

## Supplementary material

This material supplements Bowes A, Dawson A, Greasley-Adams C and McCabe L Design of residential environments for people with dementia and sight loss: a structured literature review (Forthcoming), *British Journal of Visual Impairment*.

Table 1S. Search terms used in literature review

[sight loss] and [design*] [sight loss] and [guid*] [sight loss] and [good practice] [sight loss] and [best practice] [vis* and impair*] and [design*] [vis* and impair*] and [guid*] [vis* and impair*] and [good practice] [vis* and impair*] and [best practice] [low vision] and [design*] [low vision] and [guid*] [low vision] and [good practice] [low vision] and [best practice] [sighted] and [design*] [sighted] and [guid*] [sighted] and [good practice] [sighted] and [best practice] [dementia or Alzheimer*] and [design*]
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Table 2S. Electronic databases searched

ASSIA (Applied Social Sciences Index and Abstracts) CINAHL (Cumulative Index to Nursing and Allied Health Literature) Cochrane Library DAAI (Design and Applied Arts Index) (via ProQuest) Health Source Pubmed Science Direct Social Care Online Web of Knowledge (incorporating Web of Science)
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Figure 1S. Summary of literature search process

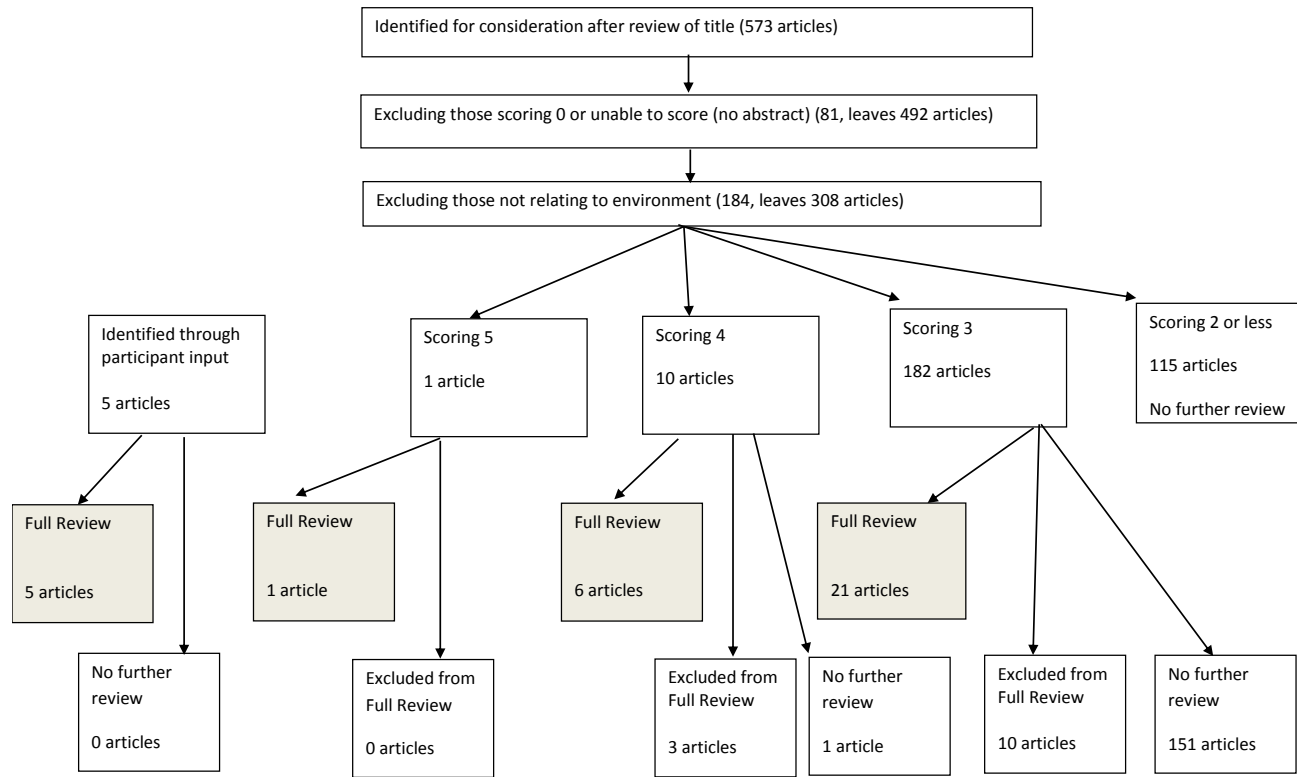


Table 3S. Scheme for scoring abstracts

<b>Criterion</b>	<b>Scores</b>
Looks at how people relate to or interact with their environment:	no =0, yes =1
Includes research evidence:	no =0, yes =1
Review article:	no =0, yes=1
Relevance to Dementia/Sight Loss:	Neither =0, Dementia or Sight Loss =1, Dementia and Sight Loss =2
Maximum possible score	5

