

The Perception of Spectacles Use Among the General Population in Ha'il Region, Saudi Arabia: A Cross-Sectional Study

Nawaf Osaywid Alrashidi¹, Wafy Abdulrahman Albrak¹, Shaker Osaywid Alreshidi²,
Lama Abdulrahman Alaradi³, Hatim Adam Nagi Adam³, Naif Mamdouh Alali⁴, Faris Hashem⁴,
Hani Basher Albalawi⁴, Ahmed Yousef Allothman⁵, Shaima Sulaiman Alharbi²

¹College of Medicine, University of Ha'il, Ha'il, Saudi Arabia; ²Department of Ophthalmology, College of Medicine, Majmaah University, Majmaah, Saudi Arabia; ³Department of Community Medicine, College of Medicine, University of Ha'il, Ha'il, Saudi Arabia; ⁴Division of Ophthalmology, Department of Surgery, Faculty of Medicine, University of Tabuk, Tabuk, Saudi Arabia; ⁵Ophthalmology Department, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia

Correspondence: Faris Hashem, Email fhashem@ut.edu.sa

Purpose: The study aims to assess the perception of optical spectacles use among the Ha'il region population in Saudi Arabia.

Patients and Methods: A cross-sectional survey was distributed via various social media applications to the residents of the Ha'il region. An online questionnaire was designed and included informed consent and questions assessing the participants' perceptions about wearing eyeglasses, contact lenses, and general eye health.

Results: 32.4% of the participants think that long-term eyeglasses wearing worsens vision, and 43% think eyeglasses wearing improves vision. 75.2% believe that long-term use of glasses could cause lifetime dependency on eyeglasses. Regarding contact lenses, 45.9% believe that long-term wearing worsens vision, and 24.1% think long-term wearing of contact lenses improves vision. 60% think long-term use of lenses causes lifetime dependency on those contact lenses.

Conclusion: Our results highlighted the misconceptions among the study population regarding wearing prescribed eyeglasses and contact lenses. Thus, education programs and media are warranted to correct the misconceptions about spectacles and raise the awareness about refractive errors and treatment options.

Keywords: refractive errors, vision impairment, eyeglasses, contact lenses

Introduction

Visual impairment and blindness are often caused by refractive errors, a common condition affecting an estimated 2.3 billion individuals worldwide.^{1,2} Sadly, 153 million people with uncorrected refractive errors are estimated to suffer from visual impairment.³ The prevalence of refractive errors varies between 20 to 80.5% in different locations worldwide.^{4,5} Moreover, it is worth noting that at least 80% of individuals over 50 require spectacle corrections for near vision.⁶ To address uncorrected refractive error, it is necessary to establish a comprehensive and self-sustaining system. This includes the development of human resources to provide eye care services and the provision of spectacles to correct vision.²

Among the available options for correcting refractive errors, spectacles are the most commonly used. They are a straightforward, cost-effective solution with a high success rate regarding visual acuity, quality of life, and cultural acceptance.⁷ Although spectacles have been deemed essential by the World Health Organization, it has been observed that people often do not wear them even when a specialist has prescribed them. This is attributed to the beliefs and attitudes of users, parents (in the case of children), and the community at large.^{8,9} To address this issue, Vision 2020 was launched to improve public awareness and generate demand for services through community-based initiatives, primary eye care, and school eye health programs.⁶

It has been observed that a substantial number of individuals who experience visual impairment are situated in developing countries. Additionally, it has been noted that most of these individuals are students, with a significant proportion being women.^{10–12} This condition has been recognized as a highly influential factor causing substantial societal socioeconomic setbacks. Its effects can manifest in various ways, including physical impairments, emotional strain, decreased social interaction, and an overall decline in living standards for those affected.

