Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/jptcp.v31i7.6853

# IMPACT OF EYE HEALTH EDUCATION ON THE CHILDREN PERCEPTIONS ABOUT VISION AND EYE HEALTH AND PROGRESSION OF MYOPIA

**Sayyada Masooma [1*], Samra Shakeel [2], Laiba [3], Sadia Chaman Altaf [4], Syed Qasim Raza [5]**

[1*]Department of vision sciences, Pakistan Institute of Rehabilitation Sciences ISRA University, Islamabad Campus, Pakistan
[2]Department of vision sciences, Pakistan Institute of Rehabilitation Sciences ISRA University, Islamabad Campus, Pakistan
[3]Department of vision sciences, Pakistan Institute of Rehabilitation Sciences ISRA University, Islamabad Campus, Pakistan
[4]Department of vision sciences, Pakistan Institute of Rehabilitation Sciences ISRA University, Islamabad Campus, Pakistan
[5]College of Pharmacy, University of Sargodha, Sargodha, Pakistan

***Corresponding Author:** Sayyada Masooma
*Department of Vision Sciences, Pakistan Institute of Rehabilitation of Sciences ISRA University Islamabad Campus, Pakistan, Email: masoomashah2000@gmail.com

## ABSTRACT

**Introduction:** Myopia is a form of refractive error in which parallel rays of light entering the eye are focused in front of retina with accommodation being at rest.Your vision is crucial maintaining the health of your eyes is equally as crucial as maintaining the health of your body.

**Purpose:** To assess impact of eye health education on children life and assess the progression of myopia among children who received spectacles and eye health education.

**Methodology:** It was a cohort, quantitative and qualitative study. Data was collected from students of age group 4 to 18 years from human development foundation (HDF) schools in Mardan. Questionnaire were used for IDIs and FGDs for eye health education. Data analyzed by using SPSS.

**Results:** Study included 62 female & 8 male. The percentage of female was 88.6% and the male percentage was 11.4%. The myopia progression was divided into four categories. The Mild myopia progression frequency was 13, and percentage (18.6%). Moderate Myopia Progression frequency was only 6 and percentage (8.6%). Severe myopia progression frequency was 3 and percentage of severe myopia progression was (4.3%). Less myopia progression frequency was 48 and their percentage (68.6%).

**Conclusion:** It is concluded that the children were given eye health education learned how to use the glasses and maintain eye health and hygiene, which they were not aware of before. The results of this study highlight the importance of eye health maintenance and encourage the children to use of spectacles regularly in order to improve their vision.

**Keywords:** Myopia, Refractive Error, Eye Health, Eye Hygiene, Spectacle

## INTRODUCTION

Globally, at least 2.2 billion people have vision impairment, and of these, at least 1 billion people have a vision impairment that could have been prevented or is yet to be addressed.[1]

IAPB is the overarching alliance for the global eye health sector, with more than 150 organizations in over 100 countries working together for a world where everyone has universal access to eye care. In 2020 in Pakistan, there were an estimated 26 million people with vision loss. Of these, 1.8 million people were blind.[2]

It is estimated that 2.3 billion people worldwide have refractive error. The vast majority of these could have their sight restored by spectacles, but only 1.8 billion people have access to eye examinations and affordable correction. This leaves approximately 500 million people, mostly in developing countries (close to 1/3 are in Africa) and many children, with uncorrected error causing blindness and impaired vision. Many are not aware that there is a cure for their compromised vision, have no one to provide treatment, or cannot afford the appliances they need.[3]

School health programs are a unique opportunity to provide comprehensive eye health services to potentially more than 700 million children throughout the world. Looking into the future, this number will only increase, especially in low income countries, due to the combined effect of population growth and increasing provision of primary and secondary education schooling.[4]

Visual impairment affects a significant proportion of children in school age group, refractive error being the primary cause. Schools form a captive group where vision screening can be done to detect vision problems and provide glasses.[5]

Visual impairment is a common disorder in school-aged children. Ametropia (a condition of refractive error) is defined as a state of refraction, when parallel rays of light coming from infinity are focused either in front or behind the retina after passing through the dioptric power of the eye when the accommodation is at rest.[6]

VA screening programs have become a central component of the World Health Organization's Vision 2020 goals in most of the developing world.[7]

Refractive errors were shown to be the leading cause of visual impairment among school children as reported in numerous studies. But many young children with such conditions are asymptomatic. Visual screening can be useful for detecting asymptomatic visual problems; however, compliance with spectacle wearing may be very low for many reasons, such as forgetting to wear glasses, concern about appearance, or not feeling that glasses are needed.[8]

Your vision is crucial to your overall health. For the most part, people rely only on their eyes to view and comprehend the world around them. However, some eye conditions might result in vision loss, making it crucial to detect and treat eye conditions as soon as possible. As frequently as your doctor advises or if you notice any new vision issues, you should undergo an eye exam. Additionally, maintaining the health of your eyes is equally as crucial as maintaining the health of your body.[9]

## MATERIALS AND METHODOLOGY

### Study Type

School based mixed Quantitative and Qualitative study

### Study Design

The study design was cohort study design. (It selected based on the exposure status of the individual. They are then followed over time to evaluate.)

### Study Location

The location of this study was human development foundation (HDF) schools Mardan.

**Sampling Technique**
The sampling technique of this study was Purposive Sampling technique.

**Sample Size**
All myopia students provided with spectacles in human development foundation (HDF) schools during phase 1 from February to March 2023.

**Study Duration**
The duration of research was 6 months which was time period for BS research. But it is based on school screening which was started from February to March 2023. So the duration of current research was 1 year.

**Inclusion Criteria**
- All students provided with spectacles in human development foundation (HDF) schools.
- Age group 4 to 18 years.

**Exclusion Criteria**
- Unwilling participants
- Age group greater than 18 years
- Student with some pathology

**Data collection Tools**
- Guide for IDIs
- FGD with spectacles wearer for eye health education
- Self-administer Performa for screening.

**Data Collection Instruments**
- Snellen Chart
- Retinoscope
- Trail box
- Trail frame
- Occluder
- Ophthalmoscope

**Ethical considerations**
- Ethical consideration from the Ethical Committee, Pakistan Institute of Rehabilitation Sciences (PIRS).
- Permission from the school Principals.

