

Vision-related Quality of Life in Children with Amblyopia

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Editorial

Vision plays an important role in most everyday activities. Consistent with this, people with visual impairment are usually faced with significant challenges in their daily activities. In children, such activities include playing, reading, socialisation and taking care of their daily needs [1,2]. In the paediatric ophthalmological field, visual problems include high refractive errors, binocular disorders, depth perception deficiency, amblyopia and ocular pathology [3]. These visual impairments in children potentially cause psychological and functional changes and could affect educational and social prospects [4,5] and may thus impact on vision-related quality of life (VRQoL).

Amblyopia is usually defined as a unilateral or bilateral reduction in visual function caused by abnormal visual input resulting from degradation of the retinal image during a sensitive period of visual development, which historically has been thought to be the first seven years of life [6-11].

It is one of the most common causes of unilateral visual impairment in children [7] and affects about 3% to 4% of the general population [10,12-15]. Although a lot is known about the visual characteristics, epidemiology, detection and treatment approaches of amblyopia [9,11], the VRQoL in children with amblyopia has not been fully explored [16].

Visual deficits may cause problems with learning [17] and ability to progress to higher education [18]. For example, it has been found that people with amblyopia were significantly less likely to have completed a university degree than those without amblyopia [18]. People with amblyopia also have greater difficulty performing visually-guided tasks such as reaching and grasping [19,20], social relations [4,21,22], emotions [17,23], sporting and physical activities (in both children and adults) [24,25] and even employment opportunities later in life [18, 26,27].

There is no standard definition of VRQoL in the literature. Frost et al. (1998) [28] defined VRQoL as any self-reported problem relating to vision that may constitute a QoL issue. Measuring VRQoL is becoming increasingly important for the assessment of patients with visual impairment [16,29-33]. To date, there is a child self-report QoL instrument that was developed to assess the impact of strabismic amblyopia on children's QoL [34]. However, this instrument focused only on strabismic amblyopia and excluded non-strabismic amblyopia.

Other instruments are proxies and have been developed for use in children to assess the impact of amblyopia treatment [35] or VRQoL [36] from an adult perspective, which may differ from children's perspectives. Carlton (2013) [16] noted that "the way in which these instruments have been described is largely via parent (or proxy) reporting and the instruments used to measure the health-related quality of life (HRQoL) impact have been derived from clinician expert

opinion". Children can present significant information concerning their self-image, mental state and health; and this information is often considerably different from their parents' or health care specialist's perspectives [37,38].

Some of these instruments were designed to report information from the perspective of adults with strabismic or untreated amblyopia [39,40] who have strabismic amblyopia or untreated amblyopia to recollect the psychosocial impact of amblyopia and to report their current experiences. Other instruments have been developed to assess the impact of eye disease [41] or low vision [42] in adults. However, these instruments are not likely to be appropriate to measure the child's perspective [41,43,44], especially children with amblyopia [16] because of likely discrepancies in content validity (the degree to which an instrument appropriately represents the content issue it is intended to measure) between adults and children, such as daily activities, expectations and concepts of QoL [38,45]. Existing instruments designed for use in adults are focused on issues that are relevant to adults, such as driving. Such instruments also include shopping which is of variable relevance to children by age whereas is a necessity for adults. To be relevant for children, instruments designed for use in children should be targeted to children's daily activities and behaviour such as playing, studying, friendship and social relations.

A literature review was conducted to find appropriate questionnaires to assess VRQoL in school-aged children with amblyopia from the child's perspective. There are three child self-report instruments which are designed to assess young children with low vision, a more severe form of visual impairment than amblyopia. One of these instruments was developed to assess children's VRQoL [46] while two instruments were developed to assess functional vision problems [1] and visual ability [47] in children, but were not specifically designed to assess children's VRQoL. Given that VRQoL in both strabismic and non-strabismic children with amblyopia is poorly understood from their perspective, there is a need to develop and validate a child self-report instrument, which is targeted to school-aged children with amblyopia, to understand aspects of VRQoL from the children's perspective. Such an instrument would be valuable in children with amblyopia to improve paediatric clinical eye care and children's VRQoL, which raise awareness of the difficulties encountered by amblyopic children regarding their amblyopia treatment and VRQoL. Vision-related quality of life in children with amblyopia is potentially reduced during treatment due to the treatment itself. For example, children with a history of amblyopia treatment had lower social acceptance scores than age-matched controls [21]. By understanding adverse impacts which may be due to amblyopia as assessed using a VRQoL instrument designed for amblyopic children, clinicians and parents could then modify treatment plans for amblyopia or think of strategies to minimise the adverse impact of the treatment.

As it is known that amblyopia and its treatment (typically occlusion of the non-amblyopic eye) may have physical [19,20,24,25] and psychosocial impacts (i.e. social relations and emotional wellbeing) on children [4,21,22], any assessment of VRQoL in this condition must address children's ability to perform tasks that require vision and the psychosocial implications of the condition itself as well as its treatment. Improvement in visual acuity (VA), one of the goals of amblyopia treatment, must be balanced with the negative impacts in terms of any psychosocial effect of the condition and the treatment. This balance should be considered by parents/carers and clinicians and integrated into treatment guidelines. It is significant to raise awareness of the impact of amblyopia and its treatment on children's VRQoL. Such an understanding of aspects of VRQoL across aetiological subgroups in amblyopia could inform the management of amblyopia and its effects on VRQoL.

