

Visual health inequalities: findings from UK Biobank

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Abstract

Background Little is known about inequalities in eye health. Between 2009 and 2010, 117 908 UK Biobank participants (aged 40–69 years) undertook an ophthalmic assessment, which included distance visual acuity. UK Biobank was not designed to be a fully representative population sample so prevalence estimation is precluded. However, the size and diversity of the sample provide a unique opportunity for investigation of socioeconomic influences on visual health in UK adults.

Methods Habitual (usual optical correction) distance acuity was measured with a standardised computer-based system. 112 314 participants were reliably assigned, on the basis of acuity in the better eye, into one of six categories spanning the spectrum of vision from bilateral normal vision (log of minimum angle of resolution [logMAR] 0·2 or better) to low-vision–blind ($\leq 0\cdot 5$, WHO taxonomy). Socioeconomic information included educational qualifications and Townsend Index. Multinomial and ordinal regression analyses were undertaken.

Findings The frequency of normal bilateral vision decreased with age (age 40–49 years, 86% [21 934/25 645]; 50–59 years, 77% [27 482/35 786]; and 60–70 years, 72% [36 461/50 883]). Overall, risk of visual impairment across severity categories was associated with an increasing gradient of key demographic and socioeconomic variables, indicating deprivation. These patterns of visual health inequalities were not explained by risk of underlying eye disease. For example, compared with normal vision, socially significant visual impairment (SSVI), a mid-range category of visual impairment, was associated with increasing age (risk ratio 1·05, 95% CI 1·046–1·06), being female (1·09, 1·01–1·16), no educational qualifications (1·7, 1·4–1·9), a higher deprivation score (1·08, 1·07–1·09), and being part of any minority ethnic group (eg, Asian 2·5, 2·1–2·9). Participants unable to work or unemployed were at least 30% more likely to be in the SSVI category than were those with normal vision and, if employed, at least 9% more likely to have a lower status job.

Interpretation There are consistent patterns of associations between visual impairment across the full spectrum including, importantly, people with mild impairment, and known health determinants as well as key social outcomes. To our knowledge, our study provides evidence for the first time that policies tackling health inequalities as well as initiatives to address inequalities in ophthalmological clinical settings have the potential to improve visual health outcomes.

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Contributors

Both authors designed the study and wrote and approved the abstract. PMC undertook the statistical analysis.

Declaration of interests

We declare no competing interests.

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