Project Title

Knowledge, Attitudes and Practices of Myopia Treatment Options Among Singapore Residents

Project Lead and Members

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Organisation(s) Involved

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Healthcare Family Group(s) Involved in this Project

Medical, Optometrist

Applicable Specialty or Discipline

Ophthalmology

Project Period

Start date: 16 August 2021

Completed date: 31 August 2021

Aims

In this study, we aim to explore the knowledge, attitude, and practices on myopia control treatment options among Singapore residents, draw insights about the unmet needs of public education and suggest ways to address them.

Background

Myopia, a global health problem, is highly prevalent in Singapore. Myopia treatment is important in combating myopia progression and reducing the risk of sight-threatening pathologies. However, there is no local data on public awareness of myopia and its interventions. We conducted a survey among Singapore residents to address this knowledge gap.

Methods

A cross-sectional survey involving 853 participants was completed online (Google Forms) over a 2-week period. Socio-demographic data, awareness levels of different myopia-related topics and treatment preferences were analysed.

Results

The respondents were predominantly Chinese (92.1%) and myopic (69.9%) with mean age (±standard deviation) of 43.2±14.7 years. The majority (87.3%) were knowledgeable of myopia risk factors but not its various ocular complications (14.0-34.1%). More respondents (51.8-80.9%) believed behavioural modification, such as increasing outdoor time, reducing screen-time, to be more effective in myopia- control than evidence-based interventions including topical atropine therapy and orthokeratology (12.4-32.0%). Myopia awareness and treatment preferences were not influenced by educational level and income ($p>0.05$, Pearson chi-square test). Recommendation by eye-care professionals (57.9%) and cost (24.9%) were important factors for choosing myopia treatment. Subgroup analysis showed significantly more myopes than non-myopes believed that reducing near-work and corrective lens can slow myopia progression (all $p<0.05$, Mann–Whitney U-test).

Lessons Learnt

The respondents had low awareness of some myopia-related topics, preferred corrective quick-fixes, and favoured behavioral modification for myopia-control. Better education from mass media and eye-care professionals may improve awareness

in these aspects which can especially benefit those with younger age of onset and rapid progression.

Conclusion

See poster appended/ below

Additional Information

We made use of a non-randomised survey which could have potential confounding factors. We did not cover some demographic factors such as health consciousness, profession, family history, gender and parental status which can influence the level of awareness of myopia treatment. These factors could potentially affect their responses and cannot be controlled. Singapore Health & Biomedical Congress (SHBC) 2022: SHBC Student Awards (Open Category) (Oral category) – (Merit Award)

Project Category

Care Continuum

Population health, Physical Health, Preventive Care, Health Promotion, Public Awareness, Patient Education

Applied/ Translational Research

Quantitative Research

Keywords

Human Centric, Physical Health, Myopia, Intervention, Survey, Public Awareness

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SHBC-SA-02

Knowledge, Attitudes and Practices of Myopia Treatment Options Among Singapore Residents

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BACKGROUND

Myopia, a major health problem
- Globally projected **49.8%** in 2050
- Singapore projected **80%** in 2050
  - Large economic burden in Singapore owing to its prevalence

Importance of Myopia Control Interventions (MCI)
- Combats myopia progression in childhood
- Reduces the risk of sight-threatening pathologies in later life

Pharmacological
- Atropine eye drops

Optical
- Orthokeratology
- Myopia-control lenses e.g. MyoVision™, MyoPilux™, Stellest™, MiYOSMART™
- Soft contact lenses e.g. MiSight™

Lack in local data on
- Public awareness of myopia and its interventions

AIM

- Explore the **knowledge, attitude, and practices** on **myopia control treatment options** among **Singapore residents**
- Draw insights about the unmet needs of public education and suggest ways to address them

METHODS

- A cross-sectional survey online (Google Forms)
- 853 participants via nowballing subject recruitment through the use of online messaging platforms
- 2-week period

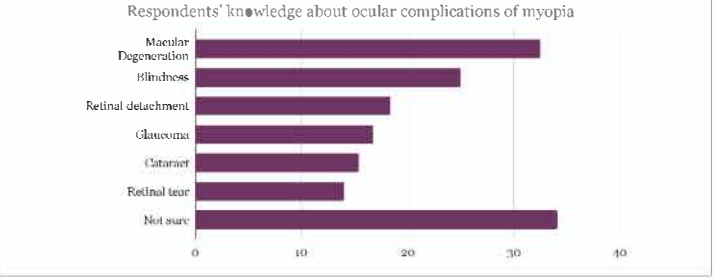
Statistical analyses were done using SPSS Version 28.0.1.0.
- **Descriptive statistics** (percentages, frequencies, Chi-square, z-testcomparing column proportions)
- **Data variables with normal distribution**
  - Parametric tests (analysis of variance, Bonferroni's test for post-hoc comparisons)
- **Data variables with non-normal distribution**
  - Non-parametric tests (Kruskal–Wallis test and the Mann–Whitney U-test)
  - A p-value <0.05 was considered significant in our study

