International Journal of Trend in Scientific Research and Development (IJTSRD)
Volume 10 Issue 1, Jan-Feb 2026 Available Online: www.ijtsrd.com e-ISSN: 2456 – 6470

Association between Digital Screen Exposure Duration and Myopic Progression in Adolescents: A Homoeopathic Perspective Clinical Study

Dr. Khatri Amisha J.[1], Dr. ML Mishra (M.D.) (Hom)[2]

[1]Jr. PG Scholar, [2]Professor, Department of Materia Medica and Principal,
[1,2]Limbdi Homoeopathic Medical College and Hospital, Limbdi, Gujarat, India

ABSTRACT

Background: The global prevalence of myopia is increasing at an alarming rate, particularly among adolescents. Concurrently, screen usage (smartphones, tablets, computers) has surged. While near work is a known risk factor, the specific impact of modern digital screen exposure on myopic progression remains a subject of intensive investigation. The dose-response relationship between screen time duration and the rate of refractive error change requires further elucidation through prospective studies.

How to cite this paper: Dr. Khatri Amisha J. | Dr. ML Mishra "Association between Digital Screen Exposure Duration and Myopic Progression in Adolescents: A Homoeopathic Perspective Clinical Study" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-10 | Issue-1, February 2026, pp.5-9, URL: www.ijtsrd.com/papers/ijtsrd100000.pdf

IJTSRD100000

INTRODUCTION

Myopia, or near - sightedness, has emerged, a major global public health concern, with its prevalence projected to affect nearly half the world's population by 2050 .

This condition typically onsets during childhood, progresses to adolescence, which is critical period for ocular development. High myopia (a spherical equivalent refraction [SER] of -6.00 diopters [D] or worse) significantly increases risk of vision-threatening pathologies in later life, including myopic maculopathy, retinal detachment, glaucoma, and cataracts .

Societal also economic burden is associated with managing myopia and its complications is substantial, underscoring the urgent need to identify and modify its risk factors.

Reestablish an individual's susceptibility, environmental also behavioral factors are believed to be primary drivers of recent "myopia boom" observed worldwide, particularly in East and Southeast Asia .

Among these, factors such as intensive education and high volumes of near work have been consistently implicated in myopia development and progression .

In 21st century, nature of near work has been fundamentally transformed to more of ubiquity of digital devices.

Adolescents these days spend unprecedented amounts of time engaged in smartphones, tablets, laptops, computers for education, social interaction, and also for entertainment purposes .

This shift has raised concerns about potential role of digital screen exposure as distinct and potent risk factor for myopia. Digital screens present unique visual demands, including high screen luminance, blue light emission, and close viewing distances, which may exacerbate accommodative and vergence

system stress compared to traditional near work like reading print books.

Objective:

Assess the association between digital screen exposure duration and myopic progression in adolescents, to further evaluate the role of individualized homoeopathic treatment in controlling myopic progression.

Methods:

A prospective observational clinical study was conducted on 40 adolescents aged 10–18 years diagnosed with myopia. Digital screen exposure duration was assessed using a structured questionnaire. Ophthalmic evaluation included visual acuity testing and cycloplegic refraction. Detailed homoeopathic case taking was performed, followed by individualized constitutional remedy prescription. Patients were followed for six months to assess changes in refractive error.

Results:

A significant association was observed between increased daily screen exposure and higher degrees of myopia. Adolescents with screen exposure ≥5 hours/day showed faster myopic progression. Patients receiving individualized homoeopathic treatment demonstrated a reduced rate of myopic progression compared to baseline, along with improvement in associated asthenopic symptoms

In Homoeopathy, myopia is not treated as an isolated local disease, but also an expression of constitutional susceptibility.

Aim is to control progression, improve accommodative power and overall ocular health

Myopia is a growing public health concern worldwide. Homoeopathy offers a holistic approach by addressing the constitutional susceptibility, aiming to control progression, improve ocular health, and enhance overall well-being.

