

# Awareness, Attitudes and Practices Regarding Common Eye Diseases among General Population in Saudi Arabia.

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## ABSTRACT

**Background:** Knowing the degree of populations' knowledge concerning eye health and the factors that contribute to eye problems can serve to complement many effective eye health care promotion strategies. Aim: the purpose of this study is to evaluate the knowledge regarding common eye diseases and awareness of eye care among the Saudi population and to explore existing eye-related misconceptions and malpractices in the community. **Methods:** A cross-sectional study was conducted in Jeddah city, during September and October 2016, a self-administered questionnaire was distributed on the patients and medical staff at King Abdulaziz University Hospital (KAUH) and on public in Red Sea Mall in Jeddah City. We selected a random sample of 470 participants, with an age range between 20 and 60. All data collected was analyzed using SPSS software version 20.0. **Results:** Of the 470 surveyed participants, the weighted mean age was 45 years, 47% were male and 53% were female. The majority of participants were aware of refractive errors (90%), cataract (71%), diabetic retinopathy (DR) (62%) and glaucoma (53%), yet only 10% had heard of amblyopia, and 3% of age-related macular degeneration (AMD). Most individuals surveyed (81.9%) believed that good vision is vital to overall health. Only 32% were aware of smoking risks on visual impairment. Less than 10% had an eye check at least once a year and individuals with higher educational level and better socio-economic status were associated with higher frequency of eye checks. A lower proportion (46%) of participants reported that they knew that vision loss could be prevented ( $p < 0.001$ ). Nearly half of respondents had identified sunlight and family heritage as risk factors for common eye diseases. **Conclusion:** The majority of the participants were aware of the common eye diseases. However, our results showed a large gap between public awareness and practices related to vision health. Public health promotion should be designed to address these gaps.

**Keywords:** Eye diseases, knowledge, Awareness, Saudi Arabia

## INTRODUCTION

Eye health education that influences people to seek consultation from an ophthalmologist is one of the most important steps we can take to prevent visual impairment.<sup>[1]</sup> Globally, there are around 200 million people have moderate and severe vision impairment (MSVI).<sup>[2]</sup> The most common causes of visual impairment are preventable conditions, which are; uncorrected refractive errors (43%) and cataracts (33%). Other causes of visual impairment include glaucoma, diabetic retinopathy (DR) and age-related macular degeneration (AMD).<sup>[3]</sup> One of the major risk factors of such burden is lack of awareness of eye conditions,<sup>[4-8]</sup> which has been shown to be associated with poorer outcomes in terms of prevention,<sup>[5,6]</sup> eye care use,<sup>[9-10]</sup> and treatment.<sup>[5,6,10]</sup>

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Many studies on the knowledge, attitudes and practice (KAP) have supported the need for greater awareness of prevention, diagnosis, risk factors control and disease management.<sup>[11,12]</sup> This further helps in reducing the burden of visual impairment among the population in a society by encouraging people to seek treatment for eye problems. Therefore, generating evidence-based information from adult populations would be ideal for planning health promotion strategies targeting vulnerable populations

In Saudi Arabia, There are few studies conducted that have reported the prevalence and risk factors of visual impairment.<sup>[13]</sup> However, no study has reported awareness, attitudes and practice regarding common eye diseases.

In this study, we reported awareness, attitudes, and practices regarding common eye diseases, and the variation according to socio-demographic factors among adult population in Saudi Arabia.

## MATERIALS AND METHODS

**Study Subjects.** A quantitative and cross-sectional study was conducted during September and October 2016 in Jeddah, Saudi Arabia. This study randomly selected 470 adult people from the general population in Saudi Arabia, with an age range between 20 and 60. Sample was recruited from a shopping mall in Jeddah, Saudi Arabia and from King Abdulaziz University Hospital (KAUH). An informed consent was obtained from each participant before they filled out the questionnaire.

**Data Collection Method.** A self-administered questionnaire was distributed on the participants. Based on feedback from a pilot sample of 10 people, the questionnaire was subsequently modified. The questionnaire was divided into three parts. The first part consisted of 10 items, which asked about demographic information. The second part consisted of 20 items, which measured the eye care and eye health knowledge. The third part measured the eye care and eye health practices and attitudes. A Likert scale was used to measure and analyze the responses regarding eye health awareness and knowledge, where 1 = true, 2 = false, and 3 = I do not know 15. For a question, true response marked +2 score, false response marked -2 score, and I do not know response marked -1 score. The sum of the scores on all 20 questions provided the final score for each participant. The participants' knowledge can be categorized as "excellent" if they obtained more than 75% score, "good" if they obtained a score between 50 and 75%, and "poor" if they obtained less than 50% score.

