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A Performance based test to assess activities of daily living in Glaucoma patients and its Correlation with Self-Reported Questionnaire

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Background: Glaucoma is a group of diseases characterized by loss of retinal nerve fibre layer and visual field loss¹. Glaucoma is the commonest cause of irreversible blindness worldwide and the second leading cause of blindness worldwide after cataract². In Nigeria, it remains the leading cause of irreversible blindness accounting for 16.7% of

blindness among individuals aged 40 years and above³.

Progressive vision loss from glaucoma has significant impact on quality of life⁴. This has been assessed using subjective methods in form of questionnaires but physical performance-based assessment may offer several advantages over self-reported questionnaires⁵. Previous studies in Nigeria reported reduced quality of life in glaucoma patients using self-reported questionnaire^{6,7}.

The aim of this study was to assess the quality of life in primary open angle glaucoma patients using both subjective (National Eye Institute Visual Function Questionnaire-25) and objective tests (Compressed Assessment of Ability Related to Vision (CAARV)) and to examine correlation between both methods.

Methods: This was a cross sectional study of adult Primary Open Angle Glaucoma (POAG) patients on medical therapy at the Guinness Eye Centre, Onitsha Nigeria between January to May 2019. The patients were selected by systematic sampling technique.

Patients responded to questions on socio-demographics and completed the National Eye Institute Visual Function Questionnaire-25 (NEI-VFQ-25)⁸. All patients also completed the Compressed Assessment of Ability Related to Vision (CAARV)⁹, which is a performance-based test with four items including motion detection, recognizing facial expression, reading street sign and finding objects in a room. Ocular examination and central visual field test using automated perimetry were also done.

Results: One hundred and seventy-one patients, aged 40-83 years, (mean 59.1±11.1) were studied; there were 79(46.2%) males and 92(53.8%) females. The scores of the Compressed Ability to Perform Activities Related to Vision are shown in Table 1. The mean CAARV total score was 24.64±5.27. The mean NEI-VFQ-25 score was 83.2±19.30. CAARV correlated significantly with NEI-VFQ scores ($r=0.679$, $p<0.001$). Both CAARV and NEI-VFQ-25 correlated significantly with visual acuity and visual fields of both better and worse eye. CAARV was more strongly correlated with better eye visual acuity as shown in Figure 1.

Discussion: The results of this study demonstrated reduced quality of life in glaucoma patients using self-reported questionnaire (NEI-

VFQ-25) and performance-based test(CAARV).The mean vision-related quality of life measured with NEI-VFQ-25 was similar to the 85.2 obtained by Onakoya et al⁶ in Lagos among primary open angle glaucoma patients. The slightly higher value in the Lagos study may be explained by the higher proportion of patients with post-secondary

education in their study population (49.3%). Both Wei et al⁹ and Ezenwa& Nwosu¹⁰ reported reduced performance scores in glaucoma patients using CAARV and Assessment of Disability Related to Vision (ADREV) respectively. Wei et al⁹ recorded CAARV scores of 20.63 with lowest scores in facial expression and highest scores in motion detection and this is similar to our findings.

Performance scores recorded with CAARV correlated moderately with quality of life scores in this study. This implies that a patient may over-report or under-report his/her difficulties while responding to questions in the NEI-VFQ-25. Hence combining both tests in clinical practice may give a better understanding of the patient’s disabilities. **Conclusion:** Performance based test objectively tests a patient’s actual ability to perform a given task. Although these tests were carried out in a hospital setting, they tried to simulate the patient’s environment. This study showed a significant correlation between CAARV (a performance-based test) and self-reported quality of life with a stronger correlation between CAARV and visual acuity. Further studies may be required to justify the inclusion of a performance-based test in clinical practice to complement self-reported quality of life assessment.

Table 1: Compressed Ability to perform Activities Related to Vision (CAARV)

	Range	Mean ± SD
Facial expression	0.00 – 7.00	5.53 ± 1.71
Motion detection	0.00 – 7.00	6.79 ± 1.04
Finding objects	0.00 – 7.00	6.70 ± 1.08
Street signs	0.00 – 7.00	5.62 ± 2.43
Total performance	0.00 – 28.00	24.64 ± 5.27
Time to perform	12.87 – 18.40	14.51 ± 1.39

SD – Standard deviation

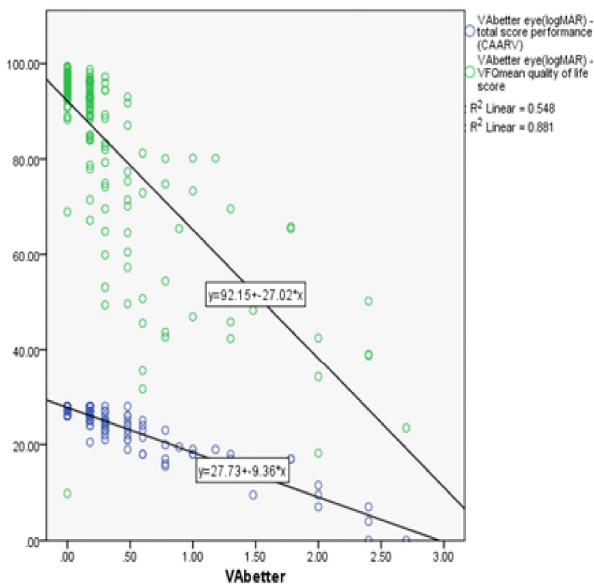


Figure 1: Scatter plot showing Compressed Assessment of Ability Related to Vision (CAARV) and National Eye Institute Visual Function Questionnaire-25 (NEI-VFQ-25) correlation with Visual acuity of better seeing eye

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Socio-demographic and clinical profiles of patients with primary open angle glaucoma in Gwagwalada, Nigeria

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Background: Knowledge about disease profiles is important for patient education and management. This brief report is from a study that investigated certain urine, serum and haematological parameters as potential biomarkers for primary open angle glaucoma (POAG). The demographic characteristics and clinical information of POAG and non-glaucoma eye patients (NGEP) are compared in this report.

Methods: A survey of 235 adult eye patients (96 POAG and 139 NGEP). Data collected included demographic variables such as age, gender, education, vocation, ethnicity, and family history of glaucoma as well as clinical variables including history of ocular itching, diabetes mellitus (DM), hypertension, visual acuity, central visual field, cup disc ratio, anterior chamber angle assessment, and intraocular pressure.

Results: The mean age was 49.88±13.75 years and 114 (48.5%) were males. Most of the participants (83.0%) had at least secondary education. About three quarters of POAG patients had visual impairment. Igbo (25.0%) and Yoruba (20.8%) were the most common ethnic groups among POAG patients. About 36% of POAG patients had positive family history of glaucoma compared with 19% of NGEP ($p=0.012$). History of DM was more common among POAG (8.3%) patients than among NGEP (4.3%). While history of hypertension was similar in both groups (25.0% among POAG patients versus 20.1% in NGEP). Visual impairment was more common among POAG patients than among NGEP ($p<0.001$). The frequency of vertical cup disc ratio > 0.4 among the POAG group was 100% in both right and left eyes compared with 94.3% (right eyes) and 89.2% (left eyes) among NGEP. In addition, more patients had intraocular pressure > 22 mmHg among POAG than among patients NGEP ($p=0.006$). Although 62.5% of POAG patients were on antiglaucoma drugs especially fixed combination molecules, a significant proportion (24%) were not. Only 6.3% of the POAG patients had undergone glaucoma surgery.

Discussion: The study surveyed and compared socio-demographic and clinical profiles of 96 POAG and 139 non-glaucoma adult eye patients mostly