

## **A survey on factors associated with myopia in school age children of Wuhan City**

Myopia has become an increasingly serious problem among children in China, especially those of school age. According to data from China Central Government in 2010, 31.67% of children in primary school have weak eyesight, and the number is still increasing with a rapid speed.

Scene one: Annie just came out of an optical shop. She found out that letters on the vision chart had become blurred again even when she was wearing her glasses. She is just a fourth grader. In addition, Annie is not the only child in China who suffer myopia. She told us that over half of her classmates have similar myopia degree as hers.

What are the factors associated with myopia in children of school age? To address this common eye problem, our team conducted a questionnaire survey on myopia among children in 24 Wuhan Community Youth Space.

The questionnaire is made up of fifteen questions, sub-divided into three parts: self-report of nearsightedness, daily eye habits and eye protection measures. We distributed questionnaires to 24 Wuhan Community Youth Space and collected 260 valid surveys, on the basis of which we identified the following factors associated with myopia.

### **Prevalent factors associated with myopia**

From the 260 samples, we found that mobile phone games is the leading factor for causing eyesight problems, followed by television, improper postures in reading books and doing homework assignments. About 67% of the interviewee report that electronic screen is the main cause of myopia.

The students in our survey were aware of their eyesight problem: From the answers of Question 1 (Do you have eyesight problem?) and Question 5 (Are there many of your classmates have eyesight problems?), we found that children know how to define poor eyesight problem. And the percentage of people who think they have problem with their eyes and the percentage they think they have many classmates have eyesight problems are equal to the results from the National Physical Fitness Surveillance Bulletin of the State Sports Administration in 2010, i.e., the prevalence of myopia was 31.67% in primary school.

The students also understand how to protect their eyes. Question 11-13 in our questionnaire actually addressed whether children have ever learned any method to protect their eyes and how much they have learned. Results show that over 84% of the interviewee agree that they should take a break after a period of using eyes. Also, in Question 12, a fill-in-the-blank question, only 1.9% of the interviewee gave a wrong method to prevent poor eyesight; In contrast, 28.4% of them wrote down watching less television can help protect eyes, 17.6% of them agreed that playing less with their mobile phone is an undeniable excellent idea.

There is one surprising finding when we compared the number and percentage of average using of an electronic device between people who believes they have vision problems and people who do not. Originally, we thought that people who have vision problem may use electronic devices for longer period of time than those who do not have such problem. Results show, however, that people who believe they are healthy actually spend more time playing with their mobile phones and television. In order to figure out the reason, our team made a follow-up interview with some students. We found that children who have eyesight problems were afraid of making their eyes worse, so they forced themselves to relax their eyes more often, which, they believe, could help relieve eye fatigue. On the other hand, those who believe they did not have any problem with their eyes turned to watch and play with mobile phone games as usual, which raises our concern whether their eyesight will get poorer in the future if they continue using eyes in this way and ignore eyes' pressure. This is not an exaggerated assumption, reports from the State General Administration Of Sport's "National Physique Monitoring Bulletin" in 2010 showed that the prevalence rate of myopia in primary school students was 31.67%, 58.07% in junior middle school students and 76.02% in senior high school students. The results did not become even worse in the next few years. The ministry of education's 2014 National Survey Of Students' Physique And Health showed that the detection rate of poor eyesight in primary school students was 45.71%, 74.36% in junior middle school students and 83.28% in senior high school students.

### **Conclusions and suggestions**

From our questionnaire survey, we have found that the leading factors causing myopia are mobile phone games, televisions, improper postures in reading and doing homework assignments. Even though the students can reduce their time playing games and watching televisions, they cannot avoid their obligations in reading and doing homework assignments. It is therefore necessary to learn appropriate eye protection methods throughout their school life.

Fortunately, most students do notice eyesight problem and have knowledge of how to protect their eyesight. However, when their eyesight is still good, students tend to forget about protecting their eyes in daily activities, the consequence of which is that they tend to get poorer and poorer eyesight as they age. Our suggestion is that, for parents, school officials and common public, people should constantly remind one another of eye protection.

Due to limited time, we have not studied in-depth the relationship between activities such as outdoor sports and eyesight. It would be interesting to see if such events will help protect eyesight, which can be the topic of our future studies.