Original Article

Eye Care Practices and Perceptions among Saudi Individuals: Gaps in Awareness and Service Utilization

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Khaled Helal Al-Mutairi[1], Waleed M. Al-Ghamdi[2], Saif Hassan Al-Rasheed[3], Mohammed Al-Saab[4]

[1]The Eye Consultants, Jedda, Saudi Arabia. [2,3]Department of Optometry, College of Applied Medical Sciences, Qassim University, Buraydah, Saudi Arabia,[4]Optometry, Qassim University Medical City, Buraydah, Saudi Arabia

ABSTRACT

Purpose: In Saudi Arabia, the demand for eye care is growing with population growth and high prevalence of diabetes, a major risk to eye disorders. The aim of the present study was to evaluate the perspectives and practices of Saudi individuals regarding visual examinations and the role of optometrists, identifying potential gaps in eye care utilization.

Study Design: A descriptive cross-sectional study.

Place and Duration of Study: Qassim University, Saudi Arabia in August 2024.

Methods: The survey covered demographics, visual correction use, eye exam frequency and preferences, intraocular pressure (IOP) awareness, diabetes status, fundus exam history, and attitudes toward fundus devices in optometric centres. Data were analysed using descriptive and inferential statistics.

Results: A total of 423 participants completed the study, with a mean age of 27.64±17.89 years; 51.3% were female. Over half (52.7%) used glasses or contacts, and 51.5% preferred optometric centres for eye examinations. While 51.1% underwent eye examinations every 1-2 years, 38.1% had them less frequently or never. Awareness of IOP measurement was reported by 51.5%, and among diabetics (22%), only 40.9% had fundus exams. Most (78.5%) believed that the availability of fundus devices in optometric centres improved adherence to regular eye examinations.

Conclusion: Significant gaps exist in eye care practices and awareness among Saudi individuals, particularly in regular eye examination adherence and diabetic eye care. Enhancing public awareness and improving access to diagnostic services in optometric centres will improve eye health outcomes in the population.

Keywords: Optometric Centre, Eye Care, Public Health, Quality of Life, Saudi Arabia.

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Correspondence: Saif Hassan Al-Rasheed
Qassim University, Buraydah, Saudi Arabia
Email: s.rasheed@qu.edu.sa

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INTRODUCTION

Optometrists play a vital role in primary eye care, specializing in the early detection and management of visual and ocular health disorders.[1] In Saudi Arabia, the demand for comprehensive eye care services is increasing due to a growing population and a high prevalence of conditions such as diabetes mellitus, which significantly impact ocular health.[2] The prevalence of avoidable visual impairments is notably high, with conditions like glaucoma and diabetic retinopathy being considered the leading causes of vision impairment in the region.[3] For example, a study found that diabetic retinopathy affects approximately 31%[3] of individuals with diabetes in Saudi Arabia,

while glaucoma has an estimated prevalence of 3.8% in the adult population.[4]

Despite the critical role of optometrists, their integration within the Saudi healthcare system, especially in optometric centre, remains inconsistent. Many patients may not fully understand the scope of services that optometrists provide, particularly in optometric centre, which are often perceived merely as venues for purchasing eyewear rather than comprehensive eye care centres.[5] This misconception can lead to underutilization of optometric services, delayed diagnosis of ocular conditions, and increased risk of vision loss.

Regular eye examinations are crucial for maintaining ocular health and preventing visual impairment. Optometrists are often the first to identify refractive errors, ocular diseases, and systemic conditions that present with ocular manifestations.[6,7] However, awareness and adherence to recommended eye examination schedules among the Saudi population are suboptimal. For example, regular measurement of intraocular pressure (IOP) is vital for the early detection of glaucoma, yet many patients are unaware of its importance.[8] Additionally, diabetic patients require regular fundus examinations to detect diabetic retinopathy at an early stage, but adherence to these recommendations is often low, with studies indicating that approximately 50% of diabetic subjects get regular eye checks.[8] Cultural factors and limited public awareness contribute to these challenges. In Saudi Arabia, there may be misconceptions about the roles of different eye care professionals, and obstacles to access healthcare such as geographic distribution of services affecting utilization.[9] Furthermore, the prevention of blindness is limited by insufficient access to primary eye care services, particularly in countryside.[10]

Optometrists in optical retail settings can bridge eye care gaps by providing essential services and early diagnosis of ocular disorders, thus reducing visual impairments among the community.[11,12] Understanding patient perspectives is crucial to identify barriers and improve eye health delivery. Therefore, the present study aims to assess eye examination practices among patients visiting optometric centres in Saudi Arabia, evaluate their awareness of optometric services, identify eye care preferences, and recognise barriers to utilizing eye care services. By addressing these aspects, the study seeks to reveal gaps and enhance eye health services in the region.

