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| RESEARCH ARTICLE

The Financial Implication Of Covid-19 Pandemic On The Performance Of Healh Care Institutions In Nigeria: A Study Of The Federal Medical Center, Lokoja, Kogi State

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| ABSTRACT

The study examines the financial implication of covid-19 pandemic on the performance of health institutions in Nigeria with emphasis on the federal medical center, Lokoja, Kogi State. Areas of focused include the costs of clinical, drugs and consumables used and the internally generated revenue of the hospital, 24 months prior to covid-19 and 24 months into covid-19. The methodology of the study employed the use of secondary data collated from the hospital records unit and adopted the Pearson Product Moment Correlation (PPMC) as technique of analysis to determine the level of association of the hospital's performance in the two periods under study. The results of the study show that the costs of clinical, drugs and consumables used are closely associated in the two periods, with strong and significant relationship, while internally generated revenue in the two periods are not closely associated with an insignificant relationship. Recommendations were however made on ways of improving performance of the hospital and among such recommendations include the need for the hospital management to closely monitor the use as well as the cost of materials with high usage, and in order to match revenue with rising expenses the hospital management is advised to solicit for donations and support from private and public organizations as well as high net worth individuals, among others.

| KEYWORDS

Financial Implication, Covid-19 Pandemic, Performance, Health Care Institutions

Introduction

In 2020, access to health care services declined significantly throughout the world compared to 2019. Nicola, Alsafi and Sohrabi (2020), attribute this unprecedented decline in patient attendance to challenges facing both medical facilities and the patient community. For patients, the fear of contracting COVID-19 from their visit was the most cited reason for not seeking medical care. The implication of this was loss of revenue leading to unprecedented financial burden among health institutions globally due low patronage. (Nicola, Alsafi and Sohrabi, 2020). Many health institutions could therefore generate enough revenue to guarantee efficient and smooth operations. In addition, the COVID-19 pandemic presents multifaceted challenges to many healthcare programs: from reduced access to healthcare services including testing, treatment, and care support services, to structural impacts on drug stock outs, resource shortages, and malnutrition.

The pandemic of COVID 19 presented a unique challenge to hospitals and healthcare systems that they have been struggling to function. Operating costs have been increasing with new protocols, planning, operating space, supplies, and etc. Hospital's cash reserves were being depleted due to increased operational costs and reduced revenue. Government funding, such as the overhead

allocations will only help keep the doors open and not create profitability for the hospitals. Efficiency and cost restructuring have been deemed necessary during the financial crisis brought upon by the COVID 19 pandemic. Hospitals that rely heavily on outpatients and elective services has been affected the most (Onyeji, 2020).

Several healthcare organizations lacked the liquid assets to cushion the financial blows that have resulted from preparing and mobilizing resources due to the pandemic.

Social distancing practices and patient anxiety related to COVID-19 led to cancellation of nearly all outpatient appointments and loss of revenue from cancellation of inpatient admissions, outpatient visits, and emergency visits, elective procedures and elective surgeries had made the hospital to become financially strained. Similarly, expenses are higher across board, as hospitals face increasing costs for drugs, chemical reagents, personal protective equipment (PPE) and other medical and safety supplies needed for skeletal services. On the other hand, with the reduction of these activities, the financial system of the hospital and its sustainability were seriously threatened and the faced a shortage of revenues and financial resources. This study therefore intend to identify how COVID 19 pandemic has impacted on the finances of health institutions, including their internal revenue generating capacity, with particular reference to the Federal Medical Centre, Lokoja.

This specific objectives of the study is broken down as follows:

I. To assess the impact of COVID-19 on the costs and usage of clinical drugs/consumables in the Federal Medical Centre, Lokoja.
II. To assess the impact of COVID-19 on internally generated revenue of Federal Medical Centre, Lokoja.

