

Profile Of Patients In Optometry Pediatric Clinic, Universiti Kebangsaan Malaysia

(Profail Pesakit Pediatrik Di Klinik Optometri, Universiti Kebangsaan Malaysia)

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ABSTRACT

This study was conducted to determine the patients profile in Pediatrics Optometry Clinic, Universiti Kebangsaan Malaysia (UKM) from 2010 to 2016. A total of 309 patient files aged below 12 years old were analysed in this study. The parameter involved in this study were patient's age during the first visit, gender, race, birth history, *Orang Kurang Upaya* (OKU) status, optometric diagnosis and treatment and management given to patients. The result showed the majority of patient came to Pediatrics Optometry Clinic are males (61.2%), Malays (71.8%) and aged between 4 to 6 years old (45.6%). Among the 309 patients in this study, 82.5% were born full term whereas only 13.3% registered as OKU. The common eye problems found among patients in Pediatrics Optometry Clinic were refractive errors (57%) and strabismus (18.1%). Refractive error (57%) was the most frequent optometric diagnosis in this study and most of them were low hyperopia (46.6%). The most frequent treatment and management given were follow up appointment (151 or 48.9%). As a conclusion, most of the patients in Pediatric Optometry Clinic, UKM were having low hyperopia and the most frequent treatment and management was follow up appointment.

Keywords : profile, optometry, pediatric, refractive error, management

ABSTRAK

Kajian ini dijalankan untuk menentukan profail pesakit di Klinik Optometri Pediatrik, Universiti Kebangsaan Malaysia (UKM) dari tahun 2010 hingga 2016. Sebanyak 309 fail pesakit berusia di bawah 12 tahun telah dianalisa dalam kajian ini. Parameter yang terlibat dalam kajian ini ialah umur pesakit semasa lawatan pertama, jantina, bangsa, sejarah kelahiran, status Orang Kurang Upaya (OKU), diagnosis optometri, jenis rawatan dan pengurusan pesakit. Keputusan menunjukkan majoriti pesakit yang datang ke Klinik Optometri Pediatrik adalah lelaki (61.2%), berbangsa Melayu (71.8%) dan berumur antara 4 hingga 6 tahun (45.6%). Antara 309 pesakit dalam kajian ini, 82.5% adalah dilahirkan cukup bulan manakala hanya 13.3% yang mendaftar sebagai OKU. Masalah mata yang biasa dijumpai dikalangan pesakit di Klinik Optometri Pediatrik adalah ralat refraktif (57%) dan strabismus (18.1%). Ralat refraktif (57%) merupakan diagnosis optometrik yang paling kerap dan kebanyakannya adalah hiperopia rendah (46.6%). Jenis rawatan dan pengurusan yang paling kerap diberikan adalah lawatan susulan (151 atau 48.9%). Kesimpulannya, kebanyakan pesakit di klinik Optometri Pediatrik mengalami hiperopia rendah dan lawatan susulan adalah pengurusan yang paling kerap diberi.

Katakunci: profail, optometri, pediatrik, ralat refraksi, pengurusan

INTRODUCTION

Vision plays a very important role in learning and development process of children during the first three years of birth (Premshenthil et al. 2013). The infant's visual acuity only approximates to 2/60 at birth and develops rapidly to 6/12 by six months post term (Bates 2010). A study by American Academy of Ophthalmology Pediatrics Ophthalmology / Strabismus Panel (2012) found that common ocular abnormalities among infants were congenital cataracts, retinopathy of prematurity, congenital glaucoma, retinoblastoma, uveitis, visual impairment of cerebrum, strabismus, amblyopia and refractive errors. Mahmooda et al. (2015) found that the

most common ocular problems found in children are refractive errors (41.45%), convergence squint due to accommodative esotropia (26.5%) between the age of 1 to 7 years old and myopia with astigmatism (15%) between the age of 7 to 15 years old while another study by Paranjpe et al. (2016) had given the same results where common vision problems found in children are refractive errors (51.5%) and squint (35.5%).

Awareness on the importance of children eye care and screening among parents is still low. A study by Paranjpe et al. (2016) stated that 53% of parents know their children vision problem through school teachers whereas 31.5% of parents know it through family doctors. In the same study, most children attending the Pediatrics

Ophthalmology Clinic were brought by mothers (49%), fathers (35%) and relatives (16%) such as siblings, parents, grandparents.

