# Ocular findings seen among the staff of an institution in Lagos, Nigeria

*A. O. Ashaye[1] and M. C. Asuzu[2]
*Departments of Ophthalmology[1] and Community Medicine[2]*
*College of Medicine, University of Ibadan, Ibadan, Nigeria.*

*E-mail:aashaye@skannet.com and asuzu@skannet.com*

**Summary**

*Background:* **The degree to which ocular morbidity affects workers productivity in the developing countries has not been studied adequately. A federal government research institute based in Lagos introduced an annual health screen for all its workers, which included eye tests. This provided an opportunity to study the pattern of ocular conditions among workers who were 30 years and above, and to determine the effect of eye diseases on the workers productivity.**

*Study design:* **Detailed eye examination including refraction, was done on every respondent at the institution's clinic by an ophthalmologist. A questionnaire on ocular health status and occupational history was administered independently by an ophthalmic nurse. Sickness absenteeism, use of the clinic were obtained from clinic records, and the results were analysed.**

*Results:* **The common ocular conditions were uncorrected or poorly corrected refractive error, uncorrected or poorly corrected presbyopia and allergic conjunctivitis. Glaucoma, maculopathy and optic atrophy were causes of severe visual impairment or blindness in 1.9% of the subjects.**

**Absenteeism and clinic use were more common in subjects with ocular morbidity than those with non-ocular morbidity.**

**Subjects with ocular morbidity had more illnesses, absenteeism and used the clinic more.**

*Conclusion:* **Ocular problems which reduce worker's productivity are prevalent among the staff of the institution studied. They are mostly unrecognised.**

**Key-words:** ***Ocular findings, Workers, Refractive error, Productivity.***

**Résumé**

***Introduction:*** On n'a pas jusqu' à présent, suffisamment effectué des études afin de décider le dégré auquel la morbidité oculaire altère la productivité des ouvriers dans les pays en voie de développement. Un établissement du gouvernement fédéral pour des recherches situé à Lagos a introduit une selection annuelle sur la santé de tous ses ouvriers, y compris l'examen des yeux. C'est une occasion d'étudier la tendance des maladies occulaires parmi des ouvriers âgés de 30 ans et plus, et de décider les effets de la maladie des yeux sur la productivité des ouvriers.

***Plan d'étude:*** L'examen de la vue en détail y compris la réreaction a été effectué pour chaque patient dans la clinique par un ophthalmologiste. Un questionnaire sur le statut de la santé oculaire et l'histoire occupationnelle a été effectué indépendanmment par une infirmière ophthalmique. Absentéisme suite à une maladie; l'utilisation de la clinique était obtenue des dossiers cliniques; et les résultats ont été analysés.

***Résultats:*** Les maladies oculaires ordinaires n'étaient pas corrigées ou bien erreurs de réfraction étaient pauvrement corrigées, presbyopie et conjunctivite non corrigés ou bien pouvrement corrigés. Glaucome, maculopathie et atrophie optique étaient attribuables à l'affaiblessement visuelle grave ou la cécité en 1,9% des sujets. Absentéisme et, l'utilisation de la clinique étaient plus fréquents chez les sujets avec morbidité oculaire plus que chez ceux avec morbidité non-oculaire. Les sujets atteints de la morbidité oculaire avaient plus des maladies, absentéisme et l'utilisation de la clinique.

***Conclusion:*** Des problèmes oculaires qui diminues la productivite des ouvriers sont dominants parmi le personnel d'institution étudiée. Ils sont principalement non reconnu.

## Introduction

Information is scanty about the types and severity of ocular morbidity among 'healthy' workers in most developing countries including Nigeria. As a result, the degree to which ocular morbidity affects productivity has not been adequately evaluated. Also the occupational association of many eye diseases has not been adequately evaluated or attended to in the clinical setting.[1] It is not clear if the situation is different in work places in the developing countries. This study population typifies a government parastatal located in an urban setting in a developing country.

The research institute has administrative staff, technicians who work with chemicals in laboratories, and technical staff who fabricate metals in the foundry. The institute also employs scientists who undertake research on food processing and preservation, and various levels of labour who provide support services. Occupational related injuries or disease had not previously been documented in the study population. Verbal reports of electric shock, chemical splashes on the face, flying metal

*Correspondence

**Table 1 Self-reported ocular symptoms among 256 workers**

| | | % |
|---|---|---|
| Difficulty in reading small print | 205 | 41.6 |
| Itching | 105 | 21.3 |
| Periocular pains | 85 | 17.2 |
| Poor distance vision | 44 | 8.9 |
| Watery eyes | 26 | 5.3 |
| Foreign body sensation | 25 | 5.1 |
| Growth in the eyes | 3 | 0.6 |
| Total | 493 | 100 |

Note: *The figures do not add up to 256, as some workers reported more than one symptom.*

injuries and cuts were reported. This study was embarked upon to determine the prevalence of ocular disease among the workers in this federal research institute in Lagos, Nigeria. The study also investigated the effect of the ocular morbidity on the workers productivity.