**Data analysis**
- SPSS version 22
- MS Word for Thematic Analysis

**Informed consent**
- Written consent from principal.

**Methodology (Quantitative Part)**
School screening was conducted in formal and non-formal School of Human Development foundation (HDF) in Mardan. Formal schools name and their location HDF secondary school Mirwas, HDF secondary School Gurdass, HDF secondary school Saeedabad.

Non formal schools Faazal kalay, Mansab, Sargand, Muslim Abad 1, 2, 3, Ghareebabad, Akhtar Abad, Khura Gull Bagh, Bakri Bandar and Shyaheed Kalay. Screening was started in the month of February from 7 February, 2023 to 22 March, 2023.

During First phase of School screening all the 2857 Children enrolled in 3 formal and 11 non formal schools of Human development foundation. 2568 Children were normal and had no refractive error (VA=6/6). Whereas 289 Children had refractive error (corrected & in & uncorrected). 251 Children given spectacles as some of them already wearing spectacles. Visual acuity was tested monocularly right eye and then left eye and then binocularly using Snellen distance V.A Chart (having E Optotype). Screening was started in the month of February from 7 February to 22 March, 2023.

During second phase of screening (from 21 September, 2023 to 17October, 2023) detail refraction (objective & Subjective refraction) and opthalmoscopic eye examination was done for all those students who were identified as having refractive error (especially those students which had Myopia given Minus lens Spectacle).

**Methodology (qualitative part)**

On 11 October, 2023 Out of 251 students who were identified as having refractive during first phase of school screening a sample of 70 students was taken & in-depth interviews were conducted with their class teachers to obtain the perception of students regarding use of spectacles & eye health Hygiene. 20 random students and 3 class teachers were taken and Focus discussion done group to promote Eye health education, maintain of eye hygiene and take part in school screening programme.

## RESULT DESCRIPTION

This study included 62 females and 8 males. The percentage of female was 88.6% and the male percentage was 11.4%.The ages of both female and male were in different categories, and their percentage was 4-10 years (22.86%) and 11-18 years (77.14%). The class of both male and female were divided into two categories 1-5 class and their percentage was 37.1% and 6-10 class their percentage was 62.9%. The myopia progression was divided into four categories. The Mild myopia progression frequency was 13 and percentage (18.6%). Moderate Myopia Progression frequency was only 6 and percentage (8.6%). Severe myopia progression frequency was 3 and percentage of severe myopia progression was (4.3%). Less myopia progression frequency was 48 and their percentage (68.6%). The duration of spectacle <1hour frequency was 25 and their percentage (35.7%), >1hours to 3hours frequency was 18 and their percentage (25.7), >3hours to 6hours frequency was 5 and their percentage was (7.1%), >6hours to 9hours frequency was 14 and their percentage was (20%) and >9hours frequency was 8 and their percentage (11.4%). According to the base line, the visual acuity of right eye shows us different frequencies and percentages. Total baseline, visual acuity of right eye were 70 patients. The VA 6/6 frequency was 5, and their percentage (7.1%); the VA 6/9 frequency 23, and percentage was (32.9%); the VA 6/12 frequency was 9, and percentage was (12.9%); the VA 9/18 frequency was 6, and percentage (8.6%), the VA 6/24 frequency 14, and the percentage (20.0%); the frequency of VA 6/36 was 6, and percentage (8.6%); and VA 6/60 frequency was 4, and percentage (4.3%), respectively. The baseline visual acuity of left eye shows different frequencies and percentages in data. The total number of patients with baseline visual acuity of left eye was 70.The VA 6/6 frequency was 3, and percentage (4.3%); the VA 6/9 frequency was 22, and shows (31.4%); VA of 6/12 frequency was 6, and shows (8.6%); the VA 6/24 frequency was 15, which shows (21.4%); the VA 6/36 patients frequency was 6 and shows (8.6%); and <6/60 frequency was 3, and percentage (4.3%). After timeline visual acuity of right eye shows different frequencies and percentages. The total frequency included only 70 patients. After timeline visual acuity of right eye 6/6 frequency was 56, and shows (82.9%); the VA 6/9 frequency was 7, and included (10.0%); the VA 6/18 frequency was only 1, it was (1.4%); and VA 6/24 frequency was 4, and it shows (5.7%). After timeline visual acuity of left eye also shows different frequencies and percentages. The total frequency of after timeline visual acuity of left eye frequency was 70. The VA 6/6 frequency was 56, and shows (80.0%); VA of 6/9 frequency was 7, and it included (10.0%); the VA 6/12 frequency was only 1, and it was

(1.4%); the VA 6/18 frequency was 3, and it shows (4.3%); and 6/24 frequency was 3, and shows (4.3%) respectively.

**Gender**

**Table 1.1** shows the total sample size of both female and male.

| Gender | Frequency | Percentage% |
|---|---|---|
| **Female** | 62 | 88.6 |
| **Male** | 8 | 11.4 |
| **Total** | **70** | **100.0** |

**Table1.1**

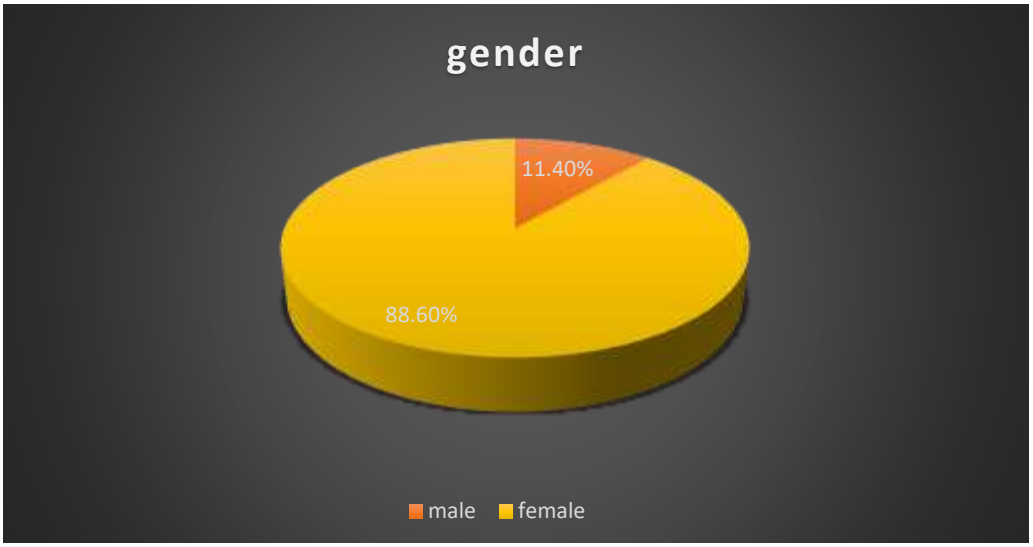


**Figure2.1**

**Age**

**Table 1.2** shows the frequency and percentage of age categories of both male and female.

| Age | Frequency | Percentage% |
|---|---|---|
| **4-10yrs** | 16 | 22.86 |
| **11-18yrs** | 54 | 77.14 |
| **Total** | **70** | **100.0** |

