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A Study on the Evaluation of Cataract Blindness in the Commercial City of Onitsha, Anambra State, Nigeria

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ABSTRACT

This study evaluates the trend of cataract blindness in Onitsha, of Anambra State. The study employed secondary source of data collection which was obtained from the eye records department of General Hospital Onitsha. The statistical tools used includes the time series analysis, Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test, Mean absolute percentage error, mean absolute deviation, mean square deviation and paired sample test. The findings of the study revealed that the distribution of reported cases of cataract showed a steeply increasing trend of cases of cataract in Onitsha, Anambra State. It was found that the quadratic model provides the best trend model for estimating total number of cataract cases in Onitsha, Anambra State. It was found that the series of number of reported cataract cases is stationary over time. Hence, was used to make future forecast of the series. The two years forecast of reported cases of cataract in the commercial city of Onitsha, Anambra State revealed an increasing trend. Also, it was found that there exist positive linear association between male and female reported cases of cataract. Further findings showed that there are more female reported cases of cataract than male in the commercial city of Onitsha, Anambra State.

Keywords: *Blindness, Forecast, Health, Patients, Surgery, Trend*

1.0 INTRODUCTION

Cataract is a clouding of the eye's natural clear lens. Most cataracts appear with advancing age. The exact cause of cataract is unclear, but it may be the result of a lifetime of exposure to ultraviolet radiation contained in sunlight, or may be related to other lifestyle factors such as cigarette smoking, diet and alcohol consumption. Cataract can also occur at any age as a result of other causes such as eye injury (traumatic), or occur as a result of eye surgery for other problems. Exposure to toxic substances or radiation, or as a result of other diseases such as diabetes. Congenital cataracts may even be present at birth due to genetic defects or developmental problems.

The Cataract is a multi-factorial disease associated with age, sex, genetic predisposition, smoking, diabetes mellitus, drug intake and environmental exposure or Ultraviolet radiation. It is a leading cause of visual impairment worldwide (Abraham *et al*. 2006). Despite the fact that 90% of cataracts in the world are reported in developing countries, it's social, physical and economic impact is still substantial in the developed world (Abraham, *et al*. 2006).

It was found from existing records from General Hospital Onitsha, Anambra State that cataract poses as the major cause of blindness in Anambra State. Also, most reported cases have both eyes affected by cataract. Cataract has become a hypothetical statement associated with aging, implicated in the common usage of terms such as age related or senile cataract. Cataract as one of the visual disability affects or alters an individual's activities of daily living and remains the leading cause of visual impairment all over the world. Authors argue that cataract stand as a major cause of visual impairment and blindness worldwide, especially countries such as India, China and sub-Saharan Africa. Therefore, making it a significant public health problem. Surgery remains the only method of treatment of cataract. However, this surgery

is not equally available to all, and where it is available, it does not produce equal outcomes. However, the aim of this study was to evaluate the trend of reported cases of cataract in Onitsha, Anambra State.

2.0 LITERATURE REVIEW

Study by Ajaiyeoba *et al*. (2006) assessed the prevalence and identified the causes of eye diseases among students in Ilesa east local government area, in south-western Nigeria with the aim of aiding prevention strategies. The findings of the study found that 15.5% of the school children have eye diseases. These included conjunctival diseases (8%) constituted mainly by allergic/vernal conjunctivitis (7.4%), refractive error (5.8%), lid disorders (0.6%), squint (0.3%), corneal scarring (0.3%) and cataract (0.2%). Their findings revealed that eye diseases are common amongst school children.

According to Fasina and Ajaiyeoba (2003), the prevalence and causes of blindness and visual impairment in Yewa-North local government area of Ogun state, Nigeria between May 15 and June 22, 2001. The study was a population - based survey with a random cluster sample of 1,964 persons representing the residents of the local government area. The findings of the study revealed that 1.22% of the populations were blind, 1.43% unilaterally blind and 2.09% were bilaterally visually impaired. Blindness and visual impairment were found in persons aged 45yrs and above. Blindness was significantly found to be 2.43 times commoner in men. Cataract was found to be the commonest cause of blindness accounting for 37.5% of blindness and 36.6% of visual impairment. Another important cause of visual impairment and blindness was found to be pterygium which accounted for 23% and 19% of unilateral and bilateral visual impairment and 7% and 4% of unilateral and bilateral blindness respectively. The findings revealed that 87.5% of the blindness and 75.7% of the bilateral visual impairment were avoidable.