Review of Literature

The Concept of Covid-19

COVID-19 Pandemic Coronavirus tag COVID-19 according to Ozili and Arun (2020) is a novel strain from Severe Acute Respiratory Syndrome (SARS) species. COVID-19 pandemic was first detected in Wuham, the capital of Hubei, China in December 2019. It was pronounced as pandemic by World Health Organisation (WHO) on March 11, 2020. (McKibbin and Fernando, 2020) opined that Coronavirus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. Most people infected with the virus will experience mild to moderate respiratory illness and recover without requiring special treatment. However, some will become seriously ill and require medical attention. COVID-19 is said to be caused by SARS-COV-2 virus and this starts with a symptoms of high fever, dry coughing, sore throat or diarrhoea and shortness of breath (Thomas, Webster, Petherick, Phillips and Kira, 2020). The pandemic has become a global phenomenon which started spreading from countries to countries as an invisible enemy as it works against the economy, social and psychological behaviour of citizens in a nation. It affects all aspects of human life ranging from religious, social, cultural, sporting, career and educational activities (Thomas, Webster, Petherick, Phillips and Kira, 2020).

The symptoms of COVID-19 are variable, but often include fever, cough, headache, fatigue, breathing difficulties, loss of smell, and loss of taste (*Theodoratou, 2021).* Symptoms may begin one to fourteen days after exposure to the virus. At least a third of people who are infected do not develop noticeable symptoms (Islam, 2020). Study from Johns Hopkins University (2022), shows that 81% of people who develop symptoms noticeable enough to be classed as patients, develop mild to moderate symptoms, while 14% develop severe symptoms (dyspnea, hypoxia, or more than 50% lung involvement on imaging), and 5% develop critical symptoms (respiratory failure, shock, or multiorgan dysfunction). Older people are at a higher risk of developing severe symptoms. Some people continue to experience a range of effects (long COVID) for months after recovery, and damage to organs has been observed (Islam, 2021).

COVID-19 transmits when people breathe in air contaminated by droplets and small airborne particles containing the virus. The risk of breathing these in is highest when people are in close proximity, but they can be inhaled over longer distances, particularly indoors (*Page, Hinshaw, McKay, 2021).* Transmission can also occur if splashed or sprayed with contaminated fluids in the eyes, nose or mouth, and, rarely, via contaminated surfaces. People remain contagious for up to 20 days, and can spread

the virus even if they do not develop symptoms *(*Zimmer, *2021)*. Several COVID-19 testing methods have been developed to diagnose the disease. The standard diagnostic method is by detection of the virus's nucleic acid by real-time reverse transcription polymerase chain reaction, transcription-mediated amplification (TMA), or by reverse transcription loop-mediated isothermal amplification (RT-LAMP) from a nasopharyngeal swab(*Page, Hinshaw, McKay, 2021).* However, several COVID-19 vaccines have been approved and distributed in various countries, which have initiated mass vaccination campaigns (*Theodoratou, 2021)*. Other preventive measures include physical or social distancing, quarantining, ventilation of indoor spaces, covering coughs and sneezes, hand washing, and keeping unwashed hands away from the face. The use of face masks or coverings has been recommended in public settings to minimize the risk of transmission (Islam, 2021).

The Concept of Revenue Generation

Revenue has been defined by various scholars at different time. It lacks universal accepted definition. According to Webster New International Dictionary, revenue could be defined as the annual or periodically yield or taxes, exercise, and other sources of income that a nation state or public sector collect or receives into their treasury for public use. This means that it is a public income of whatever kind. Dixon (2019), sees revenue as the total amount obtained from the sale of a merchandise services to customers. According to Procter (2015), revenue is an income earned, while Fayemi (2011) sees it as tolls, taxes, impress, rates, fees, duties, fine, penalties, fortunes and all other receipts of government from whatever source arising over a period either one year or six months.
Flesher and Flesher (2017), define revenues as an increase in owners equity resulting from the performance of a service or sale of a product or service; this definition is anchored on the concept of equity which may increase due to sale of goods or provision of services; in other words there are two sides to revenue, something received and something given.
Walgenbach and Glison (2016), defined revenues as the increase in owners' equity a firm earns by providing goods or services for its customers. This definition can be regarded as an advancement of the formal in that brought in the concept of customer, the former definitions stated that goods and services will be provided but the definitions stated by Walgenbach and Gilson (2016), made it clear that the goods and services have to be provided to a customer. A common relationship from the two definitions is revenue as it has to be earned and may increase or decrease in line with performance.

