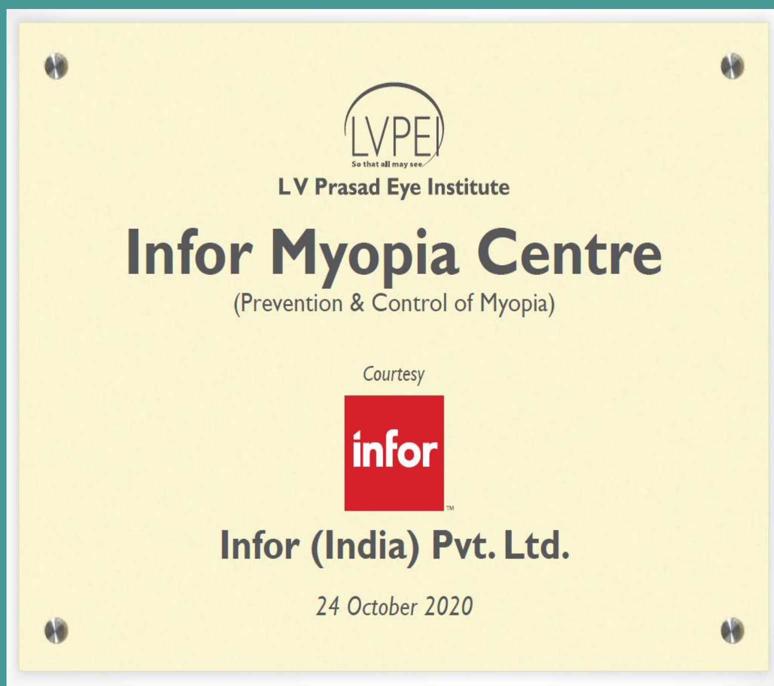
3rd Indian Myopia Awareness and Research Conference (IMARC)

Program Book

November 18 - 20, 2022



Supported By

Platinum sponsor

Gold sponsor

Silver sponsor

The Indian Myopia Awareness and Research Conference (IMARC)

About IMARC

The Indian Myopia Awareness and Research Conference (IMARC), intend to bring eye care professionals from across the country to one platform for updating one's understanding on myopia, various anti-myopia strategies (efficacy and mechanism) and discuss more about the evidence-based practice for myopia control (world and Indian scenario) apart from the scientific oral and poster rapid-fire presentations.

Given that myopia has started to become a major public health issue in India too, with the increasing incidence of myopia, updating ourselves (as a researcher or practitioner or teacher or student) about current understanding of myopia from both research and clinical perspective will help us combat myopia in India.

With the extremely renowned national and international speakers talking at IMARC, this conference is set to play an important role in the Indian myopia scenario.

The goals of IMARC are to update eye care professionals about:

- Current understanding of myopia
- Various anti-myopia strategies, its efficacy and mechanisms

WELCOME NOTE

After the success of the first and second Indian Myopia Awareness & Research Conference (IMARC) in 2020 and 2021, respectively, we are now back with the 3rd edition of IMARC with a much bigger agenda. This year, the theme revolves around translational research and clinical discussions with sessions spreading across 3 full days. The sessions will highlight the “what, why and how” of myopia management. Keeping in view the current trend in myopia management and the need for more hands-on sessions, we have also included workshops on biometry, peripheral refraction and orthokeratology.

We look forward to an excellent meeting with a combination of eminent scientists, academicians, clinicians, business delegates and students from different countries sharing new and exciting findings that will enable us to learn and discuss critical issues of this escalating problem.

On behalf of the organizing committee of IMARC, it is with great pleasure that I cordially invite all the eye care professionals to enjoy the myopia feast on 18th, 19th & 20th November 2022.

I wish you all an unparalleled learning experience.

Pavan K Verkicharla
Scientist – Myopia Research, Prof. Brien Holden Eye Research Centre
Head & Consultant Optometrist – The INFOR Myopia Centre (prevention and control)
L V Prasad Eye Institute, Hyderabad, India

Organizers

Dr Pavan Verkicharla

Dr Ramesh Kekunnaya

Rohit Dhakal

Santoshi Maddali

Manoj Manoharn

Swapnil Thakur

Satish Gupta

Rakesh Maldoddi

Sruthi Chamarthy

Gautam Motwani

Soubhik Chel

Contact us

L V Prasad Eye Institute

Kallam Anji Reddy Campus, L V Prasad Marg, Banjara Hills, Hyderabad 500 034

Email Us: pavanverkicharla@lvpei.org

Call Us: +91 99082 71732, +91 8121010419

imarc.lvpei.org

IMARC Speakers

Keynote Speakers

Title of talk:

Myopia - Past, Present, and Future

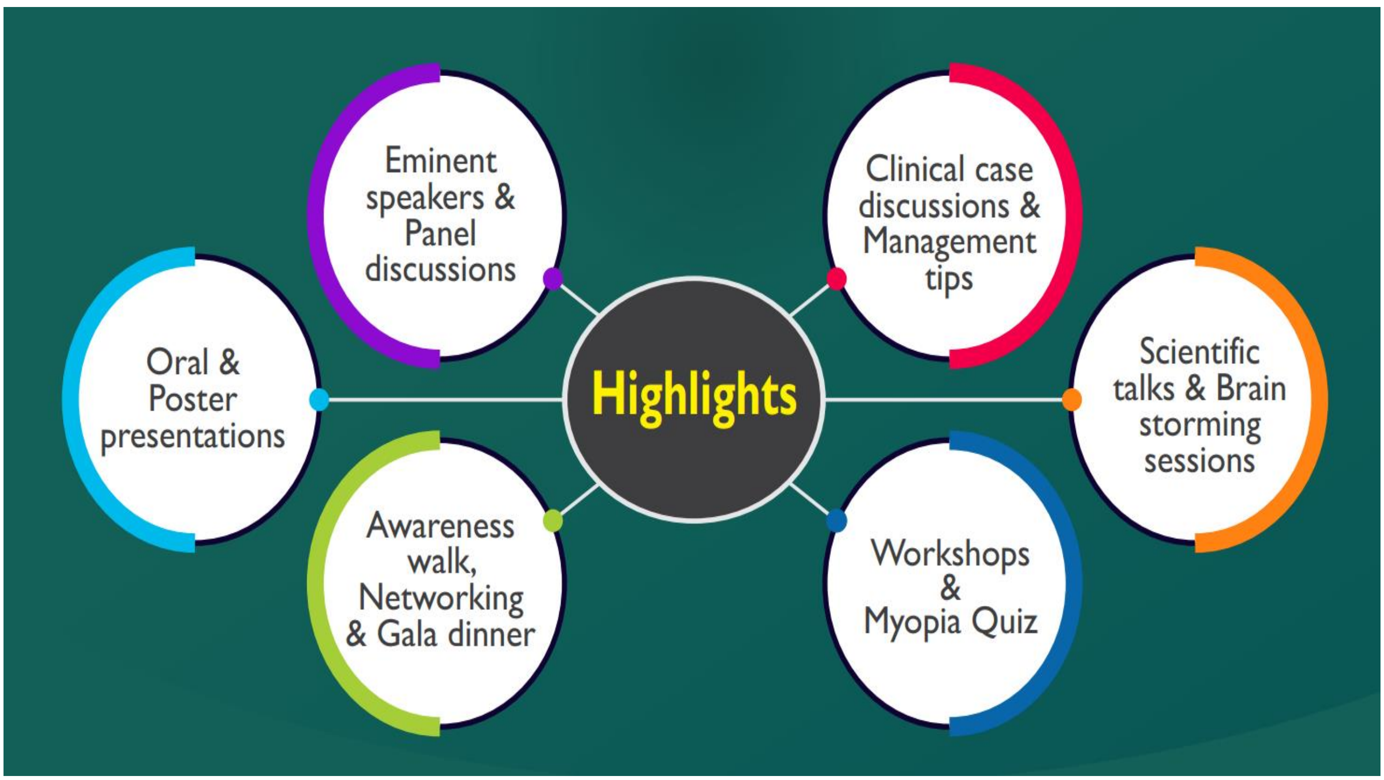
Prof. Padmaja Sankaridurg
University of New South Wales
Australia

Title of talk:

Responders vs non-responders for atropine treatment

Prof. Audrey Chia
Singapore National Eye Centre
Singapore

Highlights Of IMARC



Explore . Enrich . Execute

Pre-Conference

November 11, 2022 at 16: 00 IST

Talk & Panel Discussion

Title of talk: Role of sunlight and dopamine in myopia

Speaker

Assoc Prof. Ranjay Chakrabort

Flinders University

Australia

Program Schedule

11th Nov 16:00 IST

Pre-Conference Talk + Panel Discussion

Role of sunlight and dopamine in myopia
- Ranjay Chakraborty

Day 1: 18th November 2022 (Friday)

09:00 to 10:00	Registrations and Posters placement	Team IMARC
TIME (IST)	**TOPIC**	**SPEAKER**
10:00 to 12:45	Workshops and Hands-on Sessions	
Essilor	Workshop 1: Ocular biometry and peripheral refraction in myopia management	Rohit, Swapnil, Satish, & Rakesh
SEED	Workshop 2: Orthokeratology and multifocal soft contact lens in myopia management	Sandeep and Manoj
Lunch		
14:00 to 14:30	**Welcome to the 3rd IMARC - Inaugural Session**	**Pavan K Verkicharla** **Prashant Garg**
14:30 to 15:25	Session 1: The Myopia Boom	Chair: Pavan K Verkicharla
Talk 1	Keynote Talk: Myopia - Past, Present, and Future	Padmaja Sankaridurg
Talk 2	Myopia scenario in the Indian sub-continent	Pavan K Verkicharla
Selected abstract IMARC-TP-01	Research abstract - Myopia prevalence, risk factors and ocular growth among school children in Tamil Nadu, South India	Aparna Gopalakrishnan
15:25 to 15:45	Panel discussion: Way forward in myopia management and public health policies	Srinivas Marmamula and panelists
15:45 to 16:15	Consensus and guidelines on myopia management	Team IMARC
High Tea - Interactive session		
16:45 to 18:00	The Myopia Quiz	Rohit, Manoj, and Sruthi
End of Day-1		

The Myopia Quiz

November 18, 2022 at 16: 45 to 18:00
Quiz Masters: Rohit, Manoj & Sruthi

Day 2: 19th November 2022 (Saturday)

07:45 to 08:45	Breakfast	
Summary of Day 1 & Agenda for Day 2		
TIME (IST)	**TOPIC**	**SPEAKER**
09:00 to 10:10	Session-2: Start with basics - Why, What and How? - Clinical Pearls	Chair: Rohit Dhakal
Talk 3	Focus on proper refraction	Deepak K Bagga
Talk 4	Art of dispensing in high myopia	Srikanth Maseedupalli
Talk 5	Selecting appropriate refractive surgery for myopia correction	Pravin Vaddavalli Krishna
Selected abstract IMARC-TP-02	Research abstract - Psychological well-being and quality of life analysis among university students with myopia in northern India	Nayan Gupta
Selected abstract IMARC-TP-03	Clinical case presentation - Overview of spectacles for myopia control in an Indian practice	Lakshmi Shinde
10:10 to 10:30	Panel discussion	
Poster session		
11:30 to 12:20	Session-3: Role of Peripheral Refraction	Chair: Sampada Kulkarni
Talk 6	Importance of peripheral retina and clinical application of peripheral refraction in myopia	Pavan K Verkicharla
Selected abstract IMARC-TP-04	Research abstract - The efficacy of SEED's 1-day pure extended depth of focus lenses controlling myopia progression in Indian children through a one-year randomized clinical study	Manoj Manoharan
Selected abstract IMARC-TP-05	Clinical case presentation - Myopia progression in adults - A warning sign?	Savita B S
12:20 to 12:40	Panel discussion	
Lunch		
14:00 to 15:05	Session-4: Optical Interventions in Myopia Management	Chair: Manoj Manoharan
Talk 7	Evolving options for myopia management	Padmaja Sankaridurg
Sponsor's talk	Efficacy of Stellest lenses for myopia control	Anantha Lakshmi
Selected abstract IMARC-TP-06	Clinical case presentation - SWOT analysis of orthokeratology practice in India	Yeshwant Saoji
Selected abstract IMARC-TP-07	Clinical case presentation - Short term outcomes of DIMS lens in myopia progression from South India : A case series	Shruti Nishanth
15:05 to 15:25	Panel discussion	
15:25 to 16:25	Rapid fire presentations	
Poster session		
17:00 to 17:45	Having fun - Learning about Myopia!	Swapnil, Satish and Rakesh
19:00 onwards	Gala dinner & Social networking - Hyatt Place, Banjara Hills	
End of Day-2		

Have fun - Learning about Myopia!

November 19, 2022 at 17: 00 to 17:45 IST

Moderators

Swapnil, Satish & Rakesh

Gala dinner & Social networking

November 19, 2022 at 19: 00 IST onwards

-- *Organizers: Team IMARC* ------------------------------------

Venue

Hyatt Place

Mehdipatnam - Banjara Hills Road,

Rd No. 1, Banjara Hills, Hyderabad, Telangana 500034

Day 3: 20th November 2022 (Sunday)

06:30 to 08:00	Myopia Awareness Walk	
09:30 to 09:50	Tea	
Summary of 2 days and the Agenda for Day 3		
TIME (IST)	**TOPIC**	**SPEAKER**
10:00 to 10:55	Session-5: Role of Enviromental Factors in Myopia Management	Chair: Swapnil Thakur
Talk 8	Role and benefits of time outdoors in myopia management	Rohit Dhakal
Talk 9	Near work or less time outdoors?	Dharani Ramamurthy
Selected abstract IMARC-TP-08	Research abstract - Near work, light levels and dioptric profile - which factor dominates and affects the changes in ocular biometry?	Rakesh Maldoddi
Selected abstract IMARC-TP-09	Clinical case presentation - Acute aquired myopia: A pandora box	Srujana Hitesh
10:55 to 11:15	Panel discussion	
11:25 to 12:30	Session-6: "Big Picture" role of Atropine Treatment	Chair: Ramesh Kekunnaya
Talk 10	Keynote Talk: Responsers vs non-responders for atropine treatment	Audrey Chia
Talk 11	Atropine treatment - When to "Start"?	Jyoti Matalia
Selected abstract IMARC-TP-10	Research abstract - Effect of personal characteristics on treatment response to atropine 0.01% in children with progressive myopia	Vinay Gupta
Selected abstract IMARC-TP-11	Clinical case presentation - An uncommon side effect of a common pharmaceutical anti-myopia treatment	Rahul Negi
12:30 to 12:50	Panel discussion	
Lunch		
14:00 to 14:50	Session-7: Updates on Pediatric High Myopia	Chair: Vivek Warkad
Talk 12	Pediatric high myopia - with strabismus or ROP - How to deal?	Ramesh Kekunnaya
Talk 13	Pathologic myopia - What to do next?	Raja Narayanan
Selected abstract IMARC-TP-12	Research abstract - Cross-sectional study on refractive profile of children with history of intravitreal Bevacizumab for retinopathy of prematurity in a tertiary eye care center	Neelam Pawar
Selected abstract IMARC-TP-13	Clinical case presentation - A unique presentation of unilateral myopia in one of the siblings with otherwise similar clinical presentation	Maheswari Srinivasan
14:50 to 15:10	Panel discussion	
15:20 to 15:50	Session-8: Myopia Management - Time to Level up your Practice	Chair: Jitendra Jethani
Talk 14	How to start a myopia management clinic?	Pavan K Verkicharla
Talk 15	Do all myopes need myopia control treatment?	Rohit Dhakal
15:50 to 16:30	Mega Panel Discussion	
16:30 to 17:00	Vote of Thanks and Prize distribution	
High Tea - Interactive session + Plan for collaborations		
End of IMARC 2022		

