

Public Awareness about Ophthalmological Conditions in Saudi Arabia: A Systematic Review and Meta-analysis

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Introduction

- **Cataract, Glaucoma, age-related macular degeneration, and diabetic retinopathy (DR)** are one of the leading causes of visual impairment globally.
- Raising the **public awareness of ocular diseases** plays a significant role in the early diagnosis and treatment of such conditions.
- **285 million worldwide people affected by visual impairments, 36 millions of whom are blind.**



Introduction

- It is **crucial** to **identify** the aspects of each disease where the **public level of knowledge** is limited.
- **Many questionnaire based cross-sectional studies** have been conducted in different regions of Saudi Arabia.
- These studies showed **various** level of **public awareness** about these ophthalmological conditions.



Aim



To identify the public awareness about the common ophthalmological conditions in Saudi Arabia.



Methods

👁 Type of study: systematic review and meta-analysis

👁 Eligibility criteria :

Population	General public adult individuals in Saudi Arabia.
Intervention	Survey measuring the awareness and attitude of the common ophthalmological conditions.
Comparison	None.
Outcomes	Public awareness about: <ul style="list-style-type: none">- general knowledge- causes/risk factors- signs/symptoms- disabilities/consequences- relieving/management
Included studies	Questionnaire-based cross-sectional studies.

Table 1: inclusion criteria



Methods

👁️ This study was carried out following a pre-specified protocol and conformed with (PRISMA) checklist.

PROSPERO ID: CRD42022345228

👁️ **Information sources and search strategy:**

- Databases searched: Medline, Embase, and CENTRAL.
- Manual search: citations.
- Last search was on **27 June 2022**.



Methods

- ④ The processes of study selection and data extraction have been carried out **individually and in-pairs** by authors.
- ④ Any disagreements were settled by discussion until consensus was reached between the two authors or by consulting a third author.
- ④ **Quality assessment:** Appraisal tool for Cross-Sectional Studies (AXIS).
- ④ **Publication bias assessment:** Funnel plot assessment.



Methods

👁 Data Analysis:

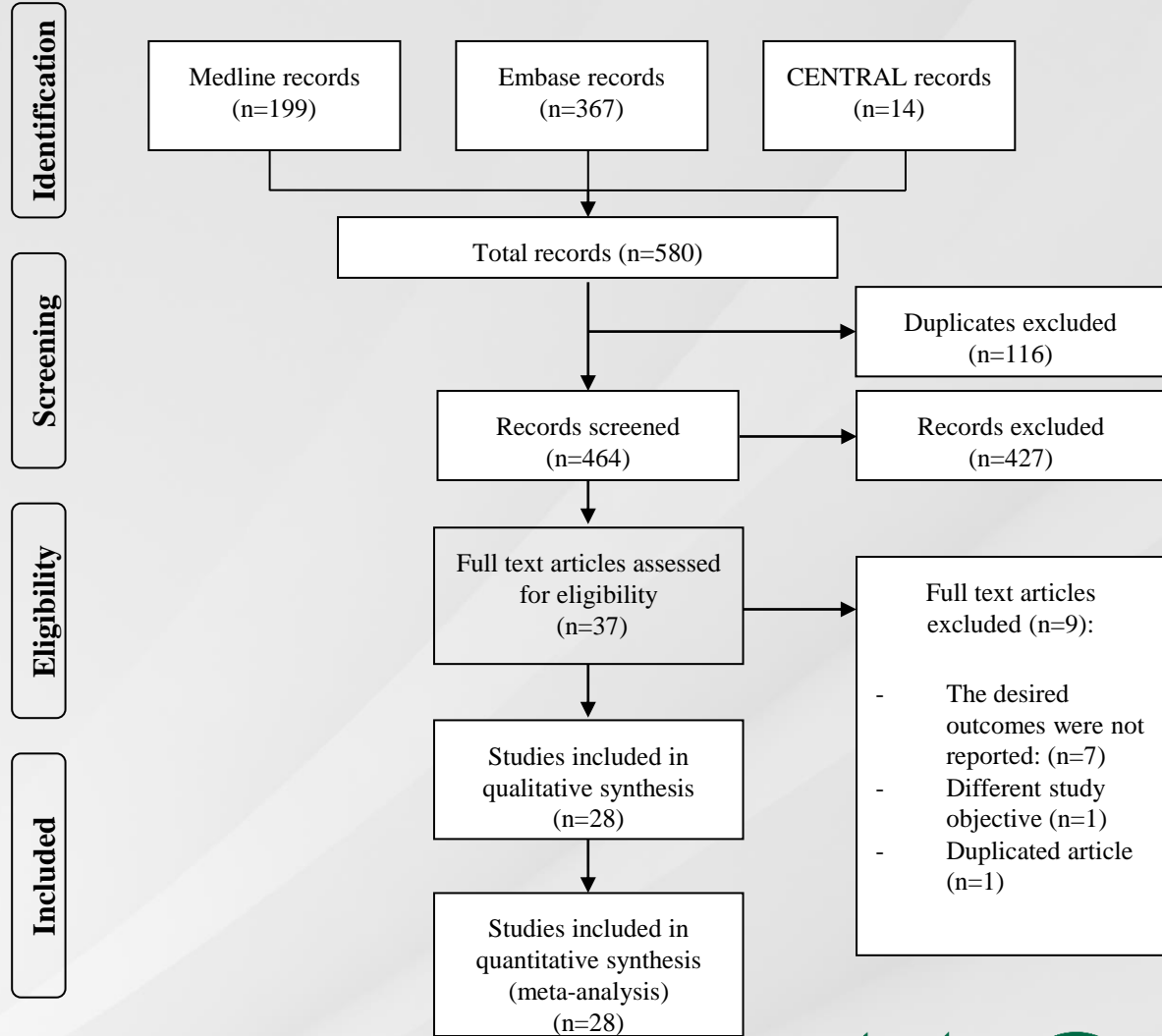
- Meta-analysis: Random-effects model.
- Heterogeneity: I^2 and P-value of Chi^2 test for heterogeneity.
- Significance level: 95% with a P-value < 0.05 threshold.
- Subgroup analysis: Based on geographical region in Saudi Arabia.