Internally Generated Revenue

Internally generated revenue (IGR) means a lot of things to different classes of people, institutions, government parastaltas, state governments, communities, non-profit organisations etc. However, there is a single idea that unifies the several views held about internally generated revenue, that is extra fund generated outside allocations from parent authorities. Erhagbe (2014), states that IGR is the creation of "tangible" and "intangible" funds within the confines of one's entity. It is a combination of all non-governmental monetary accruals to the institution and may involve diverse strategies. This means that the funds used in effectively transforming the institution's landscape were not borrowed or realized through direct Government intervention. Internally generated funds are those funds that are realized through the efforts or operations of the entity itself (i.e. the funds were not borrowed or realized through other external means). It is funds not constituting the proceeds of any loan, debt issuance, equity issuance, asset sale, insurance recovery or indebtedness (Fayemi, 2011).

The Concept of Hospital Performance

Arriving at and agreeing on statements that aptly define hospital and performance can be difficult. Any definition of a hospital (or performance) will encompass the minimum characteristics or features that distinctly identify something as a hospital (or performance), but do not apply to anything that does not possess such features. Of course, since they already exist, rather than

being stipulative, when we define hospital or performance, either statement ought to be reportive i.e. connotes how the word/notion is truly used or what hospital or performance actually is. WHO (2000), indicated some guiding elements, most of which had been previously employed by WHO for its World Health Reports. So far, within the WHO Hospital Performance Project, a hospital has been defined as an organized effort to provide a specific set of health care services, usually located in one or several buildings, and related to specialized cure (diagnosis and treatment) and care (as opposed to primary care) with the input of health professionals, technologies, and facilities aimed at meeting patient needs (WHO, 2000).

WHO (2013), further defines a hospital as a residential establishment with inpatient facilities for 24 hours medical and nursing care, diagnosis, treatment and rehabilitation of the sick and injured, usually for both medical and surgical conditions, and staffed with at least one physician, and which may also provide outpatient services.

WHO (2013), conceptualized six major dimensions of hospital performance, namely: clinical effectiveness, patient-centeredness, production efficiency (hereafter referred to as just efficiency, safety, staff orientation, and responsive governance. While safety and patients centeredness have been taken as cross-cutting dimensions, the remaining four dimensions represent vertical, but certainly not mutually exclusive, dimensions within the current hospital performance model.

Patient-centeredness and safety can be seen to influence and be influenced by the degree of clinical effectiveness, efficiency, staff orientation, and responsive governance of a hospital. For instance, clinical effectiveness also implies the avoidance of care underuse where there is failure to provide care when it would have produced a favorable outcome, and overuse where benefit is not increased further but harm can increase (Chassin and Galvin, (2018). Such potentially dangerous outcomes of inappropriate utilization of care (including incompetent administration) easily constitute preventable adverse events (or safety lapses); ineffectiveness resulting from overuse or inappropriateness can give rise to resource wastages, poor health, readmissions, and lengthened hospitalizations. Placing the patient's needs and welfare at the heart of service delivery easily aligns with a move towards efficiency, thus avoiding waste and containing costs whenever possible. Staff orientation affects the degree of patient- centeredness as well as the safety concerns for both staff and patients. Responsive governance sees the now-centralized patient all the way into the community of which she/he is a member and promotes health, safety, access, integration, and coordination (Kazandijan and Lied, 2019).

Empirical Review

Hayatuddin, Ahmed, Muhammad, Umar, and Bashir (2020), analyze the COVID-19 lockdown effect on economic activities in Nigeria using a quantitative research approach which entails systematic evaluation of individuals' behavior towards an unprecedented economic shock applying a systematic random sample and a well-structured survey questionnaire. The results indicated that most socio-economic challenges including job loss, increase social vices, rise in poverty level, fall in economic activities, as well as fall in the level of GDP faced by individuals was as a result of the lockdown. The study recommends that lifting of lockdown would be the best action for the government to tackle socio-economic resilience. The study also revealed that both public and individuals need to establish democratic preferences, and trust on health professionals or experts. Further, the government should decide on effective measures needed to contain the continuous spread of the virus especially through the development of research based and healthcare institutions.

