

# INPLASY

## Identification of risk factors for the progression of age-related macular degeneration: A systematic review and meta-analysis of cohort studies

INPLASY2024120036

doi: 10.37766/inplasy2024.12.0036

Received: 10 December 2024

Published: 10 December 2024

Tian, MQ; Zhang, BK.

### Corresponding author:

Baike Zhang

13838563688@126.com

### Author Affiliation:

PLA Joint Logistics Support Force  
No. 988 Hospital.

### ADMINISTRATIVE INFORMATION

**Support** - NA.

**Review Stage at time of this submission** - Completed but not published.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY2024120036

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 10 December 2024 and was last updated on 10 December 2024.

### INTRODUCTION

**Review question / Objective** This study aims to identify risk factors influencing AMD development through a meta-analytic approach.

**Condition being studied** Age-related macular degeneration (AMD) is a retinal degenerative disease primarily affecting the elderly population and is one of the leading causes of vision loss in older adults. Currently, there is a lack of research that comprehensively examines the risk factors on the progression of AMD.

### METHODS

**Search strategy** {"Macular Degeneration" [Mesh] AND ("Epidemiology" [Mesh] OR "Longitudinal Studies" [Mesh] OR "Cohort Studies" [Mesh]); {"age-related maculopathy" [All Fields] OR "age-related maculopathy" [All Fields] OR "age-related macular degeneration" [All Fields] OR "age-related

macular degeneration" [All Fields] OR "macular degeneration" [All Fields]) AND ("progression" [All Fields] OR "epidemiology" [All Fields] OR "risk factors" [All Fields])}.

**Participant or population** Participants did not have AMD at the start of the study.

**Intervention** The number of reported specific risk factors for AMD  $\geq 2$ .

**Comparator** NA.

**Study designs to be included** The study must use a cohort study design.

**Eligibility criteria** Studies were included in the analysis if they met the following criteria: (1) The study must use a cohort study design; (2) Participants did not have AMD at the start of the study; (3) The number of reported specific risk factors for AMD  $\geq 2$ ; and (4) The study reported adjusted effect sizes (risk ratios [RR], hazard ratios

---

[HR], or odds ratios [OR]) with 95% confidence intervals (CI). When the same population was reported in multiple studies, we selected the study with the most comprehensive participant data.

**Information sources** We searched electronic databases, including PubMed, EmBase, and the Cochrane Library, for articles published up to November 2024.

**Main outcome(s)** The study reported adjusted effect sizes (risk ratios [RR], hazard ratios [HR], or odds ratios [OR]) with 95% confidence intervals (CI).

**Data management** The collected data included the first author's name, publication year, geographic location, study name, study period, sample size, age, proportion of male participants, AMD definition criteria, follow-up duration, adjusted factors, and effect estimates with their 95%CI.

**Quality assessment / Risk of bias analysis** The Newcastle-Ottawa Scale (NOS) is a comprehensive tool that has been used in meta-analyses to assess the quality of observational studies.

**Strategy of data synthesis** We assessed the risk factors for the occurrence and development of AMD based on the effect estimates (such as OR, RR, or HR) and their 95%CIs reported in each study. When combining the effect sizes of these risk factors, we used a random-effects model to fully account for the heterogeneity among different studies.

**Subgroup analysis** For risk factors that included at least five studies, we conducted subgroup analyses based on AMD stage.

**Sensitivity analysis** Moreover, we conducted sensitivity analyses by sequentially excluding each study in the meta-analysis to verify the robustness of the results.

**Language restriction** No restriction.

**Country(ies) involved** China.

**Keywords** risk factors; age-related macular degeneration; systematic review; meta-analysis.

#### **Contributions of each author**

Author 1 - Moqi Tian.

Email: 15938706448@163.com

Author 2 - Baike Zhang.

Email: 13838563688@126.com