Results

👁️ Study Characteristics:

- Number of studies: **28 studies**.
- Total number of participants: **14,408 participants**.
- Number of questions: **72 questions** were reported in ≥ 2 studies and were included in the meta-analysis:
 - * Glaucoma (**21 Qs**)
 - * Cataract (**26 Qs**)
 - * Diabetic Retinopathy (**25 Qs**)
- **Only One** study was found related to Age-related macular degeneration!



Results

👁️ Quality assessment:

- Axis score 9/20= 2 studies
- Axis score 10/20= 1 study
- Axis score 11/20= 2 studies
- Axis score 12/20= 6 studies
- Axis score 13/20= 3 studies
- Axis score 14/20= 6 studies
- Axis score 15/20= 8 studies

The higher the better

👁️ Publication Bias:

Funnel plot:

Upon visual inspection: **Symmetrical.**



Results

👁️ Meta-analysis: Overall results

Question	Point estimate	95% CI		I ²	Pooled sample
		Lower limit	Upper limit		
Heard of/read about glaucoma	57.62%	55.93%	59.30%	98.87%	4261
Glaucoma is high pressure of the eye/increased intraocular pressure	33.95%	32.30%	35.64%	97.75%	3267
Heard of/read about cataract	69.90%	67.51%	72.19%	99.27%	3477
Cataract is white membrane of normally clear lens	29.72%	27.74%	31.78%	1%	2350
Heard of/read about diabetic retinopathy	68.65%	65.94%	71.23%	98.32%	4915
Should persons with diabetes go for regular eye examinations?	70.14%	68.80%	71.44%	97.76%	5267



Discussion

👁️ Glaucoma:

- **Saudis** demonstrated better **general knowledge** and specific knowledge of both **risk factors** and **consequences** of glaucoma than **Ethiopians, Iranians, Jordanians, and Indians**, but less than **United States (general knowledge only)**.
- **Saudis** know less about **asymptomatic glaucoma** than **Indians**, but more than **Iranians**.
- **Saudis** know less about **the curability of glaucoma** than **Jordanians**, but more than **Indians and Iranians**.



Discussion

👁️ Cataract:

- **Saudis** demonstrated less **general knowledge** and specific knowledge of **curability** of cataract than **Iranians**, but more than **Jordanians and United States (general knowledge only)**.

- **Saudis** has more knowledge about both **risk factors** and **consequences** of cataract than **Jordanians and Iranians (knowledge of consequences only)**.



Discussion

👁 Diabetic Retinopathy:

- **Saudis** demonstrated less **general knowledge** of diabetic retinopathy than **Syrians, Iranians, and Indians**, but more than **United States and Jordanians**.
- **Saudis** has more knowledge about **risk factors** of diabetic retinopathy than **Indians and Jordanians**.
- **Saudis** know more about both **consequences** and **curability** of diabetic retinopathy than **Iranians, Syrians (knowledge of consequences only)**, **Indians**, and **Jordanians**.



Discussion

👁 Strengths:

- First systematic review.
- Large number of studies.

👁 Limitations:

- Some geographical regions were not reported in this review.
- Modest quality of the included studies.



Conclusion

👁 Implications on practice:

- Signifies health education programs aimed to raise Saudi public awareness about the addressed glaucoma, cataract, and DR.
- Shed the light on areas of suboptimal awareness that are recommended to be targeted in future awareness endeavors.

👁 Implications on future research:

- More primary data to be collected especially in some geographical regions of Saudi Arabia that were not reported sufficiently.



Full Text & References



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