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**Article:**

Carlton, J. and Kaltenthaler, E. (2010) Amblyopia and quality of life: a systematic review. British Journal of Ophthalmology, 95 (3). 325-330 . ISSN: 0007-1161

<https://doi.org/10.1136/bjo.2009.178889>

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## **Published paper**

Carlton J, Kaltenthaler E. Health-related quality of life measures (HRQoL) in patients with amblyopia and strabismus: a systematic review. *Br J Ophthalmol* 2011;95:325-330. Published online first: 7 Aug 2010, doi:10.1136/bjo.2009.178889.

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# ScHARR

SCHOOL OF HEALTH AND

RELATED RESEARCH

Title

Amblyopia and quality of life: a systematic review

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Keywords

Amblyopia    Health related quality of life (HRQoL)

Word Count: 2623 words

## **ABSTRACT**

### **Background/Aims**

Amblyopia is a common condition which can affect up to 5% of the general population. The health-related quality of life (HRQoL) implications of amblyopia and/or its treatment have been explored in the literature.

### **Methods**

A systematic literature search was undertaken (16<sup>th</sup>-30<sup>th</sup> January 2007) to identify the HRQoL implications of amblyopia and/or its treatment.

### **Results**

A total of 25 papers were included in the literature review. The HRQoL implications of amblyopia related specifically to amblyopia treatment, rather than the condition itself. These included the impact upon family life; social interactions; difficulties undertaking daily activities; and feelings and behaviour. The identified studies adopted a number of methodologies. The study populations included; children with the condition; parents of children with amblyopia; and adults who had undertaken amblyopia treatment as a child. Some studies developed their own measures of HRQoL, and others determined HRQoL through proxy measures.

### **Conclusions**

The reported findings of the HRQoL implications are of importance when considering the management of cases of amblyopia. Further research is required to assess the immediate and long-term effects of amblyopia and/or its treatment upon HRQoL using a more standardised approach.

## **INTRODUCTION**

The impact of amblyopia upon health-related quality of life (HRQoL) has not been adequately explored. Amblyopia is an important condition that can affect up to 5% of the general population.[1] Despite an increasing body of evidence describing the effectiveness of amblyopia treatment, little robust evidence regarding the HRQoL implications of the condition and/or its treatment is emerging. Within the allocation of healthcare resources there is increasing demand for evidence regarding not only treatment effectiveness, but also the implication of the condition and/or its treatment has upon the patient in both the immediate and long-term. The use of patient-reported outcomes, such as HRQoL questionnaires, can be useful in determining the impact a condition has upon an individual.

Screening programmes currently exist within the United Kingdom (UK) to identify children who have, or are at risk of developing amblyopia. A recent report examined the clinical and cost-effectiveness of pre-school vision screening for children aged up to 5 years.[1] It concluded that the cost-effectiveness of screening for amblyopia is dependent on the long-term utility (or QoL) effects of unilateral vision loss. However, the authors noted that the evidence of the impact of amblyopia and/or its treatment upon HRQoL was limited. The purpose of this study is to undertake a systematic literature review to examine the HRQoL implications of amblyopia and/or its treatment; and to evaluate the measures identified in the reported studies.

## **MATERIALS AND METHODS**

A systematic literature search was undertaken during the period of 16<sup>th</sup>-30<sup>th</sup> January 2007. The electronic databases searched are detailed in Appendix 1. Specific search

strategies were employed for each database. Search strategies were performed to identify literature pertaining to amblyopia terms, amblyopia treatment terms, children terms and QoL terms. No date or language restrictions were applied. Details of the literature search terms and database search strategy are shown Appendix 1.

Following the removal of duplicates, a total of 884 articles were applicable for this review. Articles were rejected at title if they were not related to the subject area (n=820); rejected at abstract if they were in a non-English publication or not pertinent to the research question (n=34). Letters, reviews and editorials describing other studies reporting HRQoL implications of amblyopia were excluded. An additional 8 articles were included that were not identified as a result of the initial search. These articles were not identified due to the publication being in a journal not included in the search engines used (i.e. articles were published in journals not found on Medline); and were identified through a HTA publication.[1]

A total of 25 articles were included in the review. The PRISMA flow diagram of study identification is shown in Figure 1. Newly developed HRQoL instruments identified were assessed in terms of reliability; validity and responsiveness (see Table 1).

