**ARTICLE TYPE**

# Awareness of pediatric eye examination among parents in Selangor

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**Abstract:**

The objective of this study was to determine the awareness level of pediatric eye examination among parents in Selangor. The study also aimed to determine the association of parents' educational and socio-economic background towards the awareness of pediatric eye examination. The study was a cross-sectional descriptive study. The survey was conducted using a collective administration questionnaire. Questionnaires were distributed to the parents with children of the age of 2 to 12 years old. The questionnaire consisted of information on demographics (gender, age) and parents' educational and socio-economic background. Out of 192 total number of respondents, 123 (64.15%) respondents were aware of the importance of pediatric eye examination while the other 69 (35.9%) respondents were not aware of it. Despite the high level of awareness towards pediatric eye examination among the respondents, there were 39 (20.3%) of them did not know that routine eye examination is necessary for their children's eye health and another 6 (3.1%) were not sure about it. There was no significant association between education level (r=0.199, p=0.06) and socio-economic background (r=0.01, p=0.99) and awareness level of pediatric eye examination among parents. There was still lack of practice regarding parents seeking good eye care health for their children. Therefore, health care practitioners, especially optometrist, need to increase pediatric eye health education through many sources. This will reinforce good pediatric eye care practice and allow the planning of preventive measure and early intervention that can help in avoiding visual disability and blindness in children.

**Keywords:** pediatric eye examination awareness, eye examination in pediatric

## 1. INTRODUCTION

Vision is one of the important senses that a child needs for learning. 80% of learning is visual, which means if a child is having difficulty seeing clearly, his/her learning can be affected as well. To ensure the children are having a good vision, their eyes need to be checked at a certain age of their development. According to the American Optometric Association (AOA), children should have their eyes checked at the age of 6 months, three years, before starting their first grade in school, and then at least every two years following.

According to the National Coalition for Vision Health 2010, six out of ten children experiencing reading difficulties have uncorrected or undetected vision problems, and almost 25% of school-age children have vision problems. If left undiagnosed, vision problems will negatively impact learning and literacy, as well as self-esteem and overall quality of life [1]. The relationship between vision difficulties and school or learning problems has been well documented. At least 20–25% of all children have vision problems [7]. A study of vision problems in school-age children in Kentucky found that up to 80% of children with reading disabilities have visual deficits [8]. Bessler and Birnbaum (2004) reported that children who have difficulty seeing would act out or misbehave because they cannot focus on academic tasks [9]. Zaba (2001) found that 74% of adolescents had failed at least one vision test [7]. Refractive errors, amblyopia and strabismus are the common eye problems that can occur in children of preschool and early school age. Early detection provides the best opportunity for effective treatment [4]. The American Academy of Pediatrics recommends early vision screening at three years of age.

The problem with children's vision is that sometimes they are unaware and cannot tell their parents that they are having a vision problem. Most of the time parents or caretakers noticed changes in their children behaviour relating to vision such as squinting their eyes, tilting their head or the children themselves report that they cannot see, then only eye and vision examination will be done. There are also many common focusing, alignment disorders and eye diseases that can affect children's vision. These eye condition can be treated early or prevented if parents are aware of the signs of vision problem and take quick action to bring their children for an eye examination. Thus, this study was done to determine the knowledge and awareness level of parents in Selangor related to the pediatric eye examination. The study was also to determine whether there is any association of awareness level with the parents' educational and socio-economic background.

## 2. METHODOLOGY

The study was a cross-sectional study where it had been conducted from March to April 2017. A total of 192 parents

who have children aged between 2 to 12 years old were selected using convenient random sampling. Parents who or had experienced working in eye health care were excluded from the study.

The study was conducted via a survey. The questionnaire used was based on the theoretical framework as reported by Senthilkumar et al [2]. Consent forms, information sheets and questionnaires were distributed to the parents with children aged between 2 to 12 years old. The consent form, information sheets and questionnaires were written in both English and Malay languages.

