A Systematic Review of The Humanistic Burden Associated With Geographic Atrophy

PCR38

Aggarwal P[1], Mathur S[1], Goyal AA[1], **Gupta J**[1,2], Siddiqui MK[1,2]

[1]EBM Health, New Delhi, India; [2]EBM Health, West Yorkshire, UK

INTRODUCTION

- Geographic atrophy (GA) is an advanced form of dry age-related macular degeneration and may lead to vision loss
- Over 8 million people having age-related macular degeneration are affected worldwide with GA. The incidence of GA is expected to rise as the age-burden of developed countries is increasing
- The prevalence of GA increases with age, and it is more commonly seen in individuals over the age of 65
- There are currently limited treatment options for GA

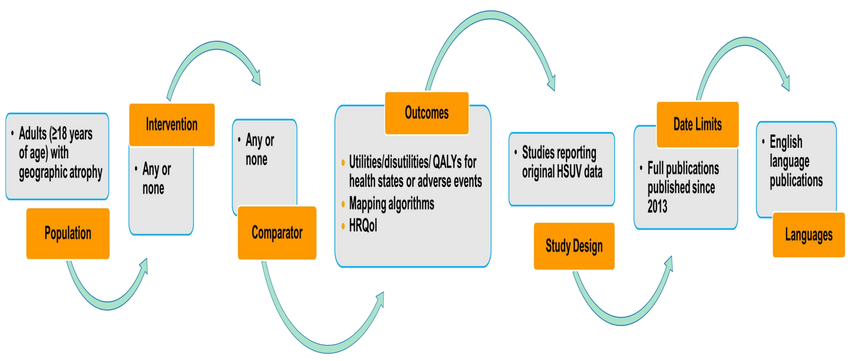
OBJECTIVE

- To provide a comprehensive analysis of the humanistic burden associated with GA

METHODS

- **Key eligibility criteria:** Studies published in English between 01/2013-06/2023 assessing health-related quality of life (HRQoL) of people with GA
- **Literature databases searched:** Embase® and MEDLINE
- **Study screening process:** Studies were assessed for inclusion/exclusion by two independent reviewers based on a pre-specified protocol (Figure 1). Any disagreement was resolved by a third reviewer
- **Data extraction:** Extracted from the relevant studies in a pre-designed template

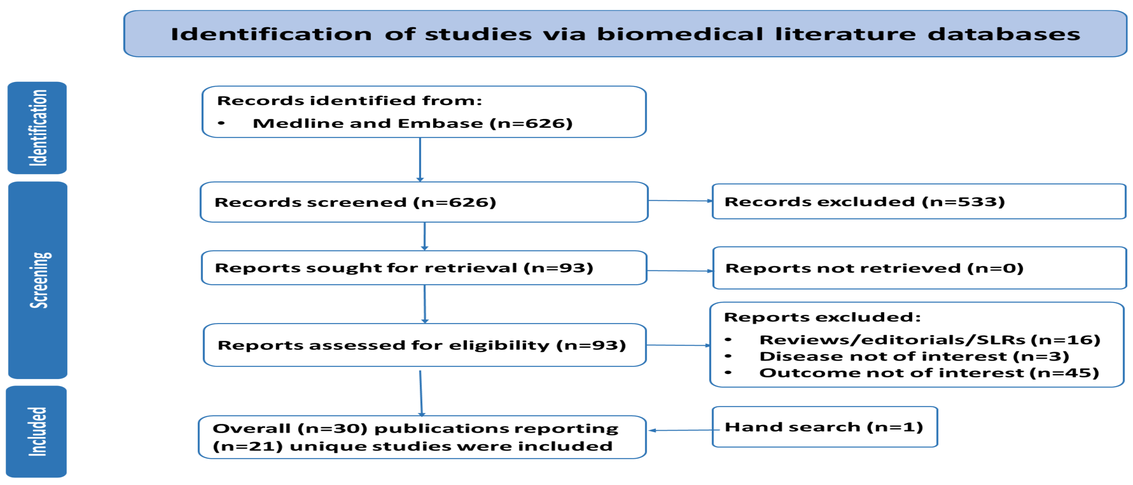
Figure 1: PICOS criteria



RESULTS

- Figure 2 presents a detailed PRISMA diagram depicting inclusion of 21 unique studies (from 30 included publications), out of 626 articles that were screened

Figure 2: PRISMA diagram

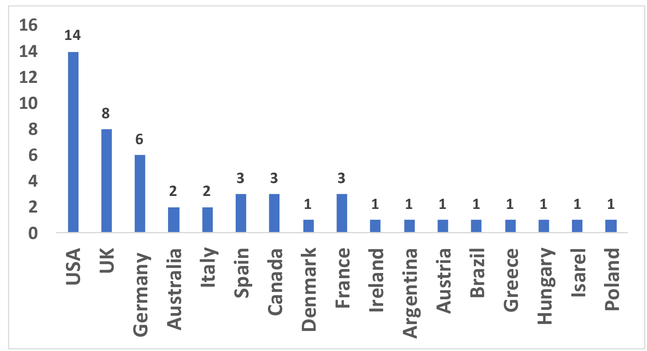


- Majority of studies were primarily conducted in the USA (64%) and the UK (36%) (Figure 3) with a noteworthy proportion of these studies (73%) being observational studies (Figure 4)
- Key details of the included studies and key symptoms and concepts assessed are presented in Table 1
- Seven different disease-specific scales were employed for measuring HRQoL across these studies, of which, the National Eye Institute Visual Function Questionnaire (NEI-VFQ) scale was the most frequently used (59%; Figure 5)

