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Maintenance Management Practices on Organizational Performance of Tertiary Hospitals in Enugu and Anambra States

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Abstract: *The study examined maintenance management practices on organizational performance of tertiary hospitals in Enugu and Anambra States. The study developed two objectives such as to; determine the effect of preventive maintenance on organizational efficiency of tertiary hospitals in Enugu and Anambra States. Analyze the effect of productive maintenance on organizational efficiency of tertiary hospitals in Enugu and Anambra States.The study was anchored on The transaction cost theory. The study adopted survey research design. Data were generated from primary and secondary sources. The method for data collection was questionnaire which was administered randomly among the staff of the selected firms. The population of the study was 1132, The sample size of the study is two hundred and seventeen (217). While one hundred and eighty-three (183) where retrieved. The hypotheses were tested using multiple regression analysis method at 0.05% level of significance. The findings of the study revealed that Preventive maintenance had a significant positive effect on organizational efficiency of tertiary hospitals in Enugu and Anambra States (t-test, 2.986, p=005). Productive maintenance had significant positive effect on organizational efficiency of tertiary hospitals in Enugu and Anambra States (t-test, 4.480, p=000).The study recommends that, The maintenance workers of the studied firms should be properly and adequately trained to handle technically any maintenance problem. Proactive rather than reactive approach to maintenance tasks should be encouraged in the studied firms*

Key words: *preventive maintenance, maintenance management, organizational performance, Productive maintenance*

1.1 INTRODUCTION

Maintenance Management is the habit of regularly and consistently keeping a building, machine, facilities, equipment, infrastructures etc in good and working condition. In support of this assertion, Suwaibatul- Islamiah, Abdul-Hakim, Syazwina, & Eizzatul (2012) posits that maintenance culture concerns the values, way of thinking, behaviour, perception and the

underlying assumptions of any person or group or society that considers maintenance as a matter that is important, and practice it in their lives. If a nation must develop, it is imperative that installation as well as maintenance of its existing facilities be given priority. This is more so for developing nations like Nigeria where there is a huge gap between the supply and demand for such facilities due to high rate of population growth and other factors (Dabara, Ankeli, Guyimu, Oladimeji, & Oyediran, 2015).

Maintenance encompasses all planned or unplanned technical, administrative and managerial efforts made to retain or restore an item to an acceptable condition (Chan, 2010). Culture on the other hand is defined as the cultivated behaviour of particular people as expressed in their habits, attitudes towards each other, their moral and religious beliefs which are mostly learned and socially transmitted from one generation to another (Kohls, 2011). Tijani et al.(2016) described maintenance culture as the habit of regularly and consistently keeping buildings, machine, facilities, equipment, infrastructure, etc. in a good and working condition. Exhibiting proper management and timely maintenance of buildings prevent deterioration, ensures safety and sustain their values and qualities (Kportufe, 2015). Maintenance is therefore crucial in upholding building performance to minimize lifecycle costs towards ensuring a safe environment (Abdullah et al., 2014).

The maintenance of production machinery and equipment and assurance of availability of spare parts are becoming increasingly important (Ramdeen and Pun, 2005). Maintenance management is a data-intensive activity, and forms an important aspect of human and non-human resources development as it is considered one of the major catalysts of the continuous existence of all forms of resources in the universe (Uma, 2009). With the increasing specialization and complexity of equipment and other facilities used in manufacturing, the need to develop effective maintenance culture in industries has become imperative (Olatunbosun and Abimbola, 2005). Maintenance is the work necessary to keep the body, equipment and machines in proper and safe operating conditions. Therefore, maintenance is seen as a vital part and a necessity in human and non-human resources management if they are to be continuously functional. Maintenance can be summarized as the repair and upkeep of existing equipment, buildings and facilities to keep them in a safe, effective as designed condition so that they can meet their intended purpose (Eti et al., 2004; Adeniyi et al, 2004).