METHODS

The present study was descriptive cross-sectional, including 423 participants. The study was conducted in Saudi Arabia over four weeks in August 2024. Data was gathered using a self-managed survey distributed across public places, workplaces, social media platforms, and optometry clinics. The aim was to gather the Saudi population's perspectives on visual examinations and the role of optometrists in primary eye care. Participants completed the survey after providing informed consent.

This study received ethical approval from Qassim University **(Ref: Qassim University**: **24-89-08)** and was conducted in accordance with the guidelines of the Declaration of Helsinki. Informed consent was obtained from all participants who took part voluntarily and had the option to withdraw at any time without providing a reason.The sample of the participants included in the present study was calculated using the single inhabitant's proportion formula:

$$\mathbf{N= \frac{Z^2 \times (P) \times (1-P)}{C^2}}$$

Using a 95% confidence level, a Z-statistic of 1.96, an assumed proportional outcome of 50%, and a maximum acceptable sampling error of 4.8%, the calculated sample size was 417. Accounting for a 10% non-participation rate, the final estimated sample size was 459 participants.

Data were gathered using an online Arabic questionnaire developed based on a comprehensive literature review and feedback from faculty members in the Department of Optometry at Qassim University. The questionnaire was reviewed by eye care professionals and pilot-tested with 30 participants, who were excluded from the final study sample. The survey consisted of closed-ended questions aimed for collecting information on various aspects of visual health and preferences related to eye examinations.The survey included a section to capture participants' socio-demographic characteristics and background information, including the use of spectacles or contact lenses, time elapsed since the last eye examination, awareness of IOP measurement, diabetes status, history of fundus examinations, and the influence of fundus examination devices on the likelihood of undergoing routine eye examinations.

Statistical analysis was conducted using IBM SPSS Statistics, Version 25.0 (IBM Corp., Armonk,

NY, USA). Prior to analysis, the data were thoroughly reviewed for entry errors and missing values. Internal reliability of the questionnaire was assessed using Cronbach's alpha coefficient, while bivariate analysis was performed to examine its internal validity. Descriptive statistics, including frequencies, proportions, means, and standard deviations, were calculated. A significance level of $P<0.05$ was established to determine statistical significance.

RESULTS

Out of the 459 subjects invited to take part in this study, 36 incomplete questionnaires were excluded, resulting in 423 completed questionnaires and a response rate of 92.8%. The sample consisted of 217 females (51.3%) and 206 males (48.7%), with ages ranging from 18 to 50 years. The mean age was 27.64 ± 17.89 years, with the age distribution skewed toward younger demographics: 56.0% were aged 18–30 years, 23.6% were aged 31–45 years, and 20.3% were over 45 years old. In this study, the questionnaire demonstrated good internal reliability and consistency, achieving a Cronbach's α coefficient of 0.724. Furthermore, the questionnaire's content validity was evaluated by expert groups in Optometry, Ophthalmology, and other health professions. Construct validity was assessed using bivariate analysis, which revealed strong correlations among the questions. The internal consistency of the questionnaire was found to be 0.5 or higher.

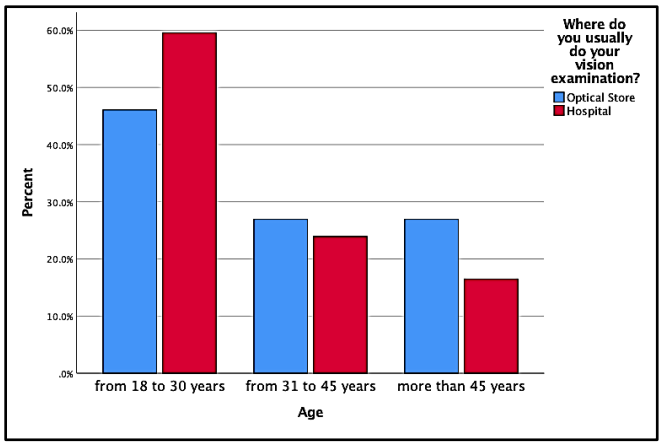

Figure 1: Preferred locations for eye examinations among different age groups.

