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Oculo-Visual Problems Among Intercity Commercial Bus Drivers in Abia State and Imo State, Nigeria

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Abstract

In Abia and Imo States, the study established the epidemiology of oculo-visual issues among intercity commercial bus drivers. Using a practical sample technique, 700 commercial bus drivers were chosen for the prospective field study-350 from each of the two states' major motor parks. Through in-person interviews, the degree of awareness of any oculo-visual issues was determined. To identify oculo-visual issues, each subject underwent a thorough case history, visual acuity test, external eye examination, visual field tests, color vision test, ocular motility test, ophthalmoscopy, intra ocular pressure test, Amsler grid test, blood sugar test, and sphygmomanometry. Both descriptive and inferential statistics were used to analyze the data. According to the study's findings, the most prevalent oculo-visual issues among drivers in the states of Abia and Imo were co-morbidity of cataract and refractive errors in 69 (18.65%) and 77 (20.75%), respectively. Additionally, the findings indicated that drivers in the states of Abia and Imo had total oculo-visual burdens of 289 (78.11%) and 261 (70.35%), respectively. In the states of Abia and Imo, respectively, only 60 (17.1%) and 76 (21.7%) of drivers were aware of their oculo-visual issues. In conclusion, there is a high prevalence of oculo-visual issues and a low degree of awareness among intercity commercial bus drivers in the states of Abia and Imo. The researchers informed the drivers about the necessity of routine comprehensive vision and eye exams for public health, and they also offered advice and treated patients when needed as public health intervention measures.

Keywords: Oculo-Visual, Problems, Intercity Commercial Bus Drivers

Introduction

Good vision is the most important aspect of safe driving. No one has ever witnessed a blind driver, and no nation or government allows blind persons to drive. This is due to the fact that vision—which accounts for approximately 95% of the sensory requirements for driving—is the most crucial sense organ [1].

A driver's ability to operate a vehicle safely will unquestionably be compromised by any considerable loss in visual function, such as visual activity or visual field.

Driving is a visually demanding activity that calls for a number of skill sets, including sensory (primarily visual), cerebral, motor, and compensating abilities [2].

For several reasons, including the capacity of the driver to gauge the distance of other vehicles and pedestrians, as well as the ability to read road signs and traffic signals, good and comfortable eyesight is particularly important when driving [3].

The number of traffic accidents on the world's roads is rising, according to recent studies. Road traffic accidents have a disproportionately high toll on morbidity and death in developing nations like Nigeria [4].

Over 85% of all traffic accidents worldwide occur in developing nations, with Nigeria playing a key role [5].

The Nigerian Federal Road Safety Corps (FRSC) established a minimum vision standard for safe driving in Nigeria that is 6/9 in the better eye and 6/12 in the worse eye for drivers of commercial vehicles. a horizontal binocular vision field that is continuous and is at least 140 degrees. Any vision field that is less than 110 degrees horizontally is against Nigerian safety regulations and should not be tolerated at all by all pertinent agencies and authorities [6].

Drivers who have vision that is below the minimum need for safe driving are more likely to struggle to read stop signs, speed limit signs, and other road signs at a distance that is safe for good vehicle control decisions, endangering the health of all other road users [7].

Because of this, a commercial bus driver who has a clear oculo-visual issue will undoubtedly fail to react effectively when faced with a potentially dangerous circumstance, endangering the health of himself, his passengers, and other road users [8].

Road travel is currently the most popular form of transporta-

tion in Nigeria, and commercial buses are the most frequently utilized vehicles there. As a result, it is crucial for public health that a study like this be conducted in Abia State and Imo State of southeastern Nigeria with numerous commercial bus drivers, both young and old, to determine the epidemiology of oculo-visual problems among these drivers and their level of awareness of inherent oculo-visual problems. Vision accounts for about 95% of the sensory requirements for driving. All of them peaked the researcher's interest, who had previously traveled extensively by commercial bus, leading to the current study.

Materials and Methods

Research Design

The researcher employed a prospective field study design to determine the epidemiology of oculo-visual problems as well as the awareness level of such oculo-visual problems among intercity commercial bus drivers in Abia State and Imo State.