Accordingly, **m**aintenance is looked at as a physical asset management, and thus, the scope is considered to cover every stage in the life cycle of technical systems, specification, acquisition, planning, operation, performance evaluation, improvement, replacement, and disposal. This implies that an integrated approach is taken in which maintenance is not done in isolation, but involves all employees at every level of production. In other words, to get the most out of their facilities, businesses need to develop a holistic, enterprise approach to facilities management that considers the strategic, tactical and operational lifecycle of assets. Reserving maintenance as a prerogative of a particular department implies that Oil check, cleaning and greasing machines, changing of worn-out parts, replacement of machineries, checking the operating parameters and general inspection seem to be left to the maintenance department to carry out during specific periods.

Maintenance culture is an attitude which is sadly lacking in Nigeria, whether in the home, office, school or factory. Mbamali (2003) added that poor maintenance culture has become a widely recognized problem in Nigeria. Maintenance culture in Nigeria is the lowest around the World, especially, in our principal towns and cities (Uforo, Malachi and Don, 2022). Maintenance culture such as preventive and corrective approaches which comprise provision for adequate care of the hard earned infrastructure have not gained ground in the consciousness of resource managers in the manufacturing firms over the years. This condition has resulted in abandoned factory plants, dilapidated buildings, deserted vehicles with minor problems, moribund industries and a host of other properties which have little or insignificant problems. The ugly consequence is economic stagnation, poor quality, huge operating cost to these firms and subsequent collapse which aggregate to national economy. Also maintenance culture in Nigeria is bedeviled by poor leadership, corruption, attitudinal problem and lack of maintenance policy**.** It is against this backdrop that the study examines the maintenance management practices and organizational performance of tertiary hospitals in Enugu and Anambra states

1.2 Objectives of the Study

The study investigates the effect of maintenance management practices on organizational performance of tertiary hospitals in Enugu and Anambra States. The specific objectives derived from this main objective are to:

i. Determine the effect of preventive maintenance on organizational efficiency of tertiary hospitals in Enugu and Anambra States
ii. Analyze the effect of productive maintenance on organizational efficiency of tertiary hospitals in Enugu and Anambra States.

1.3 Hypotheses

To guide the thrust of the investigation, the following hypotheses were raised in the course of this study

H01: Preventive maintenance has no significant positive effect on organizational efficiency of tertiary hospitals in Enugu and Anambra states.

H02: Productive maintenance has no significant positive effect on organizational efficiency of tertiary hospitals in Enugu and Anambra states.

REVIEW OF RELATED LITERATURE

2.1 Theoretical Framework

This section examines the various theories that were used to inform the study of the maintenance management practices and organizational performance. The study was guided by the following theories; Transaction Cost Theory and Resource Based View Theory.

Transaction Cost Theory

The transaction cost approach to the theory of the firm was created by Ronald Coase (1937).Transaction cost theory is a theory accounting for the actual cost of outsourcing production of products or services including transaction costs, contracting costs, coordination costs, and search costs. The inclusion of all costs is considered when making a decision and not just the market prices. Essentially this theory illustrates the make versus

buy decision for companies. The theory deals with the real costs of allocating resources in an imperfect world of misunderstandings, misaligned goals, and uncertainty. Since management consultants deal with this very issue, it may be that the theory can help explain the existence of the profession. A company's costs can be classified in two categories: production costs and transaction costs. Production costs are those that are most familiar. They are all the costs that are associated directly with productive activities (Masten 2012), such as manufacturing, logistics, and product development.

Transaction costs, on the other hand, are those costs associated with organizing economic activity. They thus vary with organizational form (Masten 2012). Or as Arrow (2009), puts it, "The distinction between transaction costs and production costs is that the former can be varied by a change in the mode of resource allocation, while the latter depend on the technology and tastes, and would be the same in all economic systems. It has been estimated that at least 45 per cent of the gross national product in a developed society is generated by transaction costs Transaction cost theory was relevant to the study because it means that, production costs need to be reduced for a firm to succeed in the chosen market. Efficiency or advantages of any organization are greatest where long term contracts are negotiated including employment issues. Applied to maintenance management, this theory agrees that, the most important market transaction costs are the cost of determining the price of a product or service, the cost of negotiating and creating the contract, cost of perfect information and the cost of information failure. The most important internal transaction costs are associated with the administrative cost of determining what, when, and how to produce, and cost of resource misallocation,

