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- **Editorial: Epidemiology of Ocular Trauma**
- **Outcome of Intraocular Foreign Body Removal**
- **Work-related Musculoskeletal Disorder Among Ophthalmologists**
- **Frequency of Eye Diseases Among Medical Students**
- **Frequency of Stages of Diabetic Retinopathy**
- **Retinopathy of Prematurity in Low Birth Weight Babies**

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## Al-Shifa Journal of Ophthalmology

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- Editorial: Epidemiology of Ocular Trauma** 44  
Tayyab Afghani
- Prognostic Factors For Visual Outcome Following Intraocular Foreign Body Removal** 46  
Hussain Ahmad Khaqan, Laraib Hassan, Raheela Naz, Atia Nawaz, Hasnain Muhammad Bukhsh, Muhammad Ali Haider, Aamna Jabran
- Spectrum of Work-related Musculoskeletal Disorders among Ophthalmologists in Pakistan** 52  
Shehr Bano Abbas, Arslan Sajjad, Fuad Ahmad Khan Niazi, Ambreen Gull, Mishaal Abbas, Muhammad Abbas
- Frequency of Eye Diseases among medical students of Mohi-ud-din Islamic Medical College** 64  
Fatima Akbar Shah, Umair Tariq Mirza, Muhammad Usman Sadiq, Sidrah Riaz, Amjad Akram, Porus Ahmed
- Frequency Of Patients With Different Stages Of Diabetic Retinopathy Presenting To A Tertiary Care Eye Hospital In Rawalpindi, Pakistan** 70  
Waleed Ahmad, Muhammad Afaq Shah, Hafiz Muhammad Ahmad, Mehwish Ameer, Saad Bin Yasir, Yasir Ahmad
- Incidence of Retinopathy of Prematurity in Infants with Low Gestational Age and Low Birth Weight** 77  
Bilal Humayun Mirza, Kanwal Zareen Abbasi, Muhammad Rizwan Khan, Munib Ur Rehman, Maria Zubair, Fuad Ahmad Khan Niazi

# Frequency of Eye Diseases among medical students of Mohi-ud-din Islamic Medical College

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## Abstract:

**Objectives:** The research was aimed to know the incidence of various eye diseases to get an insight into the incidence and subsequently probe into their causes so that students could be guided about lifestyle modifications.

**Methods:** A descriptive, cross-sectional study was carried out on MBBS students of both genders whose age group ranged from 18-24 years. The duration of the study was one month. A sample size of 427 was employed by non probability consecutive sampling. Data was collected by a researcher with a questionnaire after approval from the ethical review committee. A general eye examination was carried out and readings were noted on the questionnaire by the researchers.

**Results:** It was found that 257 students had healthy eyes. Myopia was prevalent among students with a total of 120 (28.2%) affected. Hypermetropia (0.5 %), astigmatism (3.3%), convergence insufficiency (2.1%), dry eyes (1.6%), blepharitis (1.2%), allergic conjunctivitis (2.8%) and color blindness (0.5%) were other disease entities discovered among the students.

**Conclusion:** Refractive error in general is the most common eye disease among medical students in which myopia was the leading cause, followed by hypermetropia and astigmatism. Dry eye, blepharitis, and allergic conjunctivitis were a few other eye disease entities found among students. *Al-Shifa Journal of Ophthalmology 2023; 19(2): 64-69. © Al-Shifa Trust Eye Hospital, Rawalpindi, Pakistan.*

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## Introduction:

Medical students are young adults who are engaged in a stressed lifestyle. The reason for such stress is a very demanding academic schedule where lectures, clinical rotations, and elective training go side by side around the clock. Students attempting to meet their academic challenges tend to ignore their health requirements. The propensity of medical students to develop various illnesses in general and eye diseases in specific has been a matter of deep concern. Belonging to an age group most studied and talked about, their physical and mental health remains the focus of study of many researchers since good mental health and active physical functioning is pivotal to adequate learning<sup>2</sup>.

A lot of studies have shown that the prevalence of dry eye disease among young adults is 70.8 %<sup>3</sup>. Being involved in digital study modalities in most waking hours of the day, dry eye disease is quite common

among them. Stress is another factor causative to this<sup>4</sup>. Dry eye syndrome presents as burning, foreign body sensation, or grittiness and the same symptoms sometimes present when one is suffering from refractive errors<sup>5</sup>. Various environmental, social, and behavioral problems are known to be causative of dry eye<sup>6</sup>. Refractive error is known to be another eye disease quite prevalent among medical students. Myopia, hypermetropia and astigmatism are common refractive errors<sup>3</sup>. It is surprising that a study has shown that about one-fourth of the world's educated individuals are myopic<sup>7</sup>. Myopia is a state in which light rays are focused at a point in front of the retina in an optically relaxed eye (non-accommodating)<sup>8</sup>. Among some individuals, being exposed to a prolonged illness leads to the onset and progression of myopia<sup>9</sup>. Ethnicity and specific family history are also known to play a role. Moreover, the social circumstances one is exposed to during life also play a role in the progression of myopia<sup>10</sup>. If myopia is not well managed in childhood as well as in adulthood with the use of adequate correction the individual's efficiency at work is hampered and may lead to further eye complications<sup>11</sup>. This sounds logical because poor eye health leads to frequent complaints of headache and fatigability thereby reflecting decreased productivity at work<sup>12</sup>.