In their contribution, Singabele *et al*. (2010) explained that available community based studies showed that three quarters of the causes of blindness majorly by cataract, is avoidable. The study in other to have hospital based data on cataract as a cause of blindness in University of Port Harcourt Teaching Hospital, (UPTH), Nigeria. They reviewed the case records of all blind patients (visual acuity of less than 3/60 or corresponding visual field of less than 10^0 in the better eye with the best possible correction) presenting at the outpatient clinic for year 2008. Of 214 patients reviewed, Cataract was responsible for about one third. The age 40-60 years had the highest proportion of bilaterally cataract blind patient. More males were found to be bilaterally cataract blind, it was revealed that most bilaterally cataract blind patients lived in the rural areas. Also, findings showed that the uptake of surgery was poorer among bilaterally cataract blind patients with only about 30% of the patients presenting themselves for surgery. They concluded that cataract is a leading cause of blindness in the University of Port Harcourt Teaching Hospital, Nigeria and is most common in the older age group especially among males. It was found that rural dwellers present themselves late especially when bilaterally blind from cataract. They suggested that subsidizing the costs of surgery may improve the uptake of cataract surgery in the facility.

Adepoju *et al.* (2014) evaluated the infrastructure, equipment, and human resources for cataract surgical services, and determine the cataract surgical output in Kwara State, Nigeria. They employed a descriptive cross-sectional study of all cataract service institutions in Kwara state between May-July 2008 using pre-tested questionnaire and on-site review. The analyzed the data obtained using descriptive and analytical statistics. The findings of the study showed that there were 14 cataract surgical centers (9 Base Hospitals and 5 Surgical Outreach Centers) and all the Base Hospitals were located in the urban centers

with over two third cited in Ilorin, the state capital. It was observed that the state had adequate equipment and infrastructures but were found to be mal-distributed in favour of urban areas. Findings showed that a total of 157 eye care workers comprising 12(7.6%) ophthalmologists (consultants=8, Diplomates=4), 16(10.2%) trainee ophthalmologists, 94(59.9%) mid-level ophthalmic personnel and 35(22.3%) support staff serve the state's 2.37 million people. Eighty per cent of the eye care workers reside in the state capital where less than 30% of the population lives. Also, it was found that cataract surgical output increased from 218 in 2003 to 1020 in 2009, hence an increasing trend. They concluded that there is adequacy of infrastructure, equipment and human resources with improving cataract surgical output. It was found that the state has adequate equipment to manage the cataract blindness but these equipments and services do not get to the rural areas.

Muhammad *et al.* (2017) re-analyzed data from the 2005 population based cross-sectional study of blindness in Sokoto State Nigeria, to obtain baseline estimates of the prevalence of cataract blindness and cataract surgical coverage for persons 50 years and over in Wurno health zone. They analyzed data on eye health workforce, infrastructure and cataract surgical services between 2005 and 2016 from relevant documents. Findings showed that in 2005 the unadjusted prevalence of bilateral cataract blindness (<3/60) in people 50 years and over in Wurno health zone was 5.6% while by 2016 this had fallen to 2.1%, with the age-sex adjusted prevalence being 1.9%. The Cataract surgical coverage (CSC) for persons with visual acuity <3/60, <6/60, <6/18 for Wurno health zone was 9.1%, 7.1% and 5.5% respectively in 2005 and it increased to 67.3%, 62.1% and 34.7% respectively in 2016. The Cataract Surgical Rate (CSR) in Sokoto state increased from 272 (1005 operations) in 2006, to 596 (2799 operations) in 2014. It was found that in the 2005 survey, couching (a procedure used by traditional practitioners to dislocate the lens into the vitreous cavity) accounted for 87.5% of all cataract interventions, compared to 45.8% in the 2016 survey participants. The practice of traditional methods for treating cataract blindness should not be a recommended. However, the need for cataract education in rural areas and free eye examination should be advocated.