In Malaysia, there is no study done to look at the importance of children eye care at early age. In this study, the profile of pediatric patients in UKM Pediatric Optometry clinic will give some idea about type of refractive errors and management done to treat their problem.

MATERIALS AND METHODS

Examination records of 309 patients who attended Pediatrics Optometry Clinic, UKM for the first time from year 2010 to 2016 were reviewed in this study. This period of time All the patients were below 12 years old at the time of the study. The following data were collected from patient's file: Identity card number, year attended to clinic for the first time, referral, OKU status, birth history, visual acuity and instrument used, final refraction power, medical diagnosis, optometric diagnosis and management. All the collected data were analysed as descriptive analysis using Statistical Packages for the Social Sciences (SPSS) version 23.0 and Microsoft Excel 2016.

According to the Orang Kurang Upaya (OKU) Act 2008, OKU is defined as those with long-term physical, mental, intellectual or sensory disability that can restrict their full and effective participation in society when interacting with

various barriers. Jabatan Kebajikan Masyarakat (JKM) divides the disabilities into seven categories, which are hearing, vision, physical, mental, learning, speech and various disabilities. Most patients in Pediatric Optometry Clinic had learning disabilities. For example, down syndrome, autism, dyslexia, Attention Deficit Hyperactivity Disorder (ADHD) and Global Development Delay (GDD). In this study, only patient with OKU card given by Jabatan Kebajikan Masyarakat are counted as OKU.

This study has been approved by Jawatankuasa Penyelidikan Fakulti Sains Kesihatan (UKM 1.21.3/244/NN-2018-009) dated 12 January 2018.

RESULTS

From year 2010 to 2016, there were 141 (45.6%) from the total of 309 patients who came to Pediatric Optometry Clinic, UKM for the first time at the age of 4 to 6 years old. The number of patients who aged between 0 to 3 years old and 7 to 12 years old were 119 (38.5%) and 49 (15.9%) respectively (Table 1). Meanwhile the numbers of male and female patients were 189 and 120 respectively (Table 2). The majority of patients who came to the Pediatric Optometry Clinic were Malays. The number of Malays patients in this study were 222 (71.8%), followed by Chinese 69 (22.3%) and Indian 7 (2.3%) (Table 2).

Table 1. The age distribution of patients

Age Range (Years Old)	Number of Patients (n)	Percentage (%)
0-3	119	38.5
4-6	141	45.6
7-12	49	15.9
Total	309	100.0

Table 2. The race and gender distribution of patients

Race	Gender		Total
	Male	Female	
Malay	135	87	222
Chinese	43	26	69
Indian	4	3	7
Others	7	4	11
Total	189	120	309

In this study, the percentage of patients with full term and premature birth history were 82.5% and 11.7% respectively (Figure 1). Among the 134 patients with disabilities in the study, only 41

(30.6%) patients who had been registered as OKU at Jabatan Kebajikan Masyarakat (Table 3). Another 69.4% were not registered as OKU but some of them in the process of doing it.