Such consequences can significantly impact the lives of individuals and require careful consideration to address and alleviate.^{13–15} A research study was conducted in the Bisha region of Saudi Arabia, which revealed that refractive errors were responsible for causing visual impairments in 68% of the visually impaired population, which accounted for 11% of the total population.¹⁶ Similarly, other studies in the northern region of Saudi Arabia indicated that the prevalence of refractive errors was approximately 13.7% among primary school children aged 6–14 years, and 36% among older adults aged 18 years and above recruited from a primary care center.^{17,18} Additionally, a study conducted among medical students aged 19–25 reported a higher prevalence of refractive errors (83%).^{19,20}

Due to the limited information about the perception of the Ha'il region population, Saudi Arabia, regarding general eye health and the importance of wearing prescribed spectacles, our study was conducted to explore the perspectives and associated factors regarding spectacles use among the population in Ha'il, Saudi Arabia. This study's results can aid in modifying or reinforcing existing beliefs and attitudes while also serving as a foundation for future research on related subjects.

Materials and Methods

Consent and Ethical Approval

The study complies with the Declaration of Helsinki and has been reviewed and approved by the Research Ethics Committee (REC) of the University of Ha'il, Saudi Arabia. The research project approval number is H-2023-023 and was obtained on 09/01/2023. Participants took part on a voluntary and informed basis. No personal identifiers were collected.

Study Design

This cross-sectional study was conducted on a population sample from the Ha'il community in Saudi Arabia. Participant recruitment was done through a convenience sampling method, wherein an electronic questionnaire was distributed on several social media platforms. The aims and objectives of the study were presented at the start of the questionnaire, enabling the participants to make an informed decision about participation. Participants are people of both genders in the Ha'il region of Saudi Arabia. The sample size for the present study was 407, with different age groups and nationalities included.

Data Collection

From January to March 2023, data was collected through a self-administered online questionnaire composed of two sections measuring several variables. The questionnaire was developed after intensively reviewing the literature. To test for content validity, we consulted a panel of three ophthalmologists, and we modified the questionnaire according to their suggested comments. Then, a random sample of 10 participants was selected to test leading and complex questions, and those participants were then excluded from the final analysis. The tool reliability coefficient (Cronbach's Alpha) was assessed, and a value of 0.83 was obtained. The first section concerned the participants' sociodemographic information (age, gender, nationality, place of residence, educational level, etc.). The second section comprised twenty-eight questions about participants' perceptions of optical glasses use and their correlation with daily life activities. This section included specific questions about the participant's perception of refractive errors and their correction methods and how it affects their daily life.

Data Analysis

The data were collected, reviewed, and then fed to Statistical Package for Social Sciences version 21 (SPSS: An IBM Company). The statistical method used was two-tailed with an alpha level of 0.05, considering significance if the P value is less than or equal to 0.05. Descriptive analysis was done, and frequency distribution and percentage for study variables were shown, including participants' personal data, eye vision problems, checkups, prescribed glasses, and contact lenses.

Cross tabulation showing differences between the study groups (participants with vision problems and others without) was done using the Pearson Chi-square test and exact probability test for small frequency distributions.

Results

A total of 407 participants completed the study questionnaire. Participants' ages ranged from 16 to more than 45 years, with a mean age of 31.2 ± 11.9 years old. Male participants were 221 (54.3%), and 245 (60.2%) had a university level of education.

The participants who reported having vision problems in our study were 190 (46.7%). Of those with diagnosed visual problems, refractive errors were the most prominent visual defect (77.4%), followed by amblyopia (20%), squint (3.2%), and retinal disease (1.6%). While 8.9% had other eye complaints, such as eye dryness, redness, and itching (Figure 1).

Out of the 190 participants with vision problems, 175 (92.1%) of them had undergone a vision examination previously, which was less than one year ago among 102 (58.2%) and 1 to 3 years ago among 56 (32%). The most reported diagnosis was myopia (69.2%), followed by astigmatism (22.1%) and hyperopia (20.3%). A total of 178 (93.7%) participants reported that wearing glasses improves their quality of life.

The presence of vision problems was significantly higher among older participants (> 45 years) compared to younger participants (74.3% vs 52.3%, respectively; $P=0.003$). More than half (54.3%) of female participants had vision problems compared to 40.3% of males ($P=0.005$). (Table 1)

Most participants with vision problems (93.6%) were advised to wear prescribed eyeglasses; 88.4% of them wore the prescribed eyeglasses, and 78.3% took care of their glasses. Around 51.3% of them complained that glasses hurt their nose or ears. Also, a total of 33.1% of respondents with vision problems were given prescribed contact lenses, 30.8% of them wore the prescribed lenses, and 86.8% reported taking care of their lenses. (Figure 2).

