



Awareness of Myopia amongst Parents of School Going Children in a Survey Done in a Tertiary Care Centre in Vidarbha Region, India

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Background: There is an increase in prevalence and burden of myopia in India, hence extent of myopia awareness among Indian parents is required to prepare future public health initiatives and interventions. Hence a survey was conducted.

Aim: The aim of this study was to assess the level of myopia awareness among a group of parents based in Vidarbha region of India.

Methods: This was a cross-sectional survey, 150 parents with at least one child under the age of 16 years participated in the study. Age, gender, educational qualification and number of children were asked, the amount of time a child spends on his device, the acceptable distance between the eyes and device screen, the preventive measures of myopia and awareness of symptoms of myopia in their children were collected via a written questionnaire.

Results: Eighty-three participants (55.33%) thought that the safe distance between device screen and eyes was less than 30cms. Fifteen 10% (15/150) participants were aware that outdoor activity and natural light has a preventive effect on myopia and onset and progression. 16.66% (25/150)

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and 63.33% (95/150) of the participants, respectively, were aware that looking into the distance and taking regular breaks from device use prevent myopia onset and progression. Hundred (66.66%, 100/150) participants reported that regular eye check-ups were important for children. Overall, only 14 participants (9.33%) were aware that all 4 strategies are important for myopia management. Majority of the participants reported that their children spent 2 hours on screen (73.33%, 110/150), none of the participants reported study time of 4 hours or more than 4 hrs, 15 participants reported study time of 3 hours (10 percent), 25 participants reported screen time of 1 hour (16.66%). Majority of the participants were not aware of the rule of 20-20-20, looking into the distance in online study and prolonged screen time (73.33%, 110/150).

Only twenty participants reported headache and tiredness (9.7%) in their children, no other symptoms were recognised.

Conclusion: Survey demonstrated a poor level of awareness of protective role of outdoor activity in its onset and progression. Importance of regular eye check-ups and outdoor activity and risks of smart device usage should be included in awareness programs and other health education programs.

Keywords: Myopia; socioeconomic; psychosocial and formative consequences.

1. INTRODUCTION

Myopia is becoming more common across the world and in some areas, it has become an epidemic. It is the most prevalent refractive error and a leading cause of ocular disease, more commonly affecting school going children and adolescents. Myopia that is not corrected has significant socioeconomic, psychosocial and formative consequences. Many studies have suspected that there may be a marked increase in myopia in a few years and may be estimated to affect 50% of global population by 2050 [1]. Myopia shows regional variation in distribution with East Asian countries reporting higher prevalence as compared to other countries.

India is the second most populous country in the world and has a significant (41%) adolescent population [2]. A dearth of comprehensive prevalence data and policies does not give myopia its due importance in India. As a result of this, India is underrepresented in studies forecasting international myopia patterns [3]. Previous research by the authors found that prevalence of myopia in adolescent age group is 13.1 percent with yearly incidence of 3.4 percent in North India. However, due to the significant regional differences in society, behaviors, socio-demographic status and literacy levels the true enormity of myopia burden in school going children in India remains unknown [4].

Amalgamation of genetic and environmental factors is the reason for myopia. The most alterable risk factors are environmental, increased near work and reduced time spent outdoors during childhood [5]. In a randomised

controlled trial it was found that compared to normal controls, children who participated in one 40-minute outdoor session per day and in those homes where more outdoor activity was promoted after school there was 9.1% lower prevalence of myopia. In Singapore, interventions as well as school screening programmes have decreased the incidence of myopia by 5% in elementary school going children [6]. Parents who paid attentive towards their children's vision had a lower incidence of myopia, according to a study in China, emphasising the crucial role of parents in myopia management [7]. Given the escalating prevalence of myopia in India and the important role parents will play in managing, understanding their level of awareness of myopia risks, prevention and management will prove indispensable to public health programmes for myopia [8]. The findings of awareness of parental awareness of myopia, its management strategies, and smart device usage among parents in the Vidarbha region of India are presented here [9].

2. MATERIALS AND METHODS

This prospective observational study was carried out in ophthalmology department at Datta Meghe Medical College. 150 parents visiting the outpatient department with at least one child younger than 16 years were invited to participate in the study. They were given written questionnaires and their responses were noted. The questionnaire was divided into two sections, the first contained socio demographic questions and the second contained questions about myopia awareness.

3. SOCIODEMOGRAPHIC

Age, gender, educational status, number of children, children's ages were among the sociodemographic data collected from the participants. The participants' time from their last eye check-up was recorded.

3.1 Myopia Knowledge and Awareness

Three multiple choice questions with one correct answer and two multiple choice questions with more than one correct answer were included in the questionnaire on the participants' myopia awareness.

1.The participants were then asked to choose one of the multiple-choice questions for the minimum safe distance between device screens and the eyes: 10cm, 20cm, 30cm or 40cm. The correct answer was 30 cm.

2.The second question with multiple correct answers was about participant awareness of strategies for prevention and slowing the progression of myopia, with the correct response being all four answers, which included outdoor activity and natural light exposure, gazing far into the distance, taking frequent breaks and taking annual eye examination.