Bogunjoko *et al.* (2017) examined the impact of cataract surgical services in Ogun state of Nigeria. They reviewed the operation registers for the period of one year (1st January to 31st December 2014) at the Eye Foundation Centre (EFC), St Mary's Catholic Eye Hospital (SMCEH) Ago-Iwoye, Babcock University Eye Clinic and all the state hospitals in Ogun state. And they observed the numbers of operable cataracts (eye with <6/24 due to cataract) in the outreach and clinic registers. Also, they determined the number of eyes operated for age-related cataracts. They identified a total of 8660 operable cataracts and 5410 eyes were done during this period leaving a backlog of 3250 eyes. They found that cataract surgical rate for Ogun state for the period was 1098 operations per million per year. The main providers of cataract surgical services in Ogun state are Eye Foundation Centre 3099 eyes (57.2%) and St Mary's Catholic Eye Hospital 1951 (36.0%), totaling 5050 eyes (93.2%). Others did 360 eyes (6.8%). There are 18 surgeons in the state but 11 participated in their study. Hence, they found that an average of 491 cataract operations was performed by an ophthalmic surgeon per year in Ogun state. They stated that cataract surgeries of 5410 performed annually in the state is more than the incidence of cataract blindness in the state which is estimated at 4924. Cataract surgical rate (CSR) of 1098 is more than the universally accepted cataract blindness incidence of 1000 per million populations per year for developing countries. They suggested that if these figures are surpassed in the coming years with more improved

cataract services delivery, the backlog will be drastically reduced.

Ansah (2017) examined the prevalence and causes of Visual Impairment and blindness among eye clinic patients in Ghana. Methods: The study was retrospective and was conducted among patients attending Juaben Hospital Eye Clinic from January 1st 2015 to June 30th 2015. The Chi-squared test was used to analyze the data obtained from the patients. A total of 1198 patients consisting of 52% females and 48% males were studied. Findings of the study revealed that the prevalence of Visual Impairment and blindness was 28.2% and 3.7% respectively. Cataract, refractive error and glaucoma were the leading causes of Visual Impairment while glaucoma and cataract caused the most cases of blindness. The age group most affected by Visual Impairment was the 50-100 years group with 250 out of 338 cases and the same age group had the highest number of blind cases with 41 out of 44 cases. The number of females with Visual Impairment and blindness was greater than that of the males. It can be deduced from the findings of the study, that education, low-cost cataract surgical, and refractive services will have positive impact by reducing the rates of Visual Impairment and blindness.

3.0 MATERIAL AND METHODS

3.1 Source of Data

Secondary source of data collection obtained from the records department of Hospital Onitsha Anambra State, Nigeria from 2014-2017 was used in this study. The data comprises of reported cases of Cataract cases from year 2014 to 2017. The choice of Onitsha as case study is because Onitsha stands as the commercial hub of Anambra State and the South East Nigeria. Also, General hospital Onitsha is one health facility that can be assessed by all classes of person living in Onitsha and its environs like Asaba, Nsugbe, Nkpor, Oba etc.

3.2 Methods

Considering that the data for this study is a time sequence data collected at regular interval (monthly), hence we adopt for the analysis, the time series analysis. Time series examines statistical data with respect to the number of observations, recorded in accordance with the time of occurrence. Time series is the collection of quantitative observations that are evenly spaced in time and measured successively. Time series refers to that body of principles and techniques which deals with analysis of the observed data X_t, $(t=1, 2, L, n)$ in order to gain an understanding of the underlying dynamics of the process X_t, $t \in z$.

3.2.1 Stationarity of a time series

Stationarity of a time series process is a series where the statistical properties of the series do not change over time. Econometric methods require that the data be stationary. Most of the macroeconomics time series, instead, display a trend and heteroscedasticity, failing to fulfil stationarity conditions. As a consequence, time series must be modelled taking into account non-stationary features detected in the data. Also, statistical and econometric methods assume that the data arise from a stationary process. a stochastic process is stationary if all of its random variables are identically distributed. This condition implies that all of the statistical moments of the variable are identically distributed.