Myopia Awareness Walk

November 20, 2022 at 06: 30 to 08:00 IST

Organizers

Child Sight Institute

Dr Sampada Kulkarni & Team IMARC

Vote of Thanks and Prize Distribution

November 20, 2022 at 16: 30 to 17:00 IST

------------------------------ End of IMARC 2022 --------------------------------

Abstracts

Research and clinical case presentations

Day 1: 18th November 2022 (Friday)

PRESENTATION ID (TIME - IST)	TOPIC	PRESENTER
IMARC-TP-01 (15:15 - 15:25)	Research abstract - Myopia prevalence, risk factors and ocular growth among school children in Tamil Nadu, South India	Aparna Gopalakrishnan

Day 2: 19th November 2022 (Saturday)

PRESENTATION ID (TIME - IST)	TOPIC	PRESENTER
IMARC-TP-02 (09:50 - 10:00)	Research abstract - Psychological well-being and quality of life analysis among university students with myopia in northern India	Nayan Gupta
IMARC-TP-03 (10:00 - 10:10)	Clinical case presentation - Overview of spectacles for myopia control in an Indian practice	Lakshmi Shinde
IMARC-TP-04 (12:05 - 12:15)	Research abstract - The efficacy of SEED's 1-day pure extended depth of focus lenses controlling myopia progression in Indian children through a one-year randomized clinical study	Manoj Manoharan
IMARC-TP-05 (12:15 - 12:25)	Clinical case presentation - Myopia progression in adults - A warning sign?	Savita B S
IMARC-TP-06 (14:45 - 14:55)	Clinical case presentation - SWOT analysis of orthokeratology practice in India	Yeshwant Saoji
IMARC-TP-07 (14:55 - 15:05)	Clinical case presentation - Short term outcomes of DIMS lens in myopia progression from South India : A case series	Shruti Nishanth

Day 3: 20th November 2022 (Sunday)

PRESENTATION ID (TIME - IST)	TOPIC	PRESENTER
IMARC-TP-08 (10:35 - 10:45)	Research abstract - Near work, light levels and dioptric profile - which factor dominates and affects the changes in ocular biometry?	Rakesh Maldoddi
IMARC-TP-09 (10:45 - 10:55)	Clinical case presentation - Acute aquired myopia: A pandora box	Srujana Hitesh
IMARC-TP-10 (12:10 - 12:20)	Research abstract - Effect of personal characteristics on treatment response to atropine 0.01% in children with progressive myopia	Vinay Gupta
IMARC-TP-11 (12:20 - 12:30)	Clinical case presentation - An uncommon side effect of a common pharmaceutical anti-myopia treatment	Rahul Negi
IMARC-TP-12 (14:30 - 14:40)	Research abstract - Cross-sectional study on refractive profile of children with history of intravitreal Bevacizumab for retinopathy of prematurity in a tertiary eye care center	Neelam Pawar
IMARC-TP-13 (14:40 - 14:50)	Clinical case presentation - A unique presentation of unilateral myopia in one of the siblings with otherwise similar clinical presentation	Maheswari Srinivasan

Authors: Aparna Gopalakrishnan[1], Jameel Rizwana Hussaindeen[2], Viswanathan Sivaraman[2], Meenakshi Swaminathan[2], Yee Ling Wong[3], James A Armitage[4], Alex Gentle[4], Simon Backhouse[4]

IMARC TP-01

Affiliation/s (Presenting author)

1 Faculty of Health, School of Medicine, Deakin University, Australia Myopia clinic, Sankara Nethralaya, Unit of Medical Research Foundation, Chennai, India
2 Myopia clinic, Sankara Nethralaya, Unit of Medical Research Foundation, Chennai, India
3 R & D, AMERA, Essilor International, Singapore
4 Faculty of Health, School of Medicine, Deakin University, Australia

Email: aparna@snmail.org

Title: Myopia prevalence, risk factors and ocular growth among school children in Tamil Nadu, South India

Purpose: To report the prevalence of myopia, its risk factors, and ocular biometry distribution among school children in South India.

Methods: The Sankara Nethralaya Tamil Nadu Essilor Myopia study is an ongoing school-based longitudinal study aimed to assess the prevalence, incidence, and risk factors for myopia onset and progression. Children of selected schools (11 schools) underwent vision assessment followed by measurement of non-cycloplegic open-field autorefraction and subjective refraction where required. A subset of children also underwent ocular biometry measurements and basic binocular vision assessments. Risk factor assessment was done with a modified Sydney Myopia Study questionnaire. Risk factors for myopia were analyzed through a student questionnaire for grades 8 to 10.

Results: 14342 children with a mean age of 10.2 years (Standard deviation: 2.8 years) had their refraction measured. The prevalence of myopia in this cohort was 17.5% (95% CI 14.7%—20.5%). Children belonging to urban school locations had a higher prevalence compared to children in suburban school locations (16.4% vs 12.5%; pand lt;0.001). A total of 7901 children had their ocular biometry measurements. There was a significant difference in axial length (AL), Anterior chamber depth (ACD), and corneal curvatures between the sexes. Boys had a longer AL (23.31mm vs 22.82mm; pand lt;0.001) and deeper anterior chambers (3.49mm vs 3.41mm; pand lt;0.001) compared to girls. A mixed model regression on factors associated with myopia among adolescents showed that age (Odds ratio [OR] 1.18; 95% CI 1.08—1.29; pand lt;0.001), increased near work to outdoor ratio (OR 1.40; 95% CI 1.06—1.85; p=0.02) and living in an apartment type housing (OR 1.24; 95% CI 1.02—1.51; p=0.03) had higher odds for myopia whereas increased time spent outdoors (OR 0.79; 95% CI 0.66—0.99; p=0.04) was a protective factor.

Conclusions: The baseline result from the STEM study shows an increase in myopia prevalence than reported before. The study provides normative ocular biometry data that can be used to monitor eye growth. The risk factor profile will help in providing evidence to implement regional policies among the stakeholders, especially with respect to increasing outdoor time among school children.

Authors Nayan Gupta[1], Jameel Rizwana Hussaindeen[1], Krishna Kumar Ramani[2], Meenakshi Sood[3]

IMARC TP-02

Affiliation/s (Presenting author)

1 Chitkara School of Health Sciences, Chitkara University, Punjab, India
2 Head – Rivoli Vision Academy, UAE, Clinical Diplomate – Binocular vision, Perception & Pediatric Optometry, AAO
3 Freelancer and Educationalist, Chennai, India
Email: 1nayan.gupta@gmail.com

Title: Psychological well-being and quality of life analysis among university students with myopia in Northern India

Purpose: To report the efficacy of psychological counselling in improving the psychological well-being and quality of life among myopes.

Methods: This was a prospective cross-sectional survey conducted in a university set-up in North India. The study was approved by the Institutional Human Ethics Committee (IHEC). The inclusion criteria of the study population included university students aged ≥18 years of age with Myopia (low, moderate, and high) and age-matched emmetropes were included. The study was conducted in two phases. Phase I included an initial demographic survey, followed by the administration of depression, anxiety, and stress 21 (DASS 21) and the sense of coherence-13 (SOC 13) scale. The quality-of-life assessment was done using the World Health Organization- Quality of Life BREF scale (WHO-QOL BREF) and Visual Functioning Questionnaire-25 (VFQ-25). In phase II of the study, the study participants received psychological counselling based on random block sampling. The post feedback was taken on day zero and day 30th to assess the impact of counselling in improving the mental well-being among myopes. The data were analysed using Microsoft Excel (version 2019) and Statistical Package for Social Sciences version (SPSS) 20.0. The DASS-21, SOC-13, and quality of life scores were compared among varying degrees of myopia and aged-matched emmetropes.

Results: The mean ± SD age of the study population was 20.25 ± 3.02 years. In the first phase of the study, a total of 559 (56%) males and 445 (44%) females participated in the study. Among the 1004 study participants, the prevalence of emmetropia was 517 (51 %) and myopia was 487 (49 %). There were statistically significant differences in the rates of anxiety (emmetropes 31.11%, myopes 48.61%) and depression (emmetropes 21.20%, myopes 36.40%) between emmetropes and myopes ($\chi2 = 0.002$, $p \le 0.05$, Pearson's chi-square). The Sense of Coherence scores (mean ± SD) did not differ between myopes (52.95 ± 9.71) and emmetropes (53.62 ± 8.20), (independent t-test, $p \ge 0.05$). There was a statistically significant difference in the composite quality of life scores among emmetropes (91.75 ± 4.11) and myopes (78.75 ± 8.14), independent t-test ($p \le 0.05$), and similar results were observed in the composite scores of VFQ-25 scores among emmetropes (94.13 ± 4.10) and myopes (72.10 ± 5.10), independent t-test ($p \le 0.05$). There was a significant improvement noted in the psychological well-being pre and post-counselling ($\chi2 = 0.004$, $p \le 0.05$, Pearson's chi-square).

Conclusions: Increased rates of depression and anxiety were reported among university students with myopia. Vision-related quality of life, psychological health, and mental health were found to be inversely correlated with the degree of myopia. Our study suggested that social acceptance, impulsiveness, purposefulness, and dependency on glasses as the factors for the poor quality of life. Improved psychological well-being was observed following the counselling session.

Authors: Lakshmi Shinde[1], Ajay Kumar D Shinde[2]

IMARC TP-03

Affiliation/s (Presenting author)

1 Shinde eye care Centre Optometry Council of India International Association of Contact Lens Educators
2 Shinde Eye Care Centre

Email: lak.shinde@gmail.com1

Title: Overview of spectacles for myopia control in an Indian practice

Purpose: COVID-19 has proven to enhance myopia progression in India due to increase screen time. In India presently there are three major ophthalmic lens manufacturers who provide myopia control spectacles lenses. An optometric primary eye care practice in Bangalore looks at two of these options prescribed for myopia control.

Methods: Myopia control spectacles prescribed from December 2021 to August 2022 were analysed. Seventeen records of subjects who were prescribed spectacles for myopia control were analysed retrospectively. Their presenting prescription, visual acuity, dioptre change in prescription prior to prescribing myopia control spectacles, binocular vision anomalies and compliance with spectacles was recorded.

Results: Ten subjects were male and 7 were female, with mean age of 11.56 years. The mean refractive error of 34 eyes at the time of presentation was -1.57D sphere (STD dev: 0.99D) and -0.79D cylinder (STD dev: 0.29) which increased to -3.62D sphere (STD dev: 1.08D) and -1.24D cylinder (STD dev: 0.81) in a mean period of 2 years. This increase was noted between 2019-2022. Eight subjects were prescribed with polycarbonate material myopia control spectacles and 9 were prescribed MR8 material myopia control spectacles. One subject was prescribed myopia control spectacles over soft contact lenses as orthokeratology could not be fitted on the subject. Two of these subjects were also found to have binocular vision anomalies.

Conclusions: As primary eye care practitioners, optometrists need to proactively prescribe spectacles for myopia control as it's the most economically viable option for patients in India today in comparison to orthokeratology. Counselling parents regards myopia progression and various options available to control the same forms an important aspect of optometry practice.

IMARC TP-04

Authors: Manoj Manoharan, Pavan Verkicharla

Affiliation/s (Presenting author)

Infor Myopia Centre and Myopia Research Lab, Brien Holden Institute of Optometry and Vision Sciences, L V Prasad Eye Institute, Hyderabad, Telangana, India

Email: kmmanoj@lvpei.org

Title: Efficacy of extended depth of focus lenses in controlling myopia – outcomes from 1-year randomized clinical trial of SEED LVPEI Indian Myopia Study (SLIMS)

Purpose: To determine the efficacy of SEED's 1-day pure extended depth of focus lenses for controlling myopia progression in children through a one-year randomized clinical trial.

Methods: A total of 104 children aged 7-15 years, with myopia of -0.50 to -10.00D and astigmatism ≤1.50D were randomly assigned to wear SEED 1-dayPure EDOF Mid contact lenses (n=48) or single vision spectacle lenses (n=56). Cycloplegic refraction and axial length were measured at the baseline visit, 6 months visit, and 12 months visit. For this manuscript, per-protocol analysis was performed for the data involving low myopes with spherical equivalent -0.50 to >-6.00 D (N = 81 at baselines: control: n=50 and treatment: 31) to determine the efficacy of the lenses at 12 months follow-up visit. Compliance, visual discomfort, and dryness questionaries were administered in all visits.

Results: Sixty-nine children with low myopia at baseline (control: n=38; treatment: 31) completed the 12-month follow-up visit. Age, refractive error, and axial length at baseline visits were similar in both groups (p≥0.08). Mean (SEM) myopia progression at 12 months was -0.48 ± 0.07 D in the control group and -0.20 ± 0.08 D in the treatment group. Mean axial elongation was 0.22 ± 0.03 mm and 0.11 ± 0.03 mm in the control and treatment groups, respectively. SEED 1-dayPure EDOF Mid contact lenses slowed myopia progression by 59% (difference of -0.28D; p=0.01) based on spherical equivalent refraction and controlled axial length by 49% (difference of 0.11 mm; p=0.007) in comparison to single vision lenses. All the participants adapted to the lenses and there were no adverse effects. While the majority of the participants (80%) were comfortable with the contact lenses, 11% reported occasional dryness and 9% experienced mild fluctuations in visual acuity after immediate lens wear.

Conclusions: Daily wear of SEED 1-dayPure EDOF Mid contact lenses in Indian children demonstrated its effectiveness in controlling myopia progression and axial elongation.

IMARC TP-05

Authors: Savita B S[1], Udhayakumar Thyagasundaram[2]

Affiliation/s (Presenting author)

1 CEO and Consultant Optometrist, Eyeful Optometry Clinic, and Eyeful Optometric Tutelage
2 Dr Udhaya Kumar Thayasundaram, Consultant Ophthalmologist, DRR Eye care and Oculoplasty Hospital

Email: savitasampath@gmail.com

Title: Is a steep increase in myopia progression in adults a warning sign?

Purpose: Myopia management has become integral part of optometric and ophthalmological intervention to treat myopia. Generally, myopia management refers to manage young progressive myopes. But this does not really imply that adult myopes do not progress at all. We have very few case reports which have been published regarding management of adult progressive high myopia.

