**PRISMA Checklist for systematic review**

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| **Section/topic** | **#** | **Checklist item** | **Reported on page #** |
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| **TITLE** |  |  | Page 1 |
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| Title | 1 | Challenges and barriers to early detection of primary open-angle glaucoma at the primary health care level | 1 |
| **ABSTRACT** |  |  | Page 1 |
| Structured summary | 2 | Primary open-angle glaucoma (POAG) is the most common type of glaucoma, accounting for over 86% of cases globally and second cause of irreversible blindness if left untreated. In alignment with the published protocol, systematic thematic searches were conducted across several databases, including PubMed, EMBASE, Scopus, and the Web of Science and MEDLINE platforms.The development and conduct of this scoping review were guided by the 2020 Joanna Briggs Institute (JBI) guidelines for conducting scoping reviews, following the framework established by Arksey and O'Malley.A total of twenty-one resources were included in this review, with eight sourced from SSA (Sub-Saharan Africa). Of these studies, four focused specifically on screening for primary open-angle glaucoma (POAG), while the remaining studies concentrated on its diagnosis. There is a significant need for screening of POAG at the primary health care level, especially in sub-Saharan Africa. This will enhance the early detection of POAG, which in turn will prevent blindness. | 2 |
| **INTRODUCTION** |  |  | Page 1-2 |
| Rationale | 3 | The study revealed a lack of screening for primary open-angle glaucoma at the primary healthcare level, with screening or diagnosis available at higher levels. By the time patients reach the secondary healthcare level, the damage from the disease may be significant due to the presence of signs and symptoms. Screening is crucial for detecting conditions at an early stage when no signs or symptoms are apparent. | 19 |
| Objectives |  | The objectives for this study are to critically appraise the evidence on Primary open-angle glaucoma screening, clearly outline barriers to early detection of primary open-angle glaucoma, explore evidence on POAG screening at the primary health care level, and intervention on POAG diagnosis beyond the primary health care level | Page 4 |
| **METHODS** |  |  |  |
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| Protocol and registration | 5 | Before the study commenced, the review protocol was registered on the Open Science Framework at <http://osf.io/k958p>, and was published in the F1000Research Journal - <https://doi.org/10.12688/f1000research.158131.1> | 4 |
| Eligibility criteria | 6 | Two independent reviewers, PNM and ZM, conducted a multi-step study selection process in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis extension for scoping reviews (PRISMA-ScR) to minimise bias and errors. The study selection process consisted of three screening stages:  Title screening, Abstract screening, Full text screening, and data extraction. All studies that reported the prevalence, screening, and diagnosis of POAG at any level of health care were included for data extraction, while studies focusing on other types of glaucoma were excluded. | 6-7 |
| Information sources | 7 | A variety of databases, including PubMed, Web of Science, Science Direct, Scopus, and EBSCOhost, were systematically searched for peer-reviewed articles published in English between the date of inception and May 2024. Under the EBSCOhost platform, the following databases were explored: Academic Search Complete, Health Source: Consumer Edition, Health Source: Nursing/Academic Edition, and Open Dissertation. To find relevant articles, the searches employed both free-text and controlled vocabulary phrases (like MeSH). | 8 |
| Search | 8 | Primary studies addressing the main review question were identified through a thorough search strategy developed by the subject specialist and the first author, which included scoping and repeatable searches of reliable bibliographic databases, indexing services, and platforms, as well as supplementary information sources. Before it was tested on a selection of records from the PubMed database, the draft was reviewed by all authors to ensure that the indexing terminology and Medical Subject Headings (MeSH) descriptors were used correctly. | 8 |
| Study selection | 9 | All studies that reported the prevalence, screening, and diagnosis of POAG at any level of health care were included for data extraction, while studies focusing on other types of glaucoma were excluded | 8 |
| Data collection process | 10 | Data was collected using title screening, Abstract screening, and full-text screening. After conducting a full-text screening of the articles, two independent reviewers, PNM and ZM, extracted data from all the included resources using a data extraction tool designed with Google Forms. From Google Forms data was moved to an excel spreadsheet. | 7 |
| Data items | 11 | Data collected in electronic searches Pubmed and EBSCOhost | 6, 7 |
| Risk of bias in individual studies | 12 | N/A |  |
| Summary measures | 13 | There is a significant need for screening of POAG at the primary health care level, especially in sub-Saharan Africa. This will enhance the early detection of POAG, which in turn will prevent blindness. | 21 |
| Synthesis of results | 14 | Screening tools were used in collecting data and data extracted | 7 |

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| Risk of bias across studies | 15 | N/A |  |
| Additional analyses | 16 | N/A |  |
| **RESULTS** |  |  |  |
| Study selection | 17 | The electronic search strategy identified a total of 393,728 articles. Out of these, 393,555 resources were excluded during the title screening because their titles were not relevant to this review. This left 173 resources, which were exported to EndNote. Of these, 86 resources were excluded due to duplicate removal or matching. During the abstract screening, 52 more resources were excluded, and an additional 17 resources were excluded during the full-text screening. The reasons for these exclusions are as follows-articles not on POAG, review articles, no evidence of screening or diagnosis. As a result, a total of 18 resources met the eligibility criteria and were included in this review, along with an additional three resources obtained during the supplementary search. | 8 |
| +Study characteristics | 18 | The electronic search strategy identified a total of 393,728 articles. Out of these, 393,555 resources were excluded during the title screening because their titles were not relevant to this review. This left 173 resources, which were exported to EndNote. Of these, 86 resources were excluded due to duplicate removal or matching. During the abstract screening, 52 more resources were excluded, and an additional 17 resources were excluded during the full-text screening | 7 |
| Risk of bias within studies | 19 | N/A |  |
| Results of individual studies | 20 | N/A |  |
| Synthesis of results | 21 | N/A |  |
| Risk of bias across studies | 22 | N/A |  |
| Additional analysis | 23 | N/A |  |
| **DISCUSSION** |  |  |  |
|  |
| Summary of evidence | 24 | Primary open-angle glaucoma (POAG) is a significant global health concern and is one of the leading causes of irreversible blindness. Despite this, it has not been  recommended for inclusion as a priority disease in the first phase of Vision 2020 in Africa. This is because of the uncertainties that have existed concerning the evidence for case detection and for the most appropriate management in this setting. | 15-17 |
| Limitations | 25 | Fewer articles on POAG screening |  |
| Conclusions | 26 | There is a significant need for screening of POAG at the primary health care level, especially in sub-Saharan Africa. This will enhance the early detection of POAG, which in turn will prevent blindness. | 17 |
| **FUNDING** |  |  |  |
| Funding | 27 | NONE | 21 |

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