About a third of the participants (32.4%) think that the long-term wearing of glasses worsens vision. On the other hand, 43% believe wearing glasses improves vision. A total of 75.2% think that long-term use of glasses will make them dependent on wearing eyeglasses. Additionally, 45.9% believe that long-term wearing of contact lenses worsens vision. On the other hand, 24.1% think that long-term wearing of lenses improves vision. A total of 60% think long-term use of lenses will make them dependent on contact lenses, and 88.9% think wearing lenses without care or concern for their safety could cause eye inflammation, infections, and further complications. (Table 2)

About 26% of participants had annual checkups. Also, 42.8% did not have a vision checkup as part of the school entry medical examination. A total of 42% have undergone ophthalmic interventions or planned to have one. The most

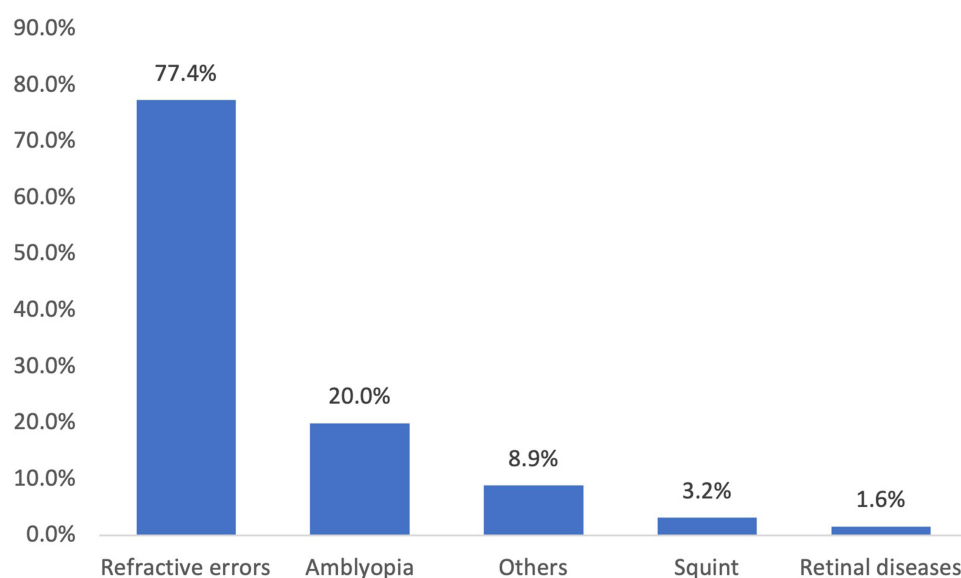


Figure 1 Types of reported vision problems among study participants in Ha'il, Saudi Arabia.

Table 1 Distribution of Vision Problems by Participants' Personal Data in Ha'il, Saudi Arabia

Personal Data	Total		Do You Have Any Vision Problems?				p-value
			Yes		No		
	n	%	n	%	n	%	
Age in years							0.003** [§]
< 18	44	10.8%	23	52.3%	21	47.7%	
18–40	302	74.2%	128	42.4%	174	57.6%	
41–45	26	6.4%	13	50.0%	13	50.0%	
> 45	35	8.6%	26	74.3%	9	25.7%	
Gender							0.005*
Male	221	54.3%	89	40.3%	132	59.7%	
Female	186	45.7%	101	54.3%	85	45.7%	
Residence							0.142
Ha'il city	301	74.0%	147	48.8%	154	51.2%	
Other cities in Ha'il region	106	26.0%	43	40.6%	63	59.4%	
Educational level							0.102
Below secondary school	23	5.7%	11	47.8%	12	52.2%	
Secondary school	102	25.1%	42	41.2%	60	58.8%	
University	245	60.2%	113	46.1%	132	53.9%	
Post-graduate	37	9.1%	24	64.9%	13	35.1%	

Notes: [§]Exact probability test; *P < 0.05 (significant).

reported reasons for planning to have a refractive error correction surgery in total were the fear of being dependent on glasses and/or lenses (72.5%), the following reason was occupation (23.4%), and lastly, they hate their looks in glasses (20.5%). (Table 3)

