


notion for the development of a validated PROM questionnaire for use following non-DCR, surgical intervention for epiphora.

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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Exploring correlations between change in visual acuity following routine cataract surgery and improvement in quality of life assessed with the Glasgow Benefit Inventory

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The Glasgow Benefit Inventory (GBI) [1] assesses patient-perceived changes in quality of life following an intervention by means of 18 questions; the score ranges between a minimum of -100 (maximal detriment) to $+100$ (maximal benefit). As it is not procedure-specific, it can potentially be used to compare changes in quality of life following different interventions. Originally developed for use in otolaryngology, it has also been used in a range of oculoplastic procedures [2, 3], and, more recently, we have deployed it after routine cataract surgery [4]. In the latter study, the questionnaire was administered to 109 patients, and significant improvement in quality of life was demonstrated with a positive GBI score.

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In the present study, we retrospectively retrieved visual acuity data for these patients (from the patient record) to explore correlation between change in visual acuity (decimalised) and GBI score. Patients for whom the pre-operative or post-operative visual acuity was not available were excluded. 91 patients (83.5%) were included: 48 were female; 53 were Caucasian, 30 Black, 3 Asian (5 had unrecorded ethnicity). The mean (SD) age was 71 (11) years.

Table 1 shows the main findings, and Fig. 1 plots GBI scores against change in visual acuity. For the whole cohort GBI score correlated positively with visual acuity with a Pearson correlation coefficient of 0.35 ($p = 7 \times 10^{-4}$). For first eyes, correlation was stronger than for second eyes. The visual acuity improvement for first eyes was greater than that for second eyes as might be expected (given the usual practice of operating on a worse seeing eye first). Importantly, an improvement in quality of life (positive GBI score) was seen after both first and second eye surgery, with no significant difference in scores, despite the difference in change in visual acuity. Mean pre and post-operative visual acuity did not differ significantly by ethnicity.

Our findings quantify the correlation between quality-of-life improvement, as measured by the GBI, and change in visual acuity. A significant correlation was seen. However, the strength of the correlation was

Table 1 Change in visual acuity (VA) and Glasgow Benefit inventory (GBI) scores after first eye and second eye surgery

	<i>n</i>	Change in VA (decimalised)		GBI score		Correlation coefficient	Significance (<i>p</i>)
		Mean (SD)	95% CI	Mean (SD)	95% CI		
1st eye	57	0.44 (0.37)	0.34-0.54	+23.6 (18.2)	18.8-28.5	0.53	2×10^{-5}
2nd eye	34	0.22 (0.32)	0.11-0.33	+22.4 (23.4)	14.2-30.6	0.10	0.57
All patients	91	0.36 (0.37)	0.28-0.44	+23.2 (20.2)	19.0-27.4	0.35	7×10^{-4}

Pearson coefficients are given for correlation between change in VA and GBI score. 95% CI, 95% confidence interval for mean. The change in visual acuity was greater for first eyes compared with second eyes ($p = 0.005$, unpaired *t* test), but GBI scores for first eyes and second eyes were similar ($p = 0.68$), indicating similar benefits in quality of life for first eyes and second eyes

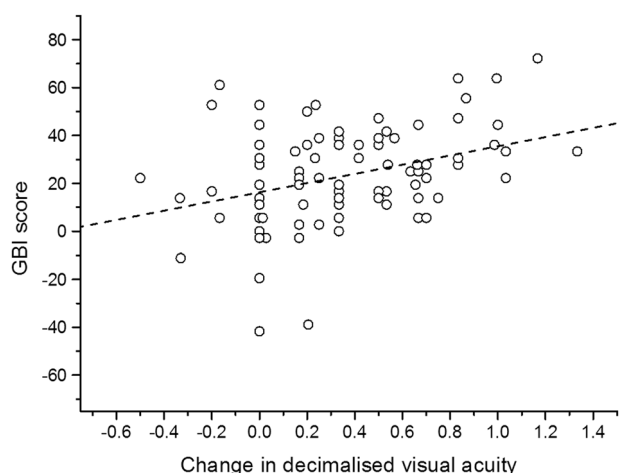


Fig. 1 GBI score plotted against change in decimalised visual acuity. The dashed line provides a simple linear fit. Correlation was found to be significant ($p = 7 \times 10^{-4}$)

moderate to low overall, which supports the notion that change in visual acuity alone does not capture the full improvement in quality of life conferred by cataract surgery. This is especially true for second eyes. The improvement in visual acuity was less than that for first eyes, but the perceived improvement in quality of life appeared to be just as strong, suggesting that this is driven by factors other than visual acuity (possibly improved stereopsis or reduced anisometropia as well

as other less quantifiable factors). Thus our findings confirm that the benefit of cataract surgery is not assessable by visual acuity alone, particularly in the case of second eyes.

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