

The Causes of Low Vision and Pattern of Prescribing at UKM Low Vision Clinic

(Penyebab Penglihatan Terhad dan Corak Mempreskripsi di Klinik
Penglihatan Terhad UKM)

ROKIAH OMAR, VICTOR FEIZAL KNIGHT & ZAINORA MOHAMMED

ABSTRACT

When medical and surgical intervention cannot alleviate all of the impairments resulting from diseases of the eye, visual rehabilitation can help reduce the disability and increase the quality of life. Data from 169 patients seen at the UKM Low Vision Clinic (UKM LVC) over the past 2 years were examined and analysed. The age ranged from 6 to 87 years of age. The main cause of ocular pathological categories was conduction (63.9%), media (24.9%) and congenital (11.2%) related problems. The main causes of low vision at UKM LVC were congenital cataract, retinitis pigmentosa, glaucoma, cataract and diabetic retinopathy. 84% of these patients received low vision devices to improve their near or/and distance vision. The most common optical devices dispensed at UKM LVC were near high addition spectacle, hand magnifiers and stand magnifiers. Medical, vision care and rehabilitation professionals working together can offer a comprehensive treatment plan for the visually impaired, offering these patients the very best services to increase their quality of life.

Key words: Low Vision, Vision Rehabilitation, Quality of Life, Causes of Low Vision

ABSTRAK

Apabila intervensi perubatan dan pembedahan tidak dapat meringankan gangguan yang dihadapi akibat penyakit mata, rehabilitasi penglihatan dapat membantu untuk mengurangkan kecacatan dan meningkatkan kualiti hidup. Data dari fail seramai 169 orang pesakit di Klinik Penglihatan Terhad UKM pada 2 tahun kebelakang disemak dan dianalisa. Julat umur pesakit yang hadir adalah antara 6 hingga 87 tahun. Kategori utama penyebab patologi okular adalah kategori konduksi (63.9%), media (24.9%) dan masalah yang berkaitan dengan kongenital (11.2%). Penyebab utama bagi penglihatan terhad di Klinik Penglihatan Terhad UKM adalah katarak kongenital, retinitis pigmentosa, glaukoma, katarak dan retinopati diabetis. 84% pesakit ini menerima peralatan bantuan penglihatan terhad bagi

meningkatkan penglihatan jauh dan dekat. Peralatan optikal yang sering dipreskripsi di Klinik Penglihatan Terhad UKM adalah kaca mata berkuasa tinggi, kanta pembesar berpegang dan kanta pembesar berdiri. Kerjasama antara ahli bidang perubatan, penjagaan penglihatan dan rehabilitasi penglihatan akan dapat memberikan pelan rawatan yang komprehensif bagi individu yang mengalami gangguan penglihatan. Ini seterusnya berupaya memberikan rawatan terbaik untuk meningkatkan kualiti hidup pesakit berpenglihatan terhad.

Kata kunci: Penglihatan Terhad, Rehabilitasi Penglihatan, Kualiti Hidup, Penyebab Penglihatan Terhad

INTRODUCTION

Low vision (LV) exists when there is impairment of vision preventing the patient from satisfactorily performing common visual tasks with conventional optical corrections (Bailey 1978). LV is defined as visual acuity which is less than 6/18 to 6/30 or the occurrence of an abnormal visual field resulting from a disorder that cannot be corrected with ordinary spectacles or contact lenses. Clinically LV may be defined as a point at which a patient can no longer adequately perform their activities of daily living. LV encompasses individuals with mild visual dysfunction to those who are legally blind (6/18 up to light perception) (World Health Organization 1997). The patients with mild visual dysfunction may also be classified as having low vision when they objectively feel that their sight is so reduced that their daily activity performance is affected to the point that they consider themselves handicapped. Therefore, loss of vision brings with it a loss of social status (stigma) as well as a loss of functional ability (Wainapel 1989; Burack-Weiss 1992). Patients with these problems are frequently told, after relatively long medical and surgical interventions that there is nothing more that can be done to restore or improve their vision (Fletcher 1989). This however is not necessarily true. Much can and should be done for these patients especially when they have irreversible vision loss. Therefore, when medical and surgical intervention cannot alleviate all of the impairments resulting from eye diseases, visual rehabilitation would provide an opportunity to reduce the disability and/or handicap faced by these patients.