Mohammad, Mehdi, and Hassan (2020), examine the relationship between globalization, coronavirus disease 2019 (COVID-19) cases, and associated deaths in more than 100 countries. The ordinary least squares multivariate regressions employed for the study shows that countries with higher levels of socio-economic globalization are exposed more to COVID-19 outbreak. Nevertheless, globalization cannot explain cross-country differences in COVID-19 confirmed deaths. The fatalities of coronavirus are mostly explained by cross-country variation in health infrastructures (e.g., share of out of pocket spending on health per capita and the number of hospital beds) and demographic structure (e.g., share

of population beyond 65 years old in total population) of countries. The least squares results are robust to controlling outliers and regional dummies. The finding provides the first empirical insight on the robust determinants of COVID-19 outbreak and its human costs across countries.

Using observational and experimental studies that reported the psychological effects on HSCWs during the COVID-19 pandemic, Johnness et al (2021), review the impact of COVID-19 on the mental health of healthcare workers in the UK. The result of the study indicates that COVID-19 has a considerable impact on the psychological wellbeing on front-line hospital staff. Results suggest that nurses may be at higher risk of adverse mental health outcomes during this pandemic, but no studies compare this group with the primary care workforce. Furthermore, no studies investigated the psychological impact of the COVID-19 pandemic on social care staff. Other risk factors identified were underlying organic illness, gender (female), concern about family, fear of infection, lack of personal protective equipment (PPE) and close contact with COVID-19. Systemic support, adequate knowledge and resilience were identified as factors protecting against adverse mental Whilst psychological interventions aimed at enhancing resilience in the individual may be of benefit, it is evident that to build a resilient workforce, occupational and environmental factors must be addressed. Further research including social care workers and analysis of wider societal structural factors is recommended.

Farid and Ede (2022), examine the financial performance of hospitals during COVID-19 pandemic in Indonesia using SWOT analysis in hospitals with profitability ratios (Strength, Weakness, Opportunity, and Threat).The study include\ research for the 2020 period, types of national and international articles published in the field of public and hospital health connected to the COVID-19 pandemic relating to infirmary financial strategies with a SWOT analysis, and also conducted a search, using a multi-method strategy between January 2020 and December 2020. The study concluded that several strategies are needed by the hospitals if they must survive the pandemic, namely a change in leadership style in terms of financial management, by not only focusing on COVID-19 but by improving essential services for to handle other diseases using an integrated health system management.

Theoretical Framework

Resource Dependence Theory

The fundamental assumption of this perspective is that organisations require resources to survive (Pfeffer and Salancik, 1978) and ultimately organisational actions are directed at securing survival: "The key to organizational survival is the ability to acquire and maintain resources" (Pfeffer and Salancik, 1978). For its survival, the organisation must engage in an exchange with its environment. The environment of an organisation contains scarce and valued resources essential to organizational survival. In order to acquire an uninterrupted flow of resources from the environment, the focal organisation is expected to offer acceptable products or services to the organisations it depends on. This mutual benefit creates dependencies between the organisation and its environment (Johnson, 1995). The organisation's environment encompasses different people, groups, organisations or regulations that influence organisational survival. This means that an organisation often faces conflicting demands from the environment. The challenge to the organisation is which groups to attend to and which to ignore. In short, RDT stress the dependency relations between organisations and their environment, power positions of different organisations, and strategic alternatives for those in organisational leadership (Pfeffer and Salancik, 1978).

One of the important issues in RDT is the availability and accessibility of the above-mentioned resources (Hall, 1999). Resource providers in the environment may have the capability of exercising power over their resource recipients to enforce their demands and interests. Power is defined as a relationship among social actors in which one social actor, A, can get another social actor, B, to do something that B would not have otherwise done (Pfeffer, 1981; Dahl, 1957; Weber, 1947). The bases for power are: coercive (force/threat), utilitarian (incentives), and normative (symbolic influences) (Etzioni, 1964). There are two dimensions of resource exchange by which resource providers may

impact on organisations: the relative magnitude of exchange and the criticality of the resource to the recipient (Pfeffer and Salancik, 1978). Relative magnitude is measured in terms of the share of resources provided. An organisation receiving resources from only one source will be heavily dependent upon that source, which consequently may exercise great power over the organisation. Dependence is here defined as the product of the importance of a given resource to the organisation and the extent to which it is controlled by external actors. Criticality is the degree to which the organisation may continue to function in the absence of the resource. For instance, if there is a sole provider of a critical resource, the resource recipient has little power to bargain and its dependence on the resource provider is very high. If there are several providers of a critical resource, the organisation has a choice and consequently is less dependent on one resource provider (Pfeffer and Salancik, 1978).