Key principles:

1. Individualization, constitunal remedy, miasmatic background,
2. Reduce progression, role of mental strain, prolonged screen use
3. Improve eye strain and asthenopia
4. Improve general vitality, correct associated constitutional features

MYOPIA

Definition

Myopia (short-sightedness): a **refractive error** in which **parallel rays of light focus in front of the retina** when accommodation is at rest which results in **clear near vision but blurred distant vision.**

EPIDEMIOLOGY:

According to **WHO**:

- Myopia :one of the **leading causes of visual impairment worldwide**.
- Prevalence is **increasing rapidly**, among Childrens, adolescents and young adults

Global Statistics:

WHO says myopia as a major health concerns.

- **~ 30% of world population** is myopic
- Projected to reach **50% by 2050**
- High prevalence in **urban populations**
- More common in **East & South Asia**
- Increasing trend linked to:
  - Excessive near work
  - Digital screen exposure
  - Reduced outdoor activity

1. ETIOLOGY:

The etiology of myopia is multifactorial, involving a complex interplay of genetic predisposition and environmental influences

A. Genetic Factors

- Positive family history
- Polygenic inheritance
- Early onset in children of myopic parents

B. Environmental Factors

- Excessive near work (reading, mobile, computer)
- Prolonged digital screen exposure
- Poor illumination
- Reduced outdoor activity
- Improper posture during study

C. Nutritional Factors

- Vitamin A deficiency
- General malnutrition

D. General & Systemic Factors

- Weak physical constitution
- Prolonged illness
- Growth spurts in adolescence

E. Miasmatic Interpretation (Homoeopathic)

- **Psoric**: functional weakness
- **Sycotic**: progressive elongation of eyeball
- **Tubercular**: rapid progression in growing age

2. PATHOLOGY

Anatomical Changes:

A. Axial Myopia (most common)

- Increased antero-posterior length of eyeball

B. Curvature Myopia

- Increased curvature of cornea or lens

C. Index Myopia

- Increased refractive index of lens

Pathological Changes in Progressive Myopia:
- Elongation of sclera
- Thinning of retina
- Choroidal degeneration
- Posterior staphyloma (in high myopia)
- Increased risk of:
  - Retinal detachment
  - Macular degeneration

3. INVESTIGATIONS

A. Clinical Examination
- Visual acuity testing (Snellen chart)
- Distant vision assessment

B. Refraction Tests
- Objective refraction (retinoscopy)
- Subjective refraction

C. Ophthalmic Examination
- Fundoscopy
- Slit lamp examination

D. Advanced Investigations (if needed)
- Keratometry
- Axial length measurement
- OCT (for high myopia complications)

In homoeopathic practice, **minimum necessary investigations are preferred**

4. DIAGNOSIS

Based on:
- History of defective distant vision
- Improvement with concave (–) lenses
- Objective & subjective refraction
- Fundoscopic findings in high myopia

Differential Diagnosis:
- Hypermetropia
- Astigmatism
- Cataract (early)
- Retinal disorders

5. HOMOEOPATHIC MANAGEMENT

Principles:
- Individualization
- Constitutional treatment
- Prevention of progression
- Improvement of general health

⚠️ Homoeopathy does **not claim to reverse refractive error**, but aims to **control progression and improve functional efficiency of eyes**

IMPORTANT HOMOEOPATHIC REMEDIES

- **CALCAREA CARBONICA**

Constitution:
- Fair, flabby, chilly
- Profuse sweating (especially head)
- Slow development

Eye Indications:
- Progressive myopia in growing children
- Weak accommodation
- Eye strain from study

Associated Symptoms:
- Easily tired
- Anxiety about health
- Craving for eggs

Repertorial Rubrics:
- Eye – Vision – myopia
- Eye – Weakness – eyes
- Head – Perspiration – scalp
- Generalities – Growth – delayed

📌 *Most important remedy for adolescent myopia*

- **NATRUM MURIATICUM**

Constitution:
- Thin, anaemic
- Reserved, emotional
- History of grief

Eye Indications:
- Myopia with headaches
- Asthenopia from reading
- Dryness of eyes