Table 1            Assessment of HRQoL measures

Figure 1           PRISMA Flow Diagram of Study Identification

## **RESULTS**

A summary of the studies is shown in Figure 2. The majority of the studies report upon HRQoL from a parental perspective (n=14). Some studies report results from

adults who had amblyopia as a child (n=6).[4-9] Others examined both parents and children [10, 11] (n=2). Only 3 studies reported results from the child's perspective.[12-14]

Figure 2 Summary of study methodologies

### **Study methodology – instruments used**

From the 25 papers identified, one used an existing measure in their study methodology to determine the impact of amblyopia upon HRQoL, the Children's Visual Function Questionnaire (CVFQ).[15] The CVFQ is a vision-specific instrument designed for use with children up to 7 years of age. Two versions are available for younger (< 3 years of age, which contains 34 items) and older children (3 to 7 years, which contains 39 items). The instrument consists of four dimensions: competence, personality, family impact and treatment difficulty; and has undergone testing of reliability and validity.[16, 17]

Three studies were identified that developed their own instruments, and described the psychometric properties of these measures (see Table 2). These include the Amblyopia Treatment Index (ATI) [18] and the Amblyopia and Strabismus Questionnaire (A&SQ).[7] These were further validated in subsequent studies.[8, 19] Both have since been used in more recent studies and have undergone additional testing of reliability and validity.[19-22] Sabri et al [6] developed a Psychological Impact Questionnaire and administered this in conjunction with the Visual Function Index (VF-14) to assess the construct validity of their questionnaire. (The VF-14 is a well-recognised measure of vision-related functional status that has been utilised in many areas of ophthalmology research, particularly cataract.[23])

Table 2 Summary of developed HRQoL instruments used in studies

The majority of papers (n=10) developed their own questionnaire (Table 3). The psychometric properties of these instruments were not disclosed.

Table 3 Summary of studies which developed their own questionnaires

Five studies used qualitative methods to report upon the HRQoL implications of amblyopia and/or its treatment.[11-13, 32, 33] Two studies used proxy methods (such as educational attainment) to report upon the impact of amblyopia upon HRQoL.[34, 35]

### **Study methodologies**

The identified studies can be summarised both in terms of their study methodologies (i.e. the respondent) and the HRQoL implications identified. The identified studies may be summarised into the following broad categories (see Figure 2).

#### *Questioning parents about the impact of amblyopia treatment on the child's HRQoL*

Thirteen articles explored the impact of amblyopia treatment on the child's HRQoL from the parental perspective.[15, 18, 19, 24-33, 36] Of these, 10 articles explored the impact of amblyopia treatment on the child's QoL from the parental perspective, specifically treatment compliance.[10, 26-33, 36] Compliance might reflect the presence of QoL implications in amblyopia treatment. However, treatment compliance may also relate to parental non-concordance. Parental choice of treatment

modalities and timing of treatment can affect concordance. Parental understanding of the condition was noted to impact upon treatment compliance.[26, 27, 30-32]

*Question children about the impact of amblyopia treatment upon their HRQoL*

Four papers examined the impact of amblyopia and/or its treatment upon a child's HRQoL from the child's perspective.[10-13] Some used a combination of both parental and child reporting.[10, 11] Three studies used qualitative interviews in their methodology.[11-13]

One study[14] used child participants and administered a test to determine the impact of glasses on how a child is perceived. The authors reported glasses to have a negative effect on attractiveness, school performance, conduct, sociability and the child's overall judgements. Whilst this study does not examine the HRQoL implications of amblyopia directly, its results could be considered as evidence that amblyopia treatment (in terms of optical correction) does have an impact upon how a child may be perceived by their peers.

*The impact of amblyopia treatment upon adults when they undertook amblyopia treatment as a child*

Six papers were identified that reported the HRQoL implications of amblyopia and/or its treatment on adults who had undergone amblyopia treatment as a child.[6-9, 34, 35]

*The impact of amblyopia in later life – the use of proxy measures*

Two papers were identified which explored the impact of amblyopia on adults using proxy measures of HRQoL.[34, 35] The consequences of amblyopia on educational

attainment; occupational status; risk of developing long-term vision loss; behaviour and social functioning were examined. There was no association found between amblyopia and educational achievement in one study,[35] whilst the other reported there to be borderline significant effect of amblyopia on the completion of a university degree qualification.[34] No statistically significant association between amblyopia and occupational classification was found.[34, 35] The risk of developing long-term vision loss in the better seeing eye was reported to be greater in amblyopes.[34] Amblyopia was not found to be associated with significant behavioural problems, or bullying.[35]

### **HRQoL implications of amblyopia and/or its treatment**

The HRQoL implications of amblyopia and/or its treatment could be considered to fall into four broad categories; the impact upon family life; social interactions; undertaking daily activities; and feelings and behaviour. These can be examined as to whether they occur as a result of amblyopia itself, and/or its treatment (see Table 4).