References

1. Gothwal VK, Lovie-Kitchin JE, Nutheti R (2003) The Development of the LV Prasad-Functional Vision Questionnaire: A Measure of Functional Vision Performance of Visually Impaired Children. *Invest Ophthalmol Vis Sci* 44: 4131-4139.
2. Horwood J, Waylen A, Herrick D, Williams C, Wolke D (2005) Common visual defects and peer victimization in children. *Invest Ophthalmol Vis Sci* 46: 1177-1181.
3. Vaughn W, Maples WC, Hoenes R (2006) The association between vision quality of life and academics as measured by the College of Optometrists in Vision Development Quality of Life questionnaire. *Optometry (St. Louis, Mo.)* 77: 116-123.
4. Koklanis K, Abel LA, Aroni R (2006) Psychosocial impact of amblyopia and its treatment: a multidisciplinary study. *Clin Experiment Ophthalmol* 34: 743-750.
5. Khalaj M, Zeidi IM, Gasemi MR, Keshtkar A (2011) The effect of amblyopia on educational activities of students aged 9-15. *J Biomed Sci* 4: 516-521.
6. Campos E (1995) Amblyopia. *Surv Ophthalmol* 40: 23-39.
7. Attebo K, Mitchell P, Cumming R, Smith W, Jolly N, et al. (1998) Prevalence and causes of amblyopia in an adult population. *Ophthalmology* 105: 154-159.
8. Barrett BT, Bradley A, McGraw PV (2004) Understanding the neural basis of amblyopia. *Neuroscientist* 10: 106-117.
9. Holmes JM, Clarke MP (2006) Amblyopia. *Lancet* 367: 1343-1351.
10. Robaei D, Rose KA, Ojaimi E, Kifley A, Martin FJ, et al. (2006) Causes and associations of amblyopia in a population-based sample of 6-year-old Australian children. *Arch Ophthalmol* 124: 878-884.
11. Kanonidou E (2011) Amblyopia: a mini review of the literature. *Int Ophthalmol* 31: 249-256.
12. Rosman M, Wong TY, Koh CL, Tan DT (2005) Prevalence and causes of amblyopia in a population-based study of young adult men in Singapore. *Am J Ophthalmol* 140: 551-552.
13. Tarczy-hornoch K, Varma R, Cotter S, Dilauro A, Wang Y, et al. 2008. Prevalence of Amblyopia and Strabismus in African American and Hispanic Children Ages 6 to 72 Months: The Multi-ethnic Pediatric Eye Disease Study. *Ophthalmology* 115: 1229-1236.
14. Friedman DS, Repka MX, Katz J, Giordano L, Ibrionke J, et al. (2009) Prevalence of amblyopia and strabismus in white and African American children aged 6 through 71 months the Baltimore Pediatric Eye Disease Study. *116: 2128-2134.*
15. Yekta A, Fotouhi A, Hashemi H, Dehghani C, Ostadimoghaddam H, et al. (2010) The prevalence of anisometropia, amblyopia and strabismus in schoolchildren of Shiraz, Iran. *Strabismus* 18: 104-110.
16. Carlton J (2013) Identifying potential themes for the Child Amblyopia Treatment Questionnaire. *Optom Vis Sci* 90: 867-873.
17. Zaba J (2001) Social, emotional, and educational consequences of undetected children's vision problems. *Journal of Behavioral Optometry* 12: 60-70.
18. Chua B, Mitchell P (2004) Consequences of amblyopia on education, occupation, and long term vision loss. *Br J Ophthalmol* 88: 1119-1121.
19. Webber AL, Wood JM, Gole GA, Brown B (2008) The effect of amblyopia on fine motor skills in children. *Invest Ophthalmol Vis Sci* 49: 594-603.
20. Suttle CM, Melmoth DR, Finlay AL, Sloper JJ, Grant S (2011) Eye-hand coordination skills in children with and without amblyopia. *Invest Ophthalmol Vis Sci* 52: 1851-1864.
21. Webber AL, Wood JM, Gole GA, Brown B (2008) Effect of amblyopia on self-esteem in children. *Optom Vis Sci* 85: 1074-1081.
22. Kim US, Park S, Yoo HJ, Hwang JM (2013) Psychosocial distress of part-time occlusion in children with intermittent exotropia. *Graefes Arch Clin Exp Ophthalmol* 251: 315-319.
23. Hrisos S, Clarke MP, Wright CM (2004) The emotional impact of amblyopia treatment in preschool children: randomized controlled trial. *Ophthalmology* 111: 1550-1556.
24. Packwood EA, Cruz OA, Rychwalski PJ, Keech RV (1999) The psychosocial effects of amblyopia study. *J AAPOS* 3: 15-17.
25. Van De Graaf ES, Van Kempen-Du H, Looman Cw, Simonsz HJ (2010) Utility analysis of disability caused by amblyopia and/or strabismus in a population-based, historic cohort. *Graefes Arch Clin Exp Ophthalmol* 248: 1803-1807.
26. Nilsson J (2007) The negative impact of amblyopia from a population perspective: untreated amblyopia almost doubles the lifetime risk of bilateral visual impairment. *Br J Ophthalmol* 91: 1417-1418.
27. Rahi JS, Peckham CS, Cumberland PM (2008) Visual impairment due to undiagnosed refractive error in working age adults in Britain. *Br J Ophthalmol* 92: 1190-1194.
28. Frost NA, Sparrow JM, Durant JS, Donovan JL, Peters TJ, et al. (1998) Development of a questionnaire for measurement of vision-related quality of life. *Ophthalmic Epidemiol* 5: 185-210.
29. Wolffsohn JS, Cochrane AL, Watt NA (2000) Implementation methods for vision related quality of life questionnaires. *Br J Ophthalmol* 84: 1035-1040.
30. Broman At, Munoz B, Rodriguez J, Sanchez R, Quigley HA, et al. (2002) The Impact of Visual Impairment and Eye Disease on Vision-Related Quality of Life in a Mexican-American Population: Proyecto VER. *Invest Ophthalmol Vis Sci* 43: 3393-3398.
31. de Boer MR, Moll AC, de Vet HC, Terwee CB, Völker-Dieben HJ, et al. (2004) Psychometric properties of vision-related quality of life questionnaires: a systematic review. *Ophthalmic Physiol Opt* 24: 257-273.
32. Cochrane G, Lamoureux E, Keeffe J (2008) Defining the content for a new quality of life questionnaire for students with low vision (the Impact of Vision Impairment on Children: IVI_C). *Ophthalmic Epidemiol* 15: 114-120.
33. Lamoureux E, Pesudovs K (2011) Vision-specific quality-of-life research: a need to improve the quality. *Am J Ophthalmol* 151: 195-197.
34. Hatt SR, Leske DA, Yamada T, Bradley EA, Cole SR, et al. (2010) Development and initial validation of quality-of-life questionnaires for intermittent exotropia. *Ophthalmology* 117: 163-168.
35. Holmes JM, Strauber S, Quinn GE, Cole SR, Felius J (2008) Further validation of the Amblyopia Treatment Index parental questionnaire. *Journal of American Association for Pediatric Ophthalmology and Strabismus* 12: 581-584.
36. Birch EE1, Cheng CS, Felius J (2007) Validity and reliability of the Children's Visual Function Questionnaire (CVFQ). *J AAPOS* 11: 473-479.
37. Cremeens J, Eiser C, Blades M (2006) Factors influencing agreement between child self-report and parent proxy-reports on the Pediatric Quality of Life Inventory 4.0 (PedsQL) generic core scales. *Health Qual Life Outcomes* 4: 58.
38. Eiser C, Morse R (2001) Can parents rate their child's health-related quality of life? Results of a systematic review. *Qual Life Res* 10: 347-357.