The participants' score  $\geq 50\%$  was considered as an acceptable level of knowledge.

**Data analysis.** All data collected was analyzed using SPSS software version 20.0. Descriptive statistics was used to measure the frequencies. Pearson's chi-square test and odds ratios (ORs) were used to evaluate and quantify the associations between a categorical outcome and the variables under consideration. During the entire analysis, the statistical significance level was considered as  $p \leq 0.05$ .

## RESULTS

### Demographic characteristics

Demographic information of the participants is given in [Table 1]. Of the 470 participants, aged between 20 and 60 years (mean 45 years and standard deviation 12 years), 53% were females and 47% were males. Less than 15% had no formal education. The majority of participants were married 55.3% and employed 36% and had university education or above 40.8%. Two hundred and ninety of the respondents were Saudi, followed by Yemeni (106), and other nationalities (74). The majority of the participants had a family history of eye diseases 59.6%, which included any one of the four diseases

(cataract, glaucoma, diabetic retinopathy and refractive errors).

### Awareness Assessment

Level of knowledge on common eye diseases among Saudi adults in Jeddah city is demonstrated in [Table 1]. The awareness of eye diseases varied between 7% and 95% depending on the eye condition. In this sample, the majority of participants were aware of refractive errors (90%), cataract (69%), diabetic retinopathy (DR) (42%) and glaucoma (23%), yet only 10% had heard of amblyopia, and 1% of age-related macular degeneration (AMD). There was no significant difference between male and female in awareness in any of the eye diseases. Overall older people, illiterates and people with lower socio-economic status (SES) were significantly less aware of all the diseases compared to younger, more educated participants and those from higher SES backgrounds. For example, 84% of people aged 40 years or less were aware of common eye diseases compared to 90% of people above 40 years ( $p < 0.001$ ); and 92% with education were observed to have more awareness of common eye diseases compared to 84% illiterate ( $p < 0.001$ ). Forty seven (10%) participants had not heard of any of the diseases. A total of 200 respondents reported that they have a history of eye disease; 77.1 % have refractive errors; 2.8 % reported to have cataract; 9% were diagnosed to have diabetic retinopathy; 2% have glaucoma. The awareness among the participants who were diagnosed to have cataract, glaucoma, diabetic retinopathy, or refractive errors was higher than the awareness among participant who had no history of eye diseases. Most individuals surveyed (81.9%) believed that good vision is vital to overall health. only 32% were aware of smoking risks on visual impairment. A lower proportion (26%) of participants reported that they knew that vision loss could be prevented ( $p < 0.001$ ). Nearly half of respondents had identified sunlight and family heritage as risk factors for common eye diseases.

Information from other community members, the social media, and internet were the leading sources from which participants obtained knowledge on common eye diseases and eye care. Community members were shown to be the highest used source to gain information (41%) as shown in [Table 3].

### Attitudes

The attitudes towards taking treatment for eye disease and seeking consultation from ophthalmologist were very positive. A total of 426 (90.6%) participants were in favour of taking treatment and consulting an ophthalmologist for an eye disease, and there was no difference in attitudes between gender, age groups, or level of education. However, people with higher SES most of the times were almost twice more likely to have positive attitudes towards treatment and seeking medical advice from eye doctor compared to those with

lower SES most or all of the time, odds ratio (OR) 1.80, 95% confidence interval (CI) (1.05, 3.30). There was no significant interaction between awareness and attitudes.

**Practice (eye health care)**

Ninety two percent of participants in the study had never had a previous eye examination. Six percent of people reported having had an eye check within the previous year, and another 4% reported having 2–3 eye checks per year. Of those who had regular eye checks, 76% reported to have an eye problem. People with secondary school level of education or above compared to illiterates, ( $p < 0.001$ ), and participants with higher SES compared to people with low income, ( $p = 0.002$ ), had significantly higher frequency of at least one eye check per year. Ten percent of participants who had reported having a history of eye disease or a problem with their vision had an eye check at least once in a year. With regards to patients with history of diabetes ( $n = 281$ ), 35% had at least one eye checkup visit per year.