Most times, statistical forecasting methods are based on the assumption that the time series can be rendered approximately stationary through the use of mathematical transformations. Stationarity of a process implies that predictions of the statistical properties will be the same in the future as they have been in the past. In addition, the stationary assumption allows the straight forward calculation of the long run equilibrium distribution of the process. In this study, the test proposed by Kwiatkowski *et al*. (1992) test (KPSS) will be employed.

3.2.2 The Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test

The Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test is used for testing the null hypothesis that the observed time series is stationary around a deterministic trend. Kwiatkowski *et al.* (1992) proposed a test of the null hypothesis that an observed series is trend stationary (stationary around a deterministic trend). The series is expected as the sum of deterministic trend, random walk, and stationary error, and the test is the Lagrange multiplier test of the hypothesis that the random walk has zero variance.

The KPSS test statistic assess whether the null hypothesis is a stationary process, whereas the alternative is an integrated process. The statistic focuses on the variance of the residuals in the following two frame- works:

$$y_t = \psi t + r_t + \varepsilon_t \quad (1)$$

$$r_t = r_{t-1} + u_t \quad (2)$$

$$\forall u_t \sim \text{iid}\ (0, \sigma_u^2)$$

Where the initial value, r_0 is fixed, playing the role of an intercept. The process is stationary when $\sigma_u^2 = 0$, otherwise the long run follows a random walk around a deterministic trend of slope ψ.

The second model is specified as follows:

$$y_t = r_t + \varepsilon_t \quad (3)$$

$$r_t = r_{t-1} + u_t \quad (4)$$

$$\forall u_t \sim \text{iid}\ (0, \sigma_u^2)$$

Where under the null hypothesis $\sigma_u^2 = 0$, hence, the series is guided by a level stationary process without a deterministic trend, that is, $\psi = 0$.

By testing the stationarity hypothesis, the researcher can distinguish series that appear to be stationary, series for which the data are not sufficiently informative to be sure whether they are stationary or integrated and series that are fit to be used in predicting future behaviour of the data of interest.

3.2.3 Accuracy Measure in Time Series Analysis

Accuracy measures are used for validating a times series model and forecasts. This measures include the mean absolute percentage error, the mean absolute deviation and the mean square deviation.

1. Mean Absolute Percentage Error (MAPE): the mean absolute percentage error (MAPE), also known as mean absolute percentage deviation (MAPD), this measures the prediction accuracy of a forecasting method in a time series model (for example in trend estimation). It usually expresses accuracy as a percentage, and is defined by the formula:

$$MAPE = \sum_{t}^{N} \left| \frac{y_t - \hat{y}_t}{y_t} \right| \times \frac{100}{N} \quad (5)$$

Where: Y_t is the actual time series data

$\hat{Y}_t$ is the estimated value of time series

2. Mean Absolute Deviation (MAD)

The mean absolute deviation is the average distance between each data point and the mean. It gives an idea about the variability in a dataset. The formula is given as:

$$MAD = \sum_{t}^{N} \left| \frac{\hat{y}_t - \bar{\hat{y}}_t}{n} \right| \quad (6)$$

$\hat{Y}_t$ is estimate of trend value at time t and

$\bar{\hat{Y}}$ is the mean of estimated values

3. Mean Square Deviation (MSD) is known as variance. The variance of the estimated is given as:

$$MSD = \sum_{t}^{N} \left(\frac{\hat{y}_t - \bar{\hat{y}}_t}{n} \right) \quad (7)$$

The decision rule for the accuracy measure is that the model with the least accuracy measure becomes the selected model.

3.3 Data Presentation

The data to be employed in the analysis in this study was presented in this section.