Case Details: A 47-year-old female (high myope) with stable refraction of -18.00 DS for the past 7 years came with a complaint of sudden history of floaters and flashes OS. On examination her BCVA was 6/18, N8@ 25 cms (OD) and 6/24, N8@ 25 cms (OS). There was a steep increase in refractive error by -4.00 DS in both eyes. She had been referred to ophthalmologist for further management. Her fundus exam revealed CD ratio of 0.2: 1, peripapillary atrophy, dull foveal reflex, Retinal Pigment Epithelial changes (OU). Patient has been reassured and had been prescribed Soft Multifocal lenses. Before the lenses were delivered the patient had sudden loss of vision and Retinal detachment OS. Axial length was measured to be 27.10 mm and 32.45 mm in right and left eye respectively post detachment.

Management: Patient has been advised VITRECTOMY + ENDOLASER + FGE(OS). Her vision improved to 6/18 in OS post-surgery. Her vision in right eye was increased to 6/9 p, N6 @30 cms with softmutifocal lenses.

Discussion: The odds ratio of risk associated with myopia progression increases with increasing degree of myopia. High myopes need extra attention and management than low myopes. Sudden increase in refractive error with floaters and flashes may be a warning sign of retinal detachment. Irrespective of axial length measurement, symptoms like sudden increase in floaters and and flashes are to be considered as red flag in myopia management.

Conclusions: A steep increase in refractive error in an adult myope may be a warning sign of forthcoming complications. Care should be taken and a frequent follow up may help in preserving the vision in these patients.

Authors: Yeshwant Saoji[1], Lakshmi Shinde[2], Anitha Arvind[3], Akshaya Balakrishnan[4]

IMARC TP-06

Affiliation/s (Presenting author)

1 Saoji Vision Care
2 Shinde Eye care Centre
3 Optometry Council of India
4 Sankara Nethralaya

Email: yeshwantsaoji@gmail.com

Title: SWOT analysis of orthokeratology practice in India

Purpose: Orthokeratology (OrthoK) has been well established as a methodology for myopia control and corrections. A survey conducted on Indian optometrists, where the respondents filled a questionnaire based on SWOT analysis of Ortho K, as a method of controlling myopia and correcting myopia.

Methods: The study was conducted between December 2020 to June 2021. A prospective questionnaire-based study was conducted to elicit the responses in the SWOT study. A set of five statements under strengths, weaknesses, opportunities and threats were identified. These were closed ended questions based on a 5-point Likert scale. The Content Validation Index (CVI) was computed for each item taking those answers relevant with a score of three and four on the Likert scale and omitting those with a score of one and two on the Likert scale as non-relevant. The study obtained ethical clearance from the ethics board.

Results: There were a total of 453 responses received of which 322 were complete and were considered for analyses. Strengths: Orthokeratology is an excellent option for myopia control: was agreed by 65% of respondents. 67% agreed that advanced topographers and software-based lens designing has made orthokeratology lens fitting easier. Weakness: More than 60% agreed that Orthokeratology practice involves investment in expensive instrumentation like topographers and trial lenses. 50% agreed that due to multiple follow up visit's patients may be lost to follow up. Opportunity: The statement that the pandemic has necessitated the need for optometrists to explore myopia control options such as orthokeratology was agreed by 76%. Threats: Reluctance from adults and parents to try overnight contact lenses for myopia correction/control was agreed by more than 50% of respondents. A huge majority of 62% agreed that atropine is perceived as an effective myopia control option by majority of the Indian ophthalmologists where 22% were neutral to it.

Conclusions: Ortho K is an effective treatment is controlling myopia. An understanding of this emerging corrective modality for Myopia in India through SWOT analysis, allows practitioners as well as manufacturers to approach Orthokeratology appropriately. Manufacturers will benefit with such analysis as it reflects the mood of current practitioners in India.

Authors: Shruti Nishanth[1], Arokiya Agila[1], Swetha[1], Saravanan[1], Vidhya Lakshmi S[1], Maheswari Srinivasan[1]

IMARC TP-07

Affiliation/s (Presenting author)

1 M.N. Eye Hospital, Chennai

Email: shruti.d.nish@gmail.com

Title: Short term outcomes of DIMS lens in myopia progression from South India: A case series

Purpose: Defocus Incorporated Multiple Segments (DIMS) lens is a myopia control lens. This lens has central clear zone of 9mm with distance correction and multiple arrays of segments with myopic defocus around the central zone. These lenses are recently reported to achieve significant control of myopia. The aim of our study is to study the short-term effectiveness of prescribing DIMS lenses in patients from a tertiary eye care center in South India.

Methods: A total of 37 patients with progressive myopia were prescribed DIMS lens out of which 15 patients who had a minimum follow up of 6 months were included in the study. The mean age of the population was 10 years with age ranging from 6 to 16 years. The patients who reported to the hospital with the history of myopia progression was enrolled in the study. Myopia progression was defined as the increase in dioptric power more than or equal to -0.5D in 6 months duration. Cycloplegic refraction was done. The range of myopia varied from -1.50D to -10 D. The axial length was measured for all patients with AL scan (Nidek)

Results: The average myopic progression before DIMS lens was -0.89 ± 0.60 and after DIMS lens was found to be -0.056± 0.166. Myopia progressed 6.25 % slowly when compared to the pre-DIMS progression when observed for 6 months. The mean difference in axial length before and after the wear of DIMS lens was -0.84 mm. Paired t-test showed that there is no significant difference between pre and post values of axial length with the p-value of 0.27. It was noted that there was only 0.34 % of axial elongation in these 6 months of DIMS lens wear.

Conclusions: We conclude that the wear of DIMS lens significantly reduced the myopia progression and axial length elongation.

Authors: Rakesh Maldoddi[1], Swapnil Thakur[1], Pavan Verkicharla[1]

IMARC TP-08

Affiliation/s (Presenting author)

1 Myopia Research Lab – Prof. Brien Holden Eye Research Centre, L V Prasad Eye Institute, Hyderabad, India.

Email: rakeshm950@gmail.com

Title: Near work, light levels and dioptric profile - which factor dominates and affects the changes in ocular biometry?

Purpose: Near work is considered a risk factor for early-onset or progression of myopia. Thus, we investigated the effect of near work performed in different visual environments which are known to inhibit or trigger myopia. Results For both experiments, a significant increase in axial length (AL) was found from baseline for reading tasks in both outdoor (mean ± SEM; 12.27 ± 3.35 µm, p=0.001) and indoor environments (11.9 ± 3.13 µm, p=0.001). No significant difference in AL was observed between these two environments (p and >0.05). Similarly, AL increased significantly from baseline to post-reading task, irrespective of the absence of clutter (17.92 ± 3.51 µm, p and lt;0.0001) or the presence of a cluttered environment (19.17 ± 2.94 µm, p0.05). Vitreous chamber depth increased significantly after performing reading tasks in all visual environments (p and lt;0.001). Most participants (~70–80%) showed the trend of an increase in axial length, regardless of the visual environment. Conclusion Irrespective of various visual environments (outdoor vs. indoor; unclutter vs. clutter), reading tasks always lead to greater changes in axial length.

Methods: A total of 46 young adults (age range 18-32 years) participated in the experiment. In experiment 1, twenty-two individuals performed a reading task for 15-minutes at a distance of 20 cm in natural outdoor bright light (~40,000 lux) and indoor light (~70 lux). In experiment 2, twenty-four individuals performed the same reading task in an unclutter and cluttered environment indoors. Pre and post-task ocular biometry measurements were performed for each session using Lenstar LS 900.

Results: Results For both experiments, a significant increase in axial length (AL) was found from baseline for reading tasks in both outdoor (mean ± SEM; 12.27 ± 3.35 µm, p=0.001) and indoor environments (11.9 ± 3.13 µm, p=0.001). No significant difference in AL was observed between these two environments (p and >0.05). Similarly, AL increased significantly from baseline to post-reading task, irrespective of the absence of clutter (17.92 ± 3.51 µm, p and lt;0.0001) or the presence of a cluttered environment (19.17 ± 2.94 µm, p0.05). Vitreous chamber depth increased significantly after performing reading tasks in all visual environments (p and lt;0.001). Most participants (~70–80%) showed the trend of an increase in axial length, regardless of the visual environment. Conclusion Irrespective of various visual environments (outdoor vs. indoor; unclutter vs. clutter), reading tasks always lead to greater changes in axial length.

Conclusions: Irrespective of various visual environments (outdoor vs. indoor; unclutter vs. clutter), reading tasks always lead to greater changes in axial length.

Authors: Srujana Hitesh[1], Sharat Babuchilukuri[1], Naeem Hussain[1]
Affiliation/s (Presenting author)

1 Sharat maxi vision eye hospitals, Warangal, Telangana state

Email: srujana.pinapala@gmail.com

IMARC TP-09

Title: Acute acquired myopia- a pandora box

Purpose: This is to report 2 distinctly varied forms of acute acquired myopia, an entity underrated majority of times. Acquired myopia is a rare scenario in clinical practice the causes of which cannot be categorized to a particular etiology.

Methods and Results: A 25-year-old female diagnosed and being treated by neurophysician for migraine presented with acute loss of vision in both eyes, with CF2mtrs in both eyes at presentation. On clinical evaluation, acute angle closure and acute myopia of about -7.00 diopters, choroidal thickening on b-scan indicated Topiramate induced acute uveal effusion with acute angle closure and acute acquired myopia in both eyes. Prompt onset of treatment with topical and systemic steroids, topical antiglaucoma medication ensured complete visual recovery in a week. Pertaining to the condition, topical steroids and anti-glaucoma therapy is slowly tapered over a period of one month. A 12 year old presented with unilateral acute onset vision loss since one week.on examination, visual acuity in right eye -6/6,left eye-CF3mtrs respectively. Autorefractometry revealed myopia of -5.00 diopters in left eye and emmetropia in right eye. Cycloplegic refraction is performed which disclosed emmetropia in both eyes. Hence forth, a diagnosis of unilateral acute acquired myopia secondary to accommodative spasm is made. Prompt onset of therapy with cyclopentolate drops in left eye slowly tapered over 2 weeks ensured complete visual recovery.

Conclusions: Acute acquired myopia a unique clinical entity with presentation and clinical scenario varying from case to case, is a PANDORA BOX posing inch on inch challenge to the ophthalmologist. Thorough evaluation, prompt attention, wholesome approach helps in arriving at correct diagnosis and accurate treatment affords best results.

IMARC TP-10

Authors: Vinay Gupta[1], Rebika Dhiman[1], Swati Phuljhele[1], Rohit Saxena[1]

Affiliation/s (Presenting author)

1 Dr. R. P. Centre for Ophthalmic Sciences, All India Institute of Medical Sciences, New Delhi.

Email: vinay.dhruv@gmail.com

Title: Effect of personal characteristics on treatment response to atropine 0.01% in children with progressive myopia

Purpose: Personal characteristics such as age, gender, number of myopia parents and amount of myopic refractive error considered as risk factor for rapid progression of myopia. The aim of this study is to analyze the effect of age, gender, parental myopia and baseline refractive error on treatment response to atropine 0.01% for myopia control in children with progressive myopia.

Methods: The data was analyzed from a multicentric, double-blinded, placebo-controlled, randomized trial aimed to study the efficacy of low dose atropine (0.01%) in preventing myopia progression among Indian children. Institute ethics committee approval was obtained. Exploratory subgroup analysis was performed for age, gender, number of myopic parents and refractive error at time of enrolment using IBM SPSS Statistics software (Version 25.0). Multiple regression model was used to evaluate the correlation between myopia progression and age as well as baseline refractive error in both atropine-treatment and placebo-control group.

Results: Mean age of subjects in the atropine group (n=64, 60% males) was 9.3±2.11 years and in the placebo group (n=53, 58% males) was 9.8±2.23 years. There was no significant difference noted in demographic distribution, refractive characteristics, and biometric parameters between two groups at baseline. Mean myopia progression i.e. change in spherical equivalent at 1-year from baseline values was -0.14±0.36D in atropine-treatment group and -0.41±0.37D in placebo-control group (P: 0.001). Although low, a negative correlation (r: -0.19) was noted between age and myopia progression in atropine group, however a positive correlation was observed in placebo group (r: 0.32). Mean myopia progression in males and females was, -0.09±0.34D and -0.21±0.28D respectively, in atropine treatment group (P: 0.02); whereas -0.29±0.32 and -0.44±0.39D respectively, in placebo control group (P: 0.1). Mean myopia progression in children with no, one and both myopic parents were -0.07±0.15D, -0.15±0.32D and -0.16±0.27D respectively in atropine group (P: 0.18); whereas -0.28±0.24D, -0.37±0.38D and -0.43±0.44D respectively in placebo group (P: 0.2). On comparison, a higher correlation was observed between myopia progression and baseline refractive error in atropine group (r: 0.48) as compared to placebo group (r: 0.21).

Conclusions: Better response with atropine therapy is achieved with, younger age at time of intervention, no myopic parents, male gender and lower myopia at baseline.

Authors: Rahul Negi[1], Rakesh Maldoddi[2]

IMARC TP-11

Affiliation/s (Presenting author)

1 Centre for Technology Innovation, L V Prasad Eye Institute, Hyderabad
2 Myopia Research Lab, L V Prasad Eye Institute, Hyderabad

Email: rahulnegi@lvpei.net

Title: An uncommon side effect of a common pharmaceutical anti-myopia treatment

Case Reports: A 11-year-old child visited to our clinic with a chief complain of difficulty in viewing letters on the board since 6 months. On examination child was diagnosed with progressive myopia and significant change in refractive error. The child was prescribed with new spectacle and low concentration of atropine 0.01% (LCA) to control progression of myopia. However, child reviewed back within a week time with a complain of headache, photophobia, and difficulty in reading. A detailed eye examination and verification of spectacle prescription were performed, and symptoms correlated with the usage of eye drops, and considered as a side effect of LCA 0.01%. The child was advised to stop using LCA eye drops and peripheral defocus spectacle was dispensed as an alternative anti-myopia strategy to retard progression of myopia. LCA may not be suitable option in all the cases of pediatric progressive myopia. Eye care practitioners should be aware, though rare, of this uncommon side effects of commonly used topical drops, and patient and parents should be counseled of all the possible side-effects before prescribing LCA.

Authors: Neelam Pawar[1], SowmyaShree[1], Meenakshi R[1]
Affiliation/s (Presenting author)

1 Aravind Eye Hospital, Tirunelveli

Email:drneels2pawar@yahoo.co.in

IMARC TP-12

Title: Cross-sectional study on refractive profile of children with history of intravitreal bevacizumab for retinopathy of prematurity in a tertiary eye care center

Purpose: To study refractive profile in children after intravitreal injection of bevacizumab for retinopathy of prematurity (ROP).