The first part of the questionnaire consisted of information on demographics (name, gender and age) and parents' educational and socio-economic background (occupation, income, number of children and their age).

The second part of the questionnaire consisted of questions regarding the knowledge, awareness, attitude and practices of parents regarding pediatric eye examination. Answer choices were listed, and participants were asked to tick the answer boxes for each question in the form.

A mini-pilot study was done among 10 subjects to assess the reliability of the questionnaire. The data was inserted into SPSS, and the reliability test was done by using Cronbach's Alpha. The Cronbach's Alpha value of 0.839 was confirmed as reliable for this study, and the data collection was proceeded by distributing the questionnaire to parents.

Institutional approval to conduct the study was obtained from the Research Ethics Committee of Faculty of Health Sciences and UiTM. All participants involved were voluntarily, and written consent was obtained from each participant before their participation in the study.

The data was analysed using the Statistical Package for Social Sciences (SPSS) software Version 21.0. For investigation on the level of awareness of paediatric eye examination among parents, the data was converted into percentage. In order to determine the association of parents' educational and socioeconomic background towards the awareness of paediatric eye examination, statistical analysis of Pearson's chi-square was used to analyse the data.

## 3. RESULT AND DISCUSSION

### 3.1. Demographic data

A total of 192 participants responded to this study. The age range of the respondents was between 20 years old and 70 years old, with a mean of 42.22 ± 2.53. Figure 1 showed 15 (7.8%) respondents were between the age of 20 to 30 years old, 81 (42.2%) respondents between the age of 31 to 40 years old, 81 (42.2%) respondents between the age of 41 to 50 years old, 9 (4.7%) respondents between the age of 51 to 60 years old and 6 (3.1%) respondents between the age of 61 to 70 years old.

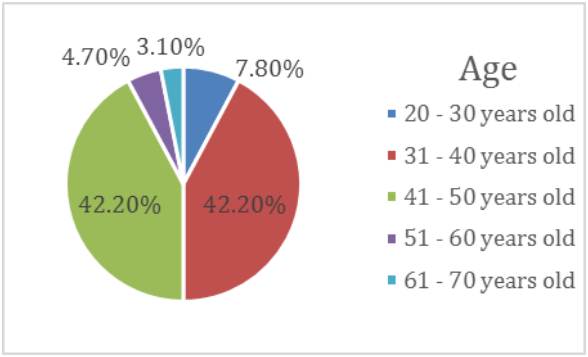


Figure 1: Age distribution of the respondents

The education level was divided into five groups which were a primary school, secondary school, Diploma, Degree and Master/PhD level as shown in Table 1. Meanwhile for the socio-economic level was determined by the respondents' level of income as shown in Table 1 which had been divided into a low, moderate- and high-income level based on the Malaysian Department of Statistic. Low income is categorised as people with income less than RM 2999. Moderate was ranged between RM 3000 to RM 7999 while high income was people with income of more than RM 8000.

Table 1: Educational background and income level of the respondents

| | | Frequency | Percentage |
|---|---|---|---|
| **Education level** | Primary school | 0 | 0% |
| | Secondary School | 57 | 29.7% |
| | Diploma | 54 | 28.1% |
| | Degree | 54 | 28.1% |
| | Master / PhD | 27 | 14.1% |
| | **TOTAL** | **192** | **100%** |
| **Income level** | Low (<RM2999) | 81 | 42.2% |
| | Moderate (RM3000-RM7000) | 93 | 48.4% |
| | High (>RM8000) | 18 | 9.4% |
| | **TOTAL** | **192** | **100%** |

### 3.2. Knowledge and awareness level on paediatric eye examination

Out of 192 respondents, 123 (64%) of the respondents were aware of the importance of pediatric eye examination while 69 (36%) of them were not aware.

Despite a high level of awareness, 39 (20.3%) of them did not know, and 6 (3.1%) of them were not sure that routine eye examination is necessary for their children's eye health. Majority of the respondents 147 (76.6%) know that eye examination is necessary for their children, Figure 2.