Table 1: Summary of Monthly Reported Cataract Cases

Year	MONTHS	MALE	FEMALE	TOTAL	Year	MONTHS	MALE	FEMALE	TOTAL
2014	JANUARY	0	0	0	2016	JANUARY	7	5	12
	FEBUARY	0	0	0		FEBUARY	7	8	15
	MARCH	0	0	0		MARCH	5	12	17
	APRIL	6	5	11		APRIL	10	11	21
	MAY	7	12	19		MAY	2	7	9
	JUNE	6	3	9		JUNE	5	8	13
	JULY	0	0	0		JULY	5	5	10
	AUGUST	0	0	0		AUGUST	7	12	19
	SEPTEMBER	2	5	7		SEPTEMBER	2	18	20
	OCTOBER	8	5	13		OCTOBER	6	8	14
	NOVEMBER	8	5	13		NOVEMBER	13	8	21
	DECEMBER	4	4	8		DECEMBER	5	3	8
2015	JANUARY	8	10	18	2017	JANUARY	13	14	27
	FEBUARY	7	5	12		FEBUARY	7	7	14
	MARCH	5	10	15		MARCH	18	19	37
	APRIL	0	0	0		APRIL	12	9	21
	MAY	0	0	0		MAY	5	18	23
	JUNE	0	0	0		JUNE	5	12	17
	JULY	3	2	5		JULY	9	8	17
	AUGUST	4	5	9		AUGUST	5	8	13
	SEPTEMBER	4	2	6		SEPTEMBER	10	10	20
	OCTOBER	6	5	11		OCTOBER	8	12	20
	NOVEMBER	1	3	4		NOVEMBER	15	14	29
	DECEMBER	3	5	8		DECEMBER	5	5	10

Source: General Hospital Onitsha Anambra state

4.0 Data Analysis and Result

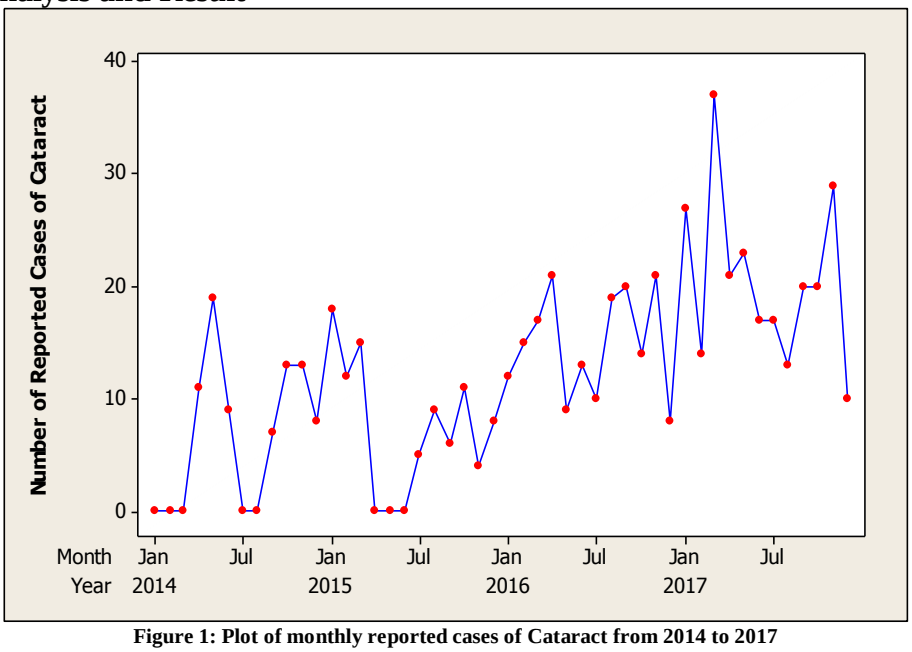

Figure 1: Plot of monthly reported cases of Cataract from 2014 to 2017

The result obtained in figure 1 shows the distribution of reported cases of cataract in Anambra State. The result showed a steeply increasing trend of cases of cataract in Anambra State.