The goal of the study was to research the incidence of various eye diseases randomly known to occur among medical students. This would help in getting an insight into the incidence and causative factors and subsequently probing into their causes so that students both boarders and non-boarders could be guided about lifestyle modifications. The college administrations too can be benefitted to facilitate students in whatever regard the outcomes suggest.

### **Material and Methods:**

This descriptive cross-sectional study was done after getting the approval (Ref. No. 1-2/23-MIMC/ERB/0019) from Ethical

Review Board of Mohi-Ud-Din Islamic Medical College, Mipur Azad Kashmir. The sample size was calculated by WHO sample size calculator, using confidence level 95, anticipated population proportion of patients with myopia 0.66, with 5% absolute precision<sup>13</sup>. The minimal sample size was 345. 427 students from 1<sup>st</sup> year MBBS to final-year MBBS were included in the study. Data was collected by researcher using non-probability, consecutive sampling technique. All the students were included after informed written consent. Then in all students general eye examination was carried out as described in operational definitions by one consultant ophthalmologist (at least 3 years of post-fellowship experience) and readings were noted on a Performa. Mydriatic instillation, if required, was carried out after informed consent. All this information was noted on a specially designed Performa. All medical students aged 18-24 years of both genders were included in the study. The students from Allied health institutes as well as those who refused examination were excluded. Data was analyzed using SPSS version 21. Mean and standard deviation were calculated for quantitative variables i.e age. Qualitative variables like gender, class, and eye disease were presented by frequency and percentage.

### **Results:**

427 medical students were included in the study. Out of the total number of students, 134 were males and 293 were females (Table 1). Mean age was  $21.20 \pm 1.710$  (Table 2). It was found that 257 students had healthy eyes. Myopia had the highest incidence among students with total of 120 (28.2%) affected (31 males, 89 females). Hypermetropia (0.5%), astigmatism (3.3%), convergence insufficiency (2.1%), dry eyes (1.6%), blepharitis (1.2%), allergic conjunctivitis (2.8%) and color blindness (0.5%) were other disease entities discovered among the students whose incidence in terms of frequency is explained in the pie chart (Figure I).

Table 1: Gender Distribution according to Class

CLASS	GENDER		Total
	Female	Male	
1st Year	64	24	88
2nd Year	59	36	95
3rd Year	60	21	81
4th Year	57	32	89
Final Year	53	21	74
Total	293	134	427