## Method

All workers who were 30 years and above were invited to participate in the study and were informed of the purpose of the eye test. Of the 345 workers in the research institute, 280 were 30 years and over. Out of these, 256 (91.4%) agreed to participate in the eye examination. The mean age of respondents was 42.3 years. Females constituted 39.8%; while males were 60.2% of the study population. The male to female ratio was therefore 1.5 : 1. Most patients were in the 40 – 49 years age group. Literacy rate was 100% in the subjects examined.

The examination, which took place in the premises of the institute, was conducted during office hours. A short questionnaire was administered by an ophthalmic nurse who did not work at the Institute and had not been previously known by members of staff. Biographic data, specific duties, self-reported clinic use and drug use information were collected. The eye examination was conducted by an ophthalmologist, who was unaware of the results of the ophthalmic nurse's interview.

Distance visual acuity was measured in each eye using the Snellen's chart at six metres. Pen torch examination, fundoscopy, refraction, near visual acuity measurement and tonometry with a handheld applanation tonometer were done. Visual fields were done as necessary. The cause of poor vision or ocular discomfort was identified by the ophthalmologist. Myopia, hyperopia and astigmatism were recorded as distant visual acuity

**Table 2 Distance visual acuity in the better eye by age in subjects studied**

| **Presenting distance** | | | **Age** | | |
|---|---|---|---|---|---|
| VA in the better eye | 30 – 39 (%) | 40 – 49 (%) | 50 – 59 (%) | >60 (%) | Total (%) |
| 6/4 – 6/9 | 80 (85.1%) | 103 (86.6%) | 28 (80/0%) | 0 (0.0%) | 211 (82.4%) |
| 6/12 – 6/18 | 14 (14.9%) | 15 (12.6%) | 5 14.3%) | 5 (62.5%) | 39 (15.2%) |
| 6/24 –6/60 | 0 (0.0%) | 1 ¶0.8%) | 2 (5.7%) | 2 (25.0%) | 5 (1.9%) |
| <6/60 | 0 (0.0%) | 0 (0.0%) | 0 (0.0%) | 1 (12.5%) | 1 (0.4%) |
| Total | 94 (100%) | 119 (100%) | 35 (100%) | 8 (100%) | 256 (100%) |

**Table 3 Presenting near visual acuity (VA) in 256 workers by age**

| **Presenting near VA in better eye** | 30 – 39 (%) | 40 – 49 (%) | 50 – 59 (%) | >60 (%) | Total (%) |
|---|---|---|---|---|---|
| N5 – N6 | 80 | 22 | 12 | 0 | 201 |
| Normal near vision | (85.1%) | (18.5%) | (34.3%) | (0.0%) | (78.5%) |
| N8 – N10 | 14 | 65 | 6 | 5 | 44 |
| (Impaired near vision) | (14.9%) | (54.6%) | (17.1%) | (62.5%) | (17.2%) |
| N10 | 0 | 32 | 17 | 3 | 11 |
| (Severely Impaired near vision) | (0.0%) | (26.9%) | (48.6%) | (37.5%) | (4.3%) |
| Total | 94 (100%) | 119 (100%) | 35 (100%) | 8 (100%) | 256 (100%) |

problems. Presbyopia was recorded as a near visual acuity problem.

## Results

Common self-reported ocular symptoms at the time of examination were difficulty in reading small print, poor distance vision, itching, watery eyes, foreign body sensation, redness of eyes, growth in the eyes, and periocular pains (Table 1). Table 2 presents the distance visual acuity in the better eye of subjects examined. Five subjects (1.9%) had visual impairment; that is, visual acuity of at least 6/60 and not more than 6/24 in their better eye. Out of these, two had improvement in their visual acuity with glasses. One subject was severely visually impaired [visual acuity in the better eye worse than 6/60]. After refraction, 33 subjects had improved distance visual acuity in their better eye.

One hundred and twenty five subjects (48.8%) had uncorrected or poorly corrected near visual acuity or reading vision. Impairment of near vision was present in most of the age groups examined (table 3). The reasons given for not getting appropriate reading glasses varied (table 4). Some were unable to pay for glasses; others reported that they had no access to an eye-care practitioner; while others believed that not being able to read the small print is a natural aging process.

Table 5 shows the diagnosis in those with ocular problems among the subjects studied. These were uncorrected refractive error, uncorrected or poorly corrected presbyopia, allergic conjunctivitis, pterygia and early cataracts. Uncorrected refractive errors and presbyopia occurred in almost two-thirds of subjects in the study. The causes of irreversible visual impairment or blindness in the subjects were optic atrophy, maculopathy and glaucoma. The subject who was blind was a gardener. The other subjects with visual impairment were security men.

Subjects with ocular morbidity also recorded higher incidences of sickness absenteeism and clinic use than those without ocular morbidity (table 6). The association between clinic use and ocular morbidity was statistically significant at 5% level, but the association between sickness absenteeism and ocular morbidity was not statistically significant.