39. Feliuss J, Beauchamp GR, Stager Sr DR, Van De Graaf ES, Simonsz HJ (2007) The Amblyopia and Strabismus Questionnaire: English Translation, Validation, and Subscales. *Am J Ophthalmol* 143: 305-310.
40. van de Graaf ES, Feliuss J, van Kempen-du Saar H, Looman CW, Passchier J, et al. (2009) Construct validation of the Amblyopia and Strabismus Questionnaire (A&SQ) by factor analysis. *Graefes Arch Clin Exp Ophthalmol* 247: 1263-1268.
41. Mangione CM, Lee PP, Gutierrez PR, Spritzer K, Berry S, et al. (2001) Development of the 25-item National Eye Institute Visual Function Questionnaire. *Arch Ophthalmol* 119: 1050-1058.
42. Gupta SK, Viswanath K, Thulasiraj RD, Murthy GVS, Lamping DL, et al. (2005) The development of the Indian vision function questionnaire: field testing and psychometric evaluation. *Br J Ophthalmol* 89: 621-627.
43. Massof RW, Rubin GS (2001) Visual function assessment questionnaires. *Surv Ophthalmol* 45: 531-548.
44. Wen G, McKean-Cowdin R, Varma R, Tarczy-Hornoch K, Cotter SA, et al. (2011) General health-related quality of life in preschool children with strabismus or amblyopia. *Ophthalmology* 118: 574-580.
45. Wallander JL, Schmitt M, Koot HM (2001) Quality of life measurement in children and adolescents: issues, instruments, and applications. *J Clin Psychol* 57: 571-585.
46. Cochrane GM, Marella M, Keeffe JE, Lamoureux EL (2011) The Impact of Vision Impairment for Children (IVI_C): Validation of a Vision-Specific Pediatric Quality-of-Life Questionnaire Using Rasch Analysis. *Invest Ophthalmol Vis Sci* 52: 1632-1640.
47. Khadka J, Ryan B, Margrain TH, Court H, Woodhouse JM (2010) Development of the 25-item Cardiff Visual Ability Questionnaire for Children (CVAQC). *Br J Ophthalmol* 94: 730-735.