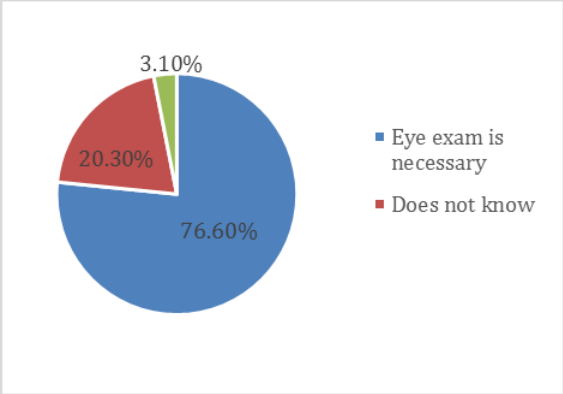


Figure 2: Awareness of parents on the necessity of doing routine eye examination on their children

The vast majority of the respondents, 81 (42.2%) believe that comprehensive eye examination should be done every year. Majority of the respondents, 54 (28.1%) thought that they have to bring their children for comprehensive eye examination only when their children report visual problems. While other 30 (15.6%) and 3 (1.6%) respondents thought that the appropriate schedule to bring their children for a comprehensive eye examination is on every two years and every five years respectively. The remaining 24 (12.5%) respondents were not sure the appropriate schedule to bring their children for a comprehensive eye examination, Figure 3.

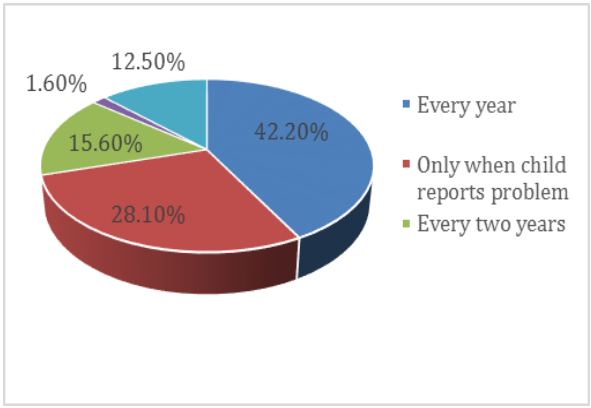


Figure 3: Awareness of the comprehensive pediatric eye examination frequency

The vast majority of the respondents, 189 (98.4%) aware that they should seek help from Optometrist or Eye Care Practitioner whenever their children have eye symptoms and problems. The rest, 3 (1.6%) of them thought that it was not vital to seek professional care whenever their children have eye symptoms, and problems Figure 4.

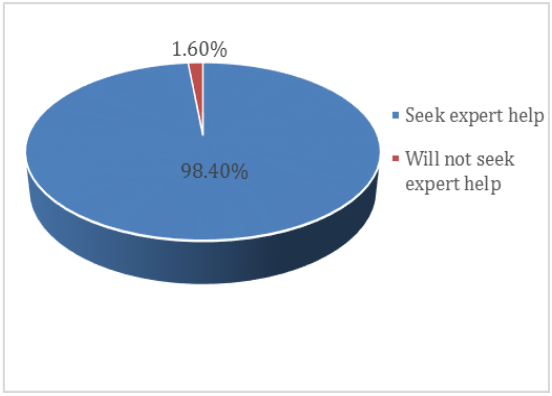


Figure 4: Awareness of parents to bring their children to see Optometrist or Eye Care Practitioner for an eye examination if their children have eye problems

### 3.3. Association of parents' educational and socio-economic background towards the awareness of pediatric eye examination

In Table 2, the value of r = 0.199, indicating that there is a moderate positive relationship between education level and the awareness of pediatric eye examination among parents. Pearson chi-square test was performed, and the p-value is p=0.06, which indicates there is no statistically significant linear association between education level and awareness level of pediatric eye examination among parents, Table 2.