Study Population

The study population comprised of all intercity commercial bus drivers in Abia State and Imo State of Nigeria.

Inclusion and Exclusion Criteria

Inclusion Criteria

All intercity commercial bus drivers operating in Abia State and Imo State, from the major motor parks in these two states, who gave their consent

Exclusion Criteria

Intercity commercial bus drivers operating in Abia State and Imo State, who did not give their consent, intra-city commercial bus drivers in Imo State and Abia State, taxi drivers in Imo State and Abia State.

Area of Study

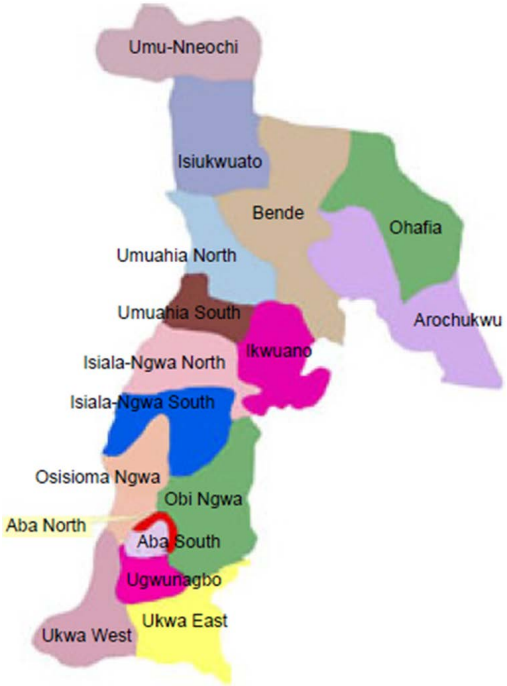

Figure1: Showing Map of Abia State (Latitude: 5°27'23''N, Longitude: 7°31'28"E) Source: https://www.researchgate.net

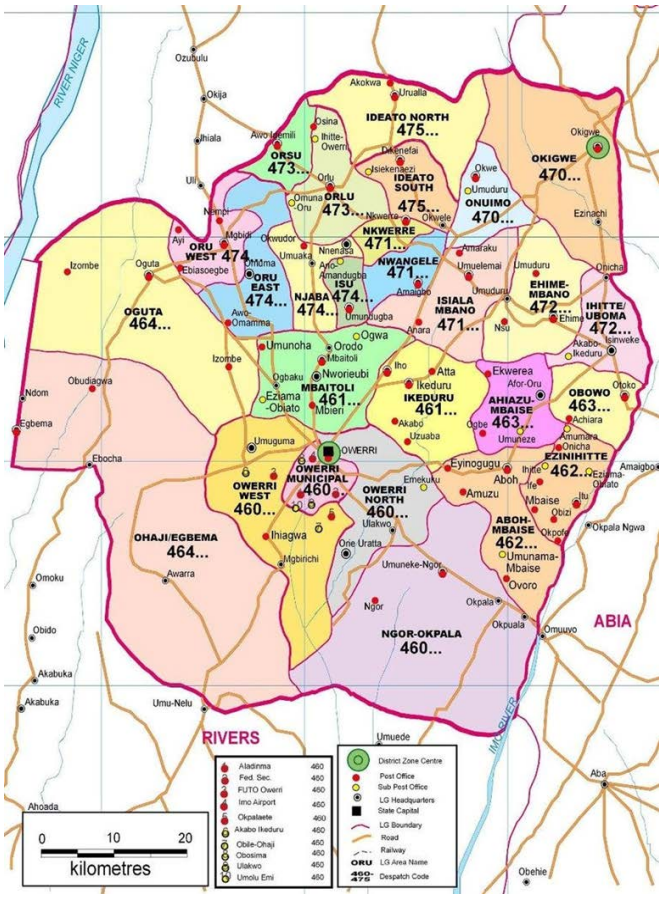

Figure 2: Showing Map of Imo State (Latitude: 5.5720°N, Longitude: 7.0588°E) Source: https://www.researchgate.net