Methods: The study was conducted at a tertiary eye care hospital. ROP patients with age more than one year presenting to Paediatric Ophthalmology clinic and Retina clinic with history of treatment with intravitreal bavacizumab or intravitreal bevacizumab and laser photocoagulation were included in the study. Patients who had developed any form of complications or in whom ROP had not regressed were excluded from study. Cycloplegic refraction was done and refractive status was evaluated. The refractive status of age-matched, full term children with uneventful perinatal and neonatal history was also recorded and compared with the study group.

Results: Among 134 eyes of 67 study subjects, major refractive error found was myopia, 53.7%. High myopia was seen in 12.7%. 16.4% developed emmetropia. 14.2% developed hypermetropia and 3% developed high hypermetropia. Astigmatism was seen in 46 eyes out of which 12 eyes had high astigmatism. Majority of them had with the rule (WTR) astigmatism, 87%. In the control group majority of them had emmetropia, 91.8%.

Conclusions: Myopia was the major refractive seen in the study group. WTR astigmatism was more commonly seen. Gestational age, zone and stage of ROP had significant association with development of myopia.

IMARC TP-13

Authors: Maheswari Srinivasan[1], Shruti Nishanth[2], Vidhya Lakshmi S[3]

Affiliation/s (Presenting author)

1 Associate professor, M. Optom, FIACLE, FASCO M.N College of Optometry
2 Executive director, Pediatric Ophthalmologist, Squint specialist and Neuroophthalmologist
3 Optometrist, M.N eye hospitals.

Email: maheswariishayoga@gmail.com

Title: A unique presentation of unilateral myopia in one of the siblings with otherwise similar clinical presentation.

Background: The influence of genetic factors on myopia is reported in many studies. Here we describe the presentation of myopia, response to therapy, and myopia progression among siblings.

Case presentation: A four-year-old female was reported to a tertiary eye care center. The visual acuity was 6/6 in the right eye and 6/24 in the left eye. The cycloplegic refraction revealed +2.00 DS/-0.50 DC @ 180 in the right eye and -4.25 DS/-1.25 DC @ 90. The patient underwent dichoptic therapy and patching of the right eye for 2 hours daily. The patient was reviewed every 6 months. The patient was uncooperative for contact lens trials. The patient did not follow the patching regularly. At the end of 5 years, myopia progressed to -7.00 DS / -0.50 DC @110 in the left eye with visual acuity of 6/12. The younger sibling who was 3 years old, reported on the same day with a visual acuity of 5/60 in the right eye and 6/60 in the left eye. The cycloplegic refraction revealed -7.50/-0.75DC @ 15 in the right eye and -7.00/-0.50DC @ 180 in the left eye. The patient underwent dichoptic therapy and was advised for alternative patching. At the end of 5 years, myopia progressed to -8.25 DS/ -1.50 DC @ 20 in the right eye and -8.25/-1.00 DC @ 180 in the left eye with visual acuity of 6/6 in both eyes. Both patients were advised for dilute atropine 0.01%. They reported an increase in axial length from OD:21.37 mm and OS 23.63 mm to OD: 21.84 mm and OS: 24.87 mm in the older sibling and from OD:24.43 mm and OS 24.38 mm to OD: 25.23 mm and OS: 25.19 mm in 5 years.

Conclusions: It is a case of myopia progression in spite of the atropine therapy. Though both the siblings showed a similar clinical picture, one of the siblings with unilateral myopia is a unique presentation. The older sibling with unilateral myopia showed a different rate of elongation in the axial length when compared to the fellow eye.

Rapid fire presentations

19th November 2022 (Saturday)

PRESENTATION ID (TIME - IST)	TOPIC	PRESENTER
IMARC-RF-01 (15:25 to 15:32)	Estimation of myopia progression with and without Myopin treatment in patients of tertiary eye care hospital, Bangalore	Nikhita Jacob
IMARC-RF-02 (15:32 to 15:39)	Effectiveness of 0.01% Atropine in anisomyopic children	Azfira Hussain
IMARC-RF-03 (15:39 to 15:46)	Comparison of visual functions in early and late onset myopia	Salai Dhavamathi J
IMARC-RF-04 (15:46 to 15:53)	Optical dampening of refractive error with increasing axial length	Satish K Gupta
IMARC-RF-05 (15:53 to 16:00)	Complementary and alternative medicine treatments for retarding the progression of myopia: An evidence-based approach	Aiswaryah Radhakrishnan
IMARC-RF-06 (16:00 to 16:07)	Association of refractive error and dry eye disease in children	Shruti Nishanth
IMARC-RF-07 (16:07 to 16:14)	Impact of artifacts on quantification of microvascular measurements in myopic eyes by optical coherence tomography angiography	J. Jothi Balaji
IMARC-RF-08 (16:14 to 16:21)	Real cases analysis of RLRL therapy	Jianhui Huyan

Authors: Nikhita Jacob[1], Vandana Kamatha[2], Anna Theres[3]

IMARC RF- 01

Affiliation/s (Presenting author)

1 Assistant Professor, Sankara College of Optometry, Bangalore, Karnataka

2 Associate Professor, Sankara College of Optometry, Bangalore, Karnataka

3 Student, Sankara College of Optometry, Bangalore, Karnataka

Email: nikhitajacon1994@gmail.com

Title: Estimation of myopia progression with and without myopin treatment in patients of tertiary eye care hospital Bangalore

Purpose: Progressive myopia is a common refractive condition with high prevalence. This study aimed to understand the myopic progression with and without the use myopin drug. This information can be further helpful to understand the effect of myopin treatment protocol on myopia in an enhanced manner.

Methods: A Retrospective study was done among paediatric patients who is using myopin eye drop. The mean age of subjects was 10.57±3.83. Patients who visited Sankara Eye Hospital, Bangalore from April 2020 to April 2021 were included in the study. All the details of patients were collected with the help of DMR. All the collected data were entered in excel sheet. Data analysis was done using Microsoft excel edition 2010.

Results: This study shows that myopin eye drop had an impact on increase in rate progression myopia. And we found out that among all the myopic patients who had visited the hospital, 593 children were advised with myopin. Out of 593 patients, 332 (56%) were female and 261(44%) were male. Among 593 patients, 120 myopic (20%) children had a positive history of paternal myopia and 111(19%) patients had maternal myopia. The rate of myopia progression did not show a statistically significant difference between mild, moderate and severe myopia.

Conclusions: The impact of myopin treatment has no significant difference in the myopia progression when observed between different severities of myopia.

Authors: Azfira Hussain[1], Aparna Gopalakrishnan[1], Saurav Chowdhury[1], Sumita Agarkar[2]

IMARC RF- 02

Affiliation/s (Presenting author)

1 Myopia Clinic, Sankara Nethralaya, Medical Research Foundation, Chennai
2 Department of Pediatric Ophthalmology, Sankara Nethralaya, Chennai, India

Email: hussainazfira@gmail.com

Title: Effectiveness of 0.01% atropine in anisomyopic children

Purpose: To investigate the change in ocular parameters of anisomyopic children treated with 0.01% atropine.

Methods: This retrospective study analyzed the data of anisomyopic children who underwent comprehensive examination at a tertiary eye center in Chennai, India. Anisomyopic subjects (difference of ≥ 1.00 D) of age 6-12 years who were treated with 0.01% atropine or prescribed regular single vision spectacle and had follow-ups of more than one year were included.

Results: A total of 53 subjects' data met the inclusion criteria. In the 0.01% atropine group, there was no significant increase in mean spherical equivalent over time between more myopic (-0.53 D; 95% CI: -0.27 to -0.79) and less myopic (-0.55 D; 95% CI: -0.31 to -0.80; P=.76) eyes of 0.01% atropine anisomyopes whereas, in single vision wearing group, the less myopic eyes (-0.77 D; 95% CI: -0.52 to -1.00; P= .037) exhibited a significantly higher mean change in spherical equivalent than more myopic eyes (-0.58 D; 95% CI: -0.37 to -0.79). No statistical difference in the mean increase of axial length between more myopic and less myopic eyes was observed in the 0.01% atropine as well as single vision group. The more myopic eyes exhibited higher flattening of corneal curvature compared to less myopic eyes after intervention with 0.01% atropine (-0.33 D; 95% CI: -0.16 to 0.49 vs. -0.18 D; 95% CI: -0.05 to -0.31; P= .03), however, no statistically significant change in corneal curvature was found between more (-0.10 D; 95% CI: 0.07 to -0.27) and less (-0.11; 95% CI: 0.04, -0.26; P= .93) myopic eyes in single vision wearer anisomyopic cohort.

Conclusions: Bilateral administration of 0.01% atropine in anisomyopic children slows the progression of myopia in equal magnitude between more myopic and less myopic eyes.

Authors: Salai Dhavamathi J[1], Ramesh S Ve[2], Manali Hazarika[3], Kathleen Watt[4], Shonraj Balle Ganeshrao[5]

IMARC RF- 03

Affiliation/s (Presenting author)

1 Assistant Professor, Department of Optometry, MCHP, MAHE, Manipal
2 Professor, Department of Optometry, MCHP, MAHE, Manipal
3 Associate Professor, Dept of Ophthalmology, KMC, MAHE, Manipal, India
4 Myopia Clinic Director, UNSW, Sydney, Australia
5 Adjunct Faculty, Department of Optometry, MCHP, MAHE, Manipal & Associate Professor, INSOFE, Hyderabad, India

Email: dhavamathi.j@manipal.edu

Title: Comparison of visual functions in early and late onset myopia

Introduction: Myopia is well-known to have reduced visual performance associated with both optical and retinal changes. Psychophysical experiments measure the entire visual function which includes, the optics, the retina, and the higher centres of the central nervous system

Purpose: This cross-sectional study is aimed to compare the high contrast visual acuity (HCVA), low contrast visual acuity (LCVA), and contrast sensitivity function (CSF) among early and late-onset myopia through psychophysical experiments.

Methods: Participants were recruited from the Ophthalmology OPD, student and staff population of MAHE with ages ranging from 8-35 years with myopia -0.5 to -6.00D and astigmatism with and lt;/=1.50D. Participants with any ocular abnormalities were excluded from the study by undergoing a comprehensive eye examination including, history, visual acuity, objective, and subjective refraction, and written informed consent was obtained. Early-onset myopia (EOM) was defined as myopia that occurs between 8 and 14 years of age with progression throughout the early teenage years (Gilmartin et al 2004) and late-onset myopia (LOM) was defined as having the first spectacle/contact lens correction at the age of 18 years or older (Dhirani et al 2008).HCVA and LCVA were measured using custom-written software on MATLAB. The software measures visual acuity using a staircase test procedure with six reversals. The average of the last four reversals was taken as mean visual acuity values. The optotype used was Landolt-C. CSF was measured using the quick CSF method (Liou et al 2001). The following parameters were measured using quick CSF: peak-CSF, cut-off frequency, and AUC (area under the curve). All measurements were taken with spectacle correction. R software was used for data analysis.

Results: In total, 12 eyes were recruited (6 EOM and 6 LOM). The average refractive error (±SD) in EOM and LOM was (-2.5 ± 1.7DS) and (– 1.4±1.1DS). The average age in EOM is (11±2) years and in LOM is (20.5±0.8) years. The mean HCVA (-0.18± 0.07) in Log MAR and LCVA were (-0.12 ±0.03) in Log MAR in the early onset of myopia. The mean HCVA was (-0.242 ±0.08) Log MAR and LCVA was (-0.14 ±0.06) in the late-onset of myopia The difference in visual acuity was calculated by subtracting the high and low contrast visual acuity and we found that there is no change between them. In the quick contrast sensitivity function, the peak spatial frequency ranged between 2-7CPD and the cut-off value ranged between 9-45 in both early and late-onset myopia. The mean area under the curve is (2.81±0.32) in EOM and (2.65 ±0.14) in LOM. A t-test showed one of the parameters was significantly different from the other”

Conclusions: We found no difference in HCVA, LCVA, peak-CSF, cut-off frequency and AUC between EOM and LOM.

IMARC RF- 04

Authors: Satish Kumar Gupta[1], Pavan Kumar Verkicharla[1,2]

Affiliation/s (Presenting author)

1 Myopia Research Lab, Prof. Brien Holden Eye Research Centre, Brien Holden Institute of Optometry and Vision Science, Kallam Anji Reddy Campus, L V Prasad Eye Institute, Hyderabad, India
2 The INFOR Myopia Centre (prevention and control), Kallam Anji Reddy Campus, L V Prasad Eye Institute, Hyderabad, India

Email: satish.gupta@lvpei.org

Title: Optical dampening of refractive error with increasing axial length

Purpose: Ocular assumptions based on axial length and refractive error relationship that every 1 mm increase in axial length corresponds to ≈-3.00 D of myopic refractive error in humans, may not be appropriate for all degrees of myopia. Hence, the current study investigated the differences in myopic refractive error and axial length relationship in Indian children with progressive myopia over 12 months.

Methods: The clinical data of 16 children (5-15 years), who visited the Infor Myopia Centre of L V Prasad Eye Institute, Hyderabad (India) and completed 12 months of follow-up were retrospectively extracted from the electronic medical record. The relationship between the change in myopic spherical equivalent refractive error (SER) and axial length after 12 months was determined.

Results: The mean myopic SER for all patients progressed by -0.69±0.64 D with the mean axial elongation of 0.32±0.25 mm within 12 months. After 12 months of follow-up, 50% of the patients' spectacle prescription (n=8) did not change with stable best-corrected visual acuity, although axial elongation was noted. Of those patients with stable spectacle prescription and best-corrected visual acuity after 12 months, 65% (n=5) had high myopia (SER ≤ -6.00D) at baseline.

Conclusions: The eyes with high myopia and/or longer axial length exhibited a lower change in myopic refractive error than that with low myopia. We propose that the optical dampening effect seen in longer eyes could be due to small eye artifacts. Further, longitudinal studies involving a larger sample size are required to establish the optical dampening effect in high/progressive myopes

IMARC RF- 05

Authors: Aiswaryah Radhakrishnan[1], Vivek Suganthan Ramasubramanian[2]

Affiliation/s (Presenting author)

1 Assistant Professor, Department of Optometry, SRM Medical College Hospital and Research Center, SRMIST, Potheri
2 Research Scholar, Department of Optometry, SRM Medical College Hospital and Research Center, SRMIST, Potheri

Email: aiswaryr@srmist.edu.in

Title: Complementary and alternative medicine treatments for retarding the progression of myopia: an evidence-based approach

Purpose: Myopia is a progressive refractive condition with potential ramifications leading to permanent visual impairment. Optical, therapeutic and pharmacological approaches are reported to be effective to prevent myopia progression. We studied the treatment options and the reported efficacy of different complementary and alternative medicine (CAM) approaches to Myopia control.

Methods: Indexed articles in English and non-English language published from 1980 to 2021 were retrieved using keywords search of MEDLINE, Cochrane Library, and Science Citation Index databases. Combination of keywords including myopia and interventions such as ayurveda, acupuncture, homeopathy, siddha and yoga for myopia control were used. Studies pertaining to treatment protocols, comparison of outcomes and efficacies were reviewed.

