SHODH SAGAR®
International Journal for Research Publication and Seminar
ISSN: 2278-6848 | Vol. 15 | Issue 3 | Jul - Sep 2024 | Peer Reviewed & Refereed

Changes in lifestyle & behavioral patterns due to COVID- 19 and potential impact of COVID -19 on Myopia & Convergence Insufficiency development & progression.

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DOI: https://doi.org/10.36676/jrps.v15.i3.1496
Accepted : 01/09/2024 Published: 05/09/2024
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Abstract:
Significant shifts in lifestyle and patterns of behavior have been brought about as a result of the COVID-19 pandemic, which has significantly impacted both the physical and emotional health of individuals. conditions that impair visual acuity and binocular vision, such as myopia and convergence insufficiency, could be affected by COVID-19, which could have a possible impact on the development and progression of these problems. This epidemic has created an environment that is permissive to the exacerbation of various ocular disorders, which includes increased time spent in front of screens, decreased time spent engaging in activities outside, and altered environments in educational and working settings. the prevalence of myopia among children and young adults, particularly in areas where lockdown procedures are very stringent. In addition, the symptoms of convergence insufficiency have been made worse by the prolonged use of digital gadgets and the absence of basic eye care, which has resulted in discomfort and strain on the eyes. the need of raising awareness and conducting timely interventions, with a particular emphasis on the preventative actions that are required to reduce the pandemic's long-term consequences on eye health.
Keywords: COVID-19, lifestyle changes, myopia, convergence insufficiency

Introduction:

The epidemic induced by COVID-19 has generated changes in daily life that have never been seen before, changing patterns of labor, education, and social interaction all around the world. The reliance on digital devices has significantly increased as a result of the widespread implementation of lockdowns, the development in the prevalence of remote employment, and the rise of online education. This transition has resulted in major changes in lifestyle and behavior, including decreased levels of physical exercise, less exposure to the outdoors, and increased amounts of time spent in front of screens. Because of these changes in habit, concerns have been raised concerning the long-term repercussions for health, particularly with regard to vision. Myopia and convergence insufficiency are two different disorders that are becoming increasingly concerning during this time period. The frequent refractive problem known as myopia, sometimes known as nearsightedness, causes objects that are far away to appear blurry. There is a clear correlation between the development and advancement of myopia and prolonged near work situations, such as reading or excessive screen use, in conjunction with a reduction in activities that take place outside. Convergence insufficiency, on the other hand, is a binocular vision problem that inhibits the capacity of the eyes to work together while focusing on close objects. This condition can result in symptoms such as headaches, eye strain, and difficulties concentrating. New

secondary data from a variety of research suggest that the lifestyle changes brought on by COVID-19 may have hastened the onset of both myopia and convergence insufficiency, particularly in children and adolescents. This is especially the case in a number of studies. For the purpose of devising strategies to reduce the consequences of the pandemic on ocular health, it is vital to have a solid understanding of the potential impact that these alterations could have. Through the utilization of secondary data derived from previously conducted research, the purpose of this work is to investigate the connection that exists between the altered lifestyle patterns that occurred during COVID-19 and the growing prevalence of myopia and convergence insufficiency. As a consequence of lockdowns, limitations, and a shift toward digital platforms for job, education, and social interaction, the COVID-19 pandemic caused broad changes in lifestyle and behavioral patterns. These changes were brought about by the pandemic. The incidence of myopia and convergence insufficiency has shown a substantial increase as a result of persons, particularly children and teenagers, experiencing longer periods of screen time and a large drop in activities that take place outside. during the pandemic, the impact of these changes in lifestyle on the advancement of myopia and convergence insufficiency in individuals were investigated.

Background:

Elongation of the eyeball or changes in the cornea or lens can cause myopia, often known as nearsightedness, which is a refractive defect that causes distant objects to seem fuzzy. Myopia is widely recognized as nearsightedness. Environment plays a significant role in the development and evolution of this condition, with environmental factors such as prolonged near work (reading, screen use) and insufficient time spent outside being critical contributors.

On the other hand, convergence insufficiency is a binocular vision impairment that is characterized by the eyes' failure to cooperate together when focusing on close objects. This condition affects both eyes separately. Eye strain, headaches, blurred vision, and difficulties focusing are some of the symptoms of this illness, which is most noticeable among those who have used digital gadgets for an extended period of time.

Due to a growing reliance on digital devices for education, employment, and pleasure, as well as a restricted amount of time spent outside, the COVID-19 pandemic made the risk factors for both myopia and convergence insufficiency even more severe.

Participant:

A student who was 12 years old and had normal vision and no eye disorders that had been detected before to the pandemic had normal eyesight.

