

Disability has been defined as an alteration of an individual's capacity to meet personal, social or occupational demands, or statutory or regulatory requirements, because of an impairment.² An impaired person is not necessarily disabled.

The study of Taylor et al did not use measures of visual disability, such as the VF-14 (Visual Function Index). Participants were asked to complete a questionnaire that included information about "symptoms of eye disease", but it is not clear that the questionnaire explored self-perceived problems with vision. Nor does the study seem to have looked at the level of cognitive impairment within this aged population. Tielsch et al, in a similar study,³ made the point that whether people who have both a treatable loss of vision and cognitive impairment should receive ophthalmological intervention depends on the cause and severity of the cognitive deficit.

Further, Taylor and colleagues stated that, after undercorrected refractive error, cataract is the most common cause of low vision and is also comparatively easily treated, but they did not objectively evaluate the relative risks and benefits of such interventions.

The study provides interesting data on the extent of visual impairment in Australia, but the authors are presupposing that the uncovered prevalence of visual impairment necessarily constitutes a social problem requiring "save your sight" public health measures. Reference should be made to patient goals and needs, and an objective cost-benefit analysis, before such a conclusion can be reached.

1 Taylor HR, Keeffe JE, Vu HT, et al. Vision loss in Australia. *Med J Aust* 2005; 182: 565-568.

2 American Medical Association. Guides to the evaluation of permanent impairment. 4th ed. Chicago: AMA, 1993:2.

3 Tielsch JM, Javitt JC, Coleman A, et al. The prevalence of blindness and visual impairment among nursing home residents in Baltimore. *N Engl J Med* 1995; 332: 1205-1209. □

Konrad Pesudovs,* Douglas J Coster†

* Deputy Director, † Director, NHMRC Centre for Clinical Eye Research, Department of Ophthalmology, Flinders Medical Centre and Flinders University, Bedford Park, SA 5042. Konrad.Pesudovs@flinders.edu.au

TO THE EDITOR: The timely report of Taylor and colleagues of large numbers of Australians suffering visual impairment caused by refractive error raises some important questions.¹

Firstly, is it reasonable to assume that visual acuity of less than 6/12 is disabling and demands intervention? The correlation of visual acuity and visual disability is tenuous.²⁻⁴ This is not surprising. Visual acuity measures a narrow domain of visual function. Different abnormalities differentially impact across wide domains of visual function. Everyday sight-dependent functions will be affected differently. For example, people with cataracts may experience reduced contrast sensitivity and colour discrimination, while those with advanced glaucoma will lose visual field, but those losses will affect a person's life independent of visual acuity. Conversely, myopia acquired in old age may reduce visual acuity to less than 6/12 but may also provide spectacle-free near vision adequate for reading and other daily tasks. This may not cause any disability for an elderly person whose life is spent predominantly indoors.

Therefore, it seems inappropriate to assume that the 62% of people with visual impairment caused by refractive error suffer visual disability to the extent of those with glaucoma or age-related macular degeneration. A better approach to measuring visual impairment would be to use patient-centred measures, which consider the impact of eye disease on visual performance, rather than the convenient but narrow measure of visual acuity. If visual acuity is to be used, its limitations as an indicator of visual disability should be considered, and inferences about visual impairment should remain constrained by these limitations.

The second question which follows from the report that uncorrected refractive error is responsible for 62% of visual loss below 6/12 is: why do people so affected not wear spectacles? Perhaps there are barriers to acquiring spectacles, such as access. However, this seems unlikely as there is an optometrist in every major shopping centre. Certainly, cost may be a barrier, and a study from our Centre has shown that spectacle correction may reduce quality of life in the domains of wellbeing, convenience, and economic concerns.⁵ Therefore, it seems likely that the cost-benefit balance is such that these people are not sufficiently disabled by their vision to go to the inconvenience and expense of acquiring spectacles.

The authors have raised important issues which require clarification. Is it that visual acuity overestimates the impact of refractive error on visual disability, or is the

system for supplying spectacles to Australians failing?

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1 Taylor HR, Keeffe JE, Vu HT, et al. Vision loss in Australia. *Med J Aust* 2005; 182: 565-568.

2 Chia EM, Wang JJ, Rochtchina E, et al. Impact of bilateral visual impairment on health-related quality of life: the Blue Mountains Eye Study. *Invest Ophthalmol Vis Sci* 2004; 45: 71-76.

