Short report

Is the frequency of having an eye test associated with socioeconomic factors? A national cross sectional study in British elderly

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Table 1 Relation of having had an eye test during the year before the interview to socioeconomic factors

Risk factor	Number of subjects	Number (%) of subjects who had an eye test in year before interview	χ^2 test (unadjusted)	Adjusted* odds ratio (95% CI)
Household Income (£)†				
<4000	222	111 (50.0)	p=0.003	1.03 (0.66, 1.40)
4000-5999	245	91 (37.1)		0.61 (0.25, 0.97)
6000-9999	255	132 (51.8)		1.09 (0.74, 1.44)
≥10 000	245	123 (50.2)		1.00 reference
Education level				
Below secondary	651	273 (41.9)	p=0.017	0.76 (0.51, 1.01)
Secondary or higher	430	212 (49.3)		1.00 reference
Receiving benefits‡				
Yes	510	227 (44.5)	p=0.894	0.96 (0.73, 1.20)
No	686	308 (44.9)		1.00 reference
Social class household				
Manual§	631	259 (41.0)	p=0.005	0.75 (0.52, 0.98)
Non-manual	555	273 (49.2)		1.00 reference

*Adjusted for use of glasses for 3m vision. †Annual household income before tax. ‡Any government benefits, not counting pensions. §Head of household in or retired from an occupation ascribed to Social Class III-manual, IV or V.

Since the government abolished free eye testing in 1989 there has been wide concern about the frequency of eye tests pursued by people over 65 years of age in Britain.^{1,2} Community based surveys have shown remediable visual impairment in a substantial proportion of the elderly population, which is mainly caused by uncorrected refractive errors, cataract, age related macular degeneration and glaucoma.^{3,4} Older people who had difficulties in performing activities of daily living because of their sight problems have repeatedly mentioned financial reasons as a barrier to attend eye care services.^{5,6} The 1993 General Household Survey data suggested that social class may be a determinant of the eye test frequency.⁷ However, information on the frequency and determinants of eye testing in British elderly is very limited. We performed a cross sectional study in a national sample of British elderly to investigate the time since a last eye test and relations to socioeconomic factors.

Methods and Results

The National Diet and Nutrition Survey: People Aged 65 Years and Over (NDNS) recruited a representative sample of people aged 65 years or over from 80 different postcode sectors of mainland Britain. The sample included subjects from private households as well as from institutions such as nursing homes (not geriatric hospitals); the fieldwork for this survey was carried out in 1994/1995. Further details on subject selection and procedures are presented in the official survey report.⁸

All survey participants completed a questionnaire, which was administered at the subject's home by an interviewer, and included questions on socioeconomic status of the subject's household. Most survey participants were also visited by a nurse, who carried out a distance visual acuity test and administered a brief questionnaire on eye health, including the question: "Have you ever had your eyes checked? If yes, when was the last time?". The reply to this question is considered here as the time since the last eye test.

Results are presented for 1275 subjects aged 65 to 101 years (median 77) who were not mentally impaired and who had a successful measurement of distance visual acuity. These subjects represent 61.9% of all (2059) NDNS participants and 83.5% of all NDNS participants who were visited by a nurse (1527). Those subjects who were visited by the nurse but are not included in the current analyses were either mentally impaired (125), did not answer the question about the time since the last eye check (4), or did not complete the visual acuity test and eye health questionnaire (123), which were the last items to follow a series of anthropometrical measurements. The remainder of the subjects were not measured because they did not agree to a nurse visit, which was arranged primarily for phlebotomy and anthropometric measurements.

Forty five per cent of the subjects (574 of 1275) reported having had their eyes tested within the year before the interview, 55% (701) had had their eyes tested more than a year ago and less than 1% (9) of the subjects reported that they never had their eyes tested. There were no significant differences (unadjusted χ^2 test) in the time since the last eye test between men and women ($p=0.12$), between subjects living in an institution and those living in the community ($p=0.70$) or between different age groups ($p=0.27$). Subjects who were not using glasses for distance vision had had their eyes tested less often ($p<0.0001$) during the previous year (163 of 453) than subjects using glasses (411 of 822).

Logistic regression analysis showed that subjects of manual social class or lower education level had less often had an eye test in the year before the interview than higher educated subjects or members of a non-manual household. This logistic regression analysis was corrected for a confounding difference in the use of glasses for distance vision between the different groups. Subjects from a household with a yearly income between £4000 and £6000 were less likely to have had a recent eye test than subjects from a household with an income over £10 000 (table 1).

Discussion

Subjects with the lowest income have almost the same proportion of having had a recent eye test as those in the top two levels of income. This may be explained by the fact that subjects in the lowest income category probably qualify for a refund of the costs of an eye test through the means tested NHS Low Income Scheme. A direct relation between eye test frequency and receiving benefits was not shown in the current data (table 1), probably because receipt of any type of state benefits was included, whereas only receipt of certain types of benefits guarantees qualification for the NHS Low Income Scheme.

Limited awareness in older people of the importance of regular eye tests may be associated with the frequency of eye testing.⁹ Although attitude to eye testing was not investigated in our study, the lower frequency of recent eye tests in lower educated subjects could be an indicator of reduced awareness in that population group. The lower average household income in lower educated subjects ($p < 0.0001$ for trend) underlines the interdependence of these two factors.

Our data suggest that some socioeconomic obstacles may exist in older people to attend for an eye test. The announcement by the govern-

ment that the NHS will provide free eye tests for pensioners from April 1999 may remove one of those obstacles. As the effectiveness of eye tests and visual screening in older people has been questioned,^{10 11} more research is needed to identify the best public health measures to achieve a reduction in the prevalence of visual handicap in the elderly population.

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Conflicts of interest: none.

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