**Table1.2**

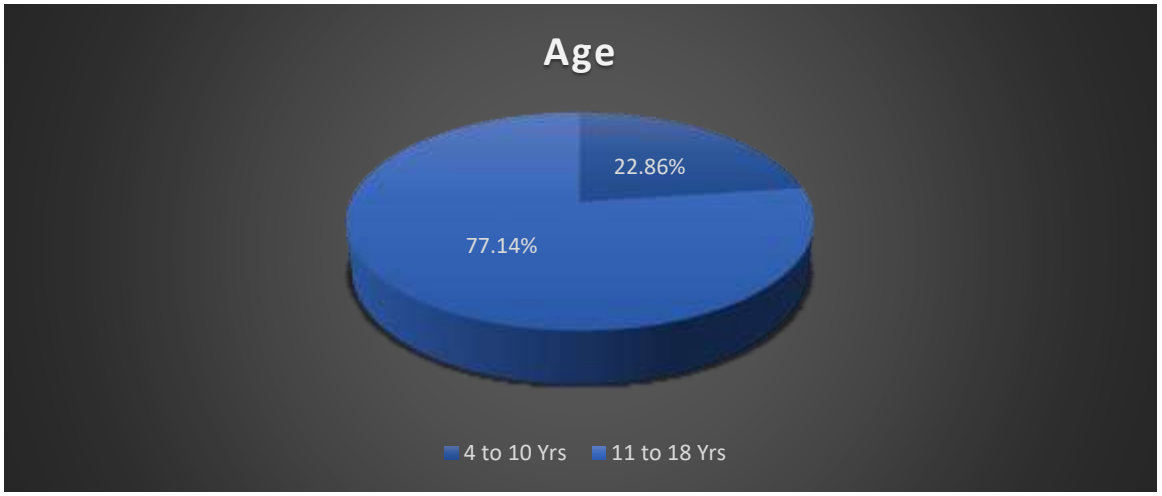


**Figure2.2**

**Myopia Progression**

**Table 1.4** shows frequency and percentage of myopia progression categories.

| Myopia Progression | Frequency | Percentage% |
|---|---|---|
| **Mild Progression** | 13 | 18.6 |
| **Moderate Progression** | 6 | 8.6 |
| **Severe Progression** | 3 | 4.3 |
| **Less Progression** | 48 | 68.6 |
| **Total** | **70** | **100.0** |

**Table1.3**

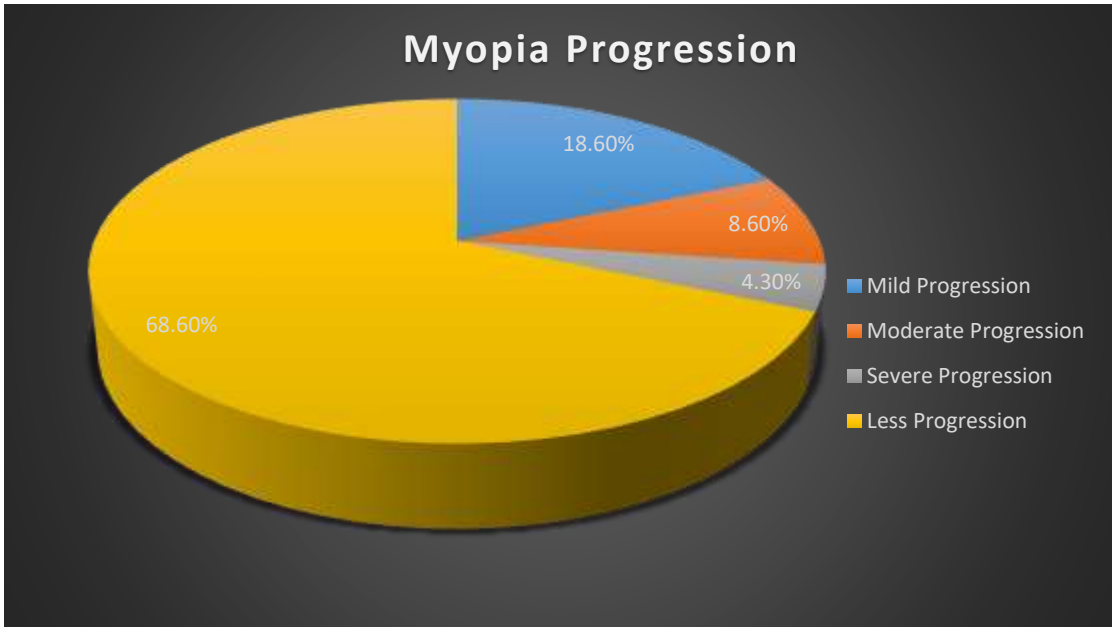


**Figure2.3**

**Class**

**Table 1.4** shows the frequency and percentage of class.

| Class | Frequency | Percentage% |
|---|---|---|
| **1-5 Class** | 26 | 37.1 |
| **6-10 Class** | 44 | 62.9 |
| **Total** | 70 | 100.0 |