Discussion

The Kingdom of Saudi Arabia has been committed to enhancing public health awareness and promoting the overall health of its citizens. As living standards continue to improve, individuals are becoming increasingly aware of their daily health concerns, particularly among the educated population.²¹

Our study revealed that the number of people with vision problems among participants was 46.7%, with refractive errors being the most common cause at 77.4%. The commonest diagnosis was myopia, with 69.2%, which is consistent with the reported data provided by Almudhaiyan et al.²² Also, there were some misconceptions regarding the use of spectacles and lenses among the participants, which would need further education and knowledge reinforcement, as more than a quarter of the population think that with long-term usage of glasses, their vision will worsen, and 45.9% think that with long-term use of contact lenses would worsen their vision. This perception may cause individuals who require vision aids to avoid obtaining the necessary correction for their eyesight, as they believe wearing glasses will further harm their eyes. Although school eye examination is essential in diagnosing refractive errors and other children's vision problems, in order to help children increase their quality of life and prevent their vision from deteriorating even further in some conditions,²³ the number of people who got their eye examined during school in our study is 42.8%.

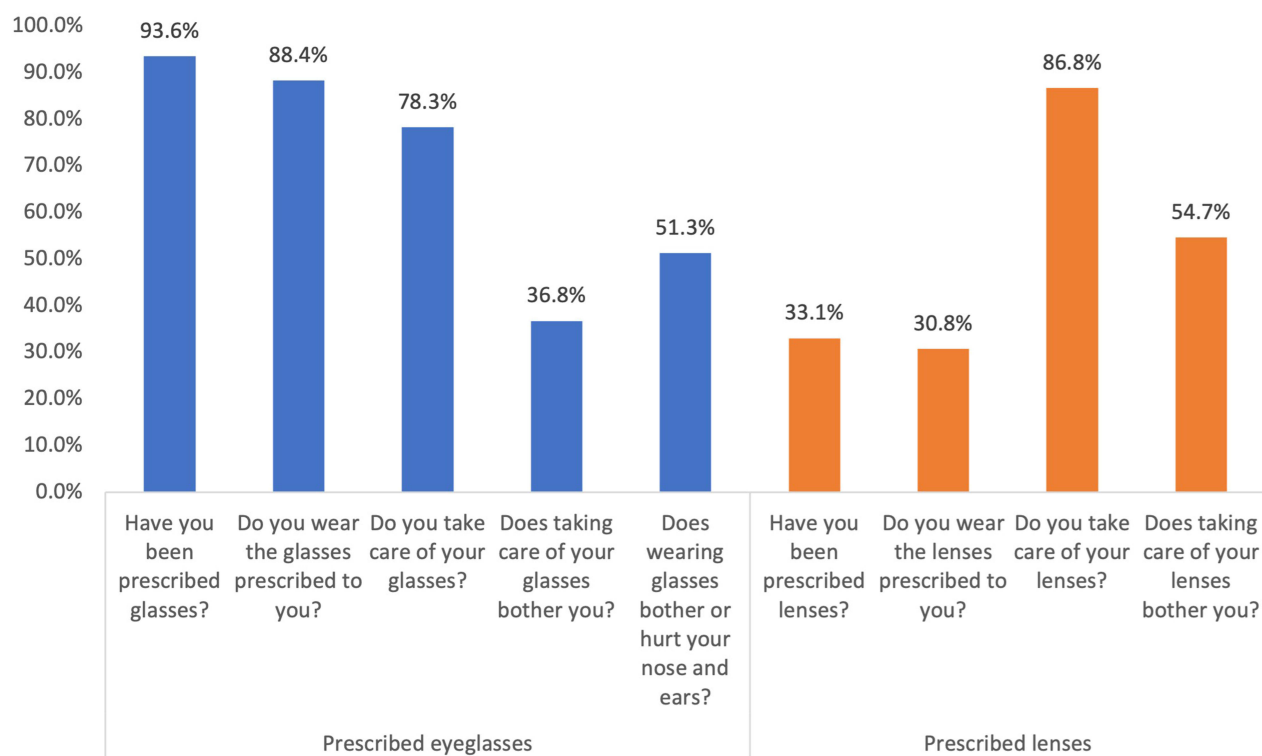


Figure 2 Eyeglasses and lenses prescription and compliance among participants with vision problems.