Table 4 Summary of quality of life implications of amblyopia and/or its treatment identified in the literature search

#### *Impact upon family life*

Amblyopia treatment was reported to impact upon family life. This resulted in increased stress and anxiety for the parent/guardian facilitating the treatment; and negatively impacted upon carer-child relationships.[18, 19, 24, 25, 33] Other relationships within the family were also affected.[18, 19, 25] Siblings teased or bullied the child who undertook amblyopia treatment. The increased parental

attention that treatment is associated with may also be an issue. Compliance with treatment is intrinsically linked to HRQoL. Often the negative aspects of amblyopia treatment are reported, yet treatment may not always be a negative experience. If compliance is good, praise and attention may be given to the child thereby improving the parent/child relationship.

### *Social Interactions*

Bullying [9-13, 25, 33] and interactions with peers [6-8, 10, 11, 13, 14, 18, 19, 25] were reported to occur as a result of amblyopia and/or its treatment. Noticeable differences in the change in appearance (by nature of wearing glasses and/or patch) meant that treatment was obvious to others. The age at which emergence of negative opinions towards others has not been adequately explored. Feelings of isolation and noting differences between others were also documented.[6, 10, 11, 18, 19]

### *Activities*

One of the frequently reported HRQoL implications of amblyopia was the impact the condition had upon career choice and educational attainment.[7-9, 14, 18, 19, 25, 33, 35] This could be in the immediate (such as if the treatment was undertaken during school hours) or in the long-term (the implication of amblyopia in adulthood). The impact of amblyopia and treatment had upon daily living activities was well-documented.[6-9, 14, 18, 19, 30-33, 35]

### *Feelings and Behaviour*

Feelings of low self-esteem and negative self-image were reported as a result of amblyopia and/or its treatment.[9, 11, 14, 24, 26-28, 30-33] Other psychosocial

implications included feelings of depression, frustration and embarrassment.[6, 11, 19, 29-32, 35] Literature was identified that explored the understanding of amblyopia and its implications,[6-9, 26, 27, 30-32, 34] with attempts made to understand why compliance to treatment may be poor in some cases. Other studies explored feelings associated with the treatment of amblyopia, specifically the sensation of patch/drops/glasses.[18, 19]

## **DISCUSSION**

The concept of QoL can be considered in terms of four domains; symptoms of the disease and side-effects of treatment; physical and functional status; emotional status; and social functioning.[37] It appears that the main HRQoL implications of amblyopia appear to be related to the treatment of the condition rather than the condition itself. Some of the identified studies included subjects who had a diagnosis of strabismus as well as a diagnosis of amblyopia; and some of the HRQoL instruments used included questions specifically relating to strabismus. Large-angle strabismus has been documented to negatively impact upon QoL.[38, 39] It is possible that the studies identified in the literature review which reported lower HRQoL may actually be detecting HRQoL implications of strabismus rather than HRQoL implications of amblyopia.

### **The adult versus child perspective**

Some HRQoL instruments used in the identified studies were derived from consultations with ophthalmic professionals and/or parents of children with amblyopia. The items included in the instrument design therefore, are deemed to be of importance from an adult perspective. The included items may be of importance to adults but not

necessarily to the child. For example, a parent may feel that educational attainment and the ability to see well at school is of great importance; however, this view may not be shared by the child. In some of the studies identified, the reported findings are taken from a parental perspective. It is not possible to state that the impact of amblyopia treatment felt by the child is the same as that perceived by adults on how, or what the child should feel or experience. Some of the questions asked included how well the child could see whilst undertaking treatment. The parent/guardian cannot directly assess this; they can only make a judgement on how they perceive the child is able to see whilst on treatment. Their judgement could be influenced by how important they judge the activity to be (such as school work or interacting with friends).

