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Research Article

PREVALENCE AND PROSPECTION OF THE GENERAL POPULATION ABOUT ERRORS OF REFRACTION CORRECTION SURGERY IN TABUK, SAUDI ARABIA

Nagah Mohamed Aboelfetoh¹, Razan Kamel A Albalawi², Afnan Mohammed H Almutairi²,
Wesam Kamel Alanazi²

¹Prof. of Community Medicine, Northern Border University, Arar, Saudi Arabia and Sohag University, Egypt

²Medical Student, Faculty of Medicine, University of Tabuk, Saudi Arabia

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Abstract:

Background: Refractive errors can be corrected safely, effectively, reliably, and with only rare complications by the methods of refractive surgery. Awareness about refractive error and other eye problems and their treatment can play an important role in the prevention of blindness from common eye disorders

Aim: To show the awareness of the public and prevalence of practice of errors of refraction correction surgery in Tabuk, Saudi Arabia.

Method: This is a systematic review was carried out, including PubMed, Google Scholar, and EBSCO that examining previous studies regarding prevalence and prospection of the general population about errors of refraction s in Saudi Arabia. Authors extracted the data, and then the author's names, year and region of publication, the study type, period of study, and the result were reported.

Results and Conclusion: The review included 10 studies concluding that; different level of awareness regarding types of refractive errors and correction surgeries were reported in different geographical regions in the kingdoms. Also, prevalence of refractive errors among different age groups in Saudi Arabia are within international reported figures.

Corresponding author:

Razan Kamel A Albalawi *,
Medical Student, Faculty of Medicine,
University of Tabuk, Saudi Arabia

QR code



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INTRODUCTION:

Visual impairment due to uncorrected refractive error affects 200 - 250 million people in the world. Uncorrected vision represents the 2(nd) or the 3(rd) blinding condition in many developing countries [1]. It has been reported that visual impairment is associated with socioeconomic losses for society, and causes difficulties in physical function, emotional

distress, low socialization, and overall decrease in quality of life for the affected person [2].

Refractive errors can be corrected safely, effectively, reliably, and with only rare complications by the methods of refractive surgery. Two currently

established surgical methods for the correction of refractive error are refractive corneal surgery and

refractive lens surgery [3]. Excimer laser techniques and incisional procedures are used in refractive corneal surgery; phakic intraocular lenses (PIOL) and refractive lens exchange (RLE) are used in lens surgery [3].

Even supposing the awareness about refractive surgery is high among the students the preference and readiness to experience refractive surgery among undergraduate medical scholars was less due to the terror of complication and the price of the process [4].

There are several factors that can influence the lack of correction of RE among children. These factors include unawareness of the problem by the child, the family, the community, or the public health authority; inability to afford refractive services; inadequate provision of affordable corrective lenses; and poor compliance to wearing spectacles [5]. Awareness about refractive error and other eye problems and their treatment can play an important role in the prevention of blindness from common eye disorders [6].

Aim of the Study:

To show the awareness of the public and prevalence of practice of errors of refraction correction surgery in Tabuk, Saudi Arabia.

METHODOLOGY:

Databases of scientific publications and relevant websites were searched for papers published from January 2010 to February 2021. Only English-language references and human studies were included in the review. PubMed and EBSCO Information Services were chosen as the search databases for the publications used within the study, as they are high-quality sources. The founded articles were screened by titles, and reviewing the abstracts. The reference lists from papers selected in the literature search were used to identify earlier publications, and recent publications up to February 2021 were also identified.

Statistical Analysis:

No software has been utilized to analyze the data. The data was extracted based on specific form that contain (Title of the publication, author's name, objective, summary, results, and outcomes). These data were reviewed by the group members to determine the initial findings, and the modalities of performing the surgical procedure. Double revision of each member's outcomes was applied to ensure the validity and minimize the mistakes.

RESULTS:

The search of the mentioned databases returned a total of 56 studies that were included for title screening. 42 of them were included for abstract screening, which lead to the exclusion of 12 articles. The remaining 30 publications full-texts were reviewed. The full-text revision lead to the exclusion of 20 studies, and 10 were enrolled for final data extraction (Table 1).

The included studies had different study designs.