Table 2: Comparison of Trend Equation for Total Number of Cataract Cases

Name of Model	Model	MAPE	MAD	MSD	Decision
Linear	Yt = 3.08 + 0.380*t	40.28	5.26	41.77	Not Adequate
Quadratic	Yt = 3.81 + 0.292*t + 0.00180*t**2	39.58	5.27	41.68	Adequate

The result of comparison of two trend models (linear and quadratic) presented in table 2 showed that the quadratic model gives the least MAPE and MSD values. Hence the quadratic model was selected as the adequate trend model for estimating total number of cataract cases. It was found that trend models such as exponential and S-curve were not adequate because of the nature of the data obtained for the study.

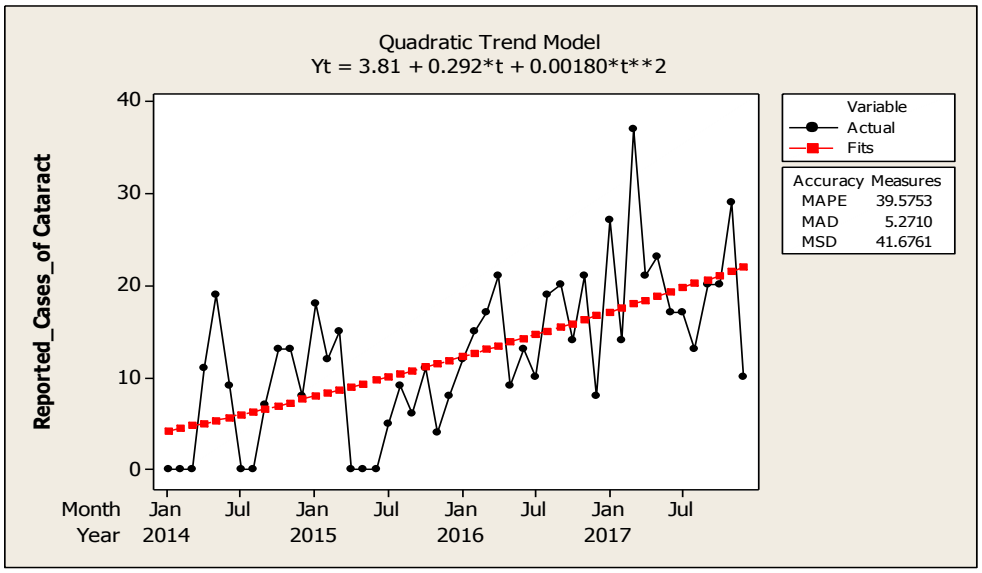

Figure 1: Quadratic Trend Model Plot of monthly reported cases of Cataract from 2014 to 2017

Table 3: Table showing Actual, Trend and Detrend of reported cases of Cataract

Month/Year	Actual Cataract	Trend	Detrend	Time	Cataract	Trend	Detrend
Jan/2014	0	4.1069	-4.1069	Jan/2016	12	12.241	-0.241
Feb/2014	0	4.4044	-4.4044	Feb/2016	15	12.6249	2.3751
Mar/2014	0	4.7055	-4.7055	Mar/2016	17	13.0125	3.9875
Apr/2014	11	5.0103	5.9897	Apr/2016	21	13.4036	7.5964
May/2014	19	5.3186	13.6814	May/2016	9	13.7983	-4.7983
Jun/2014	9	5.6305	3.3695	Jun/2016	13	14.1966	-1.1966
Jul/2014	0	5.946	-5.946	Jul/2016	10	14.5985	-4.5985
Aug/2014	0	6.2652	-6.2652	Aug/2016	19	15.004	3.996
Sep/2014	7	6.5879	0.4121	Sep/2016	20	15.4132	4.5868
Oct/2014	13	6.9142	6.0858	Oct/2016	14	15.8259	-1.8259
Nov/2014	13	7.2441	5.7559	Nov/2016	21	16.2422	4.7578
Dec/2014	8	7.5776	0.4224	Dec/2016	8	16.6621	-8.6621
Jan/2015	18	7.9148	10.0852	Jan/2017	27	17.0856	9.9144
Feb/2015	12	8.2555	3.7445	Feb/2017	14	17.5127	-3.5127
Mar/2015	15	8.5998	6.4002	Mar/2017	37	17.9435	19.0565
Apr/2015	0	8.9477	-8.9477	Apr/2017	21	18.3778	2.6222
May/2015	0	9.2993	-9.2993	May/2017	23	18.8157	4.1843
Jun/2015	0	9.6544	-9.6544	Jun/2017	17	19.2572	-2.2572
Jul/2015	5	10.0131	-5.0131	Jul/2017	17	19.7023	-2.7023
Aug/2015	9	10.3754	-1.3754	Aug/2017	13	20.151	-7.151
Sep/2015	6	10.7413	-4.7413	Sep/2017	20	20.6033	-0.6033
Oct/2015	11	11.1109	-0.1109	Oct/2017	20	21.0593	-1.0593
Nov/2015	4	11.484	-7.484	Nov/2017	29	21.5188	7.4812
Dec/2015	8	11.8607	-3.8607	Dec/2017	10	21.9819	-11.9819