Some studies reported HRQoL on adults who had undertaken amblyopia treatment as a child. It is possible that the recollections of adults in terms of amblyopia impacting upon childhood experiences could be tainted by subsequent events in adulthood. The responses are given from an adult perspective, despite respondents being asked to recall childhood experiences and events. Recall bias is a recognised challenge in patient-reported outcomes and HRQoL research.[40]

### **Determining QoL by treatment compliance**

Treatment compliance in amblyopia therapy is influenced by both the child and the parent/guardian. Whilst the child may object to the wearing of glasses or a patch on a personal level, a parent's perspectives can influence the success of such treatment. This may incorporate their own experiences or impressions of patching/glasses-wear, or their understanding of the condition and the importance of treatment. Whilst these

factors have been explored in the literature, to use compliance as a measure of HRQoL is questionable. Parental understanding of the condition and belief in the prescribed treatment are key components for good treatment compliance. However, parents can be well-informed and positive, yet compliance may still be poor. Another argument against using treatment compliance as a measure of HRQoL is that a child may consent to wearing the patch but their daily activities and social interactions may still be affected. In this instance, using treatment compliance would not truly represent any HRQoL implications of amblyopia and/or its treatment.

### **Use of proxy measures to determine quality of life**

Some of the identified studies used proxy measures to determine the impact of amblyopia and/or treatment upon HRQoL. These included educational attainment, occupation, long-term vision loss and social functioning (as measured by self-reported depression or psychological distress in adult life). Such outcomes are influenced by many factors. The presence of amblyopia cannot be solely used to either explain episodes of psychological distress in adulthood, or educational attainment. These studies highlight the importance of making the distinction between HRQoL and functional status or ability. Functional status and health status utilise measures that determine an individual's ability to perform or carry-out an activity. HRQoL incorporates both ability and an "evaluation of the subjective experience of being able to complete a given activity".[41] Some of the identified studies fail to address this issue, and report functional status alone.

### **Changing trends in glasses and patches**

The way in which people who wear glasses are perceived is changing. Glasses are becoming increasingly popular, and the social acceptance of these has much improved. With traditional “NHS style” glasses a thing of the past, it could be argued that the reported HRQoL findings from some of the earlier literature may not truly reflect upon how things are in modern day practice. Similarly, the choice and style of patches has also changed, with a movement towards coloured patches, and patches that fit over glasses, to improve comfort and appearance.

It is clear there are HRQoL implications associated with amblyopia; however, these are related to amblyopia treatment rather than the condition itself. Despite differing study methodologies, four key components of HRQoL were identified: those of physical ability (undertaking daily tasks); and emotional status (feelings and behaviour; social interactions; and impact upon family life). Very few of the studies identified assessed HRQoL from the child’s perspective. Current recommendations from the Department of Health encourage the participation of children respondents in the assessment of their own health and treatment,[42] and future studies in this area need to address this issue.

The HRQoL measures used in the identified studies failed to report the psychometric properties of the measures themselves (i.e. reliability and validity), with the exception of the ATI, A&SQ, and Psychological Impact Questionnaire. Whilst their reported findings may be of clinical relevance, their use in economic evaluations and subsequent policy-making decisions are limited. Further research is required to assess the immediate and long-term utility effects of amblyopia and/or its treatment, with more robust methods of HRQoL assessment employed.

## Acknowledgements

Competing Interests: Nil

Funding: This work is produced by Jill Carlton under the terms of Researcher Development Awards research training fellowship issued by the NIHR. The views expressed in this publication are those of the author and not necessarily those of the NHS, The National Institute for Health Research or the Department of Health. The author is currently undertaking a PhD to produce a paediatric disease-specific measure of HRQoL in amblyopia.

## What is known about this topic?

There are recognised HRQoL implications of amblyopia and/or its treatment. These relate to the impact upon family life; social interactions; daily activities; and feelings and behaviour.

## What this study adds:

This study identifies the HRQoL implications of amblyopia and/or its treatment; and discusses the implications of the adult vs. child perspective in the reporting of such implications. It also identifies a need for developing further instruments to investigate the immediate and long-term impact of amblyopia and/or its treatment on an individual level.