Table 1: Key study details

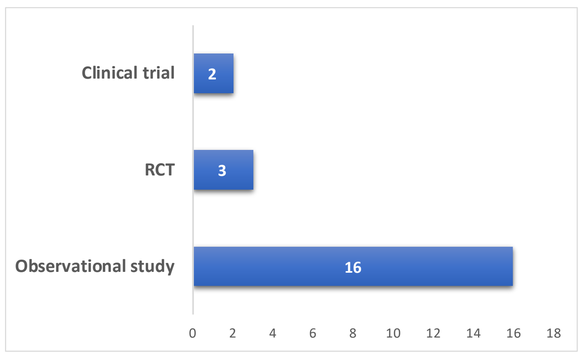
Study attribute	Details
Sample size	8-259
Mean age, years	64-82
Key symptoms and concepts assessed	Near activities, distance activities, general vision, near vision, dependency, mental health, social functioning, reading speed, functional reading independence, anxiety/depression, fear, difficulty driving, and impaired ability to recognise faces

Figure 3: Study country



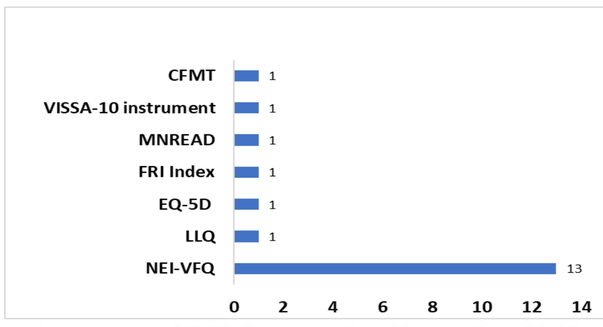
Note: Each country in multinational studies are considered individually.

Figure 4: Study design



Abbreviations: RCT, randomised controlled trial.

Figure 5: Type of HRQoL scales



Abbreviations: CFMT, Cambridge Face Memory Test; EQ-5D, EuroQol-5D Instrument; FRI, Functional Reading Independence; MNREAD, Minnesota low-vision reading; NEI-VFQ, National Eye Institute Visual Function Questionnaire; LLQ, Low luminance questionnaire; VISSA-10, Visual Impairment Symptom Severity Assessment 10-item.

- Table 2 provides key assessments of the scales used in the studies

Table 2: Key assessments of different scales

Scales	Primary evaluations
NEI-VFQ	Patients diagnosed with GA exhibit a diminished HRQOL-related to their vision, with visual acuity demonstrating a slightly stronger correlation to HRQOL compared to the size of the atrophic lesions.
FRI Scale	During a follow-up period of more than 18 months, patients with GA experienced a decline in average reading speed from 105 words per minute at baseline to 82 wpm. The objectively measured reading speed showed a strong correlation with patient-reported functional reading independence.
MNREAD	The size of GA lesions at baseline and the extent of lesion growth were linked to a gradual decrease in maximum reading speed as time progressed.
LLQ	Compared to the healthy aging group, patients with GA demonstrated significantly lower subscale scores in extreme lighting ($p = 0.0017$), emotional distress ($p = 0.0034$), and the overall LLQ composite score ($p = 0.0038$).
CFMT	On average, patients with GA had a reduced ability to identify faces, with an average accuracy rate of 61%. Among individuals with GA, those with larger GA lesion areas and foveal involvement performed more poorly on the CFMT compared to those with smaller lesion areas and foveal sparing.
VISSA-10 instrument	In general, GA patients reported seven noticeable symptoms, including difficulties with light adaptation, blurred vision, sensitivity to bright light, impaired color vision, progressive visual loss, limited visual field, and reduced contrast vision.
EQ-5D index	There was no significant correlation observed between the EQ-5D index score and response time or the total number of correct responses across all tasks.

Abbreviations: CFMT, Cambridge Face Memory Test; EQ-5D, EuroQol-5D Instrument; FRI, Functional Reading Independence; MNREAD, Minnesota low-vision reading; NEI-VFQ, National Eye Institute Visual Function Questionnaire; LLQ, Low luminance questionnaire; VISSA-10, Visual Impairment Symptom Severity Assessment 10-item.

- In two comparative studies, it was found that patients with GA had poorer vision-related functioning and lower HRQoL than patients without GA
- Patients in the GA group vs. non-GA group had:
  - significantly lower NEI-VFQ-25 composite scores ($p<0.001$)
  - significantly lower scores in NEI-VFQ-25 subscales related to near activities, distance activities, social functioning, and mental health ($p<0.001$)

CONCLUSION

- These findings underscore the significant impact of GA on patients' visual functioning and HRQoL providing a valuable foundation for further research and contributing to the understanding of the humanistic burden associated with GA

FUNDING

None.