Results: Nineteen full text articles reporting protocols or treatment outcomes of different CAM approach to prevent myopia progression were reviewed. Acupuncture was the most reported treatment (58%), followed by Ayurveda (32%) and Yoga (10%). No studies were available for Siddha or Homeopathy based treatment for myopia progression. Among the 19 studies, 2 studies reported acupuncture treatment protocol, 3 were randomized control trials in acupuncture and ayurveda and 8 studies did not measure any standard clinical parameters. Sixteen studies reported clinical outcomes, of which 6 reported no improvement in subjective or objective parameters. Four studies (in acupuncture and ayurveda) reported improvement only in subjective parameters. Two acupuncture studies reported a decrease in refraction of and >0.50D in more than 40% of the subjects. The follow-up durations varied from 60 days to 12 months. None of the studies reported baseline progression, patient compliance to treatment strategy, changes in axial length or cycloplegic refraction. Comparisons were made among different treatments protocols in the respective discipline and not with conventional methods for myopia control.

Conclusions: The evidence on complementary and alternative medicine treatments does not provide sufficient information to support interventions to prevent the progression of myopia. Reported outcomes were not conclusive and depended on subjective parameters. Recommendations cannot be provided due to lack of long-term results and clinically relevant outcomes.

IMARC RF- 05

Authors: Shruti Nishanth[1], Arokiya Agila[1], Vidhya Lakshmi S[1], Maheswari Srinivasan[1], Thiruchelvi[1]

Affiliation/s (Presenting author)

1 M.N. Eye Hospital, Chennai

Email: shruti.d.nish@gmail.com

Title: Association of refractive error and dry eye disease in children

Purpose: Dry eye disease is the most prevalent public health problem in adults. The concern for pediatric dry eye disease is uncommon. There is no particular study about the association between dry eye and refractive error in children. This study aims to evaluate the risk factors and association between dry eye and refractive error among children.

Methods: This cross-sectional study included subjects with 6-17 years who were free from ocular surface disease, strabismus, congenital anomalies, and ocular surgeries. Based on the post-mydriatic test, the refractive power classified as moderate myopia (-6.50DS to -4.00DS), low myopia (and lt; -4.00DS to -0.50DS), emmetropia (and lt; -0.50DS to +0.50DS to +2.00DS). All subjects underwent dry eye evaluation, which included Schirmer's tests 1 and 2, Tear breakup time, Tear meniscus height, Conjunctival staining, and Blink rate. Modified OSDI and Lifestyle questionnaires google form given to the parents. Parents signed the informed consents and responded to the questionnaire. Linear regression was performed to find the relationship between Schirmers-1 values and refractive error. Mann-Whitney U test was done to find the relationship between risk factors and dry eye disease. Kruskal Wallis was done to find the difference in Schirmer's I values among different groups of refractive error.

Results: Among the collected 162 subjects (324 eyes) were classified as moderate myopes (6.7%), low myopes (40.7%), emmetropes (32.7%), and hyperopes (20.3%). The linear regression statistically significantly predicted the Schirmer's 1and2, TMH using the refractive error as the independent variables with p values p and lt;0.001, p and lt;0.000, p0.497), outdoor activities (p and >0.697), near digital devices (pand >0.104), distance digital devices (p and >0.173) and sleep quality (p and >0.758). The refractive power was classified as High myopia, low myopia, hyperopia, and emmetropia. Kruskal Wallis H test was run and showed a statistically significant difference in Schirmer's values among different groups of refractive error (p and lt;0.000).

Conclusions: Our study revealed a linear relationship between refractive power and Schirmer's values. Evaluating dry eye disease is mandatory for children with refractive power.

IMARC RF- 07

Authors: Janarthanam Jothi Balaji[1], V. K. Viekash[2]

Affiliation/s (Presenting author)

1 Department of Optometry, Medical Research Foundation, Chennai, 600006, Tamil Nadu, India.
2 Department of Instrumentation and Control Engineering, National Institute of Technology, Tiruchirappalli 620015, Tamil Nadu, India.

Email: jothibalaji@gmail.com

Title: Impact of artifacts on quantification of microvascular measurements in myopic eyes by optical coherence tomography angiography.

Purpose: Despite the multiple prominent advantages of Optical coherence tomography angiography (OCTA), artifacts may limit how this imaging modality is interpreted, quantified, and used in clinical settings. Good fixation is crucial during imaging even if the OCTA has a fast-in-built eye tracking system that helps minimize motion artifacts. This study aims to investigate the impact of artifacts on the quantification of microvascular measurements in myopic eyes by OCTA.

Methods: This retrospective study investigated the OCTA images of 92 myopes (159 eyes) and 43 clinically normal individuals (55 eyes) who visited a tertiary care clinic between 2019 and 2021. Based on their spherical equivalent (SE), myopia was grouped into two categories: low myopia (-0.50 D to -6.00 D) and high myopia (worse than -6.12 D). Angioplex 6 X 6 mm protocol was used to image the study subjects by a Cirrus 5000 (Carl Zeiss Meditec, Inc., Dublin, CA). A single experienced observer assessed and categorized the en-face superficial and deep layer images for artifacts (Blink artifacts, displacement, doubling, stretched, and crisscross blood vessels due to poor fixation). Metrics of the microvascular dimension were quantified using the built-in automated application. The fractal dimension (Df) of both the superficial and deep layer en-face images was determined using a box-counting method utilizing a customized program.

Results: The mean ± SD age, spherical equivalent (SE), and AXL of the study subjects were 24.96 ± 4.89 years, -6.15 ± 3.75 D, and 25.54 ± 1.42 mm respectively. In myopic eyes, 25.79 % of eyes had motion artifacts, 23.27% had projection artifacts, 20.75% had combination artifacts, and 30.19 eyes were free from any artifacts. A high myopic SE ($p = < 0.001$), worse visual acuity ($p = 0.010$), and longer AXL ($p = < 0.001$) were found in subjects with artifacts. Microvascular dimensions were significantly different ($p = < 0.05$) in images with artifacts. However, Df remained same with and without artifacts.

Conclusion: More than 80.0% of myopic eyes had one or more than one type of artifact. These artifacts significantly influence the dimensions of microvascular parameters imaged by OCTA. The fractal dimension Df was not affected by the presence of artifacts.

IMARC RF- 08

Authors: Jianhui Huyan[1], Amanda Han[1], Bob Yu[1]

Affiliation/s (Presenting author)

1 Not provided

Email: yhjwendmyopia08@gmail.com

Title: Real cases analysis of RLRL therapy

Purpose: Repeated low level red-light(RLRL) therapy has been adopted into research and preliminary clinical evidence showed that RLRL can slow down the progression of teenagers' myopia.

Methods: 1. The principle of RLRL help slowing down the progression of myopia is not entirely clear. However, preliminary clinical evidence showed that teenagers who accept the treatment of RLRL increased their choroidal thickness. So, RLRL can lead to the increase of choroidal blood flow and consequently to choroidal thickness、blood circle and blood-supply, which is helpful to improve the problem of deficiency in oxygen supply and restrain the excessively growth of axis oculi, therefore, myopia is controlled by this mechanism.

2. Teenagers should check eyes' status at regular interval before using or in using, which include eyesight(UCVA and CVA), color vision, IOP, eye position, diopter, the length of axis oculi, corneal curvature and color photo of fundus as well as OCT of macular area(including choroidal thickness). Especially, we should focus on the axis oculi、SFCT and corneal curvature.

Methods of using RLRL machine: RLRL should be used in the natural condition of pupils and twice a day; three minutes a time; minimum 4h of interval.

Results: In this meeting, our team will report three real cases of teenagers about myopia control, which include 2 RLRL cases and 1 case with taking comprehensive measures (Misight). We will share the results of these cases from the perspective of the change of axis oculi length, SFCT and corneal curvature.

Conclusions: RLRL is a promising treatment for myopia control in children by using the wavelength of 650nm low level red light to irradiate eyes, which is non-contact. It has been widely used in the treatment of amblyopia in children with remarkably results.

Poster presentations

19th November 2022 (Saturday)

Poster session 1 - 10:30 to 11:30 | Poster session 2 - 16:25 to 17:00

POSTER ID	TOPIC	PRESENTER
IMARC-PP-01	Prevalence of myopia in urban and rural school children of Bangalore, Karnataka	Ashwini D L
IMARC-PP-02	Clinical profile and demographic distribution of high myopia: an electronic medical record-driven big data analytics from a multitier eye care	Yogita Kadam
IMARC-PP-03	Application of Myopia app in modifying smartphone related visual behaviors	Raaga L
IMARC-PP-04	Light level exposure is similar between myopes and emmetropes in Indian school children	Rohit Dhakal
IMARC-PP-05	Postural changes among ametropes – a pilot study	Madhumitha B
IMARC-PP-06	Myopia progression in pediatric age group: early prediction using artificial intelligence	Sumitha Muthu
IMARC-PP-07	Is nutrition associated with development and progression of myopia? A Systematic Review	Sruthi Chamarty
IMARC-PP-08	Myopia a boon or curse: myopic children's parent's perspective	Jyoti Mundhra Damani
IMARC-PP-09	Effect of macular pigments in high myopia: a preliminary analysis	Shashank Bhandary
IMARC-PP-10	Progression of myopia in school-aged children during COVID-19 era with home confinement-presented to a tertiary eye care center	Sony Singh
IMARC-PP-11	Distribution of negative and positive relative accommodation among myopes	Vandana Kamath
IMARC-PP-12	Management of myopia in a patient with strabismic amblyopia	Savita B S
IMARC-PP-13	A case report on effect of dilute atropine on myopia progression	Vidhya Lakshmi S
IMARC-PP-14	Unique case of unilateral progression of myopia post squint surgery	Vidhya Lakshmi S
IMARC-PP-15	Does blue light exposure regulate axial length in humans?	Swapnil Thakur
IMARC-PP-16	Contract polarity of text and its impact on myopia	Sarada Devi
IMARC-PP-17	Current trends in myopia management knowledge, attitudes, barriers, and strategies in clinical practice among eye care professionals in India	Hari Pradyumna
IMARC-PP-18	Rapid myopia progression in young adults and the associated factors	Uday Prasad Tivari

IMARC-PP-01

Authors: Ashwini.D. L[1], Asif Ali khan[1]

Affiliation/s (Presenting author)

1 Sankara College of Optometry, Sankara Academy of Vision, Bangalore

Email:ashwini.22255@gmail.com

Title: Prevalence of Myopia in Urban and rural school children of Bangalore, Karnataka.

Purpose: One of the most widespread visual problems that affects both children and adults is Myopia. High myopia increases the likelihood of acquiring irreversible visual impairment due owing to pathologic changes in the retina, as well as the risk of glaucoma, cataract, and amblyopia.

Aim: To determine the prevalence of myopia in urban and rural primary and secondary school children in the Bangalore region, Karnataka, India.

Methods: Students of urban and rural area schools of age 5 to 15 years from the Bangalore region were taken as subjects for the study. A total of 3038 students from 6 different schools were screened, of which 1510 were female and 1528 were males. The students underwent basic eye examinations such as Visual acuity and Dry Retinoscopy. Also, we recorded the power of glasses that were already wearing the correction from the past.

Results: Out of 6076 eyes, 4% (241) were Myopias. Out of 2954 rural populations, 3.18% (94) are myopia and out of 3122 urban populations, 4.71% are myopic.

Conclusion: Urban schoolchildren in Bangalore, Karnataka, were shown to have a higher frequency of myopia than those in rural areas.

IMARC-PP-02

Authors: Yogita Kadam[1, 2], Anthony V Das[1, 2], Raja Narayanan[2, 3], Brijesh Takkar[2, 3]

Affiliation/s (Presenting author)

1 Department of Eye Smart EMR & A Eye, L V Prasad Eye Institute, Hyderabad, Telangana, India.
2 Indian Health Outcomes, Public Health, and Economics Research Center, L V Prasad Eye Institute, Hyderabad, Telangana, India
3 Anant Bajaj Retina Institute, L.V.Prasad Eye Institute, Hyderabad, Telangana, India

Email: yogita.kadam@lvpei.org

Title: Clinical profile and demographic distribution of high myopia: electronic medical record-driven big data analytics from a mutitier eye care

Purpose: To describe the clinical profile and demographic distribution of High Myopia in India

Methods: This cross-sectional hospital-based study included 2,834,616 new patients between August 2010 and June 2021. Patients with a clinical diagnosis of High Myopia in at least one eye were included as cases. The data were collected using an electronic medical record system.

Results: Overall, 73274 (2.58%) patients were diagnosed with High Myopia, of which 38396(52.40%) were males, and 34878(47.60%) were females and had a bilateral affliction of 63323 (86.42%). The prevalence rates were 4.12% in children and 2.35% in adults. The most common age group at presentation was during the third and second decade of life, with 23046(31.45%) and 15768(21.52%) patients. The overall prevalence of high myopia was higher in patients from a lower-middle-class socioeconomic status (2.95%) presenting from the urban geography (3.069%) and in students (6.606%). Most of the eyes had mild or no visual impairment (and lt;20/70) in 92644 (67.82%) eyes, followed by moderate visual impairment in 19075 (and lt;20/80 – 20/160) (13.96%) eyes. Of the 136597 eyes, the most commonly documented retinal signs were lattice degeneration in 5069 eyes (3.71%), tessellated fundus (2.86%), and CRA (2.31%), followed by posterior staphyloma, myopic macular degeneration, myopic foveoschisis, WWOP, lacquer cracks and retinal break which were present but less common. The most common complication seen was retinal detachment in 1719 eyes (1.26%), followed by CNVM 1142 (0.84%), followed by CME in 64 eyes (0.05%). Retinitis pigmentosa was the most common genetic disorder in around 1280 (1.75%) patients with high myopia, followed by retinopathy of prematurity in about 701 (0.96%). The most common syndromic association in high myopia patients was Marfan’s syndrome 288 (0.39%), followed by congenital glaucoma, microcornea, and ectopia lentis. Diabetes mellitus and hypertension were shown to have equal contribution and distribution as a systemic disease association in the diagnosis of high myopia, around (2.12%) and (2.20%) respectively. Almost 5.52% of eyes underwent refractive surgery, and 5.13% with cataract surgery. Approximately 1.18% of eyes underwent vitreoretinal surgery followed by injections and lasers.

Conclusions: High myopia equally affects males and females presenting during the second and third decades of life and is predominantly bilateral. The most common retinal sign shown in our eyes was lattice retinal degeneration. Systemic disease like diabetes and hypertension patients has shown almost equal contribution as a risk factor for high myopia. The majority of eyes had mild or no visual impairment during the diagnosis visit, and the last visit was followed by moderate visual impairment. The majority of eyes had associated cataracts as ocular comorbidity

Authors: Raaga L[1], Dharani R[1]

Affiliation/s (Presenting author)

1 Dept. of Optometry/Ophthalmology, SRM Medical College Hospital And Research Centre, SRM Institute of Science and Technology

Email: rl9871@srmist.edu.in

IMARC-PP-03

Title: Application of Myopia app in modifying smartphone related visual behaviors

Purpose: Smart phone usage has increased across the globe and 67% of smartphone usage is for academic purposes. Excessive smartphone usage at a closer viewing distance may affect the eye health. Hence, the aim of this study is to determine whether the Myopia app can modify smartphone related visual behaviors namely, the screen time and viewing distance in young adults.