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**Figure 1 PRISMA flow diagram of study identification**

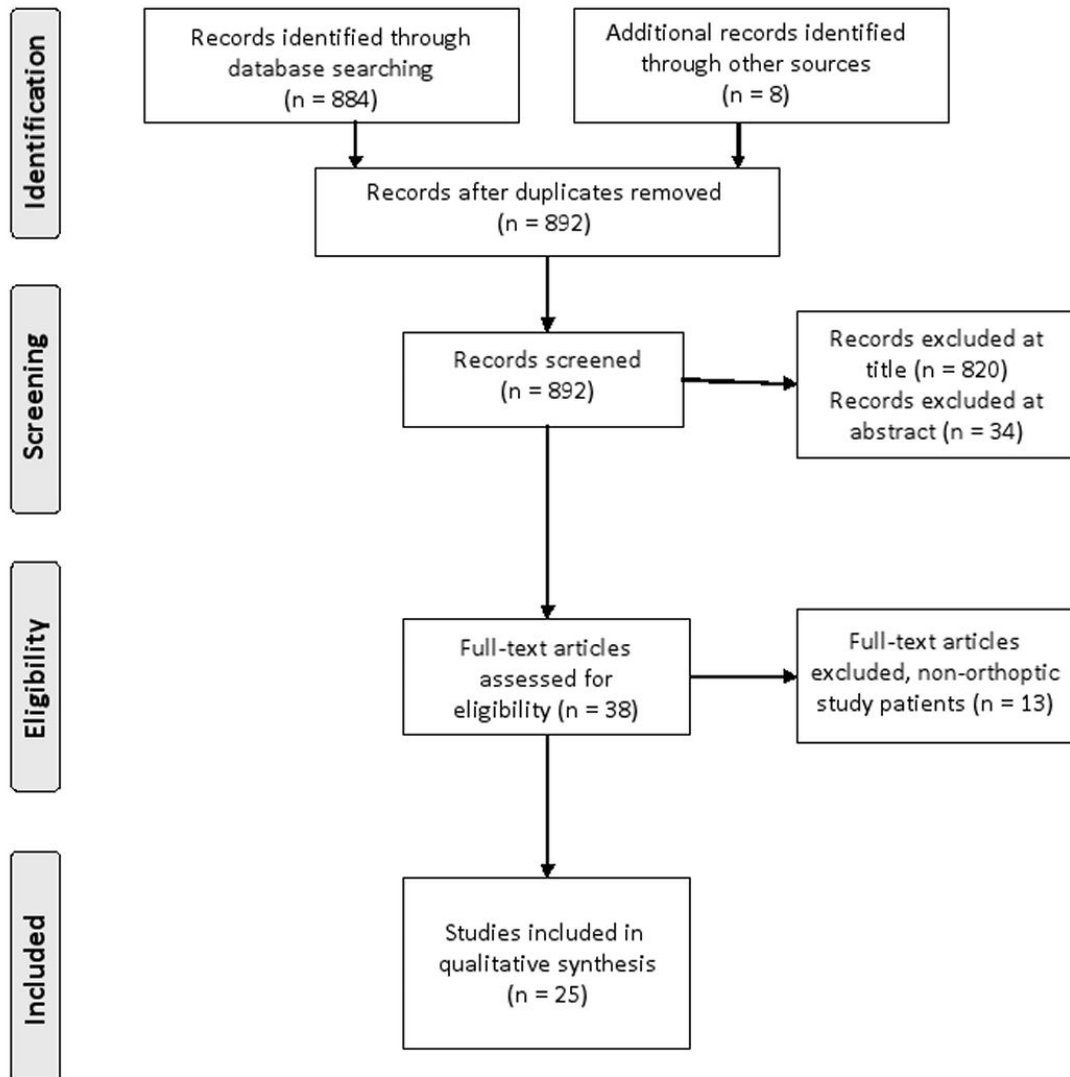
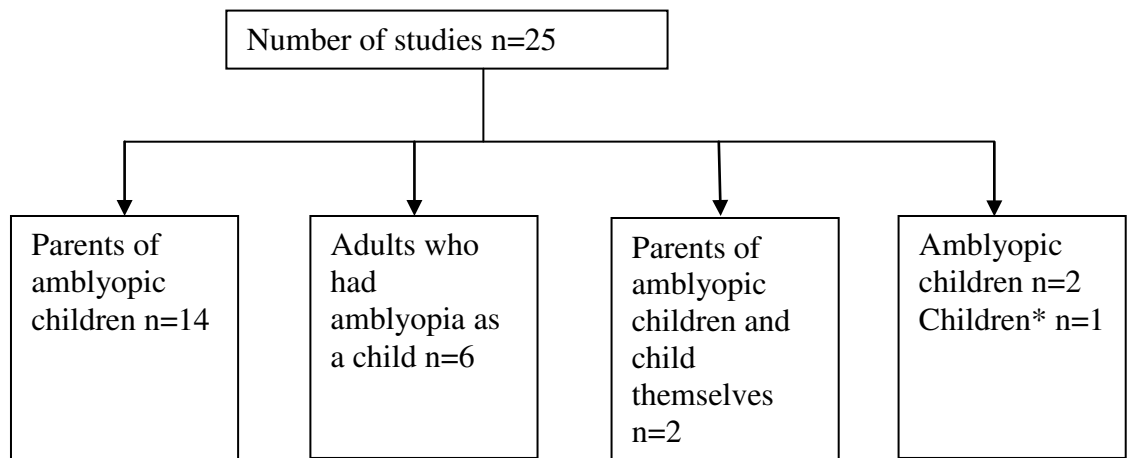