Over half of the participants (52.7%) reported using some form of optical correction, primarily glasses or contact lenses, while 47.3% did not use any type of visual correction. Regarding preferred locations for eye examinations, 51.5% of participants favored optometric centers, while 48.5% preferred hospitals or medical centers, as presented in Figure 1.

The frequency of routine eye examinations varied among participants. A majority (51.1%) reported undergoing eye examinations every 1–2 years, with 32.4% having annual exams and 18.7% every two years. A smaller portion (10.9%) had eye examinations every six months, while 38.1% had them less frequently or not at all. Additionally, 51.5% of participants preferred optometric centers for their eye examinations, while 48.5% favored hospitals or medical centers, as shown in Figure 2.

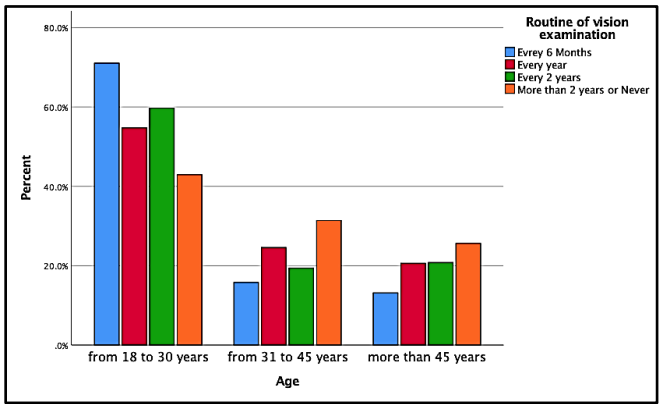

Figure 2: Frequency of routine eye examinations among different age groups.

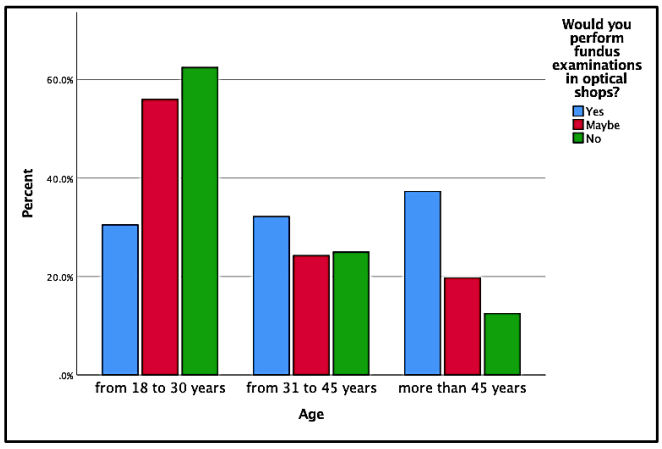

Figure 3: Bar chart illustrates the preference to perform fundus examinations in optical settings among different age groups.

Awareness of IOP measurement was relatively balanced among participants, with 51.5% being aware

of its importance, while 48.5% were not. Participants with diabetes made up 22.0% of the sample. Within this subgroup, 40.9% had undergone a fundus examination, while 59.1% had not, highlighting a gap in ocular health monitoring among diabetic individuals. Regarding the potential impact of making fundus examination devices available in optometric centers, the majority (78.5%) of participants believed this would improve adherence to regular eye examinations. Additionally, 14.9% agreed to some extent, and only 6.6% disagreed with this idea, as presented in Figure 3.

DISCUSSION

This study assesses the perspectives and practices of Saudi patients regarding visual examinations, offering valuable insights into their preferences, knowledge, and gaps in eye care utilization. The findings highlight key aspects of the current state of eye care in Saudi Arabia and underscore critical areas for improvement. The significant skew towards younger demographics, with nearly half of the participants aged 18–30, suggests a need for targeted awareness campaigns specifically aimed at this age group. A recent systematic review reported that younger individuals are less likely to seek routine eye care in the absence of symptoms, despite the importance of early detection for asymptomatic conditions such as glaucoma and diabetic retinopathy.[13] The current study findings revealed that over half (52.7%) of participants used optical correction, underscoring the importance of refractive error management as a core component of eye care services. However, only 51.1% of respondents adhered to the recommended eye examination frequency of every 1–2 years (Figure 2), mirroring global trends where routine eye care is often neglected, particularly in developing countries. This underscores the importance of enhancing education and awareness about the value of regular eye examinations.[14]