3 Keeffe JE, Jin CF, Weih LM, et al. Vision impairment and older drivers: who's driving? *Br J Ophthalmol* 2002; 86: 1118-1121.

4 Valbuena M, Bandeen-Roche K, Rubin GS, et al. Self-reported assessment of visual function in a population-based study: the SEE project. Salisbury Eye Evaluation. *Invest Ophthalmol Vis Sci* 1999; 40: 280-288.

5 Pesudovs K, Garamendi E, Elliott DB. The Quality of Life Impact of Refractive Correction (QIRC) questionnaire — development and validation. *Optom Vis Sci* 2004; 81: 769-777. □

Jill E Keeffe,* Hugh R Taylor†

* Director, Population Health Division, Department of Ophthalmology, University of Melbourne, and Royal Victorian Eye and Ear Hospital, Locked Bag 8, East Melbourne, VIC 8002; † Professor, Centre for Eye Research, University of Melbourne, VIC. jillek@unimelb.edu.au

IN REPLY: Boffa and Pesudovs and Coster all correctly point out that a reduction in visual acuity does not always lead to disability, and that not all people with impaired vision are disabled or report impaired quality of life. Large Australian and American population-based studies have shown that visual acuity below a critical level of 6/12 is associated with disability and affects participation in chosen activities and quality of life.¹ When compared with people with normal vision ($\geq 6/12$), those with impaired vision have an increased risk of falls and hip fractures, depression, difficulties with activities of daily living and social functioning.¹

Not all people with reduced visual acuity are affected in the same way at any vision threshold, even if there is a demonstrated statistically significant association between poor vision and visual function and quality of life. For example, not all people with severe visual impairment (visual acuity $< 6/60$) report an impact on their own visual functioning or quality of life. The impact of poor vision on functional ability is similar for conditions such as cataract or acute macular degeneration as for refractive error. The impact has been shown with

both correctable and uncorrectable vision impairment.²

The VF-14 (Visual Function Index) can be used as a measure of visual disability, as suggested by Boffa. It was used in the Melbourne Visual Impairment Project and confirmed the functional implications of vision impairment (visual acuity < 6/12).³ Studies show unequivocally that vision impairment is a social³ and economic⁴ problem, and suggest the need for health promotion campaigns.

Pesudovs and Coster ask why, in a country such as Australia, with optometrists "in every major shopping centre", do people with refractive error not have the correct spectacles? They suggest some barriers of access to care. The Brotherhood of St Laurence has shown that affordability of glasses and rural disadvantage are barriers to access and equity of use of eye care services.⁵

Our report highlighted the fact that cataract is an important cause of vision loss that is highly amenable to surgical intervention.⁶ We did not discuss the relative risks and outcomes of cataract surgery, which is well documented to be highly successful, with low complication rates (< 2% for most complications),⁷ and very high cost-effectiveness.

1 Taylor HR. Eye care for the future: the Weisenfeld Lecture. *Invest Ophthalmol Vis Sci* 2003; 44: 1413-1418.

2 Chia EM, Wang JJ, Rochtchina E, et al. Impact of bilateral visual impairment on health-related quality of life: the Blue Mountains Eye Study. *Invest Ophthalmol Vis Sci* 2004; 45: 71-76.

3 Weih L, McCarty CA, Taylor HR. Functional implications of vision impairment. *Clin Experiment Ophthalmol* 2000; 28: 153-155.

4 Access Economics. Investing in sight. Strategic interventions to prevent vision loss in Australia. Melbourne: Eye Research Australia, 2005. Available at: <http://www.cera.org.au/new/clearinsight/clearinsight.html> (accessed Aug 2005).

5 Brotherhood of St Laurence. Seeing clearly. Access to affordable eyecare for low-income Victorians. In: Changing pressures. Bulletin no. 13. Melbourne: Brotherhood of St Laurence, 2004. Available at: <http://www.bsl.org.au/main.asp?PageId=60> (accessed Sep 2005).

6 Taylor HR, Keeffe JE, Vu HT, et al. Vision loss in Australia. *Med J Aust* 2005; 182: 565-568.

7 Powe NR, Schein OD, Gieser SC, et al. Synthesis of the literature on visual acuity and complications following cataract extraction with intraocular lens implantation. *Arch Ophthalmol* 1994; 112: 239-252. □

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