Table 4S: Frameworks and questions used in the literature review quality assessment process

Reviewers were asked to complete a proforma for each included publication. This required reviewers to identify the ‘research type’ and to answer evaluation questions and comment on aspects of the publication specific to that research type.

The details of frameworks and evaluation questions used for literature included in this review are provided below.

Once the relevant framework questions had been answered and comments recorded, the evaluation process for all research types asked reviewers to do the following:

**‘Overall grading of quality of the item that you are reviewing**

Please choose one of the following three levels of overall quality for the item that you are reviewing, based on your answers using the quality assessment framework above. Please note: this is an assessment of the study as reported in the item that you are reviewing.

- This publication is of LOW quality. The study as reported has major limitations
- This is a publication of MEDIUM quality. The study as reported has important limitations
- This is a publication of HIGH quality. The study as reported has only minor limitations’

**Framework and evaluation questions for Qualitative studies**

Source of evaluation framework	Evaluation questions used (response categories: Adequate/Yes, Inadequate/No or Not Known)	Comment boxes to record
Adapted from Critical Appraisal Skills Programme (CASP) (2010) 'Making sense of evidence about clinical effectiveness: 10 questions to help you make sense of	Is the described study qualitative research? Are the research questions clearly stated? Is the qualitative approach clearly justified? Is the approach appropriate for the research question(s)? Is the study context clearly described? Is the role of the researcher clearly described? Is the sampling method clearly described? Is the sampling strategy appropriate for the research question(s)? Is the method of data collection clearly described? Is the data collection method appropriate to the research question(s)?	Comments on the appropriateness of qualitative research methods to this topic Comments on the level of detail about the qualitative study described in the item that you are reviewing Comments on the appropriateness of data collection or data analysis methods used

Source of evaluation framework	Evaluation questions used (response categories: Adequate/Yes, Inadequate/No or Not Known)	Comment boxes to record
qualitative research', the checklist for Qualitative Studies dated 14/10/10	Is the method of analysis clearly described? Is the analysis appropriate for the research question(s)? Are the claims made / conclusions supported by sufficient evidence?	

### Framework and evaluation questions for Randomised Controlled Trials (RCTs)

Source of evaluation framework	Evaluation questions used (response categories: Adequate/Yes, Inadequate/No or Not Known)	Comment boxes to record
Derived from guidance provided in CRD (2001) 'Undertaking Systematic Reviews of Research on Effectiveness (2nd Edition)' Centre for Reviews and Dissemination (CRD) Report Number 4, dated March 2001, and in particular Box 5.8, a checklist of criteria titled 'Quality criteria for assessment of	Was the assignment to the treatment groups really random? Was the treatment allocation concealed? Were the groups similar at baseline in terms of prognostic factors? Were the eligibility criteria specified? Were outcome assessors blinded to the treatment allocation? Was the care provider blinded? Was the patient blinded? Were the point estimates and measure of variability presented for the primary outcome measure? Did the analyses include an intention to treat analysis?	Comments on patient recruitment and the adequacy of assignment to treatment groups Comments on the adequacy of blinding of outcome assessors, care providers, and/or patients Comments on the presentation and adequacy of analyses

<b>Source of evaluation framework</b>	<b>Evaluation questions used (response categories: Adequate/Yes, Inadequate/No or Not Known)</b>	<b>Comment boxes to record</b>
experimental studies'		