Table 4: Result of test of stationarity of reported cases of cataract using the Kwiatkowski-Phillips-Schmidt-Shin test

Null Hypothesis: D(NUMBER_OF_CATARACT_CASES) is stationary				
Exogenous: Constant				
Bandwidth: 16 (Newey-West automatic) using Bartlett kernel				
				LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic				0.259778
Asymptotic critical values*:		1% level		0.739000
		5% level		0.463000
		10% level		0.347000
*Kwiatkowski-Phillips-Schmidt-Shin (1992, Table 1)				
Residual variance (no correction)				72.25260
HAC corrected variance (Bartlett kernel)				8.519949

The result of the KPSS test found a test value of 0.2598 and a critical value of 0.4630 which falls on the acceptance region of the hypothesis setting alpha to 0.05. This result that the series of number of reported cataract cases is stationary over time at first difference. Hence, can be used to make future forecast of the series.

Table 5: Table showing monthly forecast of reported cases of Cataract for 2018-2019

Month/year	Forecast	Month/year	Forecast
Jan/2018	22.4486	Jan/2019	28.3299
Feb/2018	22.9189	Feb/2019	28.8434
Mar/2018	23.3928	Mar/2019	29.3606
Apr/2018	23.8703	Apr/2019	29.8813
May/2018	24.3515	May/2019	30.4056
Jun/2018	24.8362	Jun/2019	30.9335
Jul/2018	25.3245	Jul/2019	31.465
Aug/2018	25.8164	Aug/2019	32.0001
Sep/2018	26.3119	Sep/2019	32.5388
Oct/2018	26.811	Oct/2019	33.0811
Nov/2018	27.3137	Nov/2019	33.627
Dec/2018	27.82	Dec/2019	34.1765

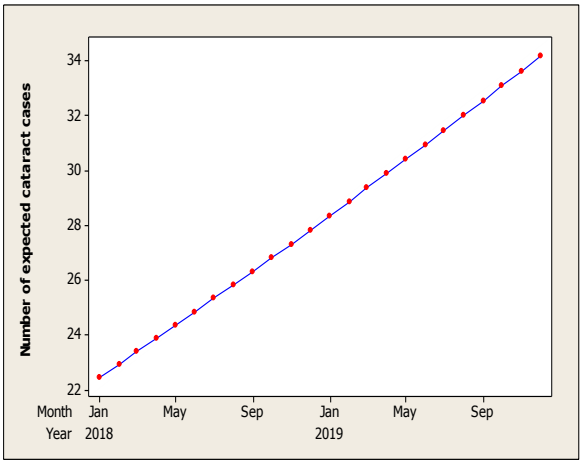

Figure 2: Plot showing monthly forecast of reported cases of Cataract for 2018-2019

The result obtained in figure 2 and table 5 shows two years forecast of reported cases of cataract in the commercial city of Onitsha, Anambra State. The result revealed an increasing trend of cataract

Table 6: Paired Sample Correlation result of male and female reported cases of cataract

		N	Correlation	Sig.
Pair 1	Number of Reported cases of Male & Number of Reported cases of Female	48	.667	.000

The result of the correlation analysis between male and female reported cases of cataract found a correlation coefficient of 66.7% and a p-value of 0.00. This implies that there exist positive linear association between male and female reported cases of cataract.