2.2 Empirical Review

Sipumelele, Miston, Thobekani and Yusuf (2022) investigated the role facility maintenance management plays on employee performance at a institution of higher learning in the Eastern Cape of South Africa. This study employed a quantitative research approach, and the data were gathered from 150 employees who were chosen through a random sampling method. The data were analyzed using the Statistical Package for the Social Scientist (SPSS) Version 24.0. The analysis was of frequencies and standard deviations. The study findings revealed that the current facilities at the institution need an upgrade to a level that is conducive, suitable, and adequate for employees to perform their duties satisfactorily to reach the objectives of the institution. An efficient method for preparing, scheduling, and coordinating facility maintenance tasks needs to be applied to ensure effective maintenance service is performed effectively. This empirical study provided fruitful implications for academicians by making a significant contribution to the facility maintenance literature by systematically exploring the effect of facility maintenance management on the employee performance at a higher learning institution within the Eastern Cape province of South Africa. This study, consequently, stands to greatly add new knowledge to the existing literature related to maintenance performance measurement in Africa, a research setting that has been neglected by academic researchers of late.

Uforo, Malachi, and Don (2022) examined the relationship between Maintenance Management and organizational performance among selected manufacturing firms in Akwa Ibom State. Survey research design was adopted for the study and a sample size of 258

respondents was drawn from the population of 275. For the objective of the study to be achieved, five hypotheses were formulated. The major instrument for data collection was a structured questionnaire administered to the respondent using random sampling techniques. Data collected were analyzed using simple percentage and Ordinal Logistic Regression. Results show that there is a significant correlation between variables of maintenance management such as corrective, preventive, condition-based maintenance and pre- determined maintenance and organizational performance variables of effectiveness, efficiency and profitability among selected manufacturing firms in Akwa Ibom State. Based on the finding of the analysis, management has to provide the maintenance teams with a maintenance management software in order to ensure proper interventions monitoring as well as smooth communication between technicians and other professionals to enhances business success. Consequently, it is recommended that Management should ensure that Corrective maintenance is implemented right after a defect has been detected on a piece of equipment or a production line: its objective is to make the piece of equipment work normally again, so that it can perform its assigned function. Corrective maintenance can either be planned or unplanned depending on whether or not a maintenance plan has been created.

Wagner, Marcelo and Raimundo (2022) focused on a case study applying a maintenance management system model based on the degree of maturity in a thermoplastic industry that operates in the Industrial Pole of Manaus, in the state of Amazonas (Brazil). The system must support the decisions of the organization and promote progress in the company's continuous improvement system. The study was based on the answers to a questionnaire submitted to the maintenance, production and process engineering sectors. Internal perception was compared with external perception, in order to perform an analysis of the field of view of the three sectors on the current position of the maintenance sector in relation to the maturity model used for this analysis. From the application of the model, it was possible to develop a strategic action plan, based on lean practices, so that the maintenance areas advance towards the higher levels of the maturity scale, aiming to reach and maintain performance levels recognized as excellence.

Sanket and Pushparaj (2022) studied the impact of effective maintenance management on improvement of productivity, profitability of production system and effective workplace management in an explosive sector industry (Solar Industries India Limited, Nagpur – A leading explosives industry in India and Asia). As much risk involve in operations of explosive industries it's a challenge for maintenance department to look forward for process improvement, plant-process optimization, effective utilization of available resources, etc. concerning all with the safety. So that it should withstand competitive explosive manufacturing environment with all required accomplishment of industrial goals. This research study also seeks to critically examine the implications of KAIZEN, 5S, TPM, Lean 6σ, TQM, etc. Implementation of this continuous improvement philosophy in an explosive manufacturing industry not only aims to increasing productivity of production system but also effective workplace management and overall personality development of working individual. The study is carried out in an explosive manufacturing industry which is now facing problem for maintaining machines due to highly acidic atmosphere, lack of effective space utilization, difficulty in establishing processing machines in plant, also to reduce

downtime due to hazardous working environment and maintenance issue related with the same. The research approach is directed in the direction for finding the root cause of the problem due to which maintenance problem rise in a manufacturing of explosives industries. The study includes solving the maintenance issue and plants effective-productive modification by doing root cause analysis (RCA), why-why analysis, of the problem for reducing downtime with zero maintenance requirement, improving productivity ratio of production system, also to implement continuous process improvement tools. The study highlights the contributions of strategic maintenance management initiatives for overall improvement and zero maintenance requirements.