**Framework and evaluation questions for Controlled before/after studies**

<b>Source of evaluation framework</b>	<b>Evaluation questions used (response categories: Adequate/Yes, Inadequate/No or Not Known)</b>	<b>Comment boxes to record</b>
Based on the 'Quality criteria for controlled before and after (CBA) designs' as described in Cochrane Effective Practice and Organisation of Care Group (EPOC) (2002) 'Data Abstraction Form, Section 6.4.2', part of the EPOC data collection template, dated July 2002.	<p>Have appropriate baseline measures been recorded?</p> <p>Were the groups similar at baseline in terms of prognostic factors?</p> <p>Where a second site is used as a control, are the site characteristics sufficiently similar?</p> <p>Has there been blinded assessment of primary outcome(s)? (protection against detection bias)</p> <p>Has there been appropriate protection against contamination? (e.g. using a second site as a control)</p> <p>Are the primary outcome measures used reliable?</p> <p>Has there been appropriate and equal follow-up of control and intervention groups by professionals? (protection against exclusion bias)</p> <p>Has there been appropriate follow-up of patients? (has loss to follow-up been addressed)</p>	<p>Comments on patient recruitment and the adequacy of treatment and control groups</p> <p>Comments on the adequacy of primary outcome measurement</p> <p>Comments on the adequacy of protection against sources of exclusion bias</p>

**Framework and evaluation questions for Literature reviews (including systematic literature reviews)**

<b>Source of evaluation framework</b>	<b>Evaluation questions used (response categories: Adequate/Yes, Inadequate/No or Not Known)</b>	<b>Comment boxes to record</b>
<p>Based on Critical Appraisal Skills Programme (CASP) (2006) '10 questions to help you make sense of reviews'.</p>	<p>Did the review ask a clearly-focused question (in terms of population studied, intervention, outcomes considered)?</p> <p>Did the review include the right type of study (i.e. ones that address the review's question and have appropriate study design)?</p> <p>Did the reviewers try to identify all relevant studies (bibliographic sources used; follow-up from reference lists; personal contact with experts; search for unpublished materials; non-English language inclusion)?</p> <p>Did the reviewers assess the quality of included studies (was there a strategy/protocol for this, was there a scoring system, more than one assessor)?</p> <p>Where the results of studies have been combined, was it reasonable to do so (results of individual studies displayed; heterogeneity of studies; discussion of reasons for variation)?</p> <p>Are results appropriately presented, and is there a summarised main result?</p> <p>Are you happy with the precision of the results (size of confidence intervals if reported, and comfort with using; presence of a p-value if not)?</p> <p>Can the results be applied to other populations or contexts (specificity of subjects or setting of reviewed studies)?</p> <p>Were all important outcomes considered (e.g. for individuals; for policy makers and professionals; for families/carers; for wider community)?</p> <p>Should policy or practice change as a result of the evidence contained in the review (does review provide cost/benefit analysis/can this been determined from elsewhere)?</p>	<p>Comments on the adequacy of the research type, study design and methods</p> <p>Comments on the review results and findings</p>

**Framework and evaluation questions for 'Other' publications**

<b>Source of evaluation framework</b>	<b>Evaluation questions used (response categories: Adequate/Yes, Inadequate/No or Not Known)</b>	<b>Comment boxes to record (guidance text also provided)</b>
No general framework available	None	<p>Comments on the adequacy of the publication in terms of information sources used: Please detail any concerns or comments that you have in relation to aspects of the publication's production - e.g. use of sources, apparent depth of reporting, impartiality of authors.</p> <p>Comments on the publication results and findings: Please detail any concerns or comments that you have in relation to aspects of the publication's reported results and findings (e.g. in relation to overall credibility, completeness, applicability to other populations and settings, etc.)</p>

Table 5S: Table of quality ratings

<b>Author (date)</b>	<b>Type of study</b>	<b>Quality rating</b>	<b>Reviewer rationale for quality rating</b>
Acheson Cooper (1999)	Controlled Before and After Study (CBA)	This is a publication of MEDIUM quality. The study as reported has important limitations	This publication has been assessed as being of medium quality for the following reasons. The study appears well designed, used a control and two treatment groups, took steps to avoid bias, and investigated breaches of protocol by group members. However, the breaches and the small numbers of participants impact on the reliability of the findings.
Anttila et al (2012)	Literature review	This is a publication of HIGH quality. The study as reported has only minor limitations	Well organised review with clear details on selection, inclusion and assessment of quality of items within the review.