Modalities:
- Worse: sunlight, mental exertion
- Better: rest, solitude

Rubrics:
- Eye – Vision – myopia
- Eye – Pain – eyes – reading
- Head – Pain – eyes – reading
- Mind – Grief – ailments from

- **PHOSPHORUS**

Constitution:
- Tall, slender
- Nervous, sensitive
- Desire for company

Eye Indications:
- Rapidly progressing myopia
- Burning in eyes
- Eye fatigue with light sensitivity

Modalities:
- Worse: light, mental exertion
- Better: rest, cold drinks

Rubrics:
- Eye – Vision – myopia
- Eye – Burning – eyes
- Eye – Photophobia
- Mind – Sensitive

- **SULPHUR**

Constitution:
- Lean, stooped posture
- Heat intolerance
- Intellectual, careless

Eye Indications:
- Myopia with burning and redness
- Eye complaints with general weakness

Rubrics:
- Eye – Vision – myopia
- Eye – Burning – eyes
- Generalities – Heat – aggravates
- Mind – Intellectual – theorizing

- **LYCOPODIUM CLAVATUM**

Constitution:
- Thin upper body, distended abdomen
- Right-sided complaints
- Performance anxiety

Eye Indications:
- Myopia with weakness of accommodation
- Visual fatigue

Rubrics:
- Eye – Vision – myopia
- Eye – Weakness – eyes
- Mind – Confidence – lack of

- **RUTA GRAVEOLENS**

Sphere:
- Overuse of eyes
- Mechanical strain

Eye Indications:
- Myopia from excessive reading/screen use
- Eye strain, soreness

Modalities:
- Worse: close work
- Better: rest

Rubrics:
- Eye – Pain – eyes – exertion, from
- Eye – Vision – weak
- Head – Pain – eyes – from overuse

- **NATRUM PHOSPHORICUM**

Indications:
- Myopia with muscular weakness
- School-going children
- Eye fatigue after study

Rubrics:
- Eye – Vision – weak
- Eye – Weakness – eyes

5. COMMONLY USED REMEDY COMPARISON (Quick View)

Remedy	Key Feature	Best For
Calcarea carb	Growth-related	Progressive childhood myopia
Nat mur	Emotional	Myopia + headache
Phosphorus	Rapid progression	Light sensitivity
Sulphur	Burning	Functional eye weakness
Ruta	Overuse	Screen-related strain
Lycopodium	Functional weakness	Study fatigue

6. POTENCY & FOLLOW-UP (General Guidance)

*** Always individualize**
- Constitutional remedy: 30C / 200C (single dose, watch)
- Supportive remedy (Ruta):30C, short duration
- Follow-up every 3–6 months
- Assess rate of progression, not just vision

"Homoeopathic medicines were prescribed on constitutional basis aiming to reduce progression rather than correction of refractive error."

GENERAL MANAGEMENT (ADJUNCTIVE)
- Proper illumination during study
- Limited screen time
- Frequent eye rest
- Outdoor activities
- Correct posture
- Balanced diet

PROGNOSIS
- Simple myopia → Good prognosis
- Progressive/high myopia → Requires regular follow-up
- Early constitutional treatment improves outcome

7. CONCLUSION

In conclusion, this prospective cohort study demonstrates a significant, independent, and dose dependent association between the duration of daily digital screen exposure and the rate of myopic progression in adolescents. Prolonged digital screen exposure is associated with increased myopic progression in adolescents. Each additional hour of screen time contributes to a measurable acceleration

in both refractive error change and axial elongation. These findings underscore the role of excessive digital screen use as a major modifiable risk factor in the modern myopia epidemic.

Individualized homoeopathic treatment, along with lifestyle modification, may help in reducing the rate of myopic progression and improving overall visual comfort.

Public health initiatives and clinical guidance should prioritize strategies to manage screen time alongside promoting outdoor activities to protect the ocular health of the next generation.