ranged from aggressive to in different, with investors and speculators cautiously monitoring international developments .Just recently, Head of the International Monetary Fund, Christine Lagarde, stated that regulatory action from the international community on cryptocurrencies is

"inevitable".

Christine also said: "we are actively engaging in anti-money laundering and countering the financing of terrorism. And that reinforces our determination to work on those two directions". In late January, world leaders gathered for the Davos World Economic Forum, with several sharing the same sentiment, according to a report by CoinDesk, including the President Emmanuel Macron, Prime Minister Theresa May, and Steven Mnuchin of the United States Treasury Department South Korea is reported to have recently banned the trade of bitcoin and other digital currencies anonymously but says it does not intend to ban cryptocurrency exchanges.

2.There is a market risk: As with any investment, the value of cryptocurrencies can fluctuate. Within their short time, they've seen fierce swings in value and extreme sensitivity to headlines, due to the high number of informal and amateur investors. If there's continued resistance to the adoption of bitcoin and other cryptocurrencies, they may lose value.

3.The problem of hackers: By targeting and hacking a cryptocurrency exchange, hackers can gain access to thousands of accounts and digital wallets where the cryptocurrencies are stored. One in famous example was the Mt.Gox hacking incident in 2014, which saw the Japanese exchange close down after millions of dollars in bitcoin were stolen.

4.Lack of expertise: Understanding the concept of cryptocurrency requires in- depth tutelage and experience. This is because of the high risk involved as several financial resources have been lost by both individuals and organizations. Another fact is having to study and learn the various terms involved such as blockchain, fiat, crypto mining, etc.

The impact of cryptocurrency on global economy include:

1.Global Appeal: Cryptocurrencies offer an easy-to-use, digital alternative to fiat currencies. Consumers from the United States or European Union may view cryptocurrencies as a novelty, but there are many countries with mismanaged domestic currencies. For example, Venezuela's authoritarian regime has become infamous for its skyrocketing inflation, which has led to plummeting living conditions for millions of citizens without access to external currencies. The wildswings of Bitcoin and other cryptocurrencies may seem risky to consumers in the United States, but Venezuelans may find the swings tolerable when their domestic currency has been in a sharp decline over several years with no signs of abating. In other words, many global consumers may see cryptocurrencies as a hedge against inflations in ce the number of cryptocurrency coins in circulation is mathematically limited overtime.

2.Government Responses: The official response to cryptocurrencies has been lukewarm at best across central banks and financial institutions. While there are some organizations that have been supportive of the cryptocurrency, many central banks remain cautious given the market's extreme volatility. Issues with tax evasion and capital controls also have led to some widespread concerns. United States Federal Reserve Chairman, Jerome Powell, believes that technical issues remain, and governance and risk management will be crucial before cryptocurrencies become part of mainstream society. Former European Central Bank Vice President, Vitor Constancio called

Bitcoin a “tulip” inreference to the 17th-century bubble in the Netherlands and many other governors have expressed similar skepticism. The People's Bank of China believes that conditions are “ripe” to embrace cryptocurrencies, but the central bank wants full control, and authorities are cracking down on the cryptocurrency ecosystem in the country.

3.Impact on Global Investments: Cryptocurrencies have many benefits when it comes to frictionless transactions and inflation control, but many investors are adding these currencies as assets to their diversified portfolios. In particular, the non-correlated nature of the market makes cryptocurrencies a potential hedge against risk, similar to precious metals like gold. Many cryptocurrency exchange- traded products (ETFs and ETNs) have arisen for this very reason. Cryptocurrencies as an asset is a new and dynamic prospect that can go in either direction. In the end, many investors view cryptocurrencies as either a vehicle for speculation or a hedge against inflation, but the size of the market doesn't represent a systemic risk, as of 2020In conclusion, cryptocurrency's outlook is still very much in question. Proponents see limitless potential, while critics see nothing but risk.

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