Abia State and Imo State are two States in the south-east geopolitical zone of Nigeria. The inhabitants are Igbos, with few non-Igbo residents. Igbo language and English language are the most commonly spoken languages in the two states. Imo state was created in 1976, it is bordered by Abia State Eastward, Anambra State on the north, Rivers State southward and Delta state on the west. The capital of Imo state is Owerri. Imo state has 27 Local Government Areas namely: Aboh-Mbaise, Ahiazu Mbaise, Ehime mbano, Ezinihitte mbaise, Ideato north, Ideato south, Ihitte uboma, Ikeduru, Isiala mbano, Isu, Mbaitolu, Ngorokpala, Njaba, Nkwere, Nwangele, Obowo, Oguta, Ohajiegbema, Okigwe, Onuimo, Orlu, Orsu, Orueast, Oru west, Owerri municipal, Owerri north and Owerri west.

On the other hand, Abia State was created in 1991. The capital of Abia state is Umuahia, the popular commercial city of Aba is in Abia state. There are 17 Local Government Areas in Abia state, they include: Aba North, Aba South, Arochukwu, Bende, Ikwuano, Isialangwa North, Isialangwa South, Isiukwuato, Obingwa, Ohafia, Osisioma Ngwa, Ugwunagbo, Ukwa East, Ukwa West, Umunneochi, Umuahia North and Umuahia South. The inhabitants of the two neighboring States are mostly business men and women; hence travel a lot with commercial buses as they do their business transactions, because rail transportation is practically non-existent in these two States.

Sample Size and Sampling Techniques

The sample size for this study was 700 intercity commercial bus drivers; 350 participants from each of the two states which is 25% of the study population, as the total number of intercity commercial bus drivers in both Abia State and Imo State is estimated to be 2800.

Convenient sampling technique was used because of constant movement of intercity commercial bus drivers.

Instruments for Data Collection

Instruments used for this study include the following: Snellen's visual acuity chart, Occluder, Trial lens box, Trial frame, Pseudoisochromatic test chart. Amslergrid chart, Pinhole, Direct ophthalmoscope, Retinoscope, Penlight, Glucometer, Sphygmomanometer, Structured clinic form, Pen.

Reliability and Validity

All the instruments used for this study are recognized and approved by the World Council of Optometry (WCO), Optometrists and Dispensing Opticians Registration Board of Nigeria (ODORBN), Ophthalmological Society of Nigeria (OSN) and the World Health Organization (WHO), for both external and internal comprehensive examination of the eyes.

More so, the researchers were responsible for oculo-visual examinations. The reason for this was to bring about consistency of test outcomes, also to reduce inter-examiner variability.

Procedures for Data Collection

A structured clinic form that included questions on demographic profiles, case history, number of years in transport business and awareness of oculo-visual problem if any was used.

Oculo-visual examinations such as, visual acuity test using the Snellen's visual acuity chart at distance and at near, monocularly and binocularly, unaided and aided, if the participant had spectacle prescription were done on all participants.

Other examinations such as confrontation visual field test and ocular motility tests were tested in all directions of gaze in all the participants.

The lids, the conjunctiva, the cornea, the sclera, the iris and the pupil were examined too, for any abnormality. Color vision test was done on the participants.

Finally, funduscopy was done on all participant intercity commercial bus drivers using Welch Allyn professional direct ophthalmoscope. Those whose fundi showed classical signs of hypertensive retinopathy, diabetic retinopathy and macular degenerations were all tested with sphygmomanometer, glucometer and amslergrid chart respectively for confirmation. Also, health education was given on the importance of regular comprehensive eye/vision care was done.

All The Findings Were Properly Recorded.

Method of Data Analysis

Data were analyzed using descriptive and inferential statistical packages

Results

Research question 1

What are the types of oculo-visual problems among intercity commercial bus drivers in Abia State and Imo State?