**Table 4 Major reasons given for not getting appropriate reading glasses**

| Reason | No. | % |
|---|---|---|
| Poor vision associated with old age/excessive reading | 8 | 6.4 |
| Expect cost to be high | 20 | 16.0 |
| Glasses damage the eye | 26 | 20.8 |
| No access to affordable eye care practitioner | 23 | 18.4 |
| Lost previous ones/cannot afford new pair | 12 | 9.6 |
| Still a plan, no time | 20 | 16.0 |
| No reason | 16 | 12.8 |
| **Total** | 125 | 100 |

**Table 5 Ocular diagnosis among 185 workers**

| | | |
|---|---|---|
| Uncorrected distant refractive error | 38 | 14.8% |
| Uncorrected/poorly corrected presbyopia | 125 | 48.8% |
| Allergic conjunctivitis | 8 | 3.1% |
| Pterygia | 3 | 1.2% |
| Cataract | 3 | 1.2% |
| Glaucoma | 6 | 2.4% |
| Maculopathy | 1 | 0.4% |
| Optic Atrophy | 1 | 0.4% |
| **Total** | 185 | 72.3% |

## Discussion

Uncorrected or poorly corrected refractive error and presbyopia were major ocular findings among workers in this research institute located in Lagos, Nigeria. Two-thirds of the subjects found with various ocular morbidity had uncorrected or poorly corrected refractive errors. Although not always serious, ocular morbidity has been found frequently enough to affect workers' productivity[2]. The health-related quality of life in patients with uncorrected refractive errors and presbyopia may have hitherto been trivialised in the developing country. Patients with uncorrected refractive errors are often unaware of their condition, or may trivialise them. The associated symptoms of headache and fatigue are not often linked with the visual problem. The combination of visual problems and associated symptoms can produce a high level of impairment on the day-to-day physical, emotional, and occupational functioning.[3-6]

The degree of impairment of the health-related quality of life in patients with refractive errors is often not

**Table 6 Absenteeism and clinic use in subjects with ocular morbidity**

| | Subjects with Absenteeism | | | Subjects with clinic use | | |
|---|---|---|---|---|---|---|
| | <2 days/ 6months n(%) | ≥2 days/ 6months n(%) | Total | <2 days/ 6 months n(%) | ≥ 2 days/ 6 months n(%) | Total |
| Subjects with no ocular morbidity | 2(10%) | 18(90%) | 20(100%) | 3(15%) | 17(85%) | 20(100%) |
| Subjects with ocular morbidity | 10(25%) | 30(75%) | 40(100%) | 16(40%) | 24(60%) | 40(100%) |
| **Total** | **12(20%)** | **48(80%)** | **60(100%)** | **19** | **41(81.1%)** | **60(100%)** |

*1-tailed Fisher's exact test P= 0.15 ($X^2$ =2.78; P=0.025).*

recognised and is sometimes trivialised by even some health care workers and employers.[3] In this study it was found that visually disabled subjects were deployed to work in places where good vision is needed.

Presbyopia occurs in the prime working years of life. Its effect on function when uncorrected, places a tremendous burden on employees, primarily in the form of loss of productivity, as well as increased health facility usage.[2,3], as has been found in this study.

Other causes of ocular morbidity were allergic conjunctivitis and pterygia. These diseases have been found to be common causes of non visual impairing eye conditions in industries and community-based studies[2,7].

**References**


1. Asuzu MC, Bekibele C, and Ashaye A.O.: A summary of eye trauma and diseases in a teaching hospital: implication for training in occupational ophthalmology in Nigeria. *Occup. Med*; 2000; 50:193-196.

2. Titiyal JS, and Murthy G.V.: Industrial ocular morbidity in a North Indian Town. *Indian Journal of Public Health*; 1998; 42:29-33.

3. Warshaw LJ, and Burton WN: Cutting the costs of migraine: role of the employee health unit. *Journal of Occupational & Environmental Medicine*; 1998; 40:943-53.

4. Araki Y, Mutot, and Asakura T.: Psychosomatic symptoms of Japanese working women and their need for stress management. *Industrial Health*; 1999; 37:253-62.

5. Stang P, Von Korff M, and Graler BC.: Reduced labour force participation among primary care patients with headache. *Journal of General Internal Medicine*. 1998; 13:296 – 302.

6. Michel P, Dartigues JF, Duru G, Moreau J, Salamon R, and Henry P.: Incremental absenteeism due to headaches in migraine; results from the Mig-Access-French rational cohort. *Cephalgia*; 1999; 19:503-10.

7. Kamali A, Whitworth JA, Rubevantwari A. Mulwanyi F, Acakara M, Dolin P, and Johnson G. Causes and prevalence of non-vision impairing ocular conditions among a rural adult population in South-west Uganda. *Ophthalmic Epidemiology* 1999: 6:41-8.