**Table1.4**

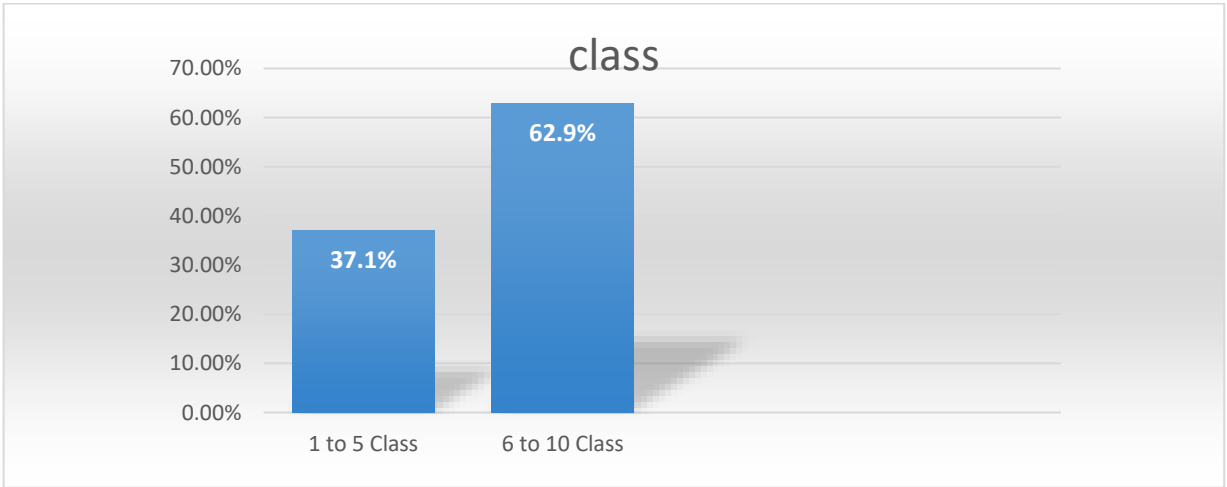


**Figure2.4**

**Baseline VA of Right Eye**

**Table1.5** shows frequency and percentage of base line visual acuity of right eye.

| BLD_VAR | Frequency | Percentage% |
|---|---|---|
| **6/6** | 5 | 7.1 |
| **6/9** | 23 | 32.9 |
| **6/12** | 9 | 12.9 |
| **6/18** | 6 | 8.6 |
| **6/24** | 14 | 20.0 |
| **6/36** | 6 | 8.6 |
| **6/60** | 4 | 5.7 |
| **<6/60** | 3 | 4.3 |
| **Total** | **70** | **100.0** |

**Table1.5**

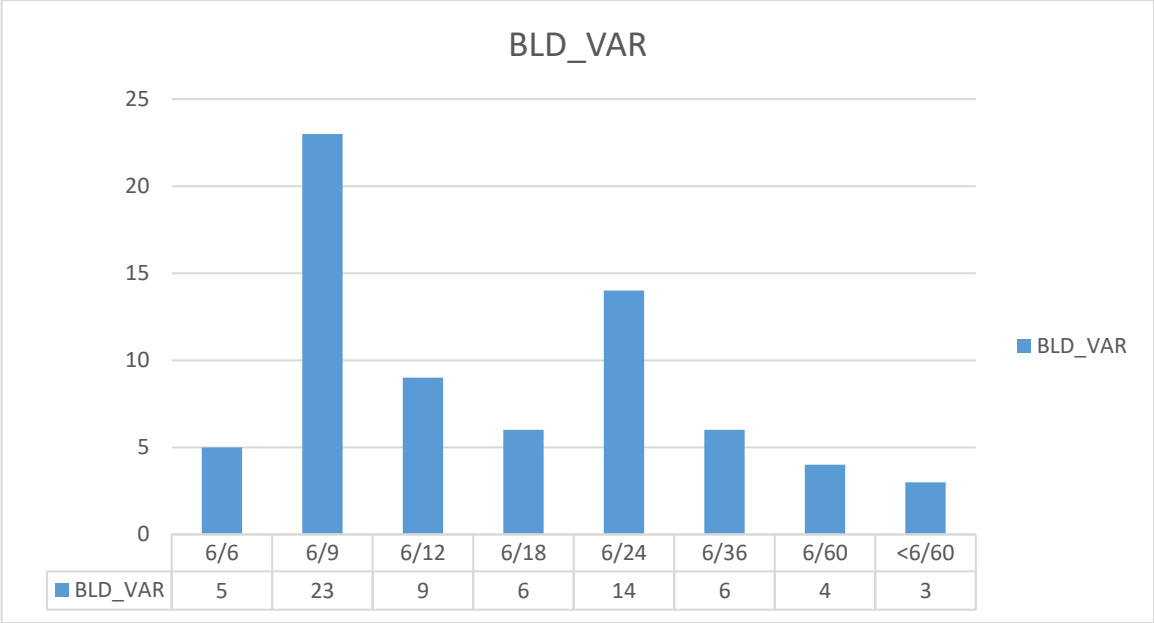


**Figure 2.5**

**Baseline VA of Left Eye**

**Table1.6** shows frequency and percentage of base line visual acuity of left eye.

| BLD_VAL | Frequency | Percentage% |
|---|---|---|
| **6/6** | 3 | 4.3 |
| **6/9** | 22 | 31.4 |
| **6/12** | 6 | 8.6 |
| **6/18** | 11 | 15.7 |
| **6/24** | 15 | 21.4 |
| **6/36** | 6 | 8.6 |
| **6/60** | 4 | 5.7 |
| **<6/60** | 3 | 4.3 |
| **Total** | **70** | **100.0** |