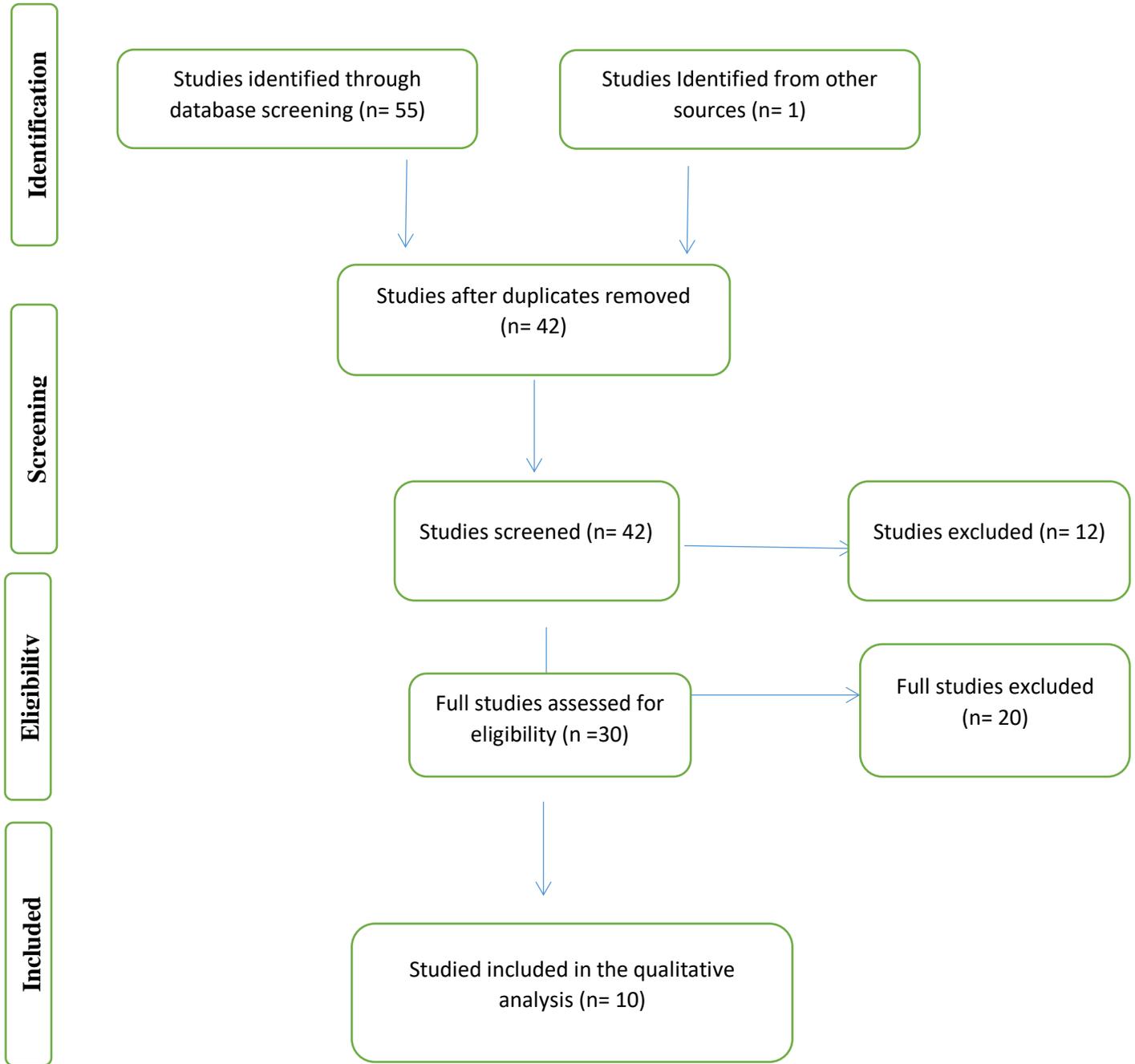


Table 1: Author, year of publication, study type, and study outcome:

Author	Study Region	Year	Study type	Sample size	Outcome	Ref
Zeried, F.M., et al.	Riyadh, Saudi Arabia	2019	Cross-sectional study	1165 participants	Reported that; 90% knew that the technique corrects refractive error and reduces dependency on spectacles/CLs, only five per cent had experienced refractive surgery.	7
Al-Rashidi SH, et al.	Qassim , Saudi Arabia	2018	cross sectional descriptive study	162 students	STD 1.661 and a range of 8(19-27) were included in the study and (3.70%) students gave a history of previous ocular surgery. Myopia was found to be the commonest error of refraction 53.7% with hyperopia next to it.	8
Althomali. Talal A.	Taif, Saudi Arabia	2018	A retrospective study	687 patients	Myopia represented greatest burden with more than 90% myopic eyes of the adult candidates seeking laser refractive correction in a private setting in Saudi Arabia, compared to hyperopia in nearly 5% eyes. Astigmatism was present in more than 78% eyes.	9
Aldebasi, Yousef.	Riyadh, Saudi Arabia	2011	Cross-sectional study	2500 participants	General public is not aware about most of the problems that concern their visual health. This is even more so in those with basic intellectual levels.	1
Alghamdi et al,	Western Region of Saudi Arabia	2019	Cross sectional study	2,600 participants,	0.7% of the participants had myopia and 49% were using either glasses or contact lens. The primary source of knowledge was family and friends in 68% of the participants. Majority of the participants (53%) had a high level of knowledge. Age, sex, city, education level were factors affecting the level of knowledge.	10
Almujalli AA, et al.	Marat city of Saudi Arabia	2020	Cross sectional study	100 male students	82% of students have heard about myopia with the majority source of information being parents (62%) and teachers (35%). 45% of the students reported a negative attitude toward the eye-glasses users. 20% of students have reported the use of eye-glasses.	11
Aljabri, D. et al.	Riyadh, Saudi Arabia	2020	A cross-sectional study	183 ophthalmologists	(39.89%) ophthalmologist who self-reported that they are emmetropic, 110 (60.11%) self-reported themselves as ametropic, (58%) reported that they currently are performing laser refractive surgery	12
Alsaif BA, et al.	Khobar, Saudi Arabia	2019	A cross-sectional study	338 participants	Myopia was found in 47.9% of the students. Hyperopia and emmetropia were found in 6.5% and 45.6% of the students, respectively. Refractive error type in both genders was not significantly predicted by the activity type.	13
Wareef Al-Lahim et al.	Tabuk, Saudi Arabia	2018	A cross-sectional study	397 participants	52% of the respondents had sufficient knowledge regarding common eye problems. The most frequent sources of information were the internet (46.7%), relatives (38.5%) and mass media (35.4%). The participant's knowledge ranged	14