Data collected
- **Socio-demographic data**
  - Ethnicity, age, highest educational qualification, monthly household income per person
  - Refractive error and onset of myopia
- **Awareness levels of different myopia-related topics**
  - Risk factors
  - Complications
  - Treatment options
- **Past experiences with eye care professionals**
  - Current/previous usage of myopia treatment and/or correction
  - Last appointment with an eye-care professional and recommendations given
- **Personal preference of treatment**
  - Considerations when choosing/stopping treatment
  - Openness to try treatment options

RESULTS

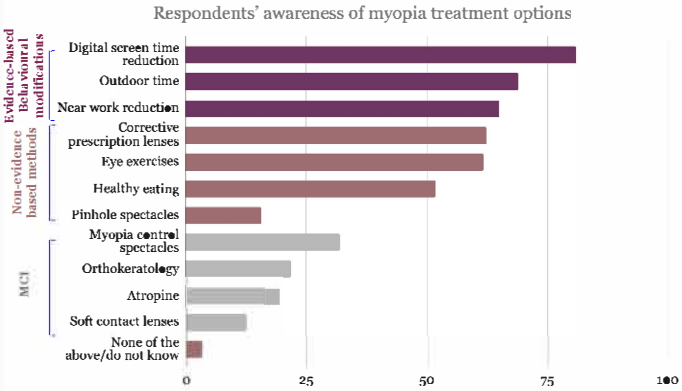
Demographics
- Chinese (92.1%), Indians (4.5%), Malays (1.6%) and others (1.7%)
- Mean age (±standard deviation) 43.2±14.7 years
- Myopic (69.9%)
  - Respondents with younger onset of myopia were found to have high myopia (Pearson correlation -0.426, p<0.001)

Knowledge about myopia
- **Myopia is dangerous if not managed properly and allowed to progress to high myopia** (67.0%)
- But unsure of its various **ocular complications** (14.0-34.1%).

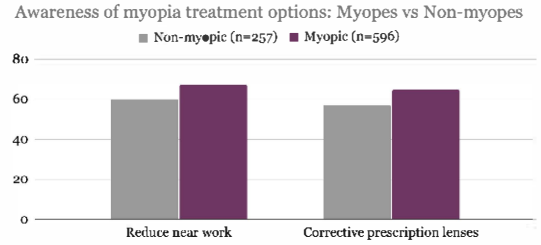


RESULTS

In general, a larger proportion of respondents believed **evidence-based behavioural modifications** (purple bars, 51.8-80.9%) were **more effective** in myopia-control than **evidence-based MCI** (grey bars, 12.4-32.0%).



Subgroup analysis showed significantly **more myopes than non-myopes** believed that reducing near-work and using corrective lens can slow myopia progression (all p<0.05, Mann–Whitney U-test).



Myopia awareness and treatment preferences were **not influenced** by educational level and income (p>0.05, Pearson chi-square test).

Recommendation by eye-care professionals (57.9%) and cost (24.9%) were important factors for choosing myopia treatment.

The overall recommendation rate for **MCI** by eye care professional was **very low** (3.0%-6.5% of myopes) VS **evidence-based behavioural modifications** (20.8-31.7%).

DISCUSSION

Current knowledge lacking in these areas
- Complications
- Myopia-control interventions

Current attitudes
- Preferred "quick-fix" methods to attain sharp vision with corrective prescription lenses

Current practices to reduce myopia progression
- Behaviour modification favoured by the public
- Low recommendation rates of MCI by eyecare professionals

Role of eyecare professionals
- Share knowledge on safety and efficacy
- Unmet need (lack of knowledge) filled by eyecare professionals taking a more proactive role in recommending different MCI

Current public policies in place		Possible expansion to address unmet need
Public education: success in advocating behavioural modification	→	Ocular complications of myopia progression
Subsidies: free eye screenings and vouchers for spectacles	→	Subsidies or vouchers for MCI
Continuous Medical Education for healthcare professionals	→	More focus on evidence-based MCI

CONCLUSION

- The awareness of MCI is poor in the general population.
- The public prefers behaviour modification and optical correction rather than myopia prevention.
- Local policies and eye care professionals should focus on educating the public on myopia control interventions.