The study findings revealed equal preference for optometric centres (51.5%) and hospitals or medical centres (48.5%) for eye examinations, indicating that both settings play a significant role in providing accessible eye care (Figure 1). However, studies[15,16] from other regions have shown that optometric centres may lack the comprehensive diagnostic capabilities compared to medical centres. In Saudi Arabia, where advanced optometry practices in private sectors are less widespread than in other countries, expanding diagnostic capabilities such as the inclusion of fundus cameras and tonometer in optometric centres may improve the scope of primary eye care services and facilitate early detection and intervention for conditions like diabetic retinopathy (DR) and glaucoma.

A particularly concerning finding is the low rate of fundus examinations among diabetic participants, with only 40.9% reporting they had undergone this essential procedure. Fundus examinations are critical for detecting diabetic retinopathy, major cause of vision loss in the Saudi population.[1] Similar trends have been observed in other studies, where diabetic patients often report low awareness and engagement in routine eye care.[9,17] Al-Rubeaan et al, reported that the occurrence of diabetic retinopathy in the Saudi community was high, but routine eye examination rates remained low, largely because of a lack of awareness.[18] Increasing awareness of annual eye examinations and the importance of fundus examinations through targeted educational campaigns is critical. Moreover, equipping optometric centres with fundus cameras and other diagnostic tools for measuring IOP would provide a more accessible option for patients, particularly those who prefer to visit optometric centres. Evidence from other countries has shown that optometrists, when provided with the necessary diagnostic tools, can effectively screen for diabetic retinopathy and other sight-threatening conditions.[16,19,20]

The present study findings highlighted the potential impact of making fundus examination devices available in optometric centres; most of the participants believed this would lead to improved adherence to regular eye examinations. However, some challenges have been observed globally, particularly in regions where the healthcare infrastructure is still developing.[21] Expanding the availability of fundus cameras in optometric centre could enhance adherence to regular eye checks, especially for patients with diabetes who might prefer the convenience of these settings. If optometrists in these locations are empowered with diagnostic tools such as fundus cameras, tonometer, and optical coherence tomography (OCT) devices, they can play a more active role in early detection and intervention of conditions like diabetic retinopathy and glaucoma, reducing the burden on ophthalmological services.[22] Collaborative care models between optometrists and ophthalmologists have shown success in other countries, particularly in reducing patient load on specialized services and improving patient care.[23,24]

While the present study provides valuable insights, it has some limitations that should be considered. The self-reported nature of the data may introduce bias, and the sample may not fully represent the diversity of the Saudi population. Future research could benefit from larger, more representative samples and the use of qualitative approaches to explore patient experiences and barriers to accessing eye care in greater depth.

CONCLUSION

The present study highlights both strengths and areas for improvement in the eye care system in Saudi Arabia. While awareness of the need for regular eye examinations is encouraging, significant gaps persist in areas such as IOP measurement and diabetic eye care. Addressing these gaps through targeted educational initiatives, expanding access to diagnostic tools in optometric centers, and enhancing the overall accessibility of comprehensive eye care services will be crucial for improving eye health outcomes in the Saudi population.

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Patient's Consent: Researchers followed the guidelines set forth in the Declaration of Helsinki.

Conflict of Interest: Authors declared no conflict of interest.

Ethical Approval: The study was approved by the Institutional review board/Ethical review board (**Ref: 24-89-08).**

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Authors Designation and Contribution

Khaled Helal Al-Mutairi; Senior Optometrist: *Concepts, Design, Data acquisition, Statistical analysis, Manuscript editing, Manuscript review.*

Waleed Al-Ghamdi; Associate Professor: *Concepts, Design, Literature search, Statistical analysis, Manuscript editing, Manuscript review.*

Saif Hassan Al-Rasheed; Associate Professor: *Design Data acquisition, Data analysis, Statistical analysis, Manuscript preparation, Manuscript review.*

Mohammed Al-Saab; Senior Optometrist: *Concepts, Literature search, Data acquisition, Data analysis, Manuscript preparation, Manuscript review.*