Figure 1. The birth history of the patients

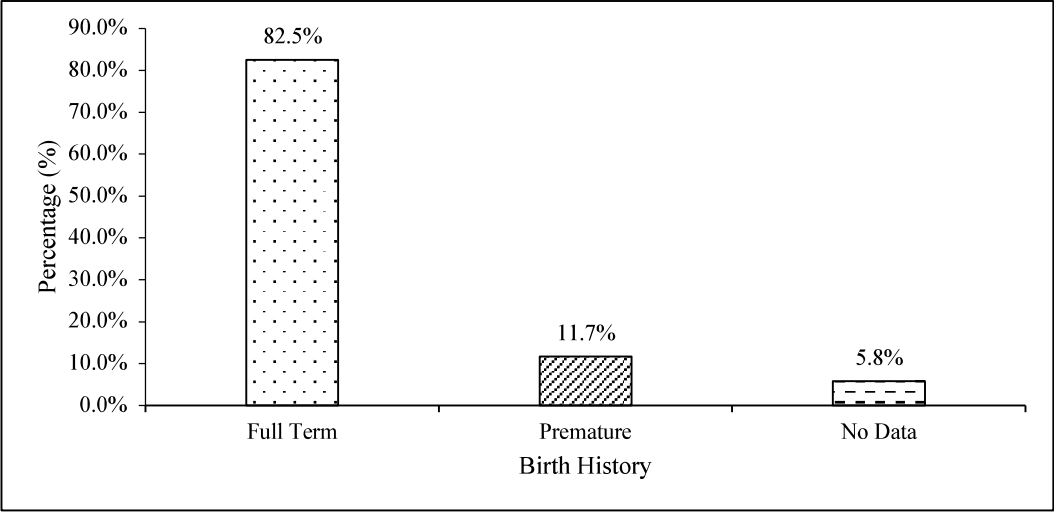


Table 3. The OKU status for the patients

Type of Disability	OKU Status	
	Yes	No
Normal	0	175
Down Syndrome	11	20
Autism	8	32
Dyslexia	1	3
Cerebral Palsy	1	5
ADHD	1	2
GDD	8	16
Others	5	8
Not stated	6	7
Total	41	268

