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Visual function rather than visual acuity

We would like to express our gratitude to Matthew Burton and colleagues for the Commission on Global Eye Health (April, 2021),[1] which highlights the magnitude of the challenge. As a plea we would like to mention the glaucomas. We feel this preventable cause of blindness has been insufficiently represented and the burden of this disease group understated because of the use of visual acuity alone to measure disability.

Glaucomas result in loss of visual function long before visual acuity is affected, with visual field loss occurring first and central acuity disappearing last. This pattern means that many people will be blind by WHO definitions (visual field loss to less than 10°) but would not have been included in the data described in the Commission if only visual acuity is considered. It is telling to consider why, despite this, glaucoma features as the second leading cause of blindness in the Commission and yet hardly features as a cause of visual impairment (there is no definition of visual impairment by visual field loss).

In 2006, Afekhide Omoti and colleagues[2] reported 154 patients in Nigeria with a diagnosis at first presentation of primary open-angle glaucoma. Of 119 patients presenting with subjective visual loss, 38 (25%) were blind when using visual acuity as the measure. A further 87 (57%) were blind when using field loss criteria, increasing the proportion of those blind to 82%. A study[3] of visual fields from people newly diagnosed with glaucoma estimated the effect size with greater precision compared with Omoti and colleagues. This underestimate of disease burden is not unique to glaucoma, another example being onchocerciasis.[4] Although difficult to quantify, the existence of this additional burden should be recognised.

We declare no competing interests.

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1 Burton MJ, Ramke J, Marques AP, et al. The *Lancet Global Health Commission* on Global Eye Health: vision beyond 2020. *Lancet Glob Health* 2021; **9:** 489–551.
2 Omoti AE, Osahon AI, Waziri-Erameh MJ. Pattern of presentation of primary open-angle glaucoma in Benin City, Nigeria. *Trop Doct* 2006; **36:** 97–100.
3 Jones PR, Philippin H, Makupa WU, Burton MJ, Crabb DP. Severity of visual field loss at first presentation to glaucoma clinics in England and Tanzania. *Ophthalmic Epidemiol* 2020; **27:** 10–18.
4 Murdoch IE, Jones BR, Cousens S, et al. Visual field constriction as a cause of blindness or visual impairment. *Bull World Health Organ* 1997; **75:** 141–46.