Research Methodology

Research according to Avwokeni (2006) is any enquiry that aims at providing information for solving identified problems. Research is therefore, an important tool for advancing knowledge, for promoting progress and for enabling man to relater effectively with his environment to accomplish his purpose and to resolve his conflicts (Ogolo, 1996). Research could be conducted on an identified research problem. However, in conducting this research work, the historical research method is used. Historical research interprets past trends of attitude, events and facts. The data used is viewed with historical perspective as part of the process of social development rather than in isolated attitude, event or fact. It is intended to gain a clearer perspective of the present situation of current problems, but also with a greater appreciation of the role which new knowledge can play in the progress of society and interpret the data collected in order to link the past, present and the future trend of exchange rate variation in Nigeria and the effect on industrial output.

Profile of Federal Medical Centre, Lokoja.

Sequel to the agreement between the Federal government and the Kogi State Government, the federal Medical Centre, Lokoja, (FMCL) came into existence on 9th November, 1999. By this agreement, the FMCL took over the task of upgrading and maintaining all physical assets of the former Specialist Hospital Lokoja, for the delivery of efficient and effective healthcare services to clients.

Originally, the hospital was the former Provincial General Hospital, Lokoja, built by then Kabba Provincial Government in 1954 and located at Adankolo, the headquarter of the Inland Water Ways, the present site of the Kogi State Council for Arts and Culture. In 1958, the Hospital was relocated from Adankolo on the outskirts of the bank of river Niger to its present site in the Government Reservation Area (GRA) and renamed General Hospital, Lokoja.

In 1982, under the aegis of the then Kwara State Government, it was renamed Specialist Hospital, Lokoja, the name it bore until 9th November 1999, when it was taken over and renamed Federal Medical Centre, Lokoja.

The Federal Medical Centre, Lokoja, was established along with others across the country in those states where Federal Teaching Hospitals were not available. They are expected to perform all duties of Teaching Hospitals except training of Medical Students. They are expected to render tertiary health care delivery services as well as provide research and training as may be necessary to improve the quality of healthcare delivery.

Apart from rendering first class health care delivery services to the general populace, the Federal Medical Centre, Lokoja, also serves as a referral Centre to both Government and private hospitals, clinics and health centres in and around Kogi State and the neighbouring states including the Federal Capital Territory, Abuja.

Its unique location in the historical Confluence town, Lokoja, a junction town between the North, South, West and Eastern States of Nigeria keeps it busy in the treatment of accident cases which occur regularly on the busy Abuja – Lokoja – Okene expressway. Hence, the Centre provides primary, secondary and tertiary health care delivery services.

To meet the high demand on its services, the hospital has a crop of seasoned Medical Consultant in various specialities as approved by the West African College of Surgeon and the National Postgraduate Medical College of Nigeria, Medical Officers, Clinical officers, Administration, Finance and Accounts, engineers, etc The Hospital trains Resident Doctors, Interns, student Nurses, ITF, House Officer. The hospital is also approved for Primary and secondary care provider under the NHIS.

Data Collection Method and Sources

Time series or secondary data were solicited at the federal medical center, Lokoja for the purpose of this study. Data were sought for 24 months before COVID-19 and 24 months during COVID-19 (January 2018 to December 2019 and January 2020 to December 2021 respectively) in the areas of inpatient and outpatient admissions, clinical and drug supplies and internal revenue generation. The acquired data would enable this study to focus on the the performance of the hospital prior to COVID-19 and during COVID- 19 in the above mentioned areas.