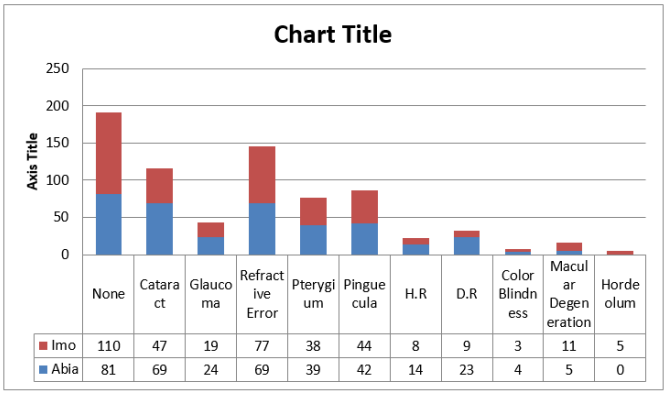

Figure 3: Showing the Types of Oculo-Visual Problems Among Intercity Commercial Bus Drivers in Abia State and Imo State.

Findings from figure 3 above shows 81 (21.89%) of the study participants had no oculo-visual problems. The most common oculo-visual problem found among drivers in Abia State were cataract and refractive errors each accounting for 69 (18.65%) of the study population, pinguecula was found to be the next accounting for 42 (11.35%) of the study population, the least common oculo-visual problems were color blindness and macular degeneration accounting for 4 (1.08%) and 5 (1.35%) respectively.

Findings from figure 3 above also shows 110 (29.65%) of the study participants in Imo State had no oculo-visual problems, however the most common oculo-visual problem found among drivers in Imo State was refractive errors accounting for 77 (20.75%) of the study population, cataract was found to be the next oculo-visual problem accounting for 47(12.67%) of the study population, the least common oculo-visual problems were color blindness and hordeolum accounting for 3 (0.81%) and 5 (1.35%) respectively.

Comparing the findings from both states, oculo-visual problems were more prevalent in Abia State with a prevalence rate of 289(78.11%) than in Imo State which had a prevalence rate of 261(70.35%).

Research Question 2

What is the level of awareness of inherent oculo-visual problems among intercity commercial bus drivers in Abia State and Imo State?

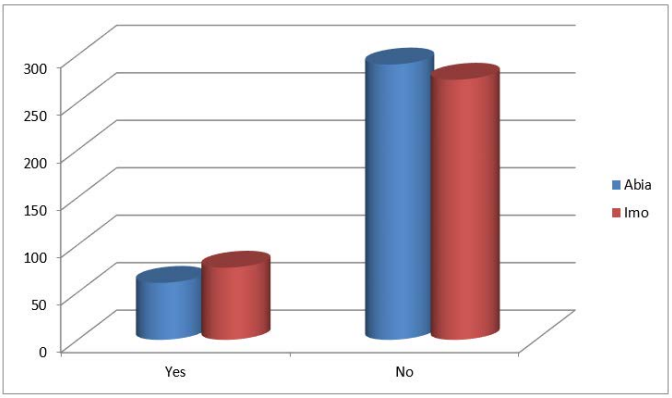

Figure 4: Showing the Level of Awareness of Inherent Oculo-Visual Problems Among Intercity Commercial Bus Drivers in Abia State and Imo State.

From figure 4 above, the awareness level of inherent oculo-visual problems was more among intercity commercial bus drivers in Imo State, with 76 (21.7%) than among intercity commercial bus drivers in Abia who had only 60 (17.1%) of the study population being aware of their oculo-visual problems.

Hypotheses Testing

Ho1: The magnitude of oculo-visual problems is not significantly dependent on age (P<0.05).

A test for significance using the chi square and Pearson's correlation showed a positive correlation between oculo-visual problems and age, thus the null hypothesis is not supported and the alternate hypothesis is not rejected.

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.538E2a	18	.000
Likelihood Ratio	270.195	18	.000
Linear-by-Linear Association	39.911	1	.000
N of Valid Cases	350		

a. 9 cells (30.0%) have expected count less than 5. The minimum expected count is .39.