Javani, Jafta and Dewa (2022) positioned maintenance functions and their impact on organizational performance from a power utility perspective. Research data was collected based on semi-structured interviews on thirteen maintenance engineering management personnel. The findings indicate that the challenges facing maintenance teams in executing maintenance activities include, ageing plant, staff shortage, lack of skills and knowledge and low employee morale. The paper recommended adoption of world class maintenance framework, for maintenance to achieve greater operational performance.

Ojanga, Muteshi and Okello (2019) establish the effect of total productive maintenance on manufacturing performance of food and non-alcoholic beverage firms in Nairobi County. Specifically, the study sought to establish the effect of equipment optimization and strategic employee empowerment on manufacturing performance of food and non-alcoholic beverage firms in Nairobi County. The study used descriptive research design. The study targeted population and included all the 43 Food and Non-Alcoholic Beverage manufacturing firms in Nairobi County registered members of KAM 2018. The target population for this study was the entire population of 43 Food and Beverage manufacturing firms which were registered members of Kenya Association of Manufacturers (KAM) 2018. The unit of observation comprised operations manager and maintenance managers. Hence, the target population of this study was a total 86 individuals. The study used primary data that was collected using a structured questionnaire. The data was analyzed through descriptive statistics and inferential statistics. Mean, frequencies and percentages were used to present the descriptive statistics while correlation and regression analysis comprised the inferential analysis. The study findings were presented through tables. The study findings revealed that both equipment optimization and strategic employee empowerment have a positive and significant effect on manufacturing performance of food and non- alcoholic beverage firms in Nairobi County.

Enemuo, Ejikeme and Edward, (2019) investigated the role of customer satisfaction and maintenance culture in the sustainability of hospitality establishments in Umuahia North and South LGAs. The study was guided by six objectives and six research questions. The research adopted a survey research design. The data generated were analyzed using simple frequency percentage and mean. The study revealed that the following variables were shown to have positive impact on customer satisfaction, high quality service, etc and the negative impacts identified by the respondents were lack of staff training. Recommendations were made based on the findings of the study.

Ugwu, Okafor and Nwoji, (2018) access the current state of maintenance of public buildings in public institutions in Nigeria using the University of Nigeria, Nsukka as a case study. It also proffers solutions to maintenance problems. The field investigation focused on staff residential houses, students' hostels, offices and classrooms. Questionnaires were used to collect data/information on 500 residential apartments, offices and a total of 260 hostel rooms were examined. The results were analyzed statistically. The results show that about 80% of the buildings within the University require immediate maintenance. Maintenance works are also needed at the staff residential buildings, students' hostels, offices and classrooms. In the students hostels, 61.70% of the hostels need door maintenance, 59.50% need to have their toilet facilities maintained while 72.40% of the hostels need to have their plumbing works maintained. It is concluded that lack of maintenance policy and funding is the major cause of public building deterioration in University of Nigeria, Nsukka.

Etia, Ogaji and Probert (2018), notes that the impact of corporate culture on plant maintenance in the Nigerian electric-power, Industry is significant. Comparisons have been made of modern maintenance practices in the more developed economies with respect of what occurs in Nigeria. Significant differences arise due to variations in corporate culture, pertinent learning opportunities and effectiveness's of strategic planning. The managerial implications of these divergences are discussed. A systematic, total productive-maintenance (TPM) approach needs to be adopted to allow corporate changes to be implemented at a rate commensurate with the organization's evolving culture. This studied advocates that maintenance should be managed, in each organization so as to cultivate a sense of ownership in the operators. Also autonomous maintenance teams consisting of operators, engineers and managers should be set up with the aims of improving personnel competence and equipment performance.