Figure 2

Summary of study methodologies



\* Child participants used in study to determine the impact of glasses upon person schemata

Table 1 Assessment of HRQoL measures

<p><u>Reliability</u></p>	<ul style="list-style-type: none"> <li>• “ability of a measure to reproduce the same value on two separate occasions when there has been no change in health”[2]</li> <li>• can be over time or between methods of administration[2]</li> <li>• may be considered in terms of internal consistency (the extent to which all items measure the same concept or test-retest reliability (the extent to which the results of the instrument compare if the test is administered to the same subject on more than one occasion when there has been no demonstrable change of health status)</li> </ul>
<p><u>Validity</u></p>	<ul style="list-style-type: none"> <li>• the extent to which a measure reflects the concept that it is intended to measure</li> <li>• may be considered in terms of content validity (“degree to which the instrument is reflective of aspects important to the patients and disease of interest”); construct validity “how well a measure correlates with other indicators of similar or related constructs”); concurrent validity (“the extent to which an instrument correlates to other measures of the same or similar construct”); and discriminant validity (“the ability to discriminate between either cases versus controls or disease severity groups”)[3]</li> <li>• for the purpose of this paper, construct validity will be determined if compared to objective clinical measures such as visual acuity; concurrent validity will be a comparison to an existing vision-specific HRQoL measure</li> <li>• factor analysis is a method of determining the structure of an</li> </ul>

	<p>instrument in terms of domains or subscales. It can be used to identify redundant or duplicate items. It may also be used to determine domain structure. Some papers refer to this as a measure of internal validity</p>
<u>Responsiveness</u>	<ul style="list-style-type: none"> <li>• the extent to which the instrument can detect in patients known to have a change in their physical condition.</li> </ul>

Table 2 Summary of developed HRQoL instruments used in studies

<b>Instrument</b>	<b>Item pool development</b>	<b>Number of questions</b>	<b>Likert-type scale used</b>	<b>Domains or subscales</b>	<b>Mode of administration</b>	<b>Psychometrics</b>
ATI [18, 19]	CB, LB	18 (atropine) 19 (patching)	5-point 5-point	Adverse effects Compliance Social stigma	Parent	IC, CV
A&SQ [7, 8]	CB	26	5-point	Fear of losing better eye Distance estimation Visual disorientation Diplopia Problems with social contact and cosmetic problems	Self	IC, DV, CV, CCV
Psychological Impact Questionnaire [6]	CB, LB, PB	32 (8 questions asked times in relation to four factors; in general daily life; having a weaker eye; wearing glasses; having noticeable strabismus)	5-point	Not categorised	Self	CV, CCV, TRR

CB = clinician based; LB = literature-based; PB = patient based

DV = discriminant validity; CV = construct validity; CCV = concurrent validity; IC = internal consistency; R = responsiveness; TRR = test-retest reliability

Table 3 Summary of studies which developed their own questionnaires

<b>Study</b>	<b>Country of origin</b>	<b>Questionnaire development</b>	<b>Mode of administration</b>	<b>Results compared with any other measure?</b>
Choong et al [24]	UK	CB, PAC	Parents	Perceived Stress Index (PSI)
Hrisos et al [25]	UK	CB, LB, PAC	Parents	Revised Rutter Parents Scale for Preschool Children
Newsham [26]	UK	CB	Parents	-
Newsham [27]	UK	CB	Parents	-
Parkes [28]	UK	CB	Parents	-
Leach [29]	UK	CB	Parents	-
Horwood [10]	UK	CB, LB	Parents and some children	-
Packwood et al [9]	USA	CB	Self (adults)	-
Searle et al [30]	UK	PAC	Parents	-
Norman et al [31]	UK	PAC	Parents	-

