



## Review

# Do problem-solving interventions improve psychosocial outcomes in vision impaired adults: A systematic review and meta-analysis<sup>☆</sup>



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## ABSTRACT

**Objective:** To evaluate the effectiveness of problem-solving interventions on psychosocial outcomes in vision impaired adults.

**Methods:** A systematic search of randomised controlled trials (RCTs), published between 1990 and 2013, that investigated the impact of problem-solving interventions on depressive symptoms, emotional distress, quality of life (QoL) and functioning was conducted. Two reviewers independently selected and appraised study quality. Data permitting, intervention effects were statistically pooled and meta-analyses were performed, otherwise summarised descriptively.

**Results:** Eleven studies (reporting on eight trials) met inclusion criteria. Pooled analysis showed problem-solving interventions improved vision-related functioning (standardised mean change [SMC]: 0.15; 95% CI: 0.04–0.27) and emotional distress (SMC: –0.36; 95% CI: –0.54 to –0.19). There was no evidence to support improvements in depressive symptoms (SMC: –0.27, 95% CI: –0.66 to 0.12) and insufficient evidence to determine the effectiveness of problem-solving interventions on QoL.

**Conclusion:** The small number of well-designed studies and narrow inclusion criteria limit the conclusions drawn from this review. However, problem-solving skills may be important for nurturing daily functioning and reducing emotional distress for adults with vision impairment.

**Practice implications:** Given the empirical support for the importance of effective problem-solving skills in managing chronic illness, more well-designed RCTs are needed with diverse vision impaired samples.

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## 1. Introduction

The psychosocial impact of vision impairment can be profound, placing individuals at increased risk of depression, reduced mental health and quality of life (QoL) compared to sighted peers [1–3]. The influence of vision impairment on functioning and restricted activities of daily living (ADLs), such as reading and driving, is one possible mechanism that increases the risk for depression and reduced QoL [1,4]. Vision-related restriction of participation in daily living activities frequently leads to a compromised vision-related QoL [5], while functional disability can exacerbate depression [6–8]. Developing effective interventions that improve psychosocial outcomes may alleviate some of the patient burden associated with vision loss.

Internationally, guidelines have placed increasing emphasis on integrating evidence-based interventions into practice to improve patient-centred outcomes for chronic diseases [9,10]. Self-management (SM) programmes have become increasingly popular, adopting a group-based approach, with the aim of helping participants to take control of managing the consequences of their health condition. A critical component of SM training is to provide participants with the skills to problem-solve difficulties that they encounter [11]. Problem-solving involves the cognitive-behavioural processes through which an individual identifies and copes with everyday problems [12]. Effective problem-solving has been associated with optimal levels of adjustment and psychological well-being for patients and caregivers following chronic disease and disability [13,14].

Reviews of studies that have adopted SM programmes for chronic illnesses such as type 2 diabetes, arthritis and asthma have demonstrated significant improvements in disease management (e.g., reduced HbA1c in diabetic patients), decreased emotional distress and increased QoL following the intervention [15,16], although these findings are not consistent across studies nor chronic conditions [16]. Empirically supported treatments for depression, such as problem-solving therapy (PST), have also been effective in lowering distress, improving psychological outcomes, QoL and self-regulation among persons diagnosed with severe and chronic health problems (e.g., cancer, diabetes) [17,18], and have demonstrated better patient outcomes compared to no treatment, usual care and attention placebo [19].

Cross-sectional and longitudinal studies of adults participating in low vision rehabilitation programmes have shown that effective problem-solving strategies are linked to life satisfaction, optimal adjustment to vision loss and improved psychosocial outcomes, such as reduced depressive symptoms [20,21]. However, to date, no systematic reviews have assessed the role of problem-solving interventions to improve psychosocial outcomes in vision impaired adults. Therefore, the aim of this review was to systematically

appraise published literature on the effectiveness of problem-solving interventions on depression, QoL, and functioning in vision impaired adults. A secondary aim was to explore intervention characteristics associated with optimal outcomes.

## 2. Methods

Methods reported on in this systematic review have been described according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement ([www.prisma-statement.org](http://www.prisma-statement.org)) [22,23]. A review protocol was specified in advance and registered on PROSPERO: an international prospective register of systematic reviews (CRD42014008978 <http://www.crd.york.ac.uk/prospere>).

### 2.1. Study selection

The inclusion criteria were defined according to the Patients, Interventions, Controls, Outcome (PICO) model [25]. Studies were included if they reported on participants aged 18 years and older with vision impairment (visual acuity 6/12 or worse in the better eye). Studies reporting data on problem-solving interventions, including problem-solving therapy and interventions based on problem-solving principles (e.g., self-management programmes that specifically highlighted the inclusion of problem-solving techniques) compared to alternative interventions (not based on problem-solving principles), usual care and no treatment were included. Only those studies that reported on outcomes assessing depression (or mood), QoL or measures of vision-related functioning (i.e., ADLs) were included. Studies were limited to randomised controlled trials (RCTs) irrespective of follow-up duration. Two reviewers (E.H. and B.S.) independently read selected studies and made a decision whether the paper met the criteria for inclusion. Any disagreements were resolved by discussion and consensus.

### 2.2. Search strategy

PubMed (National Library of Medicine and National Institutes of Health), PsychINFO (a database of psychological literature), EMBASE (medical database), the Cochrane Library, National Institute for Health and Clinical Evidence (NICE) and Health Evidence Canada were searched using appropriate medical subject headings (MeSH) related to “low vision” and “problem-solving” (see Box 1 for detailed search strategy). A web search using google scholar was also performed. Searches were limited to the years from 1 January 1990 to 2 September 2013, English language articles and human subjects. Reference lists of relevant papers identified in the search were scanned for additional studies. Citations identified in the searches were imported to Endnote citation manager and duplicates were removed. Titles and

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