**Table1.6**

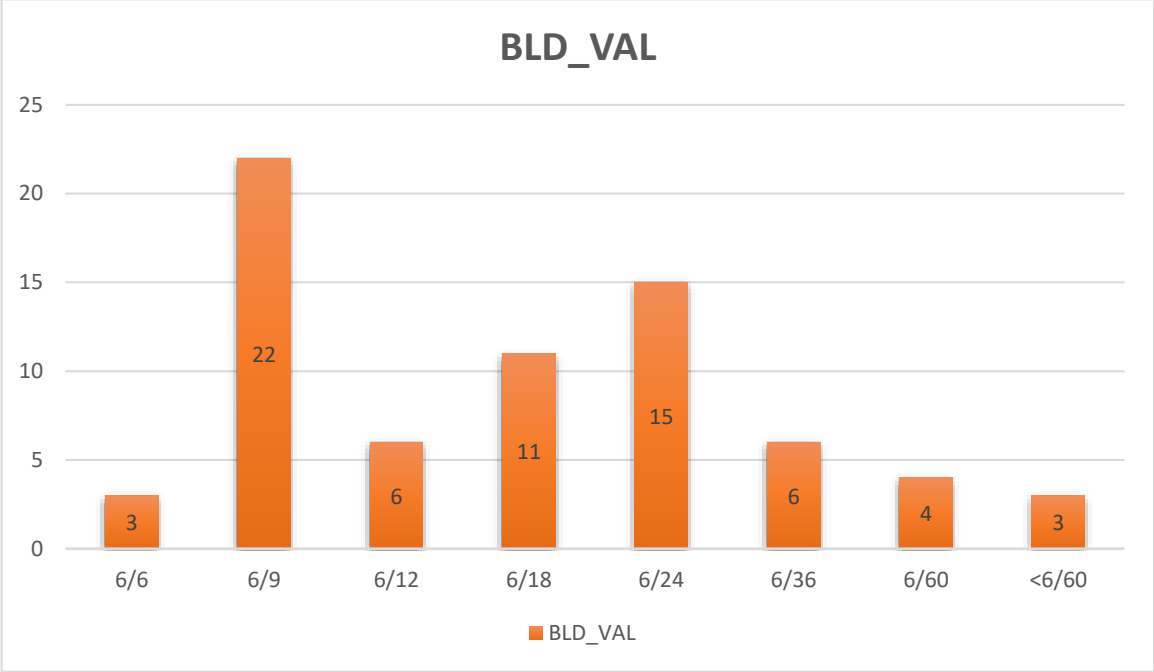


**Figure 2.6**

**After Timeline VA of Right Eye**

**Table1.7** shows frequency and percentage of after time line visual acuity of right eye.

| AT_VAR | Frequency | Percentage% |
|---|---|---|
| **6/6** | 58 | 82.9 |
| **6/9** | 7 | 10.0 |
| **6/18** | 1 | 1.4 |
| **6/24** | 4 | 5.7 |
| **Total** | **70** | **100.0** |

**Table1.7**

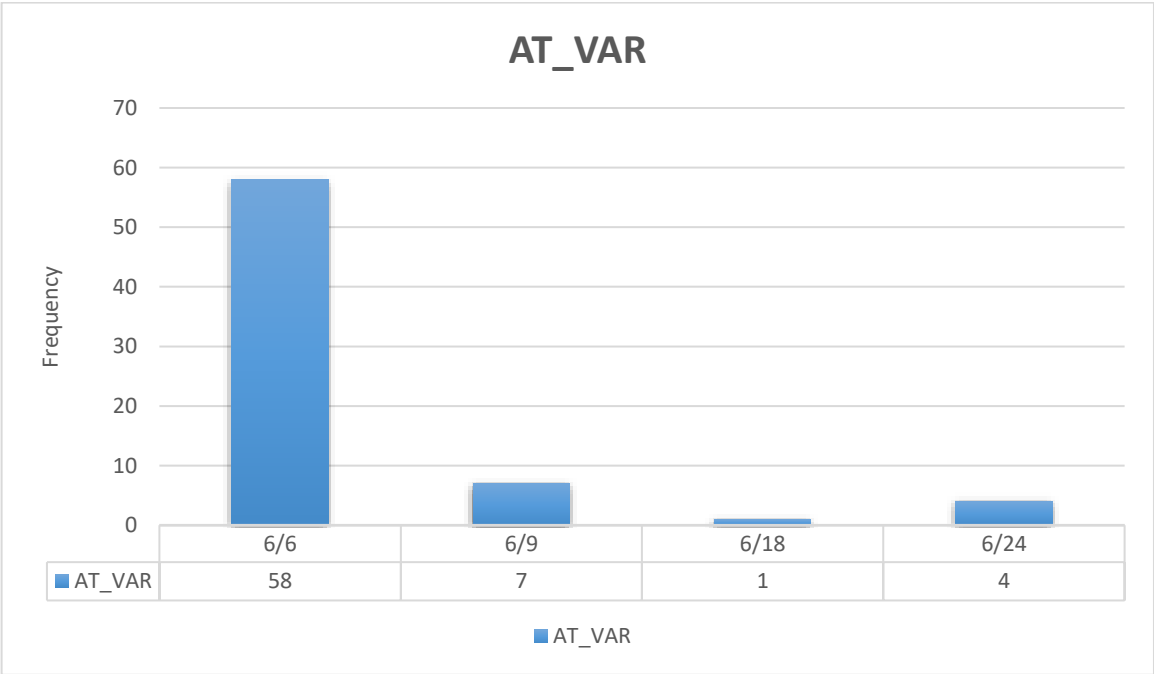


**Figure 2.7**

**After Timeline VA of Left Eye**

**Table1.8** shows frequency and percentage of after time line visual acuity of left eye.

| AT_VAL | Frequency | Percentage% |
|---|---|---|
| **6/6** | 56 | 80.0 |
| **6/9** | 7 | 10.0 |
| **6/12** | 1 | 1.4 |
| **6/18** | 3 | 4.3 |
| **6/24** | 3 | 4.3 |
| **Total** | **70** | **100.0** |