Lifestyle Before the Pandemic:

- The daily attendance at school with a limited amount of screen time (one to two hours per day).
- There are a lot of activities that take place outside, such as playing sports and spending leisure time outside (around two to three hours each day).
- There is no previous history of headaches, eye strain, or other visual discomfort.

Lifestyle During the Pandemic:

- As a result of the shift to online learning, the amount of time spent in front of a screen is now between six and eight hours a day.
- In addition to the two to three hours that are spent each day, recreational activities and social interaction have shifted to digital platforms.
- Due to the limits imposed by the lockdown, the amount of time spent outside was dramatically decreased to less than one hour each day.

- The beginning of symptoms such as headaches, eye strain, and blurred vision during and after extended periods of time spent looking at a screen.

Visual Examination Results:

The child was diagnosed with early-stage myopia (spherical equivalent of -0.50D) during a normal eye check-up at the beginning of the pandemic due to the fact that the epidemic had just begun. During the course of the lockout, additional examinations conducted after a year revealed that the patient's myopia had progressed to -1.25D. Additionally, the youngster exhibited symptoms of convergence insufficiency, which included trouble concentrating on adjacent objects and constant eye discomfort, particularly while reading for extended periods of time or using a screen for an extended period of time.

Factors Contributing to Myopia Progression:

1. **Increased Screen Time:** The child's exposure to screens increased by a factor of three during the pandemic as a result of online schooling and digital entertainment, which dramatically increased the likelihood that the youngster would develop myopia. The development of myopia is known to be associated with prolonged exposure to near work.
2. **Decreased Outdoor Time:** It has been demonstrated that spending a large amount of time outside, which the child did prior to the epidemic, can guard against the development of myopia. In the course of the pandemic, the amount of time spent outside was reduced to less than one hour per day, which contributed to the rapid spread of myopia.
3. **Inadequate Eye Breaks:** Myopia and convergence insufficiency are both the result of the shift toward prolonged digital learning, which allowed little time for eye rests. This led to an increase in the amount of visual stress that people experienced.

Factors Contributing to Convergence Insufficiency:

1. **Prolonged Near Work:** Continuous online learning and activities based on screens led to extended periods of close work, which contributed to the development of convergence insufficiency through the use of these activities. One of the most typical symptoms of convergence insufficiency is trouble in sustaining eye focus for extended periods of time. The youngster demonstrated this difficulty.
2. **Lack of Vision Ergonomics:** One of the factors that contributed to greater visual discomfort and eye strain was the absence of ergonomic adjustments in the home setup for remote learning, such as the correct orientation of the screen.

Intervention and Outcome:

It was recommended to the child's parents that they limit their child's time spent in front of electronic screens, implement the 20-20-20 rule (which states that every 20 minutes, the youngster should take a 20-second break and look at something 20 feet away), and encourage more activities that take place outside. In addition, activities that are part of convergence treatment were implemented in order to enhance eye coordination and lessen the symptoms of convergence insufficiency.

The advancement of myopia was greatly slowed down over the course of a follow-up period of six months, and the symptoms of convergence insufficiency, such as headaches and eye strain, alleviated as a result of the implementation of these improvements.

Conclusion:

As a result of the COVID-19 epidemic, major changes in lifestyle and behavioral patterns have occurred, with greater time spent in front of screens and decreased time spent engaging in activities outside becoming commonplace aspects of daily life. As a result of these changes, an environment has

been established that is favorable to the development and progression of visual problems like as myopia and convergence insufficiency, particularly in children and teenagers. A number of significant risk factors have identified as the primary contributors to the rise in the prevalence of these ocular disorders during the pandemic. These risk factors include prolonged use of digital devices, limited exposure to natural light, and inadequate visual breaks. that there has been a significant increase in myopia, which has been made worse by the absence of outdoor activities, which are normally beneficial to the health of the eyes. Similarly, symptoms of eye strain, headaches, and difficulties focusing have been attributed to convergence insufficiency, which is produced by prolonged near labor and poor visual ergonomics in home situations. One of the most important things that can be done to reduce the long-term effects of these disorders is to implement preventative measures. These measures include encouraging regular eye breaks, supporting balanced screen usage, and reintroducing activities that take place outside. Vision therapy can also be used to assist manage the symptoms of various visual impairments and delay the progression of the condition. Early diagnosis and intervention are particularly helpful in this regard. The pandemic has brought to light the significance of making eye health a top priority in the digital era, particularly in light of the fact that remote learning and working settings will continue to be a part of the reality that exists beyond the pandemic. When it comes to addressing these rising concerns and protecting the vision of future generations, public health initiatives and awareness campaigns are absolutely necessary.

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