3.The third question was what is the screen time of your child, the options being 1 hour, 2 hrs, 3 hrs, 4 hrs and more than 4 hrs.

4.The fourth question was if the parents are aware of the 20-20-20 rule and the need of looking away from the screen at a distance to prevent the onset of myopia, the answers being yes or no.

5.The last multiple choice question was related to the participants' knowledge of existence of symptoms of myopia in their children, the options being excessive rubbing of eyes, excessive blinking, tearing, tilting of head or squinting while watching tv or reading, headache or eye strain, complaining of tiredness or double vision or none.

4. RESULTS

4.1 Demographics

The sample of the participants who completed the questionnaire had a mean age of 37.1 ± 7.9

years and majority 62% (93 /150) were female. The majority of the patients had completed their bachelor's degree 46.66% (70/150) completed a Bachelor's degree. The mean number of children per family was 1.7 ± 0.8 , with nearly half 48%(72/150) having only 1 child. Sixty participants (40 percent) had never had their child's eye examined.

4.2 Myopia Awareness

Eighty three participants (55.33%) indicated that an eye-to-screen distance of less than 30 cm was acceptable. Fifteen 10% (15/150) participants were aware of the fact that outdoor activity and natural light are important in preventing the onset and progression of myopia. In addition, 16.66% (25/150) and 63.33% (95/150) of the participants, respectively, were aware that looking into the distance and taking regular breaks from device played a role in managing myopia onset and progression. Hundred (66.66%, 100/150) participants reported that regular eye check-ups were important for children. Overall, 14 participants (9.33%) were aware that all four management techniques were effective in myopia management. Majority of the participants reported that their children spent 2 hours on screen (73.33%,110/150), none of the participants reported study time of 4 hours or more than 4 hrs, 15 participants reported study time of 3 hours (10 percent), 25 participants reported screen time of 1 hour(16.66%).

Majority of the participants were not aware of the rule of 20-20-20, looking into the distance in online study and prolonged screen time (73.33%,110/150). Only twenty participants reported headache and tiredness(9.7%) in their children, no other symptoms were recognised.

5. DISCUSSION

The level of awareness of childhood myopia and management techniques among a group of parents attending the ophthalmology OPD of a tertiary care center was assessed in this study. Only 10% of participants knew that outdoor activity and natural light exposure played a role in treatment of myopia, suggesting that participants' overall awareness of factors influencing myopia was weak [10]. A large number (40.0%, 60/150) of the parents had never had an eye test for their child. The significance of parental understanding of myopia risk factors in the management of the disease has been illustrated in previous surveys [11].

Good parental attitudes and behaviours towards their children's vision, such as maintaining adequate night sleep and tracking the amount of time spent on screens, were correlated with a delayed onset and decreased progression of myopia [12]. Despite this, the present survey indicates that 44.55% of participants considered an eye-to-screen distance of less than 30 cm to be acceptable [13].

Myopia is regarded as a major public health issue India, especially among the urban population, owing to the large number of uncorrected refractive errors. The National Programme for Control of Blindness has placed it at high priority [14].

Our study aimed at finding out if the parents were aware of the children showing symptoms of myopia like squinting of eyes, headaches, excessive tearing, excessive rubbing of eyes and blinking. Only 9.7 percent of patients recognised headache in their children but did not undergo ophthalmic consultation for the same [15].

Uncorrected refractive errors cause learning disabilities and low academic success, eventually impacting the child's psycho-social progress. The identification and assessment of these children requires sensitivity and expertise. These children become withdrawn and avoid social interaction and participation. This problem may go overlooked by the teachers and the parents, though may cause significant distress to the child. The correction of refractive error is simple and hence, timely screening to pick up children showing these signs is very important as simple refraction and prescription of a well fitted optical aids can help improve a child's confidence and improve their personality and prevent life long disability of low vision [16].

To diagnose poor vision due to myopia early, large-scale visual acuity screening services must be implemented, as well as an annual checkup to update spectacle prescriptions. School education programs should educate the children on importance of refraction and corrected spectacles. Only 10 percent of participants were aware that outdoor activity and natural light exposure has a role in delaying the onset and progression of myopia. Though no studies have been conducted in India, based on evidence from other Asian countries, overemphasis on academic success and lack of organised outdoor play in schools may be contributing factors to the high myopia incidence rates among the very

young. Hence, our present school health education system should be modified and better myopia prevention strategies should be implemented in schools too to tackle this problem [17]. A potential solution is to make the school children aware of the detrimental effects of extended hours of near activity without any outdoor sports [18,19]. By raising the awareness of myopia, more children can be examined and identified and treated. However, in order to enhance these children's lifestyles, a well structured health education curriculum must be created that is both realistic and appropriate to school-aged children and results in behavioral improvements [20-22].

6. CONCLUSION

The limitations of our study were a small sample size and recall bias. Our study shows that Indian parents are not aware of simple management strategies that can potentially delay the onset and prevent progression of myopia. Awareness of myopia should be included in school health education programs and more public health interventions should be planned to address this disease. Considering that myopia has become epidemic in certain parts of Asia, India with its high population should start implementing myopia awareness and management programs and conduct broader health surveys to address this.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

Ethical clearance taken from institutional ethics committee and preserved by the author (s)

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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