Best & Porteus (2012)	Report on inquiry	This publication is of LOW quality. The study as reported has major limitations	Although it appears findings from research have been incorporated into the discussions here and it is clear that people have been consulted as part of this inquiry, there is lack of transparency of the methods and the reporting of the findings does not highlight the extent to which the findings are from across the board or representative of a few.
Bossen (2010)	Literature review	This publication is of LOW quality. The study as reported has major limitations	As no information is included on how items were selected for review or consideration given to the quality of research reviewed this paper has to be considered as low quality.
Brunnström et al (2004)	Randomised Controlled Trial (RCT)	This publication is of LOW quality. The study as reported has major limitations	This publication has been rated as of low quality for the following reasons. The study involved a relatively small number of heterogeneous participants. No analysis of non-completers or of inter-group differences was provided. Potential confounding factors have not been addressed (e.g. the potential effect of season on reported QoL, given that this was measured at two time points 6 months apart).
Calkins (2002)	Practice guidelines	This publication is of LOW quality. The study as reported has major limitations	This has been graded as of low quality, due to the lack of available supporting research evidence for recommendations and concerns over the applicability of recommendations drawn from wider research on the effects of colour to populations with dementia.
Calkins & Brush (2002)	Case study	This publication is of LOW quality. The study as reported has major limitations	This publication has been graded as of low quality because it involves a case study of only one person and makes very little reference to supporting evidence for its recommendations.

Dahlin-Ivanoff & Sonn (2004).	Retrospective descriptive cross-sectional population study	This is a publication of MEDIUM quality. The study as reported has important limitations	This publication has been graded as of medium quality for the following reasons. The findings are credible but there is no evidence regarding the generalisability of findings to other populations and settings and findings may not represent current populations as the data are relatively old (collected in 1986/7).
den Brinker et al (2005)	Randomised Controlled Trial (RCT)	This is a publication of MEDIUM quality. The study as reported has important limitations	This publication has been rated as of medium quality for the following reasons. The experimental design uses the repeated test of a small number of participants. There is only one set of contrasts tested (white markings on mid-grey treads) and only one variation from edge marking tested.
Edgerton & Richie (2010)	Literature review	This publication is of LOW quality. The study as reported has major limitations	This publication is evaluated as being of low quality for the following reasons. No details were provided of the search/sort protocol, only exclusion criteria. There is no detail of any quality assessment beyond the inclusion/exclusion criteria. Authors refer to "cost-effective" (ie, relatively simple) design modifications' - these terms are not synonymous.
Goodman & Watson (2010)	review of existing design guidance	This publication is of LOW quality. The study as reported has major limitations	It is not possible to give this more than a low rating because no information is provided in the paper about how the study was conducted. However, the full report may provide this information.
Homes and Communities Agency (2009)	case study	This publication is of LOW quality. The study as reported has major limitations	There is sufficient information on the case studies but the lack of information about how these were selected, and a lack of clarity on whether the guidance reflects what older people want and need versus what the panel thinks are a good idea, means this paper has to be rated as of low quality.
Kelly et al (2011)	Qualitative Study	This is a publication of MEDIUM quality. The study as reported has important limitations	The key limitation is that this is only a partial presentation of the study.

Kiata et al (2008)	Qualitative Study	This publication is of LOW quality. The study as reported has major limitations	The article is of low quality. There is insufficient information on analysis and the findings seem based on limited anecdotal quotes. Nevertheless, raising the issue of the continued preferences of people in their own homes regarding mats and rugs is an interesting one.
Kondo et al (1997)	single case experimental design	This publication is of LOW quality. The study as reported has major limitations	There are a number of limitations to the study including small sample, lack of a control group, and illness potential impacting upon the findings. The authors themselves note limitations to the study including: the fact all participants cooked prior to the study; that data collection was self-reported and may be less accurate than observation; meal preparation was affected by other factors and made it more difficult to find remarkable trends.
Kwack et al (2004)	A general review of ideas	This publication is of LOW quality. The study as reported has major limitations	It is just a description of ideas
La Grow et al (2006).	Randomised Controlled Trial (RCT)	This publication is of LOW quality. The study as reported has major limitations	The study provides insight into the various environmental hazards that might be associated with falls amongst people with visual impairments in the home. However, there is insufficient information to rate the work more highly. There is a lack of detail on the number of hazards not within the intervention group, and baseline statistics are not obviously presented. This lack of transparency, makes it difficult to say with any certainty that this study is of a high or even medium quality.

