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Thomas Pocklington Trust
for people with sight loss

Changes in vision in older people: causes and impact

This publication summarises findings from research commissioned by Thomas Pocklington Trust that uses the English Longitudinal Study of Ageing (ELSA) to look at the links between development of visual impairment and older peoples' social and economic position, and the impact of both deteriorating and improving sight on key aspects of their lives.

The research was conducted by James Nazroo, Jennifer Whillans and Katey Matthews at the University of Manchester.

Summary findings

- The risks of developing both moderate and severe vision loss were significantly greater among people from poorer backgrounds and those who perceived their position in society to be low. Those in the poorest fifth of the population had an almost 80% higher risk of developing severe visual impairment than those from the wealthiest fifth.
- Following people over eight years, those from poorer backgrounds were more likely to have deteriorating vision, and less likely to have stable excellent or good vision.
- Deterioration in vision over a two year period was related to increases in levels of depression and decreases in quality of life, social engagement and income.
- Improvements in vision were linked with improvements in quality of life and social engagement, although differences were small.
- Smoking, diabetes and hypertension were associated with an increased risk of developing moderate or severe visual impairment.
- Among participants with a diagnosis of cataract, wealth and perceived social status were not related to the likelihood of having cataract surgery.
- ELSA uses a self-report measure of vision. Analysis of a similar study in Ireland showed that self-reported vision closely relates to objective measures of visual acuity.

Background

Deterioration in vision is associated with ageing, for example losing the ability to focus, needing more light and age-related eye conditions such as macular degeneration. In the UK, nearly six in ten people who are living with sight loss are aged 75 or older and a further nearly two in ten are aged 65-74 years.
Some of these vision problems, such as cataract, are treatable; others are not.

Previous research has demonstrated that older people with visual impairment have higher levels of other health conditions, disability, poverty, social exclusion, and lower quality of life, than those with full sight. Maintaining and restoring good vision is likely to be critical to retaining independence and wellbeing in later life. Ageing of the UK population points to the significance of age-related visual impairment for social and health policy.

Most of the research exploring associations between prevalence of visual impairment and poor life circumstances has looked at people at just one point in time. The English Longitudinal Study of Ageing follows a large sample of older people over time,
and includes questions on vision at each interview, giving the opportunity to study what puts people at risk of sight loss and the consequences of sight loss.

Research aims

This project set out to understand, among people over the age of 50:

- Are those in poorer social and economic positions more likely to experience deterioration in their vision?
- Does deterioration in vision lead to worsening social and economic position, decreased wellbeing and weakening social connections; and does improved vision lead to the reverse?
- Is the uptake of treatment, specifically cataract surgery, related to social and economic position?

Research methods

The project used data from the English Longitudinal Study of Ageing (ELSA), a large survey of a representative sample of people aged 50 and over, living in private accommodation in England. Since 2002 ELSA participants have been surveyed every two years. ELSA collects detailed information on their

health, economic and social circumstances, and responses to a number of vision-related questions.

A range of statistical techniques were used to explore relationships between changes in vision, social and economic circumstances and people's wellbeing.

The project also drew on The Irish Longitudinal Study of Ageing (TILDA), a survey of people aged 50 and over in the Republic of Ireland. TILDA collects both self-reported vision (using identical questions to ELSA) and an objective assessment of visual acuity (using a logMAR chart), enabling comparison of the two.

Findings

1. The relationship between self-reports and objective measures of vision

Self-reports and objective measures of visual impairment were significantly related. Nine in 10 people classified as having normal vision according to objective measures had self-reported normal vision. In contrast, three out of four of those who self-reported visual impairment were measured as having normal vision, suggesting some over-reporting of poor vision. It is possible that objective measures of visual acuity may not reflect the reality of functional vision and the effects on some older people of less than ideal conditions for vision, for example, low and changing light levels. So, rather than being the result of inaccurate reporting, self-report may be a more accurate assessment of everyday visual functioning. As a result, self-report and objective measures should be considered complementary.

2. The relationship between wealth, social status and developing visual impairment

ELSA respondents who had developed at least moderate vision loss (reporting 'fair' or 'poor' vision or 'blindness') and a sub-group who had developed severe vision loss (reporting 'poor' vision or 'blindness') over the eight year study period were identified.

Participants' wealth and social status were both associated with developing visual impairment:

- The risk of at least moderate vision loss was higher for those in the two poorest wealth categories (almost a third higher in the fourth category and more than 50% higher in the fifth and poorest category) than for those in the highest.
- Independent of wealth, the risk of developing moderate vision loss was also considerably more likely among those who were in the lowest two social status categories compared to those in the highest (more than 50% higher in the fourth category and more than twice as high in the fifth and lowest category).

Similarly strong relationships were present for the risk of developing severe vision loss. This analysis took account of differences that could be due to age, smoking, and health conditions.

3. Other risk factors for developing visual impairment

Moderate and severe visual impairment were more likely to develop in people:

- who were older rather than younger;
- who smoked, compared to those who had never smoked;
- who had diabetes or hypertension.

The onset of moderate, but not severe, visual impairment was associated with being female.

