Original Article

Prevalence of myopia in children aged 06 to 15 years playing video games and non-playing video games.

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ABSTRACT

Background and Objectives: : Myopia or short-sightedness is causing the reduction in far visual acuity. The burden of uncorrected myopia among our population is large and as effective interventions are available, early detection of myopia and its proper correction prevents visual impairment. Objective: To assess the prevalence of myopia in children aged 06 to 15 years playing and non-playing video games.

METHODOLOGY: In this cross-sectional study 78 children were registered & visual acuity of all the subjects was checked by using a distance smallest chart. Subjective refraction was done in the subjects having reduced visual acuity. Questions regarding playing and non-playing video games along with their duration were asked.

RESULTS: Out of 78 subjects, 53 played video games. Out of 53 children, 19 were found to have myopia and 25 not played video games, 2 subjects had myopia. The study showed that significant relationship between myopia and playing video games.

CONCLUSION: It is concluded that there is a significant association between myopia and playing video games in children, and this relationship needs to be further explored on a large scale.

KEYWORDS: Myopia, Video games, Visual Acuity.

INTRODUCTION

Myopia, or nearsightedness, is a refractory disorder in which light improperly convergence and focuses in front of the retina creating blurry vision of distant objects (1). It is a condition that results from the eye's optical machinery being far-fetched for the length of the eyeball. This can be caused by Alteration in the curvature of the cornea, the lens or an increase in the axial length of the eyeball. Myopia is commonly classified into different types: Special types are congenital, simple, and pathological (2).

Myopia is present at birth, and the common cause is increased axial length, which does not show much change with increasing age. Simple myopia is its most common type, which usually develops in childhood and reaches its peak by mid-adolescence (3). The symptoms vary from mild to moderate and usually do not worsen with time, especially after adolescence. There is also the pathological myopia: the patients with this form of the illness experience rapid myopia progression during children and teenagers, combined with high myopia degrees and complications: retinal separation, macular degeneration, and others diseases which threaten one's vision.

Myopia has been rising globally, and the primary cause is the new trends in lifestyle, including spending less time outdoors and more time using electronic devices. To support their observation they stated that epidemiological studies have demonstrated that children who play outdoors are less likely to become myopic; therefore, natural light and distance vision have a protective effect.

The signs of myopia include, getting blurred vision when looking at objects that are far away, having a feeling of strain on their eyes, and feeling uncomfortable when they are driving or watch films. In more severe conditions the patients get a perception of 'floaters' or night blindness by those changed retinas. Myopia is detected during examination, bycovering a large, pale optic disc with degenerative retinal changes in the pathological form of the disease (4)

Myopia can be treated by spectacles or contact lenses and medical treatments to rectify the sight can be done

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through refractive surgery Myopia has shown progression and thus there are ongoing experiments to halt its progression, especially in children (4).

Objectives

- To understand myopia as a refractive error, where light focuses in front of the retina, leading to blurred vision for distant objects.
- To identify the common causes of myopia, including an elongated eyeball, increased curvature of the cornea or lens, and genetic factors.
- To explore management options for myopia, such as corrective lenses, contact lenses, or refractive surgery, and prevention strategies like increased outdoor activity and reduced near work (4).

METHODOLOGY

Study Setting: The study was conducted in the 'Department of Ophthalmology' of Fatima Memorial Hospital Shadman, Lahore.

Study Population: The patient having myopia were included in the study.

Sample Size: A sample size of 78 patients selected from FMH eye OPD fulfilling inclusion criteria were included in the study.

Inclusion criteria

- Subjects age from 06 years to 15 years.
- Playing video games/Mobile games subjects.
- Non Playing video games/Mobile games subjects
- Both boys and girls subjects.
- Refractive errors only in myopic subjects.

Exclusion criteria

- Subjects less than 06 years and more than 15 years.
- Any other near work.
- Uncooperative patients.
- Surgically operated eyes.

Study Design

It was a cross-sectional, observational study (5)

Study Duration

The duration of the study was four months from 20 August 2018 to 20 December 2018.

Data Collection Instrument

A well-designed proforma comprising questions regarding demographic data, patient history and clinical examination was used to collect data (6)

Methodology

78 patients were presented to eye OPD of Fatima Memorial Hospital.

Informed consent was taken and demographic data was collected on a pre-designed proforma (6).

Visual acuity of both eyes was recorded monocularly by using Snellen's chart. Then pinhole test was performed. Then Auto Refracto-Keratometer (TOPCON) refraction was done, subjective refraction was performed and the prescription of glasses to subject having the myopia (7).