CB = clinician based; LB = literature-based; PB = patient based; PAC = parents of amblyopic child

Table 4 Summary of quality of life implications of amblyopia and/or its treatment identified in the literature search

Quality of life component	Identified by	Due to amblyopia	Due to amblyopia treatment
<p><u>Family life</u></p> <ul style="list-style-type: none"> <li>• Carer-child relationship</li> <li>• Strained relationships within the family</li> </ul>	<p>Cole et al[18], Holmes et al[19], Choong et al[24], Hrisos et al[25], Dixon-Woods et al[33]</p> <p>Cole et al[18], Holmes et al[19], Hrisos et al[25],</p>	<p>X</p> <p>X</p>	<p>√</p> <p>√</p>
<p><u>Social interactions</u></p> <ul style="list-style-type: none"> <li>• Feelings of isolation/differing from others</li> </ul>	<p>Sabri et al[6], Horwood[10], Koklanis et al[11], Cole et al[18], Holmes et al[19]</p>	<p>X</p>	<p>√</p>

<ul style="list-style-type: none"> <li>Bullying</li> <li>Interaction with peers</li> </ul>	<p>Packwood et al[9], Horwood[10], Koklanis et al[11], Horwood et al[12], Williams et al[13], Hrisos et al[25], Dixon-Woods et al[33]</p> <p>Sabri et al[6], Van de Graaf et al[7], Felius et al[8], Horwood[10], Koklanis et al[11], Williams et al[13], Terry and Stockton[14] Cole et al[18], Holmes et al[19], Hrisos et al[25],</p>	<p>√</p> <p>√</p>	<p>√</p> <p>√</p>
<u>Activities</u>			
<ul style="list-style-type: none"> <li>Impact on activities</li> <li>Impact on education (immediate and long-term)</li> </ul>	<p>Rahi et al[4], Sabri et al[6], Van de Graaf et al[7], Felius et al[8], Packwood et al[9], Terry and Stockton[14], Cole et al[18], Holmes et al[19], Searle et al[30, 32], Norman et al[31], Dixon-Woods et al[33]</p> <p>Rahi et al[4], Van de Graaf et al[7], Felius et al[8], Packwood et al[9], Terry and Stockton[14], Cole et al[18], Holmes et al[19], Hrisos et al[25], Dixon-Woods et al[33],</p>	<p>√</p> <p>√</p>	<p>√</p> <p>√</p>

<u>Feelings and Behaviour</u>			
<ul style="list-style-type: none"> <li>• Self-esteem and self-image</li> </ul>	Packwood et al[9], Koklanis et al[11], Terry and Stockton[14], Choong et al[24], Newsham[26, 27], Parkes[28], Searle et al[30, 32], Norman et al[31], Dixon-Woods et al[33]	√	√
<ul style="list-style-type: none"> <li>• Depression, frustration, embarrassment</li> </ul>	Norman et al[31], Rahi et al[4], Sabri et al[6], Koklanis et al[11], Hrisos et al[25], Leach[29], Searle et al[30, 32],	X	X
<ul style="list-style-type: none"> <li>• Understanding of amblyopia and its implications</li> </ul>	Chua and Mitchell[5], Sabri et al[6], Van de Graaf et al[7], Felius et al[8], Packwood et al[9], Newsham[26, 27], Searle et al[30, 32], Norman et al[31],	√	X
<ul style="list-style-type: none"> <li>• Sensation of patch/drops/glasses</li> </ul>	Cole et al[18], Holmes et al[19]	X	√

Not mutually exclusive

## Appendix 1

The following electronic bibliographic databases were searched.

1. Embase
2. Medline
3. NHS Database of Abstracts of Reviews of Effects (DARE)
4. NHS Health Technology Assessment Database (HTA)
5. Science Citation Index (SCI)
6. Social Sciences Citation Index (SSCI)
7. Cumulative Index to Nursing and Allied Health Literature (CINAHL)
8. Cochrane Library
9. Scopus
10. Health Services and Sciences Research Resources (HSRR)
11. PsychINFO

Table 1      Amblyopia Terms

<ol style="list-style-type: none"><li>1. amblyopia</li><li>2. amblyopic</li><li>3. lazy eye</li><li>4. 1 or 2 or 3</li></ol>
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Table 2      Child Terms