Figure 2. The optometric diagnosis of the pediatric patients

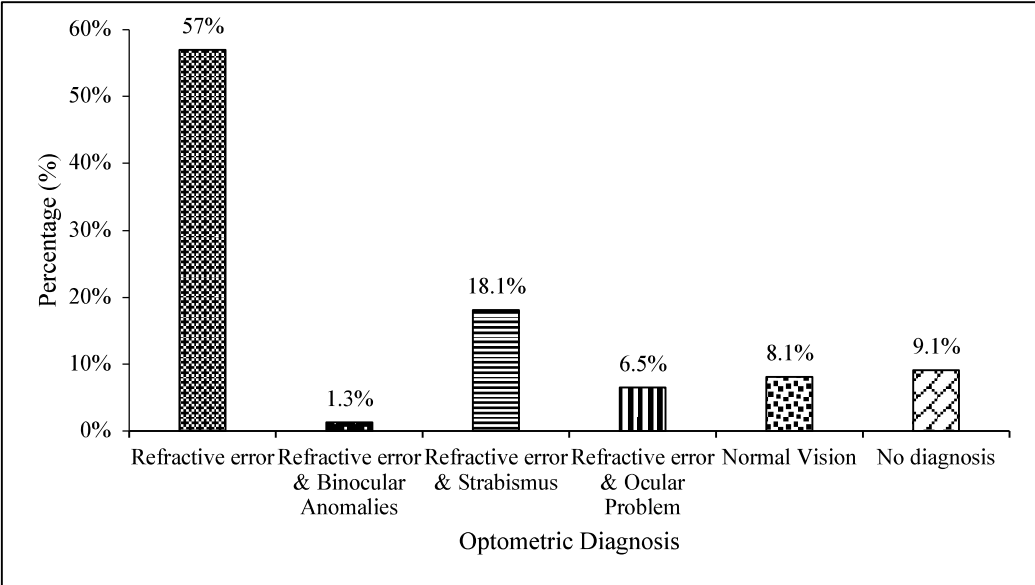


Figure 3. The categories of refractive errors

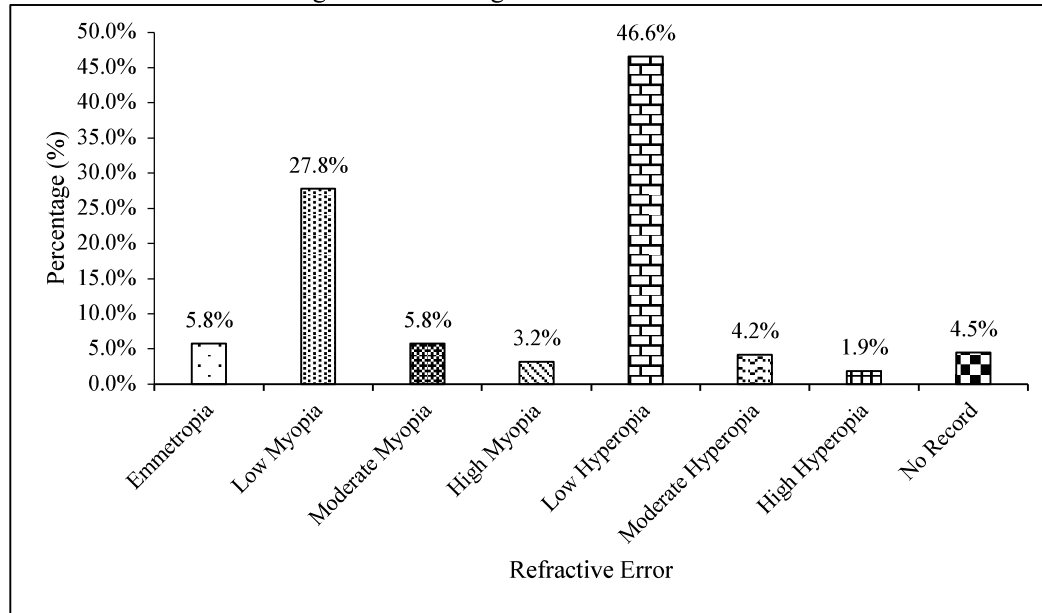
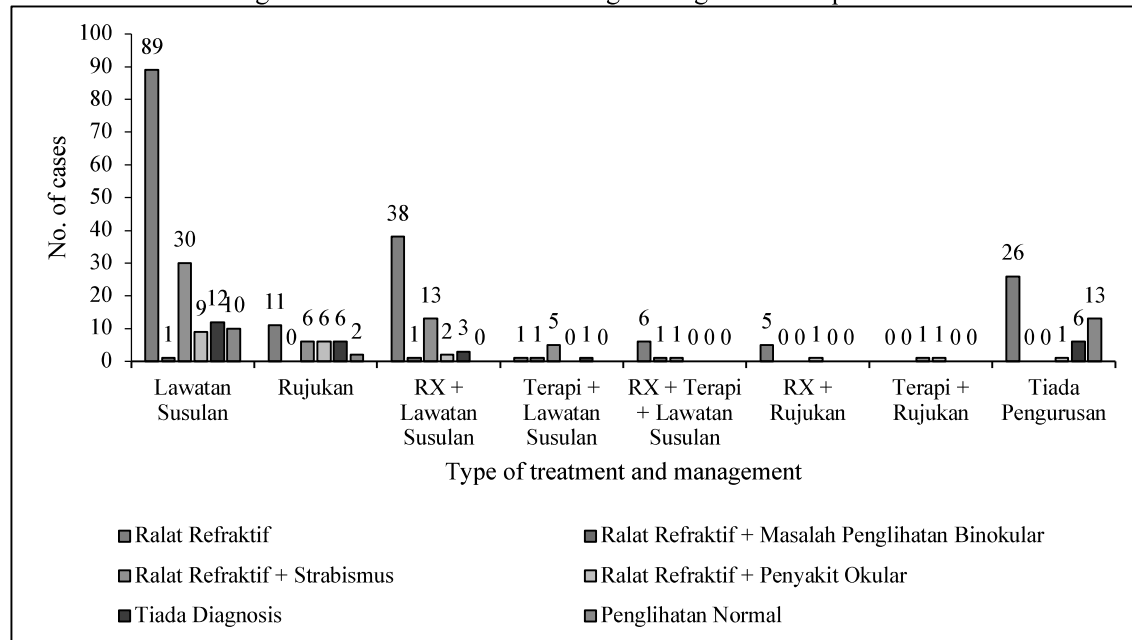


Figure 4. The treatment and management given to the patients



The most common vision problem found among patients in Pediatrics Optometry Clinic were refractive error (57%), refractive error and strabismus (18.1%), refractive error and ocular disease (6.5%) (Figure 2). There were 57% of patients diagnosed as having refractive error only. The type of refractive error for each patient in this study was based on the spherical equivalent of the right eye. The percentage of hyperopia (52.7%)

was higher compared to myopia (36.8%) (Figure 3).

The most frequent type of treatment and management given to the patients was follow up visit (89 cases) (Figure 4). Most cases that managed by follow-up visit are refractive error. New prescription (38 cases) only given when there was a significant change in refractive error or can correct abnormal head posture.

DISCUSSION

In this study, Malays were the majority ethnicity that came to the Pediatric Optometry Clinic, UKM. These findings were similar to the percentage of population according to race reported by the Department of Statistics, Malaysia in year 2016 which is 68.6% Bumiputera, 23.4% Chinese and 7% Indian. There were 11 (3.6%) patients who come to the Pediatrics Optometry Clinic for eye examination came from various countries such as Pakistan, Iran, Iraq, Bangladesh, Japan, Indonesia and Algeria.