**Table1.8**

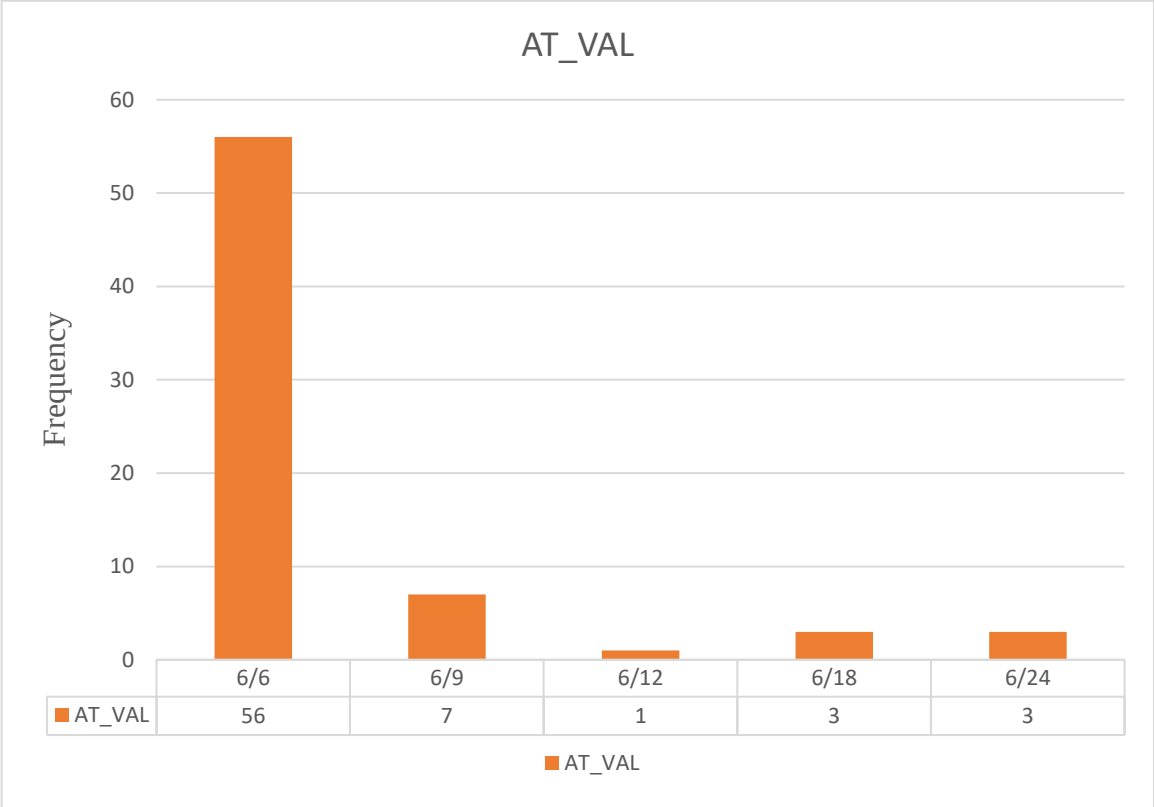


**Figure 2.8**

**Duration of spectacle**

**Table1.10** shows the frequency and percentage of duration of spectacle.

| Duration | Frequency | Percentage% |
|---|---|---|
| **<1hrs** | 25 | 35.7 |
| **>1hrs to 3hrs** | 18 | 25.7 |
| **>3hrs to 6hrs** | 5 | 7.1 |
| **>6hrs to 9hrs** | 14 | 20.0 |
| **>9hrs** | 8 | 11.4 |
| **Total** | 70 | 100.0 |

**Table1.9**

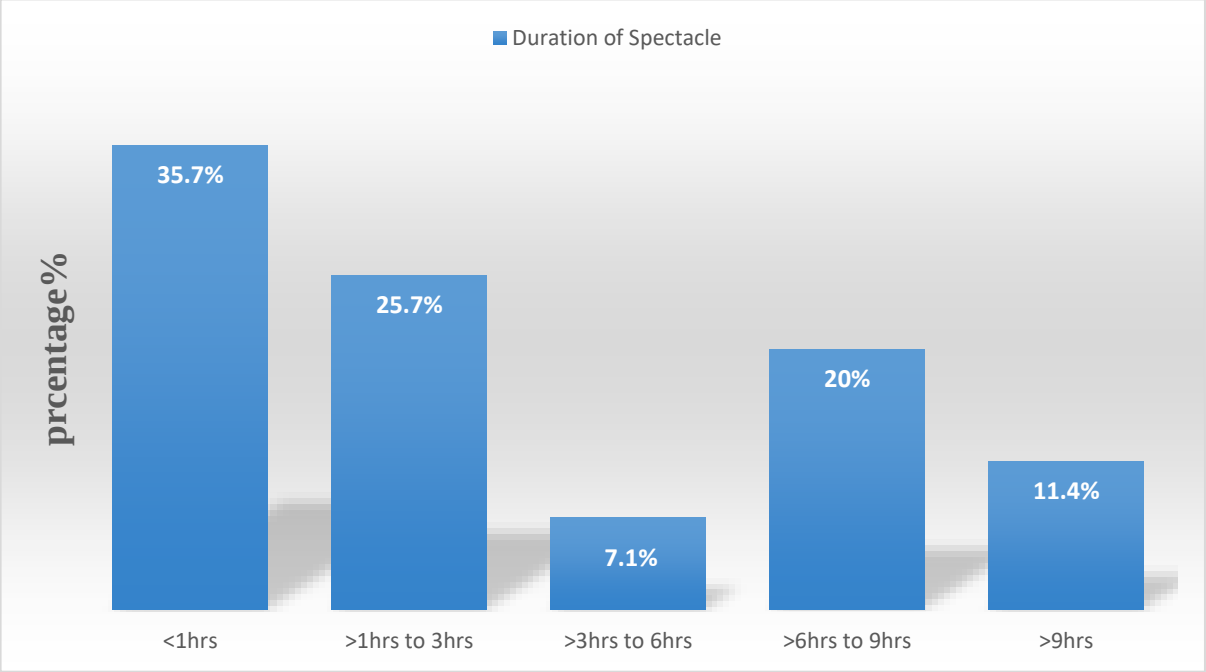


**Figure 2.9**

**THEMATIC ANALYSIS OF IDI'S CONDUCTED WITH STUDENTS ABOUT THEIR PERCEPTIONS AND OBSERVATION OF STUDENTS WHO WERE IDENTIFIED AS HAVING REFRACTIVE ERROR AT HDF SCHOOL, MARDAN.**

In-depth interviews were conducted with total 70 students who were identified as having refractive error (VA of < 6/12) during school screening. Six open-ended questions were asked and discussed with students about their perceptions and observations regarding student health and their academic performance. In the first attempt, students didn't cooperate well; probably the reason was that they were not familiar with our team. They feel shy talking about their vision and eye health problems in Urdu. Therefore, the teacher who told our questions to students in Pashto and their response in Urdu to our team to get their perceptions about the students' eye health.

**How long students wear / use spectacles:**

Most students wear glasses for less than an hour. And some use glasses for 2–3 hours. Only few students wear glasses for 9 hours.