Methods: This is a pilot, intervention study, in which the Myopia App was used as an intervention to modify smartphone related visual behaviors. Six young adults aged 18-23 years were enrolled for this pilot study. Baseline screen time and viewing distance were measured for one week, with the notifications/reminders in disabled mode. After one week, participants were randomly assigned to intervention group (n=3) and control group (n=3). Notifications/reminders were then enabled for the intervention group participants, so as to provide continuous reminders to keep the smartphone away when the viewing distance was and lt; 30cm and to restrict the screen time on exceeding 3 hours, for one month. Control group participants were allowed to use the smartphone without the app. Screen time and viewing distance were compared before and after 1-month in the intervention group. Screen time and viewing distance were compared between the intervention and control groups at 1-month.

Results: The mean baseline screen time was 101.05 minutes in the intervention group which became 116.33 minutes at 1-month follow-up. The mean baseline viewing distance was 19.17 cms in the intervention group, which receded to 19.8 cms at 1-month follow-up. After 1-month follow up, the mean screen time was 116.33 minutes in the intervention group compared to 105.19 minutes in the control group. The mean viewing distance was 19.8 cms in the intervention group compared to 18.28 cms in the control group.

Conclusions: In conclusion, the Myopia App helped to modify smartphone viewing distance, but not the screen time, in this pilot study.

Authors: Rohit Dhakal[1,2], John G Lawrenson[2], Byki Huntjens[2], Rakhee Shah[2], Pavan K Verkicharla[1]

IMARC-PP-04

Affiliation/s (Presenting author)

1 Myopia Research Lab, Prof. Brien Holden Eye Research Centre, L V Prasad Eye Institute, Hyderabad, India
2 Centre for Applied Vision Research, School of Health Sciences, City, University of London, London, UK

Email: rohitdhakal@lvpei.org

Title: Objectively measured light exposure pattern in Indian children

Purpose: Exposure to bright outdoor light is known to influence the development of myopia. Considering the socio-economic, lifestyle, educational and environmental discrepancies among Caucasian, Asian and Indian population, we aimed to investigate the light exposure pattern in Indian school children.

Methods: The light exposure profile was assessed in a total of 87 school children (myopes [N]: 26, mean age±SD: 12.2±1.3 years) for weekday-weekend analyses, and in 143 children for weekdays analysis (myopes [N]: 50, mean age±SD: 12.4±1.4 years), using a validated clip-on wearable light tracker for continuous six days. The illuminance exposure level (lux), time spent at different lux level, and epoch were compared between myopes (SER: ≤-0.75 D) and non-myopes (0.00±0.50 D) across range of ambient light conditions- mesopic (1-30 lux), indoor photopic (1-200 and 201-500 lux), bright indoor photopic (501-999 lux) and outdoor photopic conditions (≥1000, ≥3000, ≥5000 and ≥10000 lux). For the weekdays alone, all the three parameters were analyzed during i) pre-school (7:30-9:00 clock hours), school (9:01-15:15) and post-school hours (15:16-18:00), and ii) class time (09:01-10:44, 11:06-12:29, & 13:31-15:15), break time (10:45-11:05 and 12:30-13:30), and transition time (08:00-09:00 and 15:16-16:15).

Results: Overall, mean illuminance exposure level, time spent outdoors, and epochs for ≥1000 lux was 943±467 lux per day (weekdays vs weekend: 768±370 vs 1252±1276 lux, P<0.01), 50±27 min/day (45±19 vs 72±62 min/day, P<0.01), and 10±6 times/day (8±7 vs 16±13 times/day, P<0.01), respectively. The corresponding values were similar between myopes and non-myopes across all the ambient light conditions. On weekdays during the transition time, non-myopes were found to spend significantly greater time in outdoors (≥1000) than myopes (27±20 vs 19±16 minutes/day, P=0.01). The number of epochs above 1000 lux were also significantly higher in non-myopes than myopes during post-school hours (7±5 vs 5±5 times/day, P=0.02) and transition time (7±4 vs 5±4 times/day, P=0.006).

Conclusions: The current findings suggest small but significant differences in time spent at outdoor light levels, and epoch between myopes and non-myopes especially during transition phase and post-school hours which may have implications in ocular growth associated with myopia. Findings from longitudinal study will provide further insights on relationship between ambient light and myopia in Indian ethnicity.

IMARC-PP-05

Authors: Madhumitha B[1], Vandana Kamath[2], Nikhita Jacob[3], Riya R Krishnan[4]

Affiliation/s (Presenting author)

1 Optometry Intern, Sankara College of Optometry, Bangalore
2 Assistant Professor, Sankara College of Optometry, Bangalore
3 Assistant Professor, Sankara College of Optometry, Bangalore
4 Optometry Intern, Sankara College of Optometry, Bangalore

Email: madhumithabalachandar@gmail.com

Title: Postural changes among ametropes – a pilot study

Purpose: Maintenance of posture requires processing signals from the visual, vestibular, and somatosensory systems. This study correlates refractive error with a change in posture thereby making it easier for the management plan and early intervention. So, the current study aims to study the Postural changes among ammetropic subjects.

Methods: A prospective experimental study was conducted between the age group of 18- 25 years at Sankara College of Optometry Bangalore during the period of July 2021- January 2022. A total of 90 subjects were screened out of which twenty-eight subjects who satisfied inclusion criteria were included in the study. Cycloplegic refraction followed by Post Mydriatic test was performed and subjects were segregated into- mild, moderate hyperopes and myopes and compound, mixed astigmatism accordingly. Subjects were asked to watch a video for a duration of 3-5mins. The posture was assessed with the posture zone application available for iOS and Android. Then the subjects were advised to wear their full correction and were given a time period of 3 weeks for spectacle adaptation. Post 3 weeks, the posture was assessed with given correction.

Results: Twenty-eight subjects aged 20.60 ± 1.49 years were assessed for refraction and posture. Mean refractive error among myopes was – 4.40 Ds + 0.97 Ds and hyperopes were + 3.31Ds + 0.29 Ds. Post refractive error correction, hyperopes had a statistically significant decrease in right head tilt (p = 0.01) torso shift (p= 0.001), and pelvis shift (p=0.02) whereas myopes had a statistically significant decrease in torso shift (p=0.02) and pelvis shift(p=0.04). Torso shift (p=0.02) and pelvis shift(p=0.04) significantly improved among myopes, whereas the other parameters had no significant difference compared to hyperopes. (Considering Confidence Interval 95 %)

Conclusions: Postural changes like head tilt, torso shift/tilt, and pelvis shift/tilt were observed among mild, and moderate hyperopes and myopes. A significant postural change was observed with respect to torso and pelvis shift post refractive error correction among myopes.

Authors: Sumitha Muthu[1], Jyoti Matalia[1], Pratibha Panmand[1], Abhijit Sinha Roy[1], Mathew Francis[2]

Affiliation/s (Presenting author)

1 Narayana Nethralaya
2 GROW labs

Email: muthusumitha03@gmail.com

IMARC-PP-06

Title: Myopia progression in pediatric age group: early prediction using artificial intelligence

Purpose: To predict myopia progression in pediatric age group using corneal tomography and biomechanics by an artificial intelligence (AI) model.

Methods: In this retrospective cross-sectional study, 321 eyes of 321 subjects aged between 5-17 years with myopia were included. Cycloplegic refraction, Corvis-ST and Pentacam HR were assessed. Eyes were sub-grouped into stable or progression if spherical power increased by and > 0.5 D, after 1-year follow-up. A decision tree AI classifier (leave one-out validated) was used to predict myopia progression using Orange AI (University of Ljubljana).

Results: Extra corneal viscosity (24.47 N/m), spherical aberration (and >0.16 µm) were the major predictors of progression. The AI had area under the curve, accuracy, and precision of 0.73, 0.71 and 0.72, respectively.

Conclusions: Myopic progression was predicted by AI using non inverse imaging data from Corvis-ST and Pentacam HR parameters.

Authors: Sruthi Chamarty[1], Satish Gupta[1], Rohit Dhakal[1, 2], Pavan Verkicharla[1, 2]

IMARC-PP-07

Affiliation/s (Presenting author)

1 Myopia Research Lab, Prof. Brien Holden Eye Research Centre, Brien Holden Institute of Optometry and Vision Sciences, L V Prasad Eye Institute, Hyderabad, Telangana, India
2 Infor Myopia Centre, L V Prasad Eye Institute, Hyderabad, Telangana, India

Email: sruthi@lvpei.org

Title: Is nutrition associated with development and progression of myopia? a systematic review

Purpose: Often parents ask eye care practitioners if changing food habits will control myopia progression in their children. There were multiple studies investigating diverse elements for their association with myopia generating complex and immense literature, making it difficult to judge if nutrition as a whole has any influence on myopia. We systematically reviewed the outcomes of the studies that previously investigated the association between nutrition and myopia.

Methods: Embase, Medline, and PubMed were searched by two independent authors from inception to the year 2021. Further, the reference list of the included articles was screened. The selection criteria for included studies were as follows: cross-sectional, prospective, retrospective, or interventional design; sample age ≤ 30 years; defined myopia; measured refractive error objectively/ axial length; evaluated nutritional status in subjective or objective manner and provided relevant statistics either in form of difference in nutrients/dietary elements intake, odds ratio of myopia, change in refractive error and/or axial length. The data from the included studies were extracted and qualitative analysis was performed. Quality assessment for non-interventional studies and interventional trials was performed using Newcastle-Ottawa scale and Cochrane Risk of Bias 2 respectively.

Results: Thirty-two articles were included in the review. Out of twenty-nine non-interventional studies, two studies showed positive association of nutrition with myopia, while seven studies found negative association. The remaining studies did not find an association of myopia with most of the nutrients and dietary elements. Majority of the studies that showed significant association (Odds ratio: 0.55 to 1.07) of nutrients and dietary elements with the increased risk of myopia have minimal effects with wider or overlapping confidence intervals, implicating weaker association. Two out of the three dietary interventional trials included in the review had a borderline effect (and lt;0.25 D) in controlling myopia progression.

Conclusions: The qualitative analysis of our review lacks evidence to support that nutrition as a whole is associated with myopia. However, considering the challenges in the quantification of nutritional status, longitudinal studies with robust methodology are recommended if further research is to be conducted investigating the nutritional aspect in the field of myopia.

IMARC-PP-08

Authors: Jyoti Mundhra Damani[1], Payal Adhikari[1], Nikita Pathare[1]

Affiliation/s (Presenting author)

1 Department of Pediatric and Myopia services, Narayana Nethralaya Eye Institute, Bangalore, Karnataka, India.

Email: optom.jyotimundhra@gmail.com

Title: Myopia a boon or curse: myopic children's parent's perspective

Purpose: Myopia is booming worldwide. Despite having wide range of optical, pharmacological and environmental control strategies, there is slow acceptance of myopia as a health issue among parents. This study aims to understand parent's knowledge on myopia and investigate their attitude and acceptance towards myopia control strategies for their children.

Methods: Parents having myopic children completed an online survey designed to assess their knowledge and attitude towards myopia and its control strategies.

Results: Most of the respondent were mothers (77.7%), aged 36 to 45 years. Of 36 parents, just 16.7% considered myopia to be a major health issue. 83.3% regarded it as a condition which can be treated by optical means. Only 8.33% believed that genetic predisposition can cause myopia. Almost all responders expressed that reading in lower light condition (87%) and excessive digital screen exposure (90%) can lead to myopia progression. Single vision glasses and eye exercise was the most common treatment option opted for correction. 92% of parents had no idea about other eye related complication due to myopiogenesis. There were only few parents (5.5%) who were well aware about anti myopia strategies and even treating the child with same.

Conclusions: Parents lacked knowledge and awareness about myopia control strategies and complications. Promoting awareness of myopia is causes and treatment options will help to motivate parents to actively prevent and treat myopia.

IMARC-PP-09

Authors: Shashank Bhandary[1], Payal Sangani[1], Brijesh Takkar[2], Raja Narayanan[1, 2], Pavan Verkicharla[3]

Affiliation/s (Presenting author)

1 Suven clinical research department, L.V Prasad Eye Institute
2 Anant Bajaj Retina Institute
3 Infor myopia centre and myopia research lab

Email: bhandaryshashank@lvpei.org

Title: Effect of macular pigments in high myopia: a preliminary analysis

Purpose: To evaluate the relationship between axial length, diet and Macular pigment optical density (MPOD) values in high myopia.

Methods: This is a prospective ongoing cross-sectional study including healthy participants with myopia, high myopia and emmetropia. The current analysis presents preliminary data from 17 eyes. Ocular biometry, optical coherence tomography angiography, macular pigment eye (MP-eye) and Visucam 500 (MPOD module) were performed for each participant. The diet consumed by the participants was recorded using a previously developed food frequency questionnaire (FFQ) using the Indian food composition table (IFCT)-2017 which specifically judges the intake of macular pigments.

Results: Refractive errors such as myopia (13 eyes) and emmetropia (4 eyes) were selected. There was a significant difference (C.I: 3.7 – 5.4, p and lt;0.05) between MP-eye (4.7 ± 1.7) and mean MPOD (0.09 ± 0.02) scores using a paired samples test.

Conclusions: These preliminary results are promising and form the basis of our larger ongoing evaluation. MPOD may have a causal relationship and may serve as a preventive therapy for high myopia.

IMARC-PP-10

Authors: Sony Singh[1], Vivek U warkad[1], Debasmita Majhi[1]

Affiliation/s (Presenting author)

1 Not Provided

Email: sonysingh@lvpei.org

Title: Progression of myopia in school-aged children during COVID-19 era with home confinement-presented to a tertiary eye care center.

Purpose:

Methods: A Retrospective analysis was done for all mild, moderate, and high myopic school-going children who presented to L V Prasad Eye Institute(MTC- campus) from December 2019 to March 2021 with minimum 2 follow-ups (6 months and 1 year follow up) with mean age group of 11.47+/-2.73 and refractive error at presentation was OD 2.31+/-1.66 in OD and 2.375+/-1.83 in OS and mean BCVA (OD)0.32+/-0.06, (OS) 0.31+/-0.06 .Refractive error on last follow up was 3.23+/-1.71 in OD and 3.30+/-1.90 in OS and mean BCVA was 0.013+/-0.039 in OD and 0.015+/-0.043 in OS Altogether 131 patients data were analyzed who fitted in our inclusion and exclusion criteria and also a questionnaire was designed regarding the average screen-time exposure where all the parents were asked either face-to face or were called over phone to give the feedback.

Conclusion: We found there was significant increase in power of children during COVID era with very less outdoor activities and 7-8 hrs of screen time exposure (and >1.23 D in 6 months follow up and 1and >.25 D in 1 year follow up).