METHODOLOGY

3.1: Research Design

The research design that was adopted in this study was the survey design; structured questionnaire were used in this study to seek clarifications and convenience on the part of the respondent given schedules. With respect to this research, the researcher made use of primary and secondary sources of data. The primary sources of data include the questionnaire, while the secondary sources of data include the journals, magazines, textbooks and internet.

3.2: Population of the Study.

This describes characteristics of tertiary hospitals in the two Eastern States of Anambra and Enugu which constitute the universe of this study. The population of interest therefore comprised all Medical Directors, Doctors and top management staff. Thus the population of this study was: for Anambra state 819 and Enugu 313, which gave a total of 1132.

Tertiary Hospitals

	Tertiary hospital	Staff strength
1	Nnamdi Azikiwe University Teaching Hospital Nnewi.	421
2	Chukwuemeka Odumegwu Ojukwu University Teaching Hospital (Amaku) Awka.	398
3	Enugu State University Teaching Hospital (Parklane) Enugu	313
	Total	1132

3.3: Determination of Sample Size.

The sample size for this study was determined using the Borg & Gall formular of (1973). Statistically, the Borg & Gall (1973) formular for sample size is given by

$n= (Zx)^2(e)\ [N]$

$(Zx)^2$= Confidence level at 0.05

e= Error of margin (0.05)

N= Population of Interest = 1132

X = Significance Level

3.4: Sample Size and Sampling Technique

Given the nature of this study, it will be difficult to cover the entire population of (1132), A fair representative sample of the population therefore was imperative.. Accordingly, the sample size for the study, using the Borg & Gall (1973) formular for calculating sample size was completed as follows

$n = (1.960)^2\ (0.05)\ [1132]$

$n = (3.8461)\ (56.6)$

$= 217.6892 \Rightarrow 217$

$n = 217$

Sampling Technique

The study adopted stratified random sampling. Using this method, stratification of the employees was strictly based on their positions in the organizational hierarchy. This enabled the researchers to choose the respondents that were of interest to the study.

3.5: Method of Data Analysis

Statistics such as frequency count and percentages were used in the analysis of research questions, while hypotheses were tested using regression analysis. The hypotheses were tested at 0.05 level of significance. Analysis was carried out with the aid of Statistical Package for Social Sciences (SPSS) version 22.

3.6: Model Specification

The fundamental linear equation which forms the model is drawn from the theoretical and empirical literature reviewed in the previous chapters. It is observed that there is a casual link between the maintenance management practices and performance of tertiary hospitals in Anambra and Enugu States. In this section, we pursue the same objective further by specifying our model. This approach is to modify the model by specifying a multiple regression equation made up of maintenance management practices as a function of the independent variables. As a result, the model is specified below,

FIRST MODEL

OE = f (PRM, PROM)

Where

OE = Organizational efficiency

PRM = preventive maintenance

PROM= productive maintenance

f=Functional Notation

The above equation can be put in an econometric form as;

$OE = b_0 + b_1 PRM + b_2 PROM + \mu$

Where;

b0 = Autonomous or intercept

b_1 = Coefficient of parameter OE

b_2 = Coefficient of parameter PRM

b_3 = Coefficient of parameter PROM

PRESENTAION AND ANALYSIS OF DATA

This chapter presents the data obtained from the respondents through the administered copies of the questionnaire. Two hundred and seventeen (217) copies were administered, among the top management and doctors of both Anambra State tertiary hospitals and Enugu State tertiary hospital**.** However, one hundred and eighty-three (183) copies of the questionnaire were retrieved. Therefore the analysis and interpretation of data were only

based on the returned questionnaire. The validity and reliability of the instruments used for this study were highly ensured, despite the copies of questionnaire not returned.