Our results showed that the participants believed their vision would deteriorate by wearing glasses or contact lenses (32% and 45.9%, respectively). Additionally, 75% of our participants’ perception of being compliant in wearing spectacles will make them dependent on them. Additionally, we found that more than half of the participants who wore eyeglasses or contact lenses (51.3%, and 54.7%, respectively) stated that the main barrier preventing them from

Table 2 Study Participants’ Perspectives on Using Eyeglasses and Contact Lenses

Perception Questions	Total		Do You Have Any Vision Problems?				p-value
			Yes		No		
	n	%	n	%	n	%	
With long-term use of glasses, do you think wearing glasses worsens vision?							0.327
Yes	132	32.4%	57	30.0%	75	34.6%	
No	275	67.6%	133	70.0%	142	65.4%	
With long-term use of glasses, do you think wearing glasses improves vision?							0.253
Yes	175	43.0%	76	40.0%	99	45.6%	
No	232	57.0%	114	60.0%	118	54.4%	
Do you think long-term use of glasses will make you dependent on wearing the eyeglasses?							0.972
Yes	306	75.2%	143	75.3%	163	75.1%	
No	101	24.8%	47	24.7%	54	24.9%	

(Continued)

Table 2 (Continued).

Perception Questions	Total		Do You Have Any Vision Problems?				p-value
			Yes		No		
	n	%	n	%	n	%	
With long-term use of lenses, do you think wearing lenses worsens vision?							0.002*
Yes	187	45.9%	72	37.9%	115	53.0%	
No	220	54.1%	118	62.1%	102	47.0%	
With long-term use of lenses, do you think wearing prescription contact lenses improves vision?							0.523
Yes	98	24.1%	43	22.6%	55	25.3%	
No	309	75.9%	147	77.4%	162	74.7%	
Do you think long-term use of lenses will make you dependent on your contact lenses?							0.231
Yes	244	60.0%	108	56.8%	136	62.7%	
No	163	40.0%	82	43.2%	81	37.3%	
Do you think wearing lenses without care or concern for their safety could cause inflammation, infection, in the eye and further complications?							0.525
Yes	362	88.9%	171	90.0%	191	88.0%	
No	45	11.1%	19	10.0%	26	12.0%	

Note: *P < 0.05 (significant).

Table 3 Periodic Checkups and Eye Interventions Among Study Groups

Checkup and Intervention	Total		Do You Suffer from Vision Problems?				p-value
			Yes		No		
	n	%	n	%	n	%	
Do you go for annual eye checkups?							0.001*
Yes	104	25.6%	68	35.8%	36	16.6%	
No	303	74.4%	122	64.2%	181	83.4%	
Did you get a vision checkup as part of the school entry medical examination?							0.563
Before primary school	70	17.2%	31	16.3%	39	18.0%	
Between primary and middle school	71	17.4%	34	17.9%	37	17.1%	
Between middle and high school	72	17.7%	40	21.1%	32	14.7%	
Before university	87	21.4%	37	19.5%	50	23.0%	
I did not get examined	174	42.8%	83	43.7%	91	41.9%	
Have you done any ophthalmic interventions? Or are you planning to get one (eg, refractive error correction surgery)?							0.001*
Yes	171	42.0%	123	64.7%	48	22.1%	
No	236	58.0%	67	35.3%	169	77.9%	

(Continued)

Table 3 (Continued).

Checkup and Intervention	Total		Do You Suffer from Vision Problems?				p-value
			Yes		No		
	n	%	n	%	n	%	
The reasons that made you think about other ophthalmic interventions (to correct visual refractive errors)?							0.034 ^{*,§}
I hate my dependence on glasses and/or lenses	124	72.5%	97	78.9%	27	56.3%	
For my occupation	40	23.4%	26	21.1%	14	29.2%	
Wearing masks with glasses on annoy me	8	4.7%	7	5.7%	1	2.1%	
I hate how I look in glasses	35	20.5%	27	22.0%	8	16.7%	
Others	14	8.2%	11	8.9%	3	6.3%	

Notes: [§]Exact probability test; *P < 0.05 (significant).

