

Patients' Experience of Living With and Managing Presbyopia: A Systematic Literature Review

Zach Baldwin, PharmD candidate,¹ Joanna Campbell, PhD,² Elaheh Shirmeshan, PhD²

¹University of Washington School of Pharmacy, Seattle, WA, USA; ²Allergan, an AbbVie company, Irvine, CA

CONCLUSIONS

Limited published literature on patient experience with presbyopia, specifically with spectacle usage

Uncorrected presbyopia significantly impacts activities of daily life

Individuals with presbyopia have reported distinct limitations and/or drawbacks to each treatment option, resulting in unmet needs

Appearance is a key concern associated with use of spectacles for presbyopia correction

METHODS (Cont'd)

Table 1. Population, Intervention, Comparator, Outcomes, Timing, Setting, Study Design (PICOTS)

Dimension	Inclusion/Exclusion Criteria
Population	<p>Inclusions:</p> <ul style="list-style-type: none"> 35 or older; OR Presbyopia diagnosis with or without myopia, hyperopia, or astigmatism <p>Exclusions:</p> <ul style="list-style-type: none"> The participant had been diagnosed with any of the following conditions: <ul style="list-style-type: none"> Glaucoma, acute iritis, visually significant cataracts, severe dry eye disease, corneal abnormalities (eg, corneal scars, keratoconus, Fuch's endothelial dystrophy, guttata, edema) in either eye that are likely to interfere with visual acuity
Intervention	<p>Inclusions:</p> <ul style="list-style-type: none"> Spectacles (reading/bifocal/trifocal/progressive lenses); AND/OR Contact lenses (monovision/ bifocal/ multifocal); AND/OR Surgery (laser refractive surgery [laser in situ keratomileusis (LASIK) surface ablations, Intracor], intraocular lens surgery [any], thermokeratoplasty, scleral relaxation, and corneal inlays [KAMRA]); AND/OR None (ie, natural history)
Comparator	Not applicable
Outcomes	<p>Studies reporting at least one of the following:</p> <ul style="list-style-type: none"> Patient experience of living with presbyopia Limitations of current treatment options and unmet need from patient's perspectives <ul style="list-style-type: none"> Patient experience with current treatment options Unmet needs from patients' perspectives Patient preferences for a presbyopia treatment option
Timing	1990 to present
Geographic setting	Global
Study design	<ul style="list-style-type: none"> Randomized controlled trials Observational studies (prospective/retrospective/cohorts/cross-sectional) Economic evaluations Natural history studies Systematic literature reviews, meta-analyses, or network meta-analyses of these studies Non-systematic or narrative review Patient survey/interview, focus group <p>Exclusion:</p> <ul style="list-style-type: none"> Case series, case study

RESULTS (Cont'd)

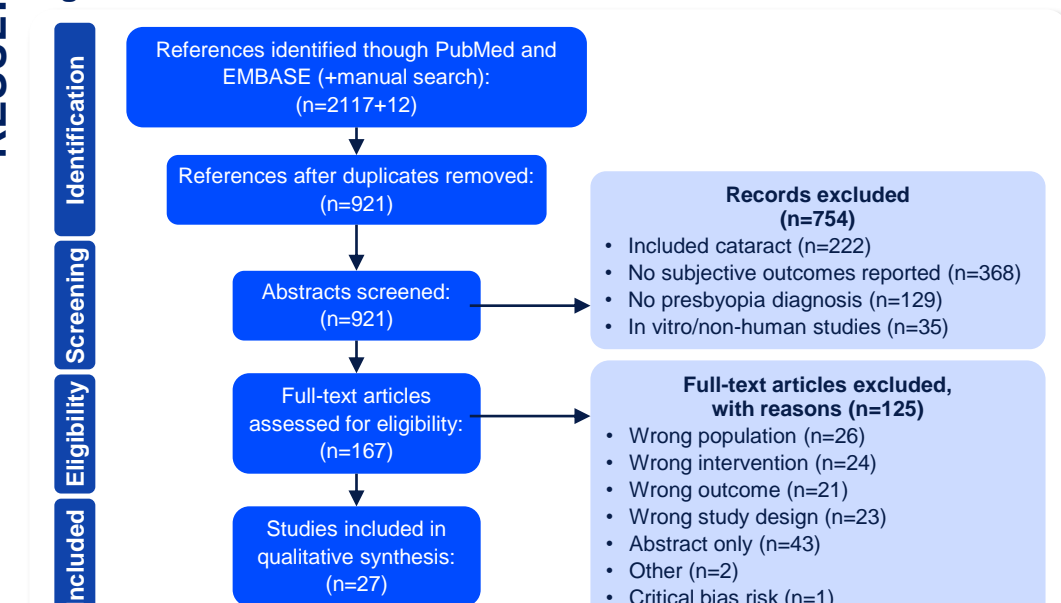
Table 2. Study Characteristics, Subset for Visual Ease*