		Value	Asymp. Std. Errora	Approx. Tb	Approx. Sig.
Interval by Interval	Pearson's R	.338	.052	6.703	.000c
Ordinal by Ordinal	Spearman Correlation	.317	.054	6.236	.000c
N of Valid Cases	350				

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.
c. Based on normal approximation.

Ho2: The level of awareness of inherent oculo-visual problems among intercity commercial bus drivers in Abia State is not significant (p<0.05).

A test for significance using the non-parametric chi-square analysis showed a statistical significance in the level of awareness of inherent oculo-visual problems among intercity commercial bus drivers in Abia state, thus the null hypothesis is not supported and the alternate hypothesis is not rejected.

See Chi Square Test Statistics Showing Answers to Research Hypothesis 2 Below.
Awareness of Oculo-Visual Problems Abia

	Observed N	Expected N	Residual
Yes	60	175.0	-115.0
No	290	175.0	115.0
Total	350		

Test Statistics Abia Table Showing Answers to Research Hypothesis 2

	Awareness of Oculo-visual Problems (Abia)
Chi-Square	151.143a
Df	1
Asymp. Sig.	.000

a. 0 cells (.0%) Have Expected Frequencies Less Than 5. The Minimum Expected Cell Frequency is 175.0.

Ho3: The level of awareness of inherent oculo-visual problems among intercity commercial bus drivers in Imo State is not significant (P<0.05).

A test for significance using the non-parametric chi-square analysis showed a statistical significance in the level of awareness of inherent oculo-visual problems among intercity commercial bus drivers in Imo state, thus the null hypothesis is not supported and the alternate hypothesis is not rejected.

See Test Statistics Showing Answers to Research Hypothesis 3 Below

Awareness of Oculo-visual Problems Imo

	Observed N	Expected N	Residual
Yes	76	175.0	-99.0
No	274	175.0	99.0
Total	350		

Test Statistics Imo Table Showing Answer to Research Hypothesis 3

	Awareness of Oculo-visual Problems
Chi-Square	112.011[a]
Df	1
Asymp. Sig.	.000

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 175.0.

Discussion

The results of this study showed that cataract, with frequencies of 47 (18.65%) and 69 (12.66%) respectively, was the most prevalent oculo-visual issue among intercity commercial bus drivers in Abia and Imo States. Contrary to what was observed in a study by refractive error (31.3%) was not the most prevalent oculo-visual issue among commercial vehicle drivers in Osun State [9].

In this study, there were 69 (18.65%) and 77 (20.75%) intercity commercial bus drivers in Abia State and Imo State, respectively, who had refractive errors. The study by which discovered 8.8% refractive error among drivers in Jimma town, South-West Ethiopia, does not support this [7].

The study's findings were different from those of another study that found that 8.4% of drivers in Osun State had refractive error [11].

The study differs from that of who discovered that (31.3%) of commercial vehicle drivers in Osun State had refractive error [10].

The study's findings indicated that four (1.08%) and three (0.8%) intercity commercial bus drivers in the states of Abia and Imo, respectively, had color blindness. This is comparable to the (1.6%) rate in Jimma Town, South-West Ethiopia, as reported by [4].

The findings of the study conflict with those of [14, 15], who found no color blindness (0%) and 14 (6.31%) in Selangor and Ondo State, respectively.

The outcome differs from that of who noted that (4.3%) of intercity commercial drivers in Ilorin were color blind [8].

The study's findings also revealed that in Abia State and Imo State, respectively, 17.1% and 21.7% of intercity commercial bus drivers were aware of intrinsic oculo-visual abnormalities. This is significantly less than what [11] reported (63.1%) and is still significantly less than the awareness level of the presence of inherent refractive error (92.6%) as reported by in commercial drivers in the state of Osun [12].

This study conflicts with finding that commercial vehicle drivers in Osun State were only 68.7% aware of inherent refractive error [13].

Conclusion

In Abia and Imo States, intercity commercial bus drivers experience a high burden of oculo-visual issues. Furthermore, only 21% and 17% of the study subjects in the states of Imo and Abia, respectively, knew they had oculo-visual issues.

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