**Why students not wear /use spectacles:**

Most students said they can't wear glasses because their glasses break. One of the students in class 10 said that she had lost her glasses. One of the students in class 9 said that people laugh at me and that I feel shy. One fifth-grade student stated, "I can't wear glasses to school; I only wear them at home because I'm shy." And I don't like to wear glasses. One of the students in 5th grade said my brother said don't wear glasses; he hit me. And one of the students in class 7 said she couldn't wear glasses because my mother said "Chashmy ma achawa bya ba Darla sok jenny Na darki." (Chasma mat pehno kal KO tmhara rishta Ni aya ga).

**How long students study in one day: what are room lightning Conditions: how often they engage in activities like close-up tasks like reading ,writing, and using electronic devices: what were the sitting posture:**

Most students studied for 2–3 hours. Room lighting conditions are bright. Most students studied in an open "Baramda" in natural sunlight. Only 2–3 students in (class 5th) and (class 7th) said they studied at the "Madrassa" in dim light. One of the students in class 9 said I study at night and my room light is very dim. Most students said they do close-up tasks like reading, writing, and playing cricket on

the playground. Most students do not watch TV or use mobile phones. They said we have no phones or TV at their homes. One of the students in 5th grade said she does all housework at near and far distances but can't see things clearly. One of the students in class 6 said she used her cell phone for about 2–3 hours and had weak eyesight. Most students study in a sitting posture by placing their schoolbags and notebooks on the floor. Only some students in classes 8 and 9 study in a lying position during the night by placing their heads on pillows. One student in 5th grade said, "I write by placing my head too close to my notebook because I can't see properly and study in sitting posture.

**Student's views/ perception about the importance of vision, eye health and hygiene:**

Only some students knew about the importance of vision and had an idea about eye health and hygiene. One of the students in class 7 said "Without eyes, I can't see the world". One of the students in 4th grade said, "Eyes are very important. When I close my eyes, I can't see anything." One of the students in class 3 said "I get sad without my eyes". One of the students in class 3 said "Without my eyes, I got angry". One of the students in class 6 said, "Eyes are a great blessing of Allah. Eyes help me to see beautiful things." One of the students in class 7 said, "Eyes are a great gift from Allah, and I feel disappointed because my eyesight is weak. One of the students in class 7 said, "Without my eyes, I am blind." One of the students in class 3 said, "Without glasses, you can't see clearly." One of the students in 7th grade said, "Without my eyes, I am not able to do study, walk, or write anything". One of the students in class 5 said, "Eyes are a great gift of God; without my glasses, I can't see anything, and I can't wear glasses because my friends said to me, CHASMATTO. One of the students in class 10 said, "I wish my eyesight would again become (6/6) and I would live my life without glasses." One of the students in class 6 said, without eyes, I can't see my parents. "One of the students in class 6 said, my eyes are everything." One of the students in 5th grade said his glasses broke and he couldn't make a new pair because his father couldn't afford them. "(Zama palar ghareeb Dy mata nawe cheshmy Na she jorha waly.)" Most students do not have any idea about eye health and hygiene. Students are not in proper, clean uniforms. They were sitting on the floor. They came to school in sleepers without brushing their teeth and hair. Their washrooms were not clean. There is no proper drainage system in schools. Even they don't wash their faces with plain water. Most students said their fathers worked in the vegetable market. And they don't have money to buy new pairs of shoes, uniforms, or spectacles. Only two, three students know how to take care of their eyes and hygiene. One student in 9th grade said "I take care of my eyes by cleaning my eyes with fresh water, and I put rose water in my eyes in case of any irritation". One of the students in class 10th said, "I wash my hands and face properly with soap. And I eat healthy food.

## GROUP DISCUSSION ABOUT EYE HEALTH

Group discussion were conducted with total 20 random students who were identified as having refractive error (VA of < 6/12) during school screening and with 3 class teachers. Group discussions (GDs) was held with the aim of promoting and providing eye health education for maintaining proper eye cleanliness. Group discussion was conducted in one primary school of human development foundation in mardan district. The aim was to obtain in-depth knowledge of the students' beliefs and view about eye health and eye hygiene. The discussion involved twenty students comprising of 20 females. They feel shy talking about their vision and eye health problems in Urdu. Therefore, the teachers who told our questions to them in Pashto and their response in Urdu to our team to get their perceptions about the students' eye health. Children perspectives on eye health can be limited. Results showed that the students had knowledge gap related to eye health and eye hygiene as well as some negative and some positive attitude towards eye hygiene.

In group talks concerning eye health education, students presented a range of viewpoints and concepts. When they first started studying the subject, people were interested in finding out more about how to keep their eyes healthy. As the discussion went on, the students started to think back on their own routines and experiences, remembering times when they might have disregarded their vision or underestimated the significance of taking good care of their eyes. While some spoke about their

experiences staring at screens for extended periods of time without taking breaks, others talked about the negative effects of pollution and UV rays on eye health. Everyone realized that maintaining good eye health involved more than just having clear vision; it also involved avoiding potential long-term damage and maintaining overall well-being.

Students came up with suggestions throughout the conversation for ways to raise awareness of eye health in their communities. These included holding educational workshops, making instructional posters, and adding eye health teachings to school curricula. It was everyone's duty to raise awareness and give people the confidence to put their eye health first.

By the time the debate concluded, students felt more deeply about the value of preventive eye care and were inspired to take steps to safeguard their vision and inform others. They were motivated and filled with useful information to make wise decisions regarding their eye health going forward after they concluded the discussion.

**What our team did/ what could be done for eye health education and eye hygiene in school screening:**

We conduct a presentation on eye hygiene with students to promote eye health education and knowledge and advise students to maintain cleanliness, motivate them to maintain healthy activities and make health a priority, trim their nails, eat a healthy balanced diet can reduce your risk of developing common eye conditions, get a good night's sleep, bring their own water bottle, keep sharp things and needles away from their eyes, wash their hands properly, always wear spectacles, study in bright light, wear sunglasses when you go outside, take part in outdoor activities, exercise regularly the eyes need oxygen to stay healthy and comfortable and go to eye clinics for routine checkups.