<ol style="list-style-type: none"><li>1. child\$ or infant\$ or kindergarten\$ or juvenile\$ or preschool\$ or pre school\$ or pre-school\$ or nurser\$ or adolesc\$ or school\$ or infancy\$</li></ol>
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Table 3 Amblyopia Treatment Terms

1. occlusion
2. patch\$
3. atropin\$
4. therap\$ or treatment\$ or manag\$
5. cosmes\$
6. psychosocial\$

Table 4 Quality of Life Terms

1. quality of life
2. life quality
3. hql
4. sf 36 or sf36 or sf thirtysix or sf thirty six or short form 36 or short form thirty six or short form thirtysix or shortform 36
5. qol
6. euroqol or euro qol or eq5d or eq 5d
7. qaly\$
8. quality adjusted life year\$
9. hye\$
10. health\$ year\$ equivalent\$
11. health utility\$
12. hui
13. quality of wellbeing\$
14. quality of well being
15. qwb

16. qald\$ or qale\$ or qtime\$
17. quality adjusted life year
18. quality adjusted life
19. qaly\$ or qald\$ or qale\$ or qtimes
20. disability adjusted life
21. daly\$
22. health status indicators
23. sf6 or sf 6 or short form 6 or shortform 6 or sf six or sfsix or shortform six or short form six
24. sf12 or sf 12 or short form 12 or shortform 12 or sf twelve or sftwelve or shortform twelve or short form twelve
25. sf16 or sf 16 or short form 16 or shortform 16 or sf sixteen or sfsixteen or shortform sixteen or short form sixteen
26. sf20 or sf 20 or short form 20 or shortform 20 or sf twenty or sftwenty or shortform twenty or short form twenty
27. hye or hyes
28. hui or hui1 or hui2 or hui3
29. disutili\$
30. rosser
31. qwb
32. willingness to pay
33. standard gamble\$
34. tto
35. exp models, economic
36. \*models, theoretical

37. \*models, organisational
38. economic model\$
39. markov chains
40. markov\$
41. monte carlo method
42. monte carlo
43. exp decision theory
44. decision\$ or adj2 (tree\$ or analy\$ or model\$)

Table 5 Selected Quality of Life Terms

1. quality of life
2. life quality
3. hql
4. qol
5. quality adjusted life year
6. quality of wellbeing
7. quality of well being
8. quality adjusted life
9. health related quality of life
10. hqol
11. h qwol
12. hrqol
13. hr qol

Table 7 Database search strategy

Database	Search Strategy	Number of articles identified
Embase	“amblyopia terms” and “selected quality of life terms”	486
Emzz	“amblyopia terms” and “selected quality of life terms”	49
Medline	“amblyopia terms” and “child terms” and “quality of life terms”	29
	“amblyopia treatment terms” and “quality of life terms” and “amblyopia terms”	25
	“amblyopia terms” and “quality of life terms”	39
DARE	“amblyopia” as keyword	8
NHS EED	“amblyopia” as keyword	7
HTA	“amblyopia” as keyword	4
SCI and SSCI	“amblyopia terms” and “child terms” and “quality of life terms”	15
	“amblyopia treatment terms” and “quality of life terms” and “amblyopia terms”	29
	“amblyopia terms” and “quality of life terms”	41
CINAHL	“amblyopia terms” and “child terms”	4

	and “quality of life terms”	
	“amblyopia treatment terms” and	3
	“quality of life terms” and “amblyopia terms”	
	“amblyopia terms” and “quality of life terms”	5
Cochrane Database of Systematic Reviews	“amblyopia terms”	13
Database of Abstracts of Reviews of Effects	“amblyopia terms”	3
The Cochrane Register of Controlled Trials	“amblyopia terms”	179
The Cochrane Database of Methodology Reviews	“amblyopia terms”	0
The Cochrane Methodology Register	“amblyopia terms”	1
NHS Economic Evaluation Database	“amblyopia terms”	6
Scopus	“amblyopia terms” and “child terms”	97
	and “quality of life terms”	
	“amblyopia treatment terms” and	87
	“quality of life terms” and “amblyopia terms”	
	“amblyopia terms” and “quality of life	236

	terms”	
HSRR	“amblyopia” as keyword	0
	“vision” as keyword	10
	“eye” as keyword	0
	“children” as keyword	16
	“child” as keyword	17
PsycINFO	“amblyopia terms” and “selected quality of life terms”	1