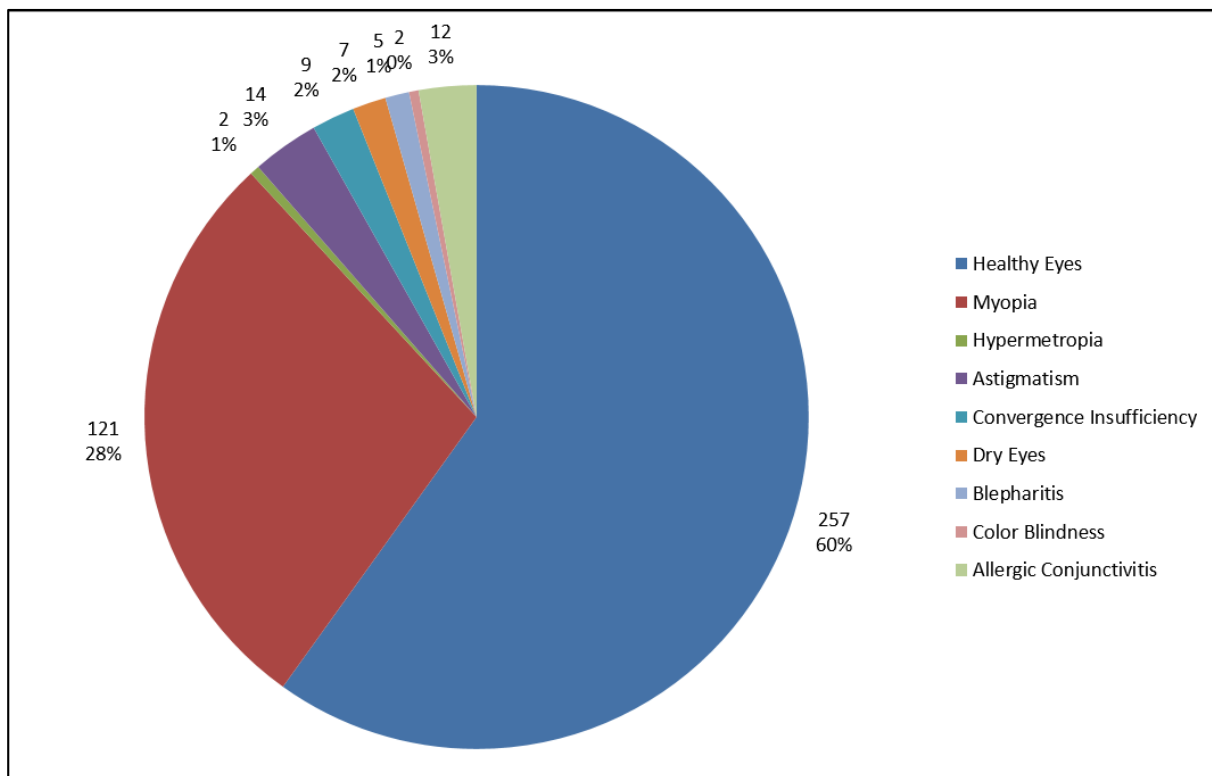


Figure 1: Frequency of Disease in our study

**Discussion:**

Eye diseases form a significant percentage of medical reports among university students and medical students in particular. The ongoing deteriorating life style practices and increase usage of electronic gadgets seems to be the major causative factor.

In a study carried out in Jazaan medical University, Saudia Arabia 33.8% students had myopia, 10.5% had hypermetropia and 10.5% had astigmatism. The percentage of refractive errors was found to be higher who had a screen time of greater than one hour per day<sup>14</sup>. While our study reported the higher incidence of myopia (28.2%), the

incidence of astigmatism (3.3%) was significantly higher than hypermetropia (0.5%). A similar study carried out among Jordanian medical students showed a higher incidence of myopia (82.6%), while incidence of hypermetropia (9%) was greater than astigmatism (8.4%)<sup>15</sup>. So a variation to our study appeared regarding incidence of hypermetropia and astigmatism which signifies the role of other causative factors. A study on University students carried out in Shanghai within the age bracket of 18-22 years, which is almost similar to the age group of our study population, myopia prevalence was 92%<sup>16</sup>. So myopia remains the most common refractive error in particular and eye disease in general, in students.

A lot of previous studies have highlighted a high incidence of various ocular surface disease entities. According to OSDI grading index, studied by Aberame et al, dry eye was seen among 46.1% of students, the association between spectacle wear and dry eye had a P value of 2.5<sup>17</sup>. In a study carried out among university students in Shanghai, the incidence of dry eye disease was 10%: those who had a screen time of more than eight hours had a higher incidence than non-users, 14.1% versus 13%<sup>16</sup>. Among Chinese high school students, the incidence of symptomatic dry eye was 70.5%, poor sleep quality, excessive use of screens, and use of contact lenses had a causative role<sup>18</sup>. Surprisingly, our results had a much lower incidence of dry eyes i.e. 1.6%. Meta-analysis of thirteen studies carried out in the US showed the prevalence of dry eye to be 8.1% and meibomian gland dysfunction (blepharitis) to be 21.2%. However, dry eye incidence was 3.5% in a population 18 years and older and no meibomian gland dysfunction (blepharitis) was seen, in this population group<sup>14</sup>. We, on the other hand, discovered a mere 1.2% incidence of blepharitis (meibomian gland dysfunction).

Another disease entity reported among the medical students in our study was allergic conjunctivitis. Students reported as having

repeated episodes of itching and watering in eyes over different times of the year, though at the time of the study, only 2.8% had active disease. This verbal report of the students holds significance since a study carried out in a nearby locality among individuals of almost similar age groups showed the incidence of VKC to be 46.2% and atopic conjunctivitis to be 9.3%. VKC was more prevalent in individuals less than 20 years of age.<sup>19</sup>

A lot of environmental, social, and behavioral factors seem to play a role in the occurrence of eye diseases<sup>20</sup>. The awareness of those factors and prevention from them at the individual and mass level may help in the eradication of the eye disease load from the communities.

This study had very specific limitations. It was performed exclusively on medical students of our university. The results though are found concordant with many such studies carried out previously on medical students in different universities in different parts of the world but these results should not be generalized to the mass population because of the drastically different lifestyle and social behaviors contracted by medical students.

### **Conclusion:**

A significant portion of medical students had eye disease. Refractive error in general is the most common eye disease in which myopia tops followed by astigmatism and hypermetropia. Dry eye, blepharitis, and allergic conjunctivitis were a few other eye disease entities found among students. Myopia is a multifactorial disease with genetic and environmental causes. Also, IQ level has been associated with myopia as well as lack of sunlight exposure, these are found in excess in university students. The association of these entities with causative environmental and social factors exclusively associated with the lifestyle of medical students needs to be studied so that more students and university authorities can benefit.

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