4. Change in vision over time

The ELSA dataset allows analysis of how participants' vision changed over time and to relate this to social and demographic factors. Drawing on just under 3,000 people, statistical analyses were able to identify distinct patterns of change, or vision trajectories, over the eight year study period.

- Sixty per cent of people fell in the optimal trajectories where vision was excellent or good and remained stable over time.
- Eighteen per cent had vision that deteriorated over time to become fair or poor and 15% had vision that improved to be good or excellent.
- Older people, those from poorer backgrounds, and those who perceived themselves as of lower social status were more likely to be in the deteriorating trajectories and less likely to be in the stable, excellent or good categories.
- Being diagnosed with an eye condition was strongly associated with having a deteriorating trajectory.

5. Uptake of cataract surgery

ELSA enabled analysis of whether social and economic characteristics are associated with reporting cataract surgery following a diagnosis of cataract during the eight year study period.

Drawing on a sample of around 2,100 people, uptake of cataract surgery was more common among those who were older and had poorer vision at the start of the period. There was no relationship with gender or wealth, and only a suggestion of a relationship with having private insurance.

6. Consequences of change in vision

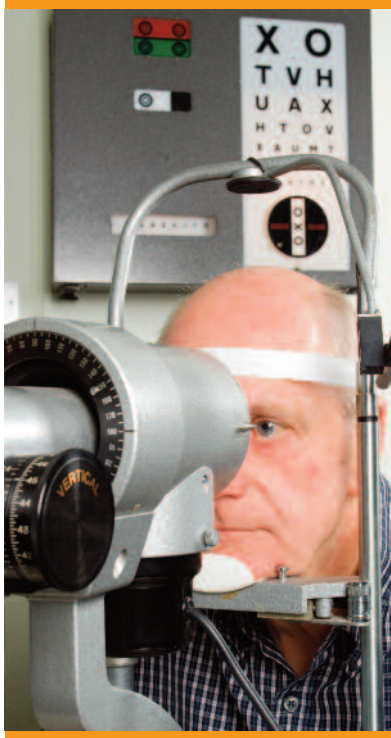
To better understand whether worse outcomes for people with visual impairment are caused by poor and declining vision, or by social and economic factors, analysis looked at a number of aspects of people's lives that followed change in self-reported vision. Three types of changes in self-reported vision were examined, occurring between two waves of the survey (a two year period):

- from 'excellent' to 'good' or vice versa;
- from 'very good' or 'good' to 'fair' or 'poor' or vice versa; and,
- from 'fair' to 'poor' or vice versa

These groups were compared with those whose vision remained more stable.

Any deterioration in vision was linked with increasing levels of depression and declining quality of life, social engagement and income. The largest differences were for those whose vision changed from very good/ good to fair/poor. For example, this group had levels of depression that increased by 29% and had a fall in income of 19%, compared with the change for those whose vision remained stable. When analysis took account of other characteristics of the groups, for example wealth and self-rated health, differences reduced but in many cases remained statistically significant.

Although differences were smaller, improvements in vision were linked with improvements in outcomes, especially among those whose vision improved from good to excellent. When analysis took account of other characteristics of the groups, such as wealth and health, most of these relationships were no longer statistically significant, though improvements in quality of life and social engagement for those whose vision improved from good to excellent did stay significant.



Conclusions

- Using ELSA has enabled us to identify marked social and economic inequalities in both the onset of impaired vision and in longer term patterns of change in self-reported vision in later life.
- Further analysis has also shown that both deterioration and improvement in vision were related to changes in depression, quality of life, social engagement and income. Associations were stronger for deterioration than improvement in vision. This analysis looked at change over a two year period; longer term impacts are likely to be greater.
- For those with a diagnosis of cataract, social and economic factors were not related to the likelihood of having cataract surgery. However, it is possible that social and economic inequalities are present in the early diagnosis of eye conditions and identification and treatment of refractive error, given barriers to uptake of routine vision assessments.

The findings indicate that the risk and burden of vision loss are experienced disproportionately by those who are already socially disadvantaged, and that the development of visual impairment impacts adversely on social, economic and wellbeing outcomes. There is, therefore, a clear need for policy to focus on strategies to minimise social and economic risks for deterioration in visual acuity, to achieve early diagnosis and to address visual impairment, including easy and free access to corrective lenses, and to mitigate the extensive and complex direct and indirect, financial and social costs of vision loss in older people.

Authors

James Nazroo, Jennifer Whillans and Katey Matthews.

How to obtain further information

This paper is a summary of the full report from the University of Manchester entitled "Onset of, and recovery from, visual impairment: analysis of causes and consequences using the English Longitudinal Study of Ageing" which is downloadable from **www.pocklington-trust.org.uk**
or on request from:

Thomas Pocklington Trust
Pier House
90 Strand on the Green
London W4 3NN

Telephone: 020 8090 9268
Email: research@pocklington-trust.org.uk
Web: www.pocklington-trust.org.uk

Pier House
90 Strand on the Green
London
W4 3NN

Tel: 020 8995 0880
Email: research@pocklington-trust.org.uk
Web: www.pocklington-trust.org.uk

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