Lawrence et al (2009)	Qualitative Study	This is a publication of HIGH quality. The study as reported has only minor limitations	This is a really good piece of exploratory qualitative research. They used theoretical sampling, and covered the chosen population very well. A minor limitation might be that the participants were attending clinics for dementia or sight loss - other populations might have different experiences e.g. other people living in care homes who are not attending a clinic.
Lawrence & Murray (2009)	Qualitative Study	This publication is of LOW quality. The study as reported has major limitations	There is insufficient detail to rate the quality of this research more highly. The information presented relating to design seems to be led heavily by existing information about design for sight loss, and does not really seem to be substantiated by the findings from the research conducted. Detail on method, analysis and specific findings in respect of design would have been beneficial
Letts et al (2011).	Literature review	This is a publication of HIGH quality. The study as reported has only minor limitations	This publication has been evaluated as of high quality for the following reasons. The search and review processes seem to be very thorough. The authors have been clear on the levels of evidence available to support the use of different types of intervention for the specific outcome of occupational performance.
Littlefair (2010)	Literature review	This publication is of LOW quality. The study as reported has major limitations	As stated, no details on methods for literature review or any other aspect of the project.
Long (1995)	Qualitative study	This publication is of LOW quality. The study as reported has major limitations	A very useful descriptive piece on the types of design elements people with sight loss might desire but there are concerns over how samples have been recruited and how the data is analysed. Further elaboration on background to the study and also how the findings relate to existing literature would have been beneficial.

Marquardt (2011)	Design guidance	This is a publication of MEDIUM quality. The study as reported has important limitations	This is determined as being medium quality because the findings are supported with literature but it is not clear the extent to which the literature has been selected to fit rather than the guidance being built on reviewing literature
Martin et al (2008)	Literature review	This is a publication of HIGH quality. The study as reported has only minor limitations	This work has been rigorously conducted and meets all the criteria for high quality..
McNair et al (2010)	Guidance notes	This publication is of LOW quality. The study as reported has major limitations	This publication has been evaluated as being of LOW quality because as far as discernible in the text many of the recommendations whilst having face validity have no supporting evidence base and there are no details of any underpinning/supporting review of the scientific literature.
Mihailidis & Fernie (2002)	Overview of a product	This publication is of LOW quality. The study as reported has major limitations	This is low quality because the conclusions seem to be unsubstantiated and there is a focus on promoting (without evidence) the need for a device that the authors seem to be involved in developing
Mitchell & Burton (2010)	Qualitative study	This is a publication of MEDIUM quality. The study as reported has important limitations	The findings clearly come from the research undertaken but there are some concerns about the quantitative elements of analysis, and it is not clear which findings emerge from that part of analysis and which come from the qualitative elements.
Percival (2007)	Summary of three research studies	This is a publication of MEDIUM quality. The study as reported has important limitations	The information seems to be supported from the research and the research indicates positive response to suggested changes, but further background information would have been needed to comment on the overall quality of the research upon which these findings have been based. Without this information it is not possible to say that this is a high quality piece of research and subsequently the publication has been rated as medium quality.

Rappe & Topo (2007)	Observational study	This is a publication of HIGH quality. The study as reported has only minor limitations	This publication has been graded as HIGH quality. The methods employed seem appropriate to the type of study and the analysis seems to be very thorough.
Torrington & Lewis (2011)	Study using EVOLVE toolkit	This is a publication of MEDIUM quality. The study as reported has important limitations	The review is deliberately brief but the lack of information and detail in the reported findings is a constraint. It would have been beneficial to see which elements were particularly poor and where design might have been better. In addition it is not clear the extent to which EVOLVE-for vision has been evaluated as a tool. Without further information about independent evaluation of this tool, and/or further information about its development and the rigour of the literature review upon which it is based it is not possible to determine how strong the findings from this research are - as such this is noted as medium quality.
Unwin et al (2009)	Expert views	This publication is of LOW quality. The study as reported has major limitations	Lack of support for recommendations means this has to be rated as low quality.
van Hoof et al (2010)	Literature review	This is a publication of MEDIUM quality. The study as reported has important limitations	Not low because of the extensive overview that is achieved, which is useful, and does at least acknowledge the lack of evidence. Not high, because not systematic enough and there is a lack of evaluation of studies (or at least not visible evaluation of studies).
Zwijssen S A , Alistair R. Niemeijer a & Cees M.P.M. Hertogh	Literature review	This is a publication of MEDIUM quality. The study as reported has important limitations	Good, well conducted review, just brought down by lack of discussion about study quality.

Figure 2S: Flowchart with overview of literature review