## DISCUSSION

In study by Verkicharla et al. (2020) conducted a comprehensive study on myopia progression, encompassing a dataset of 6984 individuals spanning the age range of 1to30 years. The retrospective analysis, carried out at LV Prasad Eye institute, employed standard retinoscopy techniques to determine refractive error. The participants were categorized into mild, moderate, high, and severe high myopic groups based on spherical equivalent (SE) refractive error. The study revealed that myopia progression is intricately linked to both age group ($p<0.00001$) and severity of myopia ($p<0.0001$). Noteworthy findings included the highest annual progression observed in children aged 6-10 years and the least in adults aged 26-30 years. Furthermore, severe myopia exhibited a consistently higher progression rate across age groups.[10]

In current study, which notably comprises 62 females and 8 males. The demographic distribution reflects a significant female majority (88.6%) across varied age categories. In current study explores myopia progression through the lens of different severity categories and presents a detailed baseline visual acuity analysis for both right and left eyes, providing frequencies and percentages. While the current study sheds light on myopia progression in a district demographic, a comparative analysis with the Verkicharla study could offer valuable insights into how these patterns align or diverge across diverse sample characteristics and methodologies.

In study to Aslan et al. (2022) research on the impact of home education on myopia progression in children during COVID-19, notable differences and insights emerge. While Aslan's study included 115 children with a retrospective single-center design.[11]

In current study focused on 70 participants, consisting of 62 females (88.6%) and 8 males (11.4%), spanning different age categories. Notably, our investigation delved into myopia progression in distinct categories, revealing percentages for mild (18.6%), moderate (8.6%), severe (4.3%) and less progression (68.6%). This nuanced categorization provides a more detailed understanding of myopia trends in our cohort. Examining visual acuity (VA) at baseline and over time, our study presents diverse frequencies for the right and left eye. The baseline visual acuity revealed varying percentages across different VA categories, with significant shifts observed after the timeline. Notably, substantial percentage (82.9%) achieved 6/6 VA in the right eye after the timeline, suggesting potential

correlations between myopia progression and visual acuity changes. The left eye also exhibited fluctuations in VA frequencies, emphasizing the dynamic nature of myopia development. These findings contribute to the existing body of knowledge by offering a more granular perspective on myopia progression concerning gender, age, and visual acuity changes. Further research could explore these nuances, shedding light on potential factors influencing myopia outcomes and guiding more targeted interventions in the context of home education during challenging periods such as the COVID-19 pandemic.

In study by Imtiaz HS et al.'s (2023) investigating the correlation of myopia with smartphone usage and outdoor activities laid a foundational understanding of factors influencing refractive error in children aged 4-14 years. Their findings highlighted a positive moderate association between daily smartphone usage and uncorrected visual acuity (UCVA), coupled with a negative strong association between UCVA and weekly outdoor activity. Building upon this groundwork.[12]

In current study, featuring 62 females and 8 males across various age categories, ventured into a comprehensive exploration of myopia progression. Notably, 68.6% of participants exhibited no myopia progression, showcasing the multifaceted nature of myopia development beyond smartphone and outdoor activities. Analyzing visual acuity frequencies for both eyes at baseline and over time uncovered nuanced shifts, emphasizing the need for a holistic understanding of myopia patterns. This extended investigation contributes more intricate perspective, considering age, gender, and visual acuity changes, offering valuable insights for comprehending the intricate interplay between myopia and environmental factors in the context of children's eye health. The divergent results between the studies underline the importance of multifactorial analyses in elucidating the complexities surrounding myopia progression.

## CONCLUSION

- It is concluded that less myopia progression which is 68.6%, mild myopia progression which is 18.6%, moderate myopia progression and there percentage is 8.6% and severe myopia progression which is 4.3%.
- It is concluded that the children were given eye health education learned how to use the glasses and maintain eye health and hygiene, which they were not aware of before.

## LIMITATIONS

- We could not complete data because some schools were closed.
- We could not complete sample size because in some schools spectacles were not provided.
- We could not complete sample size because $10^{th}$ class had passed out.

## CONFLICTS OF INTEREST

- The authors declare no conflict of interest.

## SOURCE OF FUNDING

The authors received no financial support for publication of this article.

## ACKNOWLEDGMENT

In the name of ALLAH, the most beneficent, the most merciful.

First and foremost, praise and thanks to the God, the Almighty, for His showers of blessings throughout my research work to complete the research successfully.

We would like to express our deep and sincere gratitude to Head of Research & Development department, PIRS, Dr. Aliya Qadir Khan, for emboldening us and gave us the golden opportunity to do this wonderful project. We would like to express our special thanks and gratitude to our research supervisors, Mr. Matiullah Khan, for their valuable advises, for giving us the opportunity to do research and for providing invaluable guidance throughout this research.

## REFERENCES


1) World report on vision. 2019
2) Country maps and estimates of vision loss, Pakistan - The International Agency for The Prevention of Blindness.
3) Holden BA, Sulaiman S, Knox K. The Challenge of Providing Spectacles in the Developing World. Journal of Community Eye Health. 2000; 13: 9-10.
4) Gilbert C, Minto H, Morjaria P, Khan I, Standard school eye health guidelines for Low and middle-income countries. [IAPB]
5) Sathyan S. Vision screening at schools: Strategies and challenges. Kerala J Ophthalmol 2017; 29:121-130.
6) Khurana AK. Text book of ophthalmology. 3rd Ed. New Delhi: New Age International Publisher; 2006:52-59
7) Resnikoff & Pararajasegaram, 2001.
8) Castanon Holguin AM, Congdon N, Patel N, Ratcliffe A, Esteso P, Toledo FS. Factors associated with spectacle-wear compliance in school-aged Mexican children. Invest Ophthalmol Vis Sci 2006; 47:925-928.
9) U.S Department of Health and Human Services National Institute of Health. Eye care | vision care. Medline plus. 2017 Feb 14.
10) Verkicharla PK, Kammari P, Das AV. Myopia progression varies with age and severity of myopia. Plos one. 2020 Nov 20; 15 (11):e0241759.
11) Aslan F, Sahinoglu-Keskek N. The effect of home education on myopia progression in children during the COVID-19 pandemic. Eye. 2022 Jul; 36(7):1427-32.
12) Imtiaz HS, Sharjeel M, Malik IQ. Co-relation of myopia with the use of smart phones and outdoor activities. Pakistan Journal of Ophthalmology. 2020 Sep 1; 36(4).