IMARC-PP-11

Authors: Vandana Kamath[1], Likhita K[2]

Affiliation/s (Presenting author)

1 Sankara College of Optometry, Sankara Eye Hospital, Bangalore
2 Optometry Intern, Sankara College of Optometry, Sankara Eye Hospital, Bangalore

Email: vandu2388@gmail.com

Title: Distribution of negative and positive relative accommodation among myopes

Purpose: Accommodation is a mechanism that affects visual clarity and binocular vision. Refractive error, accommodative, and vergence mechanisms are all parts of our visual efficiency systems. So the current study aims to study the distribution of negative and positive relative accommodation among myopes.

Methods: A prospective study was conducted at Sankara eye hospital, Bangalore between the age group of 10-15 years. A comprehensive eye examination was done for all the subjects followed by an accommodation test. Negative and positive relative accommodation was performed with the best corrected visual acuity for all the subjects. Data collected and analyzed.

Results: 114 subjects (74 Females and 40 Males) with a mean age of 11.88 + 3.30 years were included in the study. The mean refractive error of the subjects was right eye: Sph -3.70 D Cyl -1.34D Axis 123D whereas the left eye: Sph -3.73 D Cyl -1.25 D Axis 144 D. Mean negative relative accommodation was +3.13 Ds + 0.72 Ds. Out of 114 myopes, 62 myopes had high NRA (more than +3.00D). The mean positive relative accommodation was -2.53 Ds + 1.20 Ds.

Conclusions: The current study found that 54 % of myopes had high negative relative accommodation. Positive relative accommodation was found to be normal.

IMARC-PP-12

Authors: Savita B S[1], Srikanth Ramasubramanian[2]

Affiliation/s (Presenting author)

1 CEO and Consultant Optometrist, Eyeful Optometry Clinic and Eyeful Optometric Tutelage, Chennai
2 CEO, Pediatric Ophthalmologist and Strabismologist, Leela Eye Clinic.

Email:savitasampath@gmail.com

Title: Management of myopia in a patient with strabismic amblyopia

Purpose: Myopia is multi-factorial. Both esophoria and intermittent exotropia are red flags for myopia progression. When a strabismic amblyopia patient requires myopia management, it is crucial to decide between spectacle and contact lenses depending upon the binocular vision status.

Case Details: A 9-year-old high myope with strabismic amblyopia (OS) with a progression of myopia about -1.00 DS (OU) presented with a complaint of headache, shadowing of letters and eyestrain. The patient was diagnosed to have infantile esotropia and had undergone consecutive squint correction at one and two years of age. He had already been with vision therapy to improve vision in amblyopic eye, but was not been benefitted. In addition to high myopia, the patient had high astigmatism of -5.00 DC in both the eye. He was diagnosed to have alternating exotropia to left exotropia with suppression in left eye.

Management: Patient has been prescribed soft multifocal lenses considering multiple surgeries, high myopia and high astigmatism. His residual astigmatism is corrected with spectacles. With soft multifocal lenses, his vision improved to 6/9 on amblyopic eye and shadowing reduced. Vision therapy has been advised to treat exotropia and counteract the prismatic effect of contact lenses over tropia. His refractive error and axial length has been stable since 10 months (OU).

Discussion: Myopia control spectacles are of first choice to manage myopia in exotropia patients. The limitation of providing cylindrical correction and the need of improving amblyopia necessitates contact lenses rather than spectacles. Prescribing Orthokeratology lenses in this case seemed to be not of good choice because of multiple surgeries.

Conclusions: A soft multifocal contact lens for myopia management has its own advantages even in exotropic patients to manage myopia along with vision therapy.

IMARC-PP-13

Authors: Vidhya Lakshmi S[1], Shruti nishanth[1], Maheshwari Srinivasan[1]

Affiliation/s (Presenting author)

1 M. N. Eye hospital

Email: Vidhyabso@gmail.com

Title: A case report on effect of dilute atropine on myopia progression

Case Presentation: A 5- year old female child, presented with a complaint of difficulty in distance viewing since 6 months. The patient medical history was first child born in hospital with full term, delivery without complication. Family history shows consanguinity marriage with no refractive error. Unaided visual acuity (VA) with snell's was found to be 6/60 in both eyes. Cycloplegic refraction of right eye (OD): -5.75/-0.50DC @ 160, left eye (OS): -6.00/-0.75DC @ 20. Slit lamp examination showed a clear lens and clear cornea and fundus examination shows normal. She preferred OD: -6.00/-0.50DC @160 - 6/12 and OS: -6.00 – 6/18with Stereopsis of below 500 arc sec and right suppression. Axial length in OD: 23.51, OS: 23.70. She was advised glasses for constant use and patching therapy. Next follow up VA with glasses OD:6/6, OS: 6/9 with 70 arc sec of Stereopsis and good fusion. Cycloplegic refraction of OD: -6.00/-0.50DC @160, OS: -6.75/-0.50DC @ 120. Started on myopin- eye drops – bedtime for 3 months. She was followed up once in every 3 months for a period of 3 years. At every visit, her VA with glasses and binocular vision assessment was measured along with axial length. The patient was advised to taper the dosage. We conclude that Myopin - eye drops control the progression of myopia significantly followed over a period of 4 years.

IMARC-PP-14

Authors: Vidhya Lakshmi S[1], Shruti nishanth[1], Maheshwari Srinivasan[1]

Affiliation/s (Presenting author)

1 M.N. Eye Hospital

Email: vidhyabso@gmail.com

Title: Unique case of unilateral progression of myopia post squint surgery

Case Report: A 3- year old male child presented with complaint of deviation of eyes. Visual acuity (VA) was 6/36, N 6 in right eye (RE) and 6/24, N 8 in left eye (LE). There was a history of myopia in both parents. Cover test showed left intermittent exotropia of 35 PD for distance with full extra ocular motility. Cycloplegic-refraction revealed RE: -3.00 DS, LE: -3.75 DS with axial length of RE – 24.00 mm and LE – 24.56 mm. He was advised single vision glasses and reviewed after 3 months for reassessment. His vision had improved to RE: 6/9, N6 and LE: 6/12, N6. He was advised patching of right eye and followed up for a period of 3 years. At age 6, his refractive error was stable and he underwent squint correction in left eye for 30PD (lateral rectus recession 7 mm, medial rectus resection of mm). Postoperative at 1 month, he achieved ortho-phoria in both eyes with improvement in fusion and Stereopsis. However, his cycloplegic-refraction showed RE: -3.50 and LE: -6.00/-1.00 DC@ 170.A significant increase in LE - axial length was noted with RE – 24.18 mm and LE – 25.64 mm. His myopia continued to progress over the next 1 year with RE: -3.50/ -0.50 DC @ 80 and LE: -8.00/-1.00 DC @ 170 and a corresponding axial length increase of RE– 24.36 mm and LE– 26.10 mm. He has now been started on dilute atropine 0.01% for control of myopia progression.

Conclusions: This is a unique presentation of unilateral progression of myopia after squint surgery.

Authors: Swapnil Thakur[1], Pavan Verkicharla[1, 2]

Affiliation/s (Presenting author)

IMARC-PP-15

1 Myopia Research Lab, Prof. Brien Holden Eye Research Centre, Brien Holden Institute of Optometry and Vision Sciences, L V Prasad Eye Institute, Hyderabad, Telangana, India
2 Infor Myopia Centre, L V Prasad Eye Institute, Hyderabad, Telangana, India

Email: thakurswapnil033@gmail.com

Title: Change in ocular biometry in response to long, middle, and short wavelength of light in humans

Purpose: Spectral composition of an artificial lighting condition has been demonstrated to alter axial growth and refractive development in a wide range of animal species. This study aimed to investigate a) the effect of brief period exposure to red, green, and blue light on ocular biometry in the presence and absence of lens-induced hyperopic defocus, c) effect of blue light exposure during morning and evening on time course change in ocular biometry in humans

Methods: Experiment 1: Twenty-five young adults were exposed to blue (460 nm), green (521 nm), red (623 nm), and white LED light for 1-hour each on 4 separate experimental sessions conducted on 4 different days. In each light condition, hyperopic defocus (3D) was induced to the right eye with the fellow eye experiencing no defocus. Experiment 2: Total twenty-three participants were exposed to blue light for 1-hour at two different times of the day: morning (between 9.00 to 11.00 am) and evening (5.00 to 7.00 pm). In both the morning and evening session, baseline axial length was measured under white light condition and in every 10 minutes during 60-minutes of exposure to blue light. The morning and evening sessions conducted on the same or subsequent day to the first session. Ocular biometry was measurement were performed using non-contact ocular biometer (Lenstar LS 900).

Results: Experiment 1: Axial length increased from baseline after red light (mean difference ± standard error in the right eye and left eye = 11.2 ± 2 µm and 6.4 ± 2.3 µm, $P < 0.001$ and $P < 0.01$, respectively) and green light exposure (9.2 ± 3 µm and 7.0 ± 2.5 µm, $P < 0.001$ and $P < 0.001$) with a significant decrease in choroidal thickness ($P < 0.05$, both red and green light) after 1-hour of exposure. Blue light exposure resulted in a reduction in axial length in both the eyes (−8.0 ± 3 µm, $P < 0.001$ in the right eye and −6.0 ± 3 µm, $P = 0.11$ in the left eye) with no significant changes in the choroidal thickness. Experiment 2: Both morning (-6.00 ± 2.71 µm, p=0.04), and evening (-10.9 ± 3.4 µm, p=0.004) blue light exposure resulted in significant reduction in axial length from baseline. However, the difference between the two session did not achieve significance (p=0.21). Similar to axial length, reduction in vitreous chamber depth from baseline was noted during both morning and evening blue light exposure (-17.1 ± 4.0 µm vs. -21.0 ± 5.07 µm, p=0.001 for both). Increase in anterior chamber depth and decrease in lens thickness was found during blue light exposure.

Conclusions: Brief exposure to blue light inhibited the effect of lens-induced hyperopic defocus and resulted shortening of the axial length. Moreover, both morning and evening blue light exposure led to significant reduction in axial length and vitreous chamber depth. the outcome of this experiments will be a basis for future randomized clinical trials to investigate the effect of blue light exposure in the prevention or control of myopia progression in humans.

IMARC-PP-16

Authors: Sarada Devi[1], Suvechha Das[1], Swapnil Thakur[1], Pavan K Verkicharla[1, 2]

Affiliation/s (Presenting author)

1 Myopia Research Lab, Brien Holden Institute of Optometry and Vision Sciences, Hyderabad, India
2 Infor Myopia Centre, L V Prasad Eye Institute, Hyderabad, Telangana, India

Email: saradadevi2111@gmail.com

Title: Contract polarity of text and its impact on myopia.

Purpose: Reading text on paper with black text on white background for a shorter-duration results in increase in axial length. The aim of the study is to determine the effect of reading text on paper with different chromatic background color combination (white, black, blue, and red) on changes in axial length post reading.

Methods: Thirty-two young adults were recruited for the study. Axial length was measured using non-contact biometer, before and immediately after a 15-minutes of reading text on paper with one of the four text-background color combination placed at 20 cm from the eye: black text on white background; white text on black background, white text on red background, white text on blue background. Ten minutes of washout period was given after every visual task.

Results: Paired t-test revealed significant axial elongation immediately after 15-minutes of reading text on paper with black text on white background (mean ± standard error of mean, 5.93 ± 1.84 µm, p=0.003) and white text on red background (5.31 ± 2.28 µm, p = 0.27). Reading with black text on white background and white text on blue background did not lead to significant change in axial length (4.37 ± 2.53 µm, p =0.09; 4.06 ± 2.09 µm, p=0.06).

Conclusions: Reading on white text on blue background and white text on black ground (inverse polarity) did not result in significant change in axial length. Reading text with inverse polarity or with blue background could inhibit the effect of near work in the development of myopia.

Authors: Hari Hara Pradhyumna[1], Manoj K. Manoharan[2, 3], Nagaraju Konda[1], and Pavan K. Verkicharla[2,3]

Affiliation/s (Presenting author)

1 School of Medical Sciences, University of Hyderabad, Hyderabad, India

2 Myopia Research Lab, Prof. Brien Holden Eye Research Centre, L V Prasad Eye Institute, Hyderabad, India

3 Infor Myopia Centre, Brien Holden Institute of Optometry and Vision Sciences, L V Prasad Eye Institute, Hyderabad, India

Email: hariyedakulapally18@gmail.com

IMARC-PP-17

Title: Current trends in myopia management knowledge, attitudes, practice, and barriers among eye care professionals in India.

Purpose: Several anti-myopia treatment strategies and evidence-based clinical guidelines have been proposed for eye care practitioners (ECPs) to control myopia progression globally. However, it is unclear to what extent these treatment strategies are opted for by ECPs in India. Thus, we aimed to investigate the knowledge, attitudes, practice, and barriers toward clinical myopia management among eye care professionals in India.

Methods: A self-administered online questionnaire was distributed through various social media platforms and emails among ECPs in India. The questions of the survey were developed by a group of people who represented students (n=3), research optometrists (n=6), and scientists (n=2) after reviewing similar literature. This survey comprising of twelve questions to elucidate the information related to knowledge, attributes and practices, and barriers associated with myopia management practice. Basic descriptive and percentage analyses were performed with the tools in Microsoft Excel 2019.

Results: A total of 423 ECPs responded to this survey. Among all the respondents, 22.2% (n=94/423) of practitioners reported that they were involved in prescribing anti-myopia treatment strategies. Most ECPs primarily acquired the knowledge through scientific articles (71%, n=300/423), followed by attending myopia conferences and continuous professional education (61.7%, n=261/423). Practitioners indicated that they start myopia control interventions at a younger age (3 to 6 years) and also for individuals with minimum myopia progression of ≥ 1.0D/year. Atropine eye drops (0.01%) were the most widely preferred method for controlling myopia progression by both optometrists (57.0%, n=28/49) and ophthalmologists (97.5%, n=38/39), followed by behavioral and lifestyle modifications. Among all myopia practitioners, 24.5% of optometrists (n=12/49) and 23.0% of ophthalmologists (n=9/39) preferred combination therapy to slow down myopia progression. The major barriers associated with myopia control interventions were lack of awareness (73.4%, n=69/94), lack of education (33.8%, n=143/423), training (26.5%, n=112/423), and unavailability of anti-myopia strategies in various locations.

Conclusions: Most eye care practitioners were not involved in any sort of myopia management practice in India. Thus, proper training and education programs on myopia management can improve the knowledge, attitude, and practice pattern in India among ECPs.

IMARC-PP-18

Authors: Uday Prasad Tivari[1], Manoj K. Manoharan[1, 2], Jagadeesh C. Reddy[3], Pavan K. Verkicharla[1, 2]

Affiliation/s (Presenting author)

1 Myopia Research Lab, Brien Holden Institute of Optometry and Vision Sciences, Hyderabad, India
2 Infor Myopia Centre, Brien Holden Institute of Optometry and Vision Sciences, L V Prasad Eye Institute, Hyderabad, India
3 Cataract and Refractive Surgery Services, L V Prasad Eye Institute, Hyderabad, India

Email: udaytivari009@gmail.com

Title: Rapid myopia progression in young adults and the associated factors.