**Table 1: Demographic information of the participants.**

Determinants	Frequency (n=470)	Percent
<b>Gender</b>		
Male	221	47%
Female	249	53%
<b>Education level</b>		
Illiterate	56	11.9%
Elementary school	40	85.1%
Secondary school	54	11.5%
High school	80	17%
Diploma	48	10.2%
University	111	23.6%
Higher education	81	17.2%
<b>Occupation</b>		
Unemployed	106	22.5%
Retired	75	16 %
Student	120	25.5%
Employed	169	36%
<b>Marital status</b>		
Single	117	24.9%
Married	260	55.3%
Divorced	53	11.3%
Widowed	40	8.5%
<b>History of eye disease</b>		
Yes	200	42.6%
No	270	57.4%
<b>Family history of eye disease</b>		
Yes	280	59.6%
No	190	40.4%

**Table 2: Levels of knowledge on common eye diseases among Saudi adults in Jeddah city.**

Eye Disease	Acceptable Level of Knowledge (%)	Poor Level of Knowledge (%)
Refractive errors	90%	10%
Cataract	69%	31%
Amblyopia	7%	93%
Glaucoma	23%	77%
Diabetic retinopathy	42%	58%
Age-related macular degeneration	0.5%	99.5%

**Table 3: Sources of information regarding common eye diseases and eye care.**

Source of information	Percent
Ophthalmologist	2%
Other Medical staff	4%
Pharmacist	0%
Books or brochures	10%
Community member	41%
Social media	20%
Internet	13%
Health awareness campaign	10%

**DISCUSSION**

To the best of our knowledge, our study is the first population-based study of awareness, attitudes and practice associated with common eye diseases amongst the population in Saudi Arabia.

The main findings of this study were that the overall awareness of common eye diseases in the community in Saudi Arabia was insufficient. Approximately 26% of participants did not know that vision loss could be prevented. This deficiency was more pronounced amongst people with no education, lower SES and older people. The usefulness of the results has two reasons. Firstly, we have demonstrated a significant deficiency in basic awareness of common eye diseases. Secondly, we have shown that older people with better socio-economic status and higher level of education are more interested to have eye checks. This strongly suggests that increasing health awareness regarding eye disease is required at all socioeconomic levels to improve attendance and health care seeking practices. We believe that increasing understanding and acceptance of the importance of regular eye examination may reduce visual impairment and overall cost of eye care. This coincides with a research that found a lack of awareness about common eye disease, its risk factors and management.<sup>[16]</sup> No difference was observed between level of knowledge among males and females. However, a study in Nepal showed better knowledge among males compared to females. Interestingly, gender inequity in awareness of eye diseases was not found to be a significant problem though a significantly higher level of awareness about eye diseases and its risk factors was found in females in another study.<sup>[16]</sup> The level of awareness of common eye disease was also found to be similar with results from other studies.<sup>[7,8]</sup> The study demonstrated that attitude towards treatments of eye diseases amongst study sample is very positive. Evidence suggests that increasing public awareness has significantly reduced the lag to diagnosis among patients with rheumatoid arthritis in United Arab Emirates.<sup>[17]</sup> and successfully increased participation in breast cancer screening in Hawai'i.<sup>[18]</sup> Glaucoma-related knowledge was found to be much lower in our study. It was also noted to be 7% in Bangladesh, 15.8% in Nigeria, and 8.3% in north India.<sup>[19,20]</sup>

The majority of participants who reported having a history of an eye disease did not have an eye check which raises the concern regarding the influence of health promotion interventions and resource allocation on change of practice. This is of particular concern given the awareness amongst the study population was poorest particularly for insidious conditions such as glaucoma, DR, and AMD in which symptoms of vision impairment often present late in the disease course.

Studies from diabetic retinopathy in developing countries have shown that patients tend to present only when disease becomes sight-threatening or there is a sudden deterioration in vision.<sup>[21]</sup> Incidentally our study showed there was an almost three-fold increase in at least one eye checkup per year amongst people with diabetes compared to those without. Thus, health promotion must not only emphasize on eye examination when symptoms develop, but more importantly upon the importance of regular eye checkup to prevent development of sight-threatening changes.

Our study is the first reliable data on the awareness, attitudes and practice of common eye diseases and their risk factors in the general population in Saudi Arabia. The study would obviously need to be repeated in a random sample of other remote areas in order for the results to be truly representative of a national perspective.

## CONCLUSION

The majority of the participants were aware of the common eye diseases. However, our results showed a large gap between public awareness and practices related to vision health. Public health promotion should be designed to address these gaps.

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