Questionnaire Response Rate

SERIAL NO	Copies Distributed	Copies Returned	Percentage Returned
1	217	183	84.33

Source: Field Survey 2023

4.1 Demographic Characteristics of Respondents

4.1 .1 Gender

		Frequency	Valid Percent	Cumulative Percent
Valid	Male	63	34.4	34.4
	Female	120	65.6	100.0
	Total	183	100.0	

Source: SPSS Version 21, 2023

Table 4.1.1 above reveals that sixty-three (63) of the respondents which represent 34.4% were male respondents, while one hundred and twenty (120) respondents which represent 65.6% were female respondents. By implication, female respondents were more than male respondents by 31.2% in our selected population sample for this study. The implication of this is to enable us to know the number of female and male that successfully returned their questionnaire.

4.1.2 Status

		Frequency	Valid Percent	Cumulative Percent
Valid	Single	63	34.4	34.4
	Married	52	28.4	62.8
	Widowed	13	7.1	69.9
	Divorced	23	12.6	82.5
	Separated	32	17.5	100.0
	Total	183	100.0	

Source: SPSS Version 21, 2023

In the table 4.1,2 above, out of the one hundred and eighty-three (183) respondents, sixty-three (63) of the respondents are single. While fifty-two (52) respondents which represent 28.4 percent were married. Thirteen (13) of the respondents which represents 7.1 are widowed. It is therefore glaring that the majority of the respondents are married as at the time of this study. Again, twenty-three (23) respondents which represent 12.6 percent were divorced. Lastly, thirty-two (32) respondents which represent 17.5 percent were separated. Thus, marital status table helped us to know the number of single, married, and divorced respondents that answered the distributed questionnaire.

4.1.3 Level of Education

		Frequency	Valid Percent	Cumulative Percent
Valid	OND	14	7.7	7.7
	HND\BSC	66	36.1	43.7
	MSC	96	52.5	96.2
	OTHERS	7	3.8	100.0
	Total	183	100.0	

Source: SPSS Version 21, 2023

In the table 4.1,3 above, out of the out of the one hundred and eighty-three (183) respondents, fourteen (14) of the respondents are OND holders. While sixty-six (66) respondents which represent 36.1 percent are HND/BSC holders. Ninety-six respondents (96) which represent 52.5 are MSC holders, while seven (7) which represents 3.8 are PHD holders.

4.1.4 Age

		Frequency	Valid Percent	Cumulative Percent
Valid	20-30	111	60.7	60.7
	31-40	53	29.0	89.6
	41-50	10	5.5	95.1
	51-60	9	4.9	100.0
	Total	183	100.0	

Source: SPSS Version 21, 2023

The table 4.1,4 above shows that respondents whose age bracket falls between 20-30 yrs were one hundred and eleven (111) which represent 60.7 percent. This is followed by those with age bracket of 31-40 years with fifty-three (53) which represents 29%. Also those within age bracket of 41-50yrs were ten (10) which represents 5.5%. Lastly, those with age bracket of 51-60 years with nine (9) which represents 4.9%. The implication of this age distribution is to enable us to check if the questionnaire was directed to the right age group.

4.2 Multiple Regression Analysis

Multiple regression was employed to test the effect of independent or explanatory variables on the dependent variables. The result of the multiple regression analysis is presented in the tables below.

Table 4.2.1 Summary of the Regression Result

The result of the multiple regressions formulated in chapter three is presented in the tables below.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.324[a]	.515	.505	1.30549	.015	11.412	2	180	.246	1.758

a. Predictors: (Constant), PROM, PRM
b. Dependent Variable: OE

Table 4.3.1 shows that R^2 which measures the strength of the effect of independent variables on the dependent variable has a value of 0.32%. This implies that 32% of the variation in organizational efficiency is explained by R^2 variations in recognition for productive maintenance and preventive maintenance,. This was supported by adjusted R^2 of 0.50%.

In order to check for autocorrelation in the model, Durbin-Watson statistics was employed. Durbin-Watson statistics of 1.758 in table 3 shows that the variables in the model are not auto correlated and that the model is reliable for predications.