Previously, the management of these LV patients could be thought of as the progression of their healthcare, beginning with surgical and medical intervention and then later, proceeding on to the prescription of low vision device(s) and the necessary visual function rehabilitation after the completion of such surgical/medical care. The current concept of LV management however is multidisciplinary with treatment, whether medical, surgical, optical or rehabilitative taking place in concurrent (Rosenthal 1996) throughout the course of the patient's management.

The biggest tragedy in the field of LV care is that there is a definite gap between the services and resources that are available to both the patients and healthcare professionals. All too often, patients who have had vision loss are either not told about the many services that are available to help them or they only find out about these services by chance (Fletcher 1989). Most patients who experience vision loss still retain some measure of useful vision (Fletcher 1989; Rosenthal 1996). Ideally such individuals should be referred to receive visual function rehabilitation services such as low vision assessment, orientation and mobility training, daily living skills adaptive training, occupational rehabilitation etc. These services enable those with low vision to continue to be independent in their daily activities and thus improving their quality of life.

The objective of this study was to determine the causes of low vision and pattern of prescribing at UKM Low Vision Clinic. This is to encourage referrals for LV rehabilitation services and assistive devices so that the permanent visual impairment suffered by visually impaired people did not interfere with their everyday functions of living and thereby improving their quality of life.

METHOD

This is a retrospective analysis of case records. The optometric care records of 169 patients seen at the Universiti Kebangsaan Malaysia, Low Vision Clinic (UKMLVC) from January 2004 to January 2006 were examined. The following information was extracted: date of first consultation, age, sex, causes of vision impairment (as was diagnosed by an ophthalmologist), consultation on services and types of low vision devices (LVDs) prescribed. All LV patients were provided with LVDs that best suited their requirement on loan for 2 weeks for trial prior to being purchased by the patients. The patients were asked to return to the LVC for a review after 2 weeks from the first visit to determine if the patients accepted and willing to continue to use the devices to assist them with their daily activities. Patients who purchased the LVDs and continue to use the devices will be defined as benefited from the LVDs.

RESULTS

AGE AND ETHNICITY DISTRIBUTION

There were 169 patients seen during the 2 year period of this study. All these patients were 'new' cases and had not been previously managed by the clinic. There were more male LV patients who attended the UKMLVC (58.6%) than female (41.4%). Their ages ranged from 6 to 87 years and the mean age was 32.4 ± 21.4 SD years old (Figure 1). Age distribution of all patients seen at the UKM-MAB low vision clinic compared with the age distribution of all patients seen at the current UKMLVC were illustrated in Figure 2. 43.2% were in the school going age group

(6 - 20 yrs. old). 37.9% were in the productive (work) age group (21 - 55 yrs old) while 18.9% were in the retired age group. Malays formed the majority of the patients attending the UKMLVC (72.8%) followed by Chinese (15.4%), Indian (7.7%) and others (7.1%).

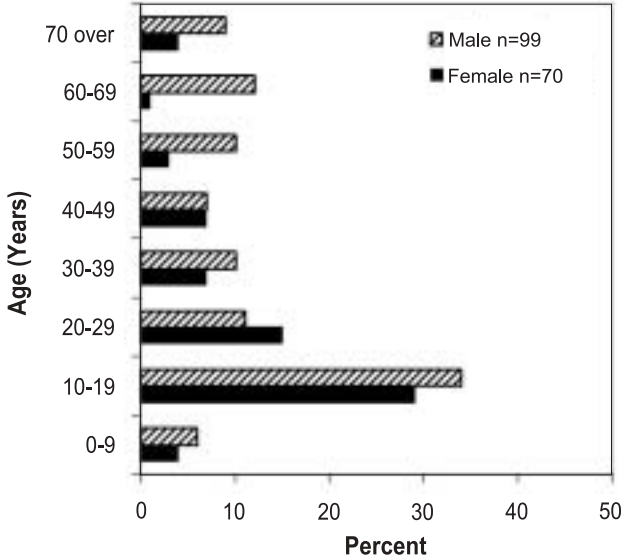


FIGURE 1. Age distribution of patients attending the UKMLVC