In Table 2, the value of r = 0.01, indicating a low positive relationship between income level and awareness level of the pediatric eye examination. From Pearson chi-square test, p=0.99. Therefore, there is no statistically significant linear association between income level and awareness level of paediatric eye examination among parents Table 2. Income level of parents does not influence the awareness of paediatric eye examination. The higher the socio-economic status of the parents does not indicate the high level of awareness on paediatric eye examination.

Table 2: Correlation and association between education level and income level with the awareness level of pediatric eye examination among parents

| | *r* | *p-value* | *df* |
|---|---|---|---|
| **Education level** | 0.199 | 0.06 | 1 |
| **Income level** | 0.01 | 0.99 | 1 |

Based on the results, more than half of the overall respondents were aware of the importance of pediatric eye examination. This is consistent with the previous study that was done in Nigeria, which showed 71.4% of parents were well aware of the importance of eye health of their children [3]. This may be due to the common public knowledge on the importance of

vision in children's development.

It was found out in this study that parents were aware of their children's condition if they are having signs of vision problems. This is because the child will have obvious signs such as rubbing their eyes constantly, sitting very close to the television or holding the book too near to their face when reading. The result was the same with a previous study that reported 59% of parents seek eye care professionals' help when they noticed their children are having symptoms of refractive error [3]. In another study by Senthilkumar et al., reported that parents were aware of common eye problems [2]. Parents were usually aware of common conditions like refractive errors because the child cannot hide the signs. The parents in the previous study were also aware of conditions that required the use of glasses which if left untreated, it could lead to poor performance in school as the child would not be able to see well or copy correctly from the blackboard[1].

Despite the high level of awareness towards paediatric eye examination among the respondent, there were 39 (20.3%) of them did not know that routine eye examination is necessary for their children eye health and another 6 (3.1%) were not sure that routine eye examination is necessary for their children eye health. Eye exams for children are extremely important because the previous study showed that the prevalence of visual impairment among preschool children in an urban population in Malaysia was 5% [4]. The visual impairment was mostly due to refractive errors, which was preventable if the problem was identified at an early stage. This record shows that it is vital for the parents to have good knowledge and eye health-seeking behaviour to make sure their children's vision develop at normal sate. This will also help to rule out any eye health and vision problem in the early stage for proper visual development because children often are more responsive to treatment when problems are diagnosed early.

From the results, it showed that there was no association between education level and level of awareness for pediatric eye examination among parents in Selangor. This result differs from a study done by Kimel, in which it had shown that children who received eye examinations had parents with at least a diploma educational background [5].

The result of this study might be biased due to the uneven distribution of respondents and educational level. Majority of the respondents were from secondary school 57 (29.7%), diploma 54 (28.1%) and degree 54 (28.1%) education background while only 27 (14.1%) respondents were from Master/PhD educational background. The area of this study conducted was in the sub-urban and urban area which the population there had high public awareness and knowledge about health care and eye care.

The result from this study also showed that there was no association between socioeconomic background and awareness level of paediatric eye examination among parents in Selangor. This result differs from the previous study by Dandona et al., whereby subjects of upper socioeconomic status were significantly more aware of eye diseases as compared to those who have lower socioeconomic status [6]. The result of this study might be biased due to uneven distribution of respondents and level of income. Majority of the respondents were of low (42.2%) and moderate (48.4%) socio-economic status while only 18 (9.4%) respondents were from the higher socioeconomic background. Parents living in Selangor area have easy access to the eye care premises which generally would make them more aware of eye health of their children. Besides, the population in this study was within urban and sub-urban area only. This area gets the most priority for public health education program if compared to other places.

## 4. CONCLUSION

This study concludes that although there is a high percentage of awareness in paediatric eye examination among parents, they tend to have less knowledge and wrong perception of seeking appropriate eye care for their children. Public enlightenment and health education programs can be one of the strategies to spread more awareness to the parents about the implications of these conditions, their causes and the effects they might have if their children eyes and vision left untreated.

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