Author, Year; Study Design	Region	Intervention Category	Inclusion/Exclusion	N (Patients)	Outcome(s)
Bakaraju et al. 2018 ⁸ ; Randomized CCT	Australia	• Contacts	• Incl: VA, near addition	43	• Limitations of Current Treatment Options
Chu et al. 2009 ⁷ ; Cross-sectional	Australia	• Spectacles • Contacts	• Incl: age, driver's license • Excl: cataracts, glaucoma, AMD	255	• Impact of Uncorrected Presbyopia • Limitations of Current Treatment Options
Diec et al. 2017 ⁸ ; CCT	Australia	• Contacts	• Incl: VA, near addition • Excl: ocular surgery, ocular conditions	55	• Limitations of Current Treatment Options
Du Toit et al. 2001 ⁹ ; Randomized CCT	Canada	• Contacts	• Incl: established presbyopes • Excl: ocular disease, general health conditions	150	• Limitations of Current Treatment Options
Erickson et al. 1990 ¹⁰ ; Systematic review	US	• Contacts	• Not applicable	N/A	• Limitations of Current Treatment Options
Fylan et al. 2005 ¹¹ ; Cross-sectional	UK	• Spectacles	• Incl: established presbyopes	158	• Limitations of Current Treatment Options • Psychosocial Burden of Spectacles
Fylan et al. 2005b ¹² ; Cross-sectional	UK	• Spectacles	• Incl: established presbyopes	158	• Limitations of Current Treatment Options • Psychosocial Burden of Spectacles
Goldberg et al. 2001 ¹³ ; Cross-sectional	US	• Surgery	• Incl: age, LASIK recipient • Excl: amblyopia, disabilities affecting walking, surgery, IOL implant	233	• Limitations of Current Treatment Options
Goldberg et al. 2003 ¹⁴ ; Cross-sectional	US	• Surgery	• Incl: age, LASIK recipient	388	• Limitations of Current Treatment Options
Idowu et al. 2016 ¹⁵ ; Cross-sectional	Nigeria	• Spectacles	• Incl: VA, near addition	488	• Limitations of Current Treatment Options • Psychosocial Burden of Spectacles
Kidd Man et al. 2016 ¹⁶ ; Cross-sectional	Singapore	• Spectacles	• Incl: VA, near addition	7890	• Impact of Uncorrected Presbyopia
Koduah et al. 2019 ¹⁷ ; Cross-sectional	Ghana	• Spectacles	• Incl: VA, near addition	136	• Impact of Uncorrected Presbyopia • Limitations of Current Treatment Options • Psychosocial Burden of Spectacles
Laviers et al. 2010 ¹⁸ ; Cross-sectional	Zanzibar	• Spectacles	• Incl: VA, near addition	381 (340 presbyopia)	• Impact of Uncorrected Presbyopia
McDonnell et al. 2003 ¹⁹ ; Prospective cohort	US	• Spectacles • Contacts • Surgery	• Incl: age, established presbyopes, VA, near addition • Excl: chronic ocular disease, diabetes, cognitive/neurologic impairment	637	• Limitations of Current Treatment Options • Psychosocial Burden of Spectacles
Patel et al. 2010 ²⁰ ; Prospective cohort	Tanzania	• Spectacles	• Incl: age, VA, near addition	866	• Impact of Uncorrected Presbyopia
Reddy et al. 2018 ²¹ ; RCT	India	• Spectacles	• Incl: VA, near addition • Excl: already have readers	751	• Impact of Uncorrected Presbyopia
Richdale et al. 2006 ²² ; Randomized CCT	US	• Spectacles • Contacts	• Incl: VA, near addition • Excl: ocular disease, prior experience	38	• Limitations of Current Treatment Options • Psychosocial Burden of Spectacles
Rueff et al. 2016 ²³ ; Cross-sectional	US	• Contacts	• Inclusion: age	496	• Limitations of Current Treatment Options
Sha et al. 2018a ²⁵ ; Randomized CCT	Australia	• Contacts	• Incl: age, VA, near addition • Excl: surgery, contraindication	Mild impairment: 20 Moderate & severe impairment: 22	• Limitations of Current Treatment Options
Sha et al. 2018b ²⁶ ; CCT	Australia	• Contacts	• Incl: VA, near addition, established wearers	57	• Limitations of Current Treatment Options
Uche et al. 2014 ²⁷ ; Cross-sectional	Nigeria	• Spectacles	• Incl: near addition, VA, refractive error • Excl: ocular/systemic conditions preventing safe wear, eye surgery, corneal surgery	85	• Limitations of Current Treatment Options
Woods et al. 2009 ²⁸ ; Randomized CCT	Canada	• Contacts	• Inclusion: age, visual acuity, near addition • Excl: VA (severe)	585 (371 presbyopia)	• Impact of Uncorrected Presbyopia • Limitations of Current Treatment Options
Woods et al. 2015 ²⁹ ; Randomized CCT	Canada	• Contacts	• Incl: age, near vision difficulties, no correction experience	25	• Limitations of Current Treatment Options
Wright et al. 1999 ³⁰ ; Retrospective cohort	US	• Surgery	• Incl: age, near addition, VA, good fit with lenses • Excl: systemic health/medication	50	• Limitations of Current Treatment Options
Wubben et al. 2014 ³¹ ; Prospective cohort	Philippines	• Spectacles	• Incl: 1D or more of anisometropia in intervention, 0.5D or less in control	Myope: 21 Emmetrope: 19	• Limitations of Current Treatment Options
Zeri et al. 2019 ³² ; Cross-sectional	Italy	• Contacts	• Incl: age, VA, near addition	142	• Impact of Uncorrected Presbyopia • Limitations of Current Treatment Options
			• Incl: presbyopic patients who attempted either successfully or unsuccessfully to use contacts	237	• Limitations of Current Treatment Options