					from 66.3% for the cataract to 36.3% for refractive errors. Only educational level and job were significantly associated with knowledge about refractive errors.	
Al-Amri A, et al.	Aseer, Saudi Arabia	2020	A descriptive cross-sectional study	638 participants	Public awareness in Aseer region regarding keratoconus was moderately poor with defect regarding treatment modalities and its consequences.	15

DISCUSSION:

Zeried, F.M., et al. [7] demonstrated a high level of general knowledge of refractive error correction methods. Only a few of the respondents (10 per cent) knew that refractive surgery can be performed to correct refractive errors and reduce or eliminate people's dependency on spectacles. The majority (88 per cent) were aware that CLs can be used instead of spectacles for correction of refractive error, and 45 per cent had a history of CL wear. The fear of allergy, dryness, infection and inflammation with CL use hindered 62 per cent of people from taking up CLs for refractive error correction. Fifty-four respondents (5.1 per cent) had a history of refractive surgery. Similar to previous studies, physical appearance and other people's perceptions of spectacles were the main hindrances to their uptake. Low uptake of spectacles, even among those who need them, as well as poor quality of refractive services [16- 18]. In a previous study, respondents showed very poor knowledge of CL use for vision correction with a staggering 80.3 per cent unaware [19]. This was similar to a previous report from a study conducted among students in Riyadh (38.7 per cent) [20] but much lower than another report among students in Mecca (69 per cent) [21]. Alghamdi et al, [10] reported moderate level of knowledge in post-graduates in Saudi Arabia.

A study from Riyadh, KSA, showed that 55.5% of the participants had some form of refractive errors and myopia was the most common type (53.3%), followed by hyperopia (2.2%) and then astigmatism (15%) [22]. In a previous Saudi study [23], it was reported that refractive errors were prevalent among 45.8% of adults in Arar city; the most common types were myopia (24.4%), hyperopia (11.9%), and astigmatism (9.5%). The pattern of refractive errors varies according to population characteristics such as, age, gender, race and ethnicity [9]. Ghaderi et al.,[24] Also mention in their study about rising incidence of errors of refraction in younger age children. It is now well

reported that myopia is the most common error of refraction worldwide and it continues on the rise. A Nigerian study among school children reported prevalence of refractive error 30.74% [25] as seen in a study conducted in Western Saudi Arabia among 3-10 years old children which reported a prevalence of 34.9% of uncorrected refractive error among this population [5]. Also, this prevalence is comparable to what was reported in Imphal, Manipur India, where the prevalence of 29.14% refractive error among school children was also reported [26]. A previous study conducted in Al Bisha region shows no less than 11% of visual impairment cases, of which 68% were of refractive origin [27].

Among Saudi college students; medical students were studied specifically by Al-Rashidi SH, et al. [8] reported that myopia is the commonest error of refraction 53.7% with hyperopia next to it. These findings were supported by another study performed among medical students of Norway, where myopia was again reported to be higher [28]. This was supported by a previous study conducted in Singapore medical students, which showed the occurrence rate of the myopic condition more than 82% as compared to the frequency of other errors of refraction [29]. A study from India conducted on medical students showed that myopia was the most common refractive error (89.42%) [30].

Aljabri, D. et al. [12] studied Saudi ophthalmologists and reported that (58%) reported that they currently are performing laser refractive surgery. This result less than the previously reported (62.6%) by Kezirian and his colleagues [31]. This could be related to the cross-sectional nature of this study which included all ophthalmologists regardless of their specialty or subspecialty, and they are practicing laser refractive surgery or not. However, the previous study [32] enrolled laser refractive surgeons only, a group that would be more motivated to undergo the procedure given the nature of the specialty. A high proportion

(42.7 %) of participants who reported they had refractive errors considered themselves none-candidates for refractive surgery.

Conclusion:

Different level of awareness regarding types of refractive errors and correction surgeries were reported in different geographical regions in the kingdoms. Also, prevalence of refractive errors among different age groups in Saudi Arabia are within international reported figures. Ophthalmologists and practitioners should provide detailed information to patients and the community about refractive error conditions and the available correction options as well as the dire consequences of uncorrected refractive errors. Health education campaigns are needed to improve Saudi knowledge of refractive errors and methods of correction. knowledge of refractive errors and methods of correction.

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