Analytical Technique

The Pearson Product Moment Correlation (PPMC) model was adopted to analyze the extent of the relationship between the variables in the pre and post COVID-19 period under study. The PPMC formula for the study is indicated below:

$$r = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{[N\sum X^2 - (\sum X)^2]\,[N\sum Y^2 - (\sum Y)^2]}}$$

Where: r = The correlation coefficient
N = Number of observations
Y = Pre COVID-19 observations
X = COVID-19 observations
$\sum$ = Summation sign

$$t_{cal} = r\,\frac{\sqrt{N-2}}{\sqrt{1-r^2}}$$

Degree of freedom = N-2

Presentation of Data and Analysis

Presentation and Analysis of Data Before and During Covid19

The correlation results obtained on patients admissions, clinical and medical consumables, as well as the internally generated revenue 24 months before and 24 months into COVID19 are displayed and discussed in this chapter.

Table 1: Data Used for the Analysis on Costs of Clinical and Drugs/Consumables used Prior to and During the COVID-19 Pandemic are Presented in the Table Below

S/N	Y (N Millions) **Pre COVID-19 Era**	X (₦ Millions) **COVID-19 Era**
1	2.0	6.5
2	65.0	88.2
3	35.4	27.3
4	13.9	20.2
5	4.8	14.3
6	32.3	22.4
7	138.8	56.1
8	34.3	42.2

9	23.3	14.3
10	21.3	20.1
11	72.9	63.4
12	61.5	136.7
13	40.2	30.7
14	25.6	35.8
15	64.5	52.6
16	41.8	28.7
17	58.8	36.9
18	85.2	53.5
19	44.5	48.3
20	50.6	46.2
21	54.3	57.8
22	134.5	54.9
23	79.8	74.2
24	84.6	131.2

Source: Federal Medical Center Lokoja

Table 2: Summary of Results from Analysis of the Relationship between Pre and During COVID-19 costs of Clinical and Drugs/Consumables Usage.

Item	**Result**
Correlation coefficient (r)	0.5554
Degree of freedom	N – 2 = 22
T_{cal}	3.767
T_{tab}	1.717

Source: Data Analysis

The result shows that the coefficient of correlation of costs of clinical and drugs/consumables in the pre and during covid-19 period to be 0.5554 (see appendix A for details). The result shows that the level of association between costs of clinical and drugs/consumables used prior to and during covid-19 is high at 56%. This implies that the costs of clinical and drugs/consumables used in between the two periods are closely associated which implies that there is no much difference in the costs of clinical and drugs/consumables usage in between the two periods.

Test of hypothesis one

The null and alternative of hypotheses are stated below:
Null Hypothesis (H_o): There is no significant relationship between clinical and drugs/consumables costs used prior to and during the COVID-19 pandemic
The student's t tests were conducted at 95% confidence interval, at 0.05 significant levels. The degrees of freedom were determined appropriately. To determine whether the relationship between the two periods are actually significant or not, the following are taken into consideration: if $t_{cal} \geq t_{tab}$ reject H_o (The null hypothesis) and accept H_A (The alternative) which implies a significant relationship, otherwise accept H_o, which implies no significant relationship.
Degree of freedom = N – 2 = 24-2 = 22

t_{cal} = 3.767

t_{tab} = 1.717

$t_{cal} > t_{tab}$ ie 3.767 > 1.717
Decision Rule

Since the t_{cal} is greater than the t_{tab}, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_A) which states that there is a significant relationship between clinical and drugs/consumables costs used prior to and during the COVID-19 pandemic is accepted.

Table 3: Data Used for the Analysis on Internally Generated Revenue of the Hospital Prior to and During the COVID-19 Pandemic are Presented in the Table Below

S/N	Y (₦ Millions) Pre COVID-19 Era	X (₦ Millions) COVID-19 Era
1.	52.8	72.7
2.	49.3	57.6
3.	36.5	47.5
4.	52.8	43.4
5.	22.6	60.2
6.	39.6	54.3
7.	40.0	40.1
8.	46.1	38.4
9.	52.9	27.8
10	48.9	40.7
11.	42.8	48.4
12.	44.7	75.1
13.	53.0	50.3
14.	78.9	44.5
15.	53.1	54.8
16.	56.2	41.8
17.	59.2	56.0
18.	42.8	55.9
19.	75.2	56.4
20.	58.9	38.8
21.	67.9	34.0
22.	65.2	44.9
23.	45.5	67.5
24.	71.0	67.9

Source: Federal Medical Center Lokoja

Table 4: Summary of Results from Analysis of the Relationship between Pre and During COVID-19 Internally Generated Revenue of the Hospital

Item	Result
Correlation coefficient (r)	0.1404
Degree of freedom	N – 2 = 22
T_{cal}	0.6504
T_{tab}	1.717

Source: Data Analysis

The result shows that the coefficient of correlation of internally generated revenue in the pre and during covid19 period to be 0.1404 (see appendix B for details). The result demonstrates that the level of association of internally generated revenue prior to and during covid-19 is very low at 14%. This implies that the internally generated revenue of the hospital dropped by 86% as a result of the covid-19 pandemic, indicating a huge difference in internally generated revenue between the two periods.