Incl, inclusion; Excl, exclusion; VA, visual acuity; "add", addition; AMD, age-related macular degeneration; 1D, diopter; CCT, crossover clinical trial; LASIK, laser in situ keratomileusis; IOL, intraocular lenses

RESULTS

Figure 1. PRISMA Flowchart



Primary Objective: Burden of Living With and Managing Presbyopia From Patients' Perspective

- All 27 studies had outcomes that addressed the primary objective (Table 2)
- Our primary objective was further broken down into 2 categories: (1) Impact of Uncorrected Presbyopia, and (2) Limitations of Current Treatment Options

Impact of Uncorrected Presbyopia (n=8)

- Individuals with uncorrected presbyopia reported significant **impact to activities of daily life**:
 - Highest impact was reported on activities requiring sharp near-vision, such as reading and writing
 - Less impact was reported on intermediate- and distance-vision activities, such as watching television, reading street signs, recognizing people's faces, seeing stairs, and cooking
- Studies comparing subjective outcomes, with and without near-vision correction, reported significant improvement in overall patient experience and patient-reported outcomes when a form of presbyopia correction was used, such as higher satisfaction with near-vision, less role limitation, and less reliance on others for activities of daily living

Limitations of Current Treatment Options (n=23)

- Spectacles: frequently had **higher dependence ratings and lower expectations for visual outcomes**
 - Bifocal glasses had issues with change of focus
 - Progressive glasses had distorted peripheral vision
 - In underdeveloped communities, reasons for not having spectacles were driven by cost or prevention of **successful acquisition**, such as being lost or stolen
- Contact lenses: ocular symptoms such as **ghosting, dryness, discomfort, blurred vision, and glare** were frequently reported
 - Clarity of vision scores decreased at decreasing distances**; the issue of impacted near vision isn't sufficiently met
 - Overall nighttime vision was rated worse than daytime vision, with subjective driving scores significantly lower at night
- Surgery: ocular symptoms such as glares, haloes, and ghosting were frequently reported
 - Monovision LASIK patients reported still needing reading glasses occasionally

Secondary Objective: Psychosocial Burden of Spectacles

- Six studies nested within Limitations of Current Treatment Options had results that touched upon the psychosocial burden attributable to spectacles

Psychosocial Burden of Spectacles (n=6)

- Concerns about aesthetic appearance** was the most frequently reported psychosocial issue with spectacles (Figure 2)
- Other cited concerns included **worry about others' perception**, not wishing to change frames or lenses, and **feeling older**

Figure 2. Word Cloud.



INTRODUCTION

Background

- Presbyopia is a progressive condition that reduces the eye's ability to focus on near objects with increasing age
- It is highly prevalent, affecting an estimated 1.8 billion people worldwide¹
- The currently available treatment options include spectacles (reader, bifocal, progressive), contact lenses (monovision, multifocal), and surgery (laser refractive surgery, intraocular lenses, corneal inlay)

Objectives

- The primary objective was to summarize existing literature surrounding the burden of uncorrected presbyopia and limitations of current treatment options from the patients' perspective
- The secondary objective was to assess the psychosocial burden of spectacles, as reported by individuals with presbyopia, for near-vision correction

METHODS

Search Methods and Sources

- A systematic literature review of PubMed and Embase was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines²
- A hand search of reference lists of included relevant articles was also conducted

Eligibility Criteria, Study Selection, and Data Extraction

- Studies were selected according to the predetermined inclusion and exclusion criteria (Table 1)
- Study characteristics, interventions, and subjective outcomes were independently extracted from included studies (Figure 1)

Quality Appraisal Tools

- Cochrane Risk of Bias Tool for Randomized Controlled Trials³
- Newcastle Ottawa Scale for cohort⁴ and a modified version for cross-sectional studies⁵

DISCLOSURES

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