being compliant with the spectacles is being annoyed and bothered by wearing them. These results differed from the findings in a study conducted in Oman, which showed that some of the barriers to wearing spectacles were losing or breaking the spectacles.²⁴ A different study, in Nigeria, awareness among spectacle wearers was relatively high. However, most participants reported their fear of complications. This concern further supports the need for spreading accurate knowledge through public health education and campaigns.²⁵

The majority of participants of our study stated that wearing eyeglasses improved their quality of life, which is consistent with a study from Oman where Khandekar et al reported a significant impact of correcting refractive errors on vision-related quality of life, especially among those who were compliant with wearing spectacles, who reported having a higher vision-related quality of life compared to those who were not spectacle-wear compliant.²⁶

These findings highlight the urgent need for a public ocular health intervention strategy in the region, especially since the majority of vision loss cases can be prevented or treated cost-effectively. Therefore, it is crucial to raise awareness about the importance of regular eye checkups and to make affordable and accessible treatment options available to the population.

Although the current study has made available important information, it also has some limitations. These include its cross-sectional design, data collection through self-reported measures, and the absence of some variables, such as management and outcomes. Therefore, studies supplemented with clinical assessment will be of value in addition to patient-reported outcomes.

Conclusion

Our study found that there were prevalent misconceptions among the participants regarding the use of prescribed eyeglasses and contact lenses. Thus, we advise the development of public health education programs and campaigns to spread accurate knowledge and information, as it appears that people avoid getting glasses due to them thinking that glasses will decrease their vision with long-term use. Thus, structured educational programs through mass media are necessary to increase knowledge about refractive errors and visual impairment and their corresponding treatment options. This study recommends devising a policy to improve the perception of the community, which could play a crucial role in addressing poor perceptions regarding the use of spectacles in the population.

Acknowledgments

We would like to thank all the participants in our study.

Disclosure

The authors report no conflicts of interest in this work.

