

Vision-related Quality of Life in Children with Amblyopia

Kholoud A Bokhary*

Department of Optometry and Vision Science, King Saud University, Saudi Arabia

*Corresponding author: Kholoud A Bokhary, Professor of Optometry, Department of Optometry and Vision Science, King Saud University, Saudi Arabia, Tel: +966550556046; E-mail: kbokhary@ksu.edu.sa

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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 significance 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.

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