Purpose: Considering that myopia can continue to progress during adulthood, we aimed to investigate what proportion of young adults undergo rapid myopia progression (≥ 1D) and the factors associated with it.

Methods: This retrospective study included 2679 myopes with spherical equivalent (SE) ranging from -0.5 to -14.7D. The spherical and cylindrical components were separately categorized into mild, moderate, and high-magnitude groups, and the axis was further classified into with-the-rule astigmatism, against-the-rule, and oblique-astigmatism. Myopia progression was calculated as the difference between the previous spectacle prescription (1 year) and current refraction. The logistic regression model was used to obtain the odds ratio.

Results: The mean ±SD age of myopic individuals was 24.5±2.7 years (range: 18-30) and annual myopia progression was -0.2±0.4D. Out of 2679 individuals, 462 (17.2%) and 124 (4.6%) individuals had progression ≥0.5 to <1.0D and ≥ 1.0D, respectively. High-sphere (OR 7.0 [95% CI 3.9-12.5], p<0.001), high-cylinder (OR 14.6 [95% CI 3.5-60.6], p<0.001), with-the-rule (OR 1.5 [95% CI 1.1-2.0], p=0.004) and oblique-astigmatism (OR 1.6 [95% CI 1.2-2.1], p<0.001) was found to be associated with rapid myopia progression. The current age of the individual, age of apparent onset of myopia, gender, and against-the-rule astigmatism were not associated.

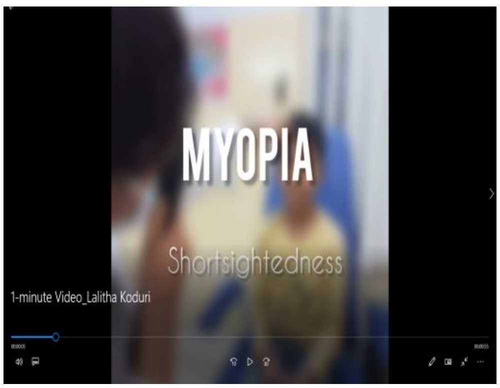
Conclusions: Keeping in view of high-sphere, high-astigmatism, with-the-rule, and oblique-astigmatism, regular monitoring of biometry even in young adults could help in the identification of rapid myopia progressors and thereby initiating myopia control interventions.

IMARC 2022 Travel Awardees

S.No.	Name	Institute
1.	Vinay Gupta	Dr. R. P. Centre for Ophthalmic Sciences, All India Institute of Medical Sciences, New Delhi
2.	Nayan Gupta	Chitkara School of Health Sciences, Chitkara University, Punjab
3.	Madhumitha B	Optometry Intern, Sankara College of Optometry, Bangalore, Karnataka
4.	Sumitha Muthu	Narayana Nethralaya, Bangalore, Karnataka
5.	Vidhya Lakshmi S	M N Eye Hospital, Chennai, Tamil Nadu
6.	Raaga L	SRM Medical College Hospital and Research Centre, SRM Institute of Science and Technology, Tamil Nadu

IMARC 2022 Artwork Submissions

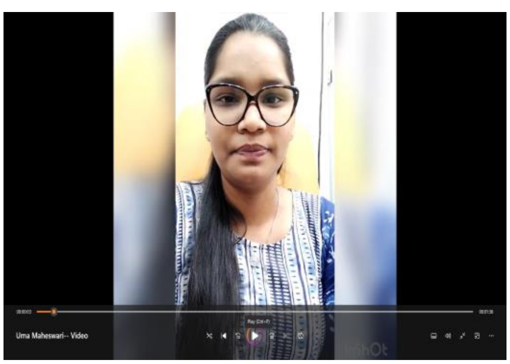
1-minute Video Category



Name: Lalitha Koduri

Affiliation: Pushpagiri Eye Institute, Hyderabad

Video Link: **https://fb.watch/gFIvzykQvK/**

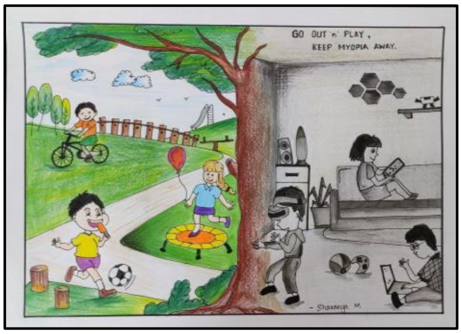


Name: Uma Maheswari

Affiliation: R&R Eye Care hospital, Mumbai

Video Link: **https://fb.watch/gFIsRIbNLo/**

Art-work Category



Name: Sharanya Manoharan

Affiliation: Sankara Eye Foundation, Coimbatore, Tamil Nadu, India

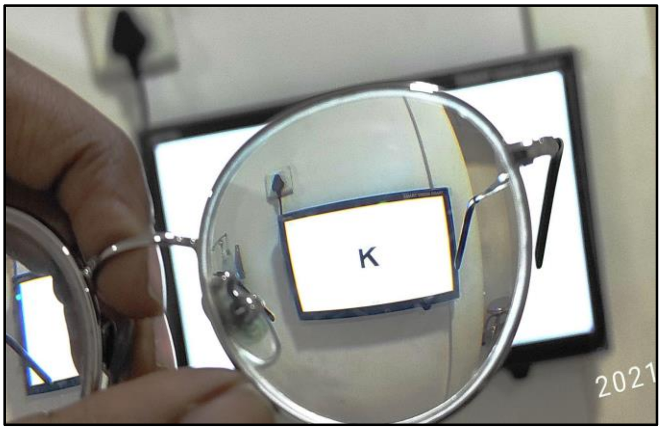
Name: Ramya Natarajan

Affiliation: L V Prasad Eye Institute, Hyderabad, Telangana, India

Name: Lalitha Koduri

Affiliation: Pushpagiri Eye Institute, Hyderabad, Telangana, India

Photography Category



Name: Neelima Manchikanti

Affiliation: CT University,

Shankara Eye Foundation, Ludhiana

Name: Lalitha Koduri

Affiliation: Pushpagiri Eye Institute,

Hyderabad

Quote/slogan Category

Slogan:

1 Go Outdoors, No Indoors

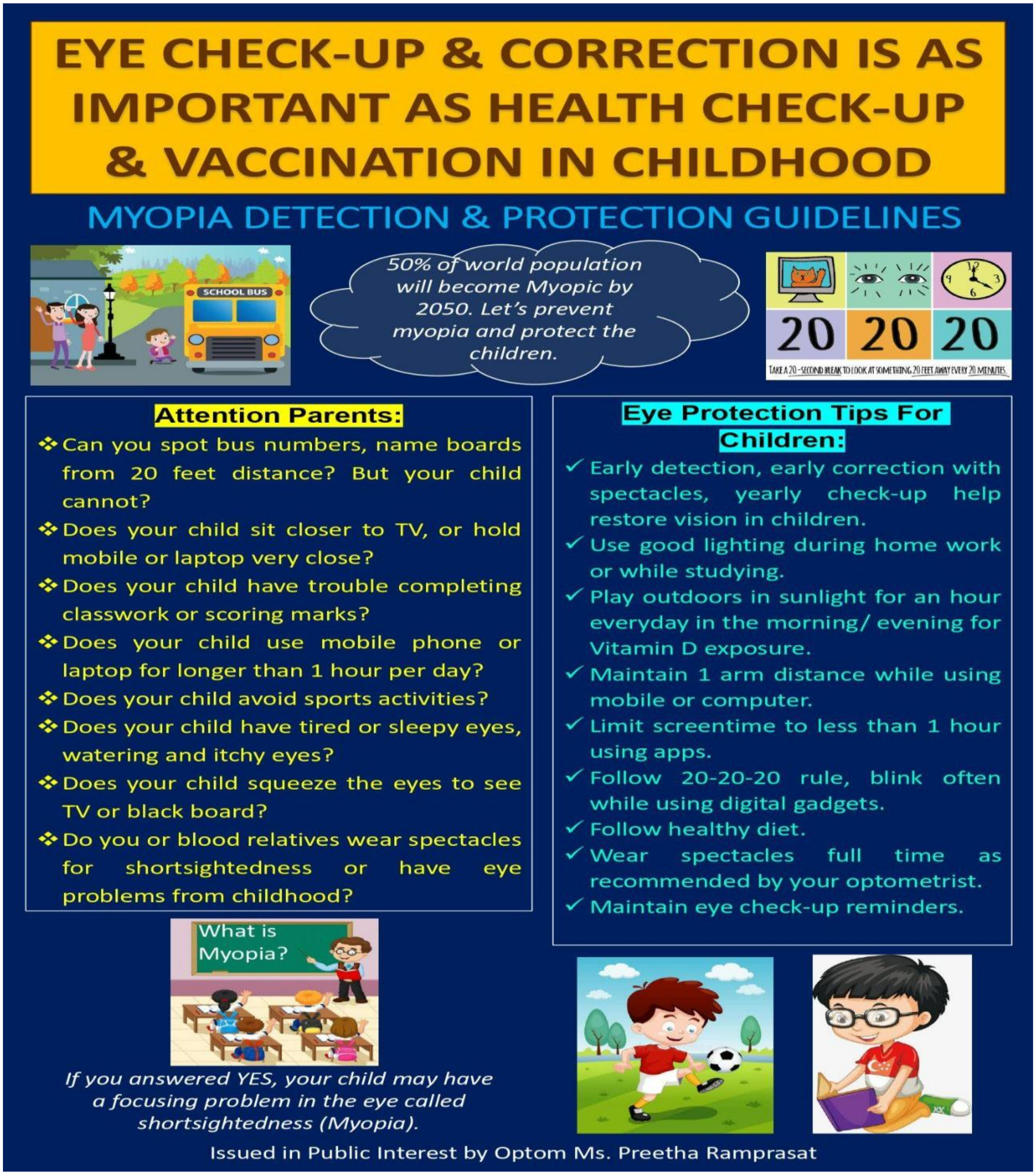
2 Say No to Gadget’s and Yes to Garden

- Lalitha Koduri

Quote:

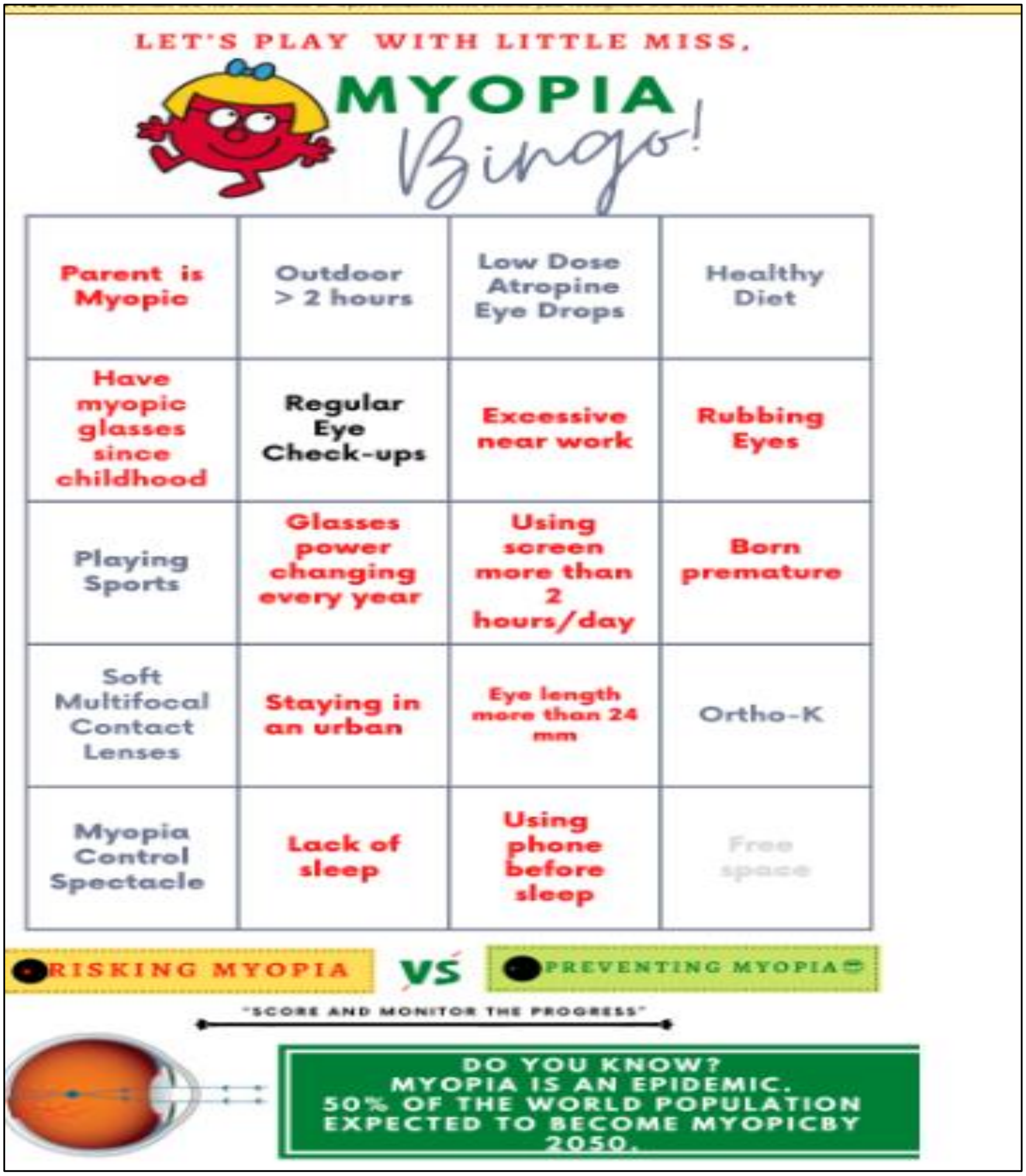
Focus on defocus to improve your focus

- Neelima Manchikanti



Name: Preetha Ramprasat

Affiliation: Vasan Institute of Ophthalmology and Research



Name: Payal Sangani

Affiliation: L V Prasad Eye Institute

Special Thanks to Supporters of 3rd IMARC - 2022

essilor
Stellest

Platinum Sponsors

Gold Sponsors

Gold sponsor
SEED
Supporting Your Vision with Japanese Quality

HOYA
Japanese Technology for Precise Vision

Silver Sponsors

Special Thanks to

All LVPEI Supporting Team

LVPEI
So that all may see
LV Prasad Eye Institute

---*Team IMARC*--

------------------------------Thank you! ---------------------------

L V Prasad Eye Institute
Kallam Anji Reddy Campus
L V Prasad Marg, Banjara Hills
Hyderabad 500034, India
Phone: +91 40 3061 2345
Website: www.lvpei.org

If you have any queries related to the IMARC conference, please visit the conference page at: ***https://imarc.lvpei.org*** *or write to* ***imarc@lvpei.org*** *or call us at* ***0091-9908271732****.*