The finding of premature birth was similar to the average annual percentage that stated by the Ministry of Health Malaysia (KKM) on 16th November 2014, which was 12.3%. Premature birth also can increase the risk of children, especially at the age of 10 to 12 years old for getting vision problem such as refractive errors (O'Connor et al. 2006). Therefore, detailed data on birth history was very important when making diagnosis and giving treatment and management to a patient. Unfortunately, most of the birth weight and gestational age of patients in the Pediatrics Optometry Clinic were not well recorded by the trainees and optometrists. Among 309 patient files, there was a total of 210 (68.0%) patients files have no record of birth weight and gestational age.

In this study, the findings of vision problems were similar to studies which have noted that common vision problem found in children were refractive errors, strabismus and conjunctivitis (Lim et al. 2004; Mahmooda Soni et al. 2015; Paranjpe et al. 2016; Pi et al., 2012). However, conjunctivitis case was seldom found in Pediatrics Optometry Clinic may be due to the weather, temperature and environment in Malaysia were different from other country. Moreover, parents mostly will send their children to the emergency department of the hospital if their child was suffering from ocular problem like conjunctivitis.

There are also several studies showing similar result. The most common refractive error is astigmatism which contributes 52%, followed by hypermetropia (37%), and myopia (11%) (Kawuma & Mayeku 2002). A study by Rezvan et al. (2012) showed that prevalence of hyperopia was higher than myopia from age 0 to 12 years. In this study, the percentage of low hyperopia and low myopia were higher, which was 46.6% and 27.8% respectively (Figure 3). According to Kawuma and Mayeku (2002), 73 of 623 subjects

aged between 6 to 9 years old have significant refractive errors of $\pm 0.50D$ or worse in one or both eyes.

Cases were managed by follow-up visit when the prescription of the glasses worn by the patient did not show any significant changes. Thus, the patient was only managed by making an appointment for the next visit. Follow-up visit might be given to observe the changes of patient's refractive error before making a decision to give new prescription. There are several cases that follow-up visit was given due to failed to perform cycloplegic refraction. Furthermore, follow-up visit will also be given if the patient is unable to cooperate or experience fatigue during eye examination session. According to Bobier (2007), low hypermetropia is normal and does not need to be corrected. Every 4 months follow-up was needed to observe changes in refractive error due to most hypermetropia will change from time to time. Therefore, most refractive error cases in UKM Pediatric Optometry Clinic were managed with follow-up visit because majority of patients were low hyperopia (46.6%).

Referral usually will be made when cases require consultation from doctors, ophthalmologists or health science officers such as speech science and audiology (Figure 4). In addition, there were also patients referred to the Binocular Vision Clinic and Contact Lens Optometry Clinic to receive further treatment.

The limitations in this study were incomplete information in the patients file, such as gestational age and birth weight. More than 60% of patients file did not have these information. Furthermore, not all patient with age 12 years old and below were referred to Pediatric Optometry Clinic because some patients were referred to the Primary Care Optometry Clinic.

Through this study, we only know most of the refractive error cases were managed by follow-up visit. However, we did not know the period given for subsequent follow-up visit. Similarly, the average hours of vision therapy that needed to be done within one day for certain vision problem also was not analyzed in this study.

CONCLUSION

Majority of patients came to Pediatrics Optometry Clinic, UKM for the first time from 2010 to 2016 were male, aged from 4 to 6 years old, Malays, full term born and not OKU. The optometric diagnosis was refractive error (57%) and

strabismus (18.1%). The common treatment and management given to manage refractive error and strabismus are follow-up visit (48.9%).

In conclusion, most patients who came to Pediatric Optometry Clinic had refractive error and strabismus. Therefore, trainees and optometrists need to focus on treatment and management for refractive error and strabismus so that patient's vision can be corrected effectively. Trainees and optometrist can make modifications to the original treatments such as vision therapy in order to motivate patient to do the prescribed therapy at home. In addition, trainees and optometrists also play an important role in raising parents' awareness on the importance of maintaining the vision of children. Parents were strongly encouraged to bring their children for eye examination so that prevention can be done if vision problems were detected and treated at young age.

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