Table 4.3.2: ANOVA Result

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.811	2	2.406	11.412	.000[b]
	Residual	306.773	181	1.704		
	Total	311.585	182			

a. Dependent Variable: OE
b. Predictors: (Constant), PROM, PRM

From The ANOVA table in table 4.2.2 above the f-test probability of 0.000 shows that the overall model has significant effect on independent variables such as productive maintenance and preventive maintenance can collectively explain the variations in organizational efficiency.

Coefficients of the Model

T-statistics and probability value from the regression result are the effect of individual independent or explanatory variables on the dependent variables. The summary of the result is presented in the table below.

Table 4.2.3 T-Statistics and Probability Value from the Regression Result

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2.901	.208		13.914	.000	2.489	3.312
	PRM	.192	.194	.168	2.986	.005	.575	.192
	PROM	.280	.189	.252	4.480	.000	.093	.654

a. Dependent Variable: OE

Table 4.2.3 shows the coefficient of the individual variables and their probability values. Preventive maintenance variables have regression t-value of 2.986 with a probability value of 0.00. This implies that Preventive maintenance has a positive but significant effect on organizational efficiency. Productive maintenance has a regression t-test of 4.480 with a probability value of 0.000 implying that Productive maintenance variables have a positive and significant effect on organizational efficiency.

4.3 Test of Hypotheses

To further justify the results, ANOVA test was conducted to examine the effect of maintenance management practices on the organizational performance of tertiary hospitals in Enugu and Anambra States. The results are shown in the ANOVA Table below;

Hypotheses one

H_{O1}: Preventive maintenance has no significant positive effect on organizational efficiency of tertiary hospitals in Enugu and Anambra States.

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1863344666.602	1	53238419.046	114.067	.008
Within Groups	397198.932	182	397198.932		
Total	1863741865.534	183			

Source: **SPSS Version 20, 2023**

The test table reveals that small significance value (F. sig<.05) indicate group differences. Since the F- value of 114.067 which has a significance of .008 is less than .05 (i.e .001<.05), there exist significant difference among the variables. Therefore, null hypothesis is rejected and alternative hypothesis is accepted, which states that preventive maintenance has a significant effect on organizational efficiency of tertiary hospitals in Enugu and Anambra States

Hypothesis Two

$H0_2$: Productive maintenance has no significant positive effect on organizational efficiency of tertiary hospitals in Enugu and Anambra States.

ANOVA

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	18816621102816.195	1	537617745794.748	211.295	.000
Within Groups	64810152397.620	182	64810152397.620		
Total	18816621102816.195	183			

Source: SPSS, Version, 20 2023

The small significance value (F.sig<.05) indicates that there is a group difference. Since the F-value of 211.295 which has a significance value of .000 is less than .05 (i.e 000<.05). This implies rejection of null hypothesis and acceptance of alternative hypothesis which state that productive maintenance has significant effect on organizational efficiency of tertiary hospitals in Enugu and Anambra States.

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

The basic objective of this study was to examine maintenance management practices on the organizational performance tertiary hospitals in Enugu and Anambra States. From the analysis of the data especially, and the testing of hypotheses it was found that:

1. Preventive maintenance had a significant positive effect on organizational efficiency of tertiary hospitals in Enugu and Anambra States (t-test, 2.986, p=005).

2. Productive maintenance had significant positive effect on organizational efficiency of tertiary hospitals in Enugu and Anambra States (t-test, 4.480, p=000).

5. 2 Conclusion

The study examined the effect of maintenance management practices on the organizational performance of tertiary hospitals in Enugu and Anambra States. Organizations in Nigeria are under increasing pressure to improve quality maintenance and reduce maintenance and operational costs. The top management of organizations in Nigeria has not recognized the need to focus on reliability cultured maintenance and continuous improvement. This study, focused on elements of maintenance management practice in tertiary hospitals in Enugu and Anambra States in the following areas: preventive, condition-based, productive, reliability and corrective maintenance which forms the basis of the study.

5.3 Recommendations

i**.** The maintenance workers of the studied firms should be properly and adequately trained to handle technically any maintenance problem**.**
ii. Proactive rather than reactive approach to maintenance tasks should be encouraged in the studied firms.

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