Test of hypothesis two

The null and alternative of hypotheses are stated below:

Null Hypothesis (H_o): There is no significant relationship between internal revenue generation prior to and during the COVID-19 pandemic.

The student's t tests were conducted at 95% confidence interval, at 0.05 significant levels. The degrees of freedom were determined appropriately. To determine whether the relationship between the two periods are actually significant or not, the following are taken into consideration: if $t_{cal} \geq t_{tab}$ reject H_o (The null hypothesis) and accept H_A (The alternative) which implies a significant relationship, otherwise accept H_o, which implies no significant relationship.

Degree of freedom = N – 2 = 24-2 = 22

t_{cal} = 0.6504

t_{tab} = 1.717

$t_{cal} < t_{tab}$ ie 0.6504 < 1.717

Decision Rule

Since the t_{cal} is less than the t_{tab}, the alternative hypothesis (H_A) is rejected and the null hypothesis (H_0) which states that there is no significant relationship between internal revenue generation prior to and during the COVID-19 pandemic is accepted.

Discussion of Findings

The study shows a strong association in the costs of clinical, drugs and other consumables used in the pre covid-19 and during covid-19 periods, which implies a strong correlation in material usage in the two periods. Similarly, there appear to be a significant relationship between materials such as clinical, drugs and other consumables used in the two periods. In the study conducted by Mashinge et al (2021), on the health and physical impact of covid-19 in Africa arrive at similar findings. Hayatuddin, Ahmed, Muhammad, Umar and Bashir (2020); Muhammad, Mehdi and Hassan (2020) and Johnees et al (2021) arrived at similar finding in their studies. The result of the study also indicates a weak correlation of internal revenue generated in the hospital in both periods. This transmitted to an insignificant relationship in revenue generated in both periods. This implies a significant drop in internally generated revenue in the hospital during covid-19. This could be as a result of low patients patronage and admissions in the covid-19 period.

Khullar, Bond and Schpero (2020), in their study on the financial health of United States hospitals arrived at similar finding. Also, Essien, Eneanya and Crews (2020); Saki, Ghanbari, Behzadifar, Imani-Nasab, Behzadifar and Azari (2021); Kazempour-Dizaji, Sheikhan, Varahram, Rouzbahani, Yousef and Khosravi (2021), in their study on changes in Hospital's costs and revenues before and after COVID-19 in Iranian Hospitals arrived at similar findings.

Conclusion

The study has exposed how covid-19 impacted on hospital financial performance in Nigeria with emphasis on federal medical center, Lokoja, Kogi State. The covid-19n pandemic did not only reduced patients' patronage, but also affected the level of internally generated income in the hospital, which drastically reduced the revenue generated by the hospital. However, the costs of clinical, drugs and consumables did not decline as the hospital continued to incur huge cost of supply as the hospital had to expend huge sum of money on personal protective equipment.

Recommendations

The recommendations made in line with the findings of the study are as follows:

a. While the income of the hospital dropped, huge sum of money was expended on medical supplies and consumables. The hospital management should monitor the usage as well as the cost of materials with high usage particularly personal protective gears/equipment which demand had been excessively high in the hospital.
b. In order to match revenue with rising expenses, the hospital management should as a matter of urgency solicit for donations and support from private and public organizations as well as high net worth individuals. This will enable the hospital to withstand the rising level of expenditure associated with the covid-19 pandemic.
c. The hospital should segregate suspected cases of covid-19 and other cases of ill-health. This will ensure that more patients having non-related ailments to covid-19 are also admitted and given due attention. This would not only increase the level of patients admission, but also the level of internally generated revenue in the hospital.

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