Table 7: Paired Sample test result of male and female reported cases of cataract

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Number of Reported cases of Male - Number of Reported cases of Female	-1.23	3.85	.56	-2.35	-.11	-2.21	47	.03

The result of the paired sample test between male and female reported cases of cataract found a mean difference of -1.23, a t-value of -2.21 and corresponding p-value of 0.03 which falls on the acceptance region of the hypothesis assuming 95% confidence level. This result implies that there are more female reported cases of cataract than male.

5.0 CONCLUSION

This study evaluates the trend of cataract blindness in the major commercial city of Anambra State. The findings of the study revealed that the distribution of reported cases of cataract showed a steeply increasing trend of cases of cataract in Onitsha, Anambra State. It was found that the quadratic model provides the best trend model for estimating total number of cataract cases in Onitsha, Anambra State.

It was found that the series of number of reported cataract cases is stationary over time. Hence, was used to make future forecast of the series. The two years forecast of reported cases of cataract in the commercial city of Onitsha, Anambra State revealed an increasing trend. Also, it was found that there exist positive linear association between male and female reported cases of cataract. Further findings

showed that there are more female reported cases of cataract than male in the commercial city of Onitsha, Anambra State. Based on the findings of the present study, it was recommended that cataract patients should report to the hospital on time to enable the health practitioners attend to their challenge as at when due and also learn to engage in regular medical checkup. Government should provide adequate surgical implement to eye clinic hospital for positive improvement of cataract surgery.

REFERENCES

- Abraham, A. G., Condon, N. G. and West, G. E. (2006). The new epidemiology of cataract. *Ophthalmology Clinical North America*, 19:415-425.
- Adepoju, F. G., Patel, D., Ayanniyi, A. A.,Adekoya, B. J., Omolase, C. O.and Monsudi, K. F. (2014). Cataract Surgical Services in Kwara State, Nigeria. *British Journal of Medicine & Medical Research*, 4(20): 3743-3754.
- Ajaiyeoba, A. I., Isawumi, M. A., Adeoye, A. O., and Oluleye, T. S. (2006). Prevalence and Causes of Eye Diseases amongst Students in South-Western Nigeria. *Annals of African Medicine*, 5(4): 197 – 203.
- Ansah, D. O. (2017). Prevalence and Causes of Visual Impairment among Patients in Juaben Hospital Eye Clinic, Ghana. *Mathews Journal of Ophthalmology*, 2(2): 017.
- Bogunjoko, T. J., Hassan, A. O., Ajayi, B. G. K., Oderinlo, O., Okonkwo, O., Ashaye, A., Akanbi, T., Mukiri, S., Akinye, A. and Egbu, E. (2017). Impact of Cataract Surgical Services in Ogun State, Nigeria. *Journal of Eye & Cataract Surgery*, 3:16. doi: 10.21767/2471-8300.100016.
- Fasina, F. O. and Ajaiyeoba, A. I. (2003). The prevalence and cause of blindness and low vision in Ogun state, Nigeria. *African Journal of Biomedical Research*, 6(2):63-67.
- Kwiatkowski, D., Phillips, P. C. B., Schmidt, P., Shin, Y. (1992). Testing the null hypothesis of stationarity against the alternative of a unit root. Journal of Econometrics, 54(1-3): 159-178.
- Muhammad, N., Adamu, M. D., Caleb, M., Maishanu, N. M., Jabo, A. M., Rabiu, M. M., Bascaran, C., Isiyaku, S., and Foster, A. (2017). Changing patterns of cataract services in North-West Nigeria: 2005–2016. *PLoS ONE* 12(8): e0183421. https://doi.org/10.1371/journal. pone.0183421.
- Singabele, E. J., Sokolo, J. E. E., and Adio, A. O. (2010). Cataract blindness in a Nigerian tertiary hospital- A one year review. *Journal of Medicine and Medical Sciences*, 1(7): 314-319.

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