References

- Dandona R, Dandona L. Refractive error blindness. *Bull World Health Organ.* 2001;79(3):237–243.
- Brien AH, Sylvie S, Kylie K. The challenge of providing spectacles in the developing world. *J Community Eye Health.* 2000;13(33):9–10.
- World Health Organization. Sight test and glasses could dramatically improve the lives of 150 million people with poor vision. Press release; 2006. Available from: <http://www.who.int/mediacentre/news/releases/2006/pr55/en/index.html>. Accessed November 13, 2023.
- Olurin O. Refractive errors in Nigeria (A hospital clinic study). *Ann Ophthalmol.* 1973;5(9):971–976.
- Nworah PB, Ezepeue UF. Prevalence of errors of refraction in a Nigerian eye clinic. *Orient J Med.* 1992;4:57–60.
- Thulasiraj RD, Aravind S, Pradhan BK. Spectacles for the Millions Addressing a priority of “Vision 2020 - The Right to Sight”. *J Community Ophthalmol.* 2003;3(4):19–21.
- Desalegn A, Tsegaw A, Shiferaw D, Woretaw H. Knowledge, attitude, practice and associated factors towards spectacles use among adults in Gondar town, northwest Ethiopia. *BMC Ophthalmol.* 2016;16(1):184. doi:10.1186/s12886-016-0357-3
- Faderin MA, Ajaiyeoba AI. Barriers to wearing glasses among primary school children in Lagos, Nigeria. *Niger J Ophthalmol.* 2001;9(1):15–19. doi:10.4314/njo.v9i1.11914
- Yawn BP, Kurland M, Butterfield L, Johnson B. Barriers to seeking care following school vision in Rochester, Minnesota. *J School Health.* 1998;68(8):319–324. doi:10.1111/j.1746-1561.1998.tb00592.x
- Tabbara KF. Blindness in the eastern Mediterranean countries. *Br J Ophthalmol.* 2001;85(7):771–775. doi:10.1136/bjo.85.7.771
- Gameiro Filho AR, Aquino NMT, Pacheco EBA, et al. Knowledge in refractive surgery among medical students State University of Londrina. *Rev Bras Oftalmol.* 2013;72(3):172–177. doi:10.1590/S0034-72802013000300006
- Bourne RR, Flaxman SR, Braithwaite T, et al. Magnitude, temporal trends, and projections of the global prevalence of blindness and distance and near vision impairment: a systematic review and meta-analysis. *Lancet Glob Health.* 2017;5(9):e888–e897. doi:10.1016/S2214-109X(17)30293-0
- Taylor HR, Pezzullo ML, Nesbitt SJ, et al. Costs of interventions for visual impairment. *Am J Ophthalmol.* 2007;143(4):561–565. doi:10.1016/j.ajo.2006.10.055
- Broman AT, Munoz B, Rodriguez J, et al. The impact of visual impairment and eye disease on vision-related quality of life in a Mexican-American population: proyecto VER. *Invest Ophthalmol Vis Sci.* 2002;43(11):3393–3398.
- Zeried FM, Alnehmi DA, Osuagwu UL. A survey on knowledge and attitude of Saudi female students toward refractive correction. *Clin Exp Optom.* 2020;103(2):184–191. doi:10.1111/cxo.12919
- Al-Rajhi AA, Al-Omar OM, Al-Ghamdi SA, et al. Prevalence and causes of visual impairment and blindness in the south western region of Saudi Arabia. *Int Ophthalmol.* 1993;17(3):161–165. doi:10.1007/BF00942931
- Al Wadaani FA, Amin TT, Ali A, et al. Prevalence and pattern of refractive errors among primary school children in Al Hassa, Saudi Arabia. *Glob J Health Sci.* 2013;5:125.
- Al-Shaalin FF, Bakrman MA, Ibrahim AM, et al. Prevalence and causes of visual impairment among Saudi adults attending primary health care centers in northern Saudi Arabia. *Ann Saudi Med.* 2011;31(5):473. doi:10.4103/0256-4947.84624
- Alruwaili WS, Alruwaili MS, Alkuwaykibi MK, et al. Prevalence and awareness of refractive errors among Aljouf university medical students. *Egypt J Hosp Med.* 2018;70(1):29–32. doi:10.12816/0042958
- Riley LC, Chalmers LR. Survey of contact lens-wearing habits and attitudes toward methods of refractive correction: 2002 versus 2004. *Optom Vis Sci.* 2005;82(6):555–561. doi:10.1097/01.opx.0000167104.81142.40
- Ministry of Health, Kingdom of Saudi Arabia. *Health Awareness.* Riyadh: Ministry of Health, Kingdom of Saudi Arabia; 2019
- Almudhaiyan T, Alhamzah A, AlShareef M, et al. The prevalence of refractive errors among Saudi adults in Riyadh, Saudi Arabia. *Saudi J Ophthalmol.* 2020;34(1):30–34. doi:10.4103/1319-4534.301297
- Alrasheed SH, Alghamdi WM. Parents’ awareness of and perspectives on childhood refractive error and spectacle wear in Saudi Arabia. *Sultan Qaboos Univ Med J.* 2022;22(4):532–538. doi:10.18295/squmj.10.2021.141
- Vankudre GS, Noushad B. Barriers and perception towards spectacle wear among a student population of university of Buraimi, Oman. *Sultan Qaboos Univ Med J.* 2021;21(3):416–422. doi:10.18295/squmj.4.2021.004
- Ayanniyi A, Olatunji F, Hassan R, Adekoya B, Monsudi K, Jamda A. Awareness and attitude of spectacle wearers to alternatives to corrective eyeglasses. *Asian J Ophthalmol.* 2014;13(3):86–94. doi:10.35119/asjoo.v13i3.130
- Khandekar R, Gogri U, Harby S. The impact of spectacle wear compliance on the visual function related quality of life of Omani students: a historical cohort study. *Oman J Ophthalmol.* 2013;6(3):199–202. doi:10.4103/0974-620X.122278

Clinical Ophthalmology

Dovepress

Publish your work in this journal

Clinical Ophthalmology is an international, peer-reviewed journal covering all subspecialties within ophthalmology. Key topics include: Optometry; Visual science; Pharmacology and drug therapy in eye diseases; Basic Sciences; Primary and Secondary eye care; Patient Safety and Quality of Care Improvements. This journal is indexed on PubMed Central and CAS, and is the official journal of The Society of Clinical Ophthalmology (SCO). The manuscript management system is completely online and includes a very quick and fair peer-review system, which is all easy to use. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/clinical-ophthalmology-journal>