Ethical Issues

As it was an observational study there were no ethical issues or any religious barrier in this study. The verbal consent was taken from the patients (8).

Data Analysis

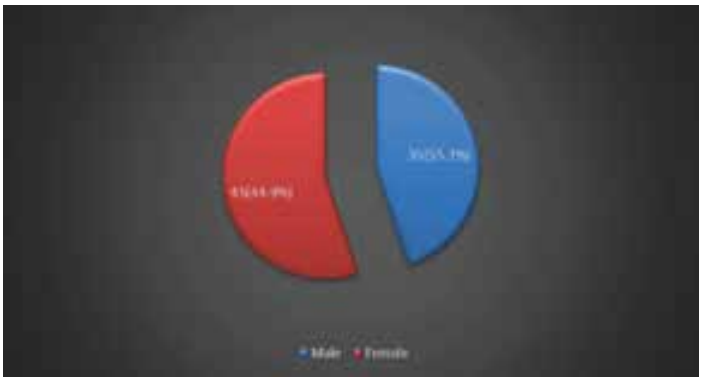
The data was entered and analyzed in the SPSS 23 version. All quantitative variables like age and visual acuity (V.A) were discussed in the Mean, ± Standard Deviation Form. All qualitative variables like gender, myopic and non-myopic were discussed in frequency or percentage form. Pie and bar charts were used to represent data (8).

RESULTS

The Study included 78 subjects who were presented with eye OPD. Out of these 35 (44.9 %) were male and 43 (55.1%) were female. The following table shows the gender distribution of total subjects (9).

Table No 1: Gender distribution

Gender	Frequency	Percentage
Male	35	44.9%
Female	43	55.1%
Total	78	100%



Graph No 2: Gender distribution

The data was divided into different sections containing demographic, presentation and association profiles (10). We divided the children into basic two groups who played or not play video games. Out of a total of 78 children, 53 (67.9 %) who played video games and the remaining 25 (32.1 %) did not play video gamThe following wing table shows the children who played or did not play video games (11).

Table 2: Children played and not play video game

Category	Frequency	Percentage
Played video games	61	79%
Not played video games	16	21%
Total	77	100%

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Table 3: Prevalence of myopia P Value=0.013

	Myopia - Yes	Myopia - No	Total
Playing video games	19 (24.4%)	34 (43.6%)	53 (67.9%)
Non-playing video games	2 (2.6%)	23 (29.5%)	25 (32.1%)
Total	21 (26.9%)	57 (73.1%)	78 (100.0%)

DISCUSSION

Myopia is a type of refractive error in which parallel rays of light coming from infinity focus in front of the retina when accommodation is at rest (12). It is a very common cause of visual impairment throughout the world. Early onset of myopia is associated with high myopia in adult life (13). High myopia is a significant public health problem because of its association with an increased risk of several ocular diseases including cataracts, glaucoma, retinal detachment, myopic retinal degeneration, visual impairment, and blindness (14). Therefore, it is important to investigate the reasons for the increase in the prevalence of myopia and to identify the possible risk factors. This would point to possible directions to take for preventing myopia in the future (13).

This study was conducted to find out the prevalence of myopia either in playing video games children or in non-playing video games children. 53/78 (67.9 %) were playing video games and 25/78 (32.1 %) were not playing video games (15). The results showed that the prevalence of myopia was higher in children who played video games. 19/53 (24.4 %) and the prevalence of myopia was less in children who did not play video games 2/25 (2.6 %).

The study also reveals that the proportion of myopia is higher in children, who play video games for more than two hours per day than in children playing video games for two hours or les (16)s.

This study is by no means an exhaustive study owing to lack of time, manpower and other resources (17). It is basically a cross-sectional survey, carried out to gauge the gravity of the situation. It is intended to serve as a guideline for further extensive studies on a large scale, especially in collaboration with the professionals engaged in Community Ophthalmology Programs (18).

The results of a study of Faisal Rasheed et al, 2010 conducted a study on "refractive errors among children aged 6-15 years playing video games" revealed that 18 out of 100 children had refractive errors, mainly myopia 13 (72.22%), hyperopia 3 (16.7%) and astigmatism 2 (11.1%). This study showed no significant relation between refractive error with their habit of playing different types of video games. However, there was a significant relation between refractive error and duration of playing video games (19-20).

CONCLUSION

Myopia is more prevalent in children playing video games as compared to children not playing video games and the p-value is less than 0.05, so there is a significant association between myopia and children playing video games.

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Authors Contributions:

Muhammad Sarfraz: Substantial contributions to the conception and design of the work.

Khurram Nafees: Design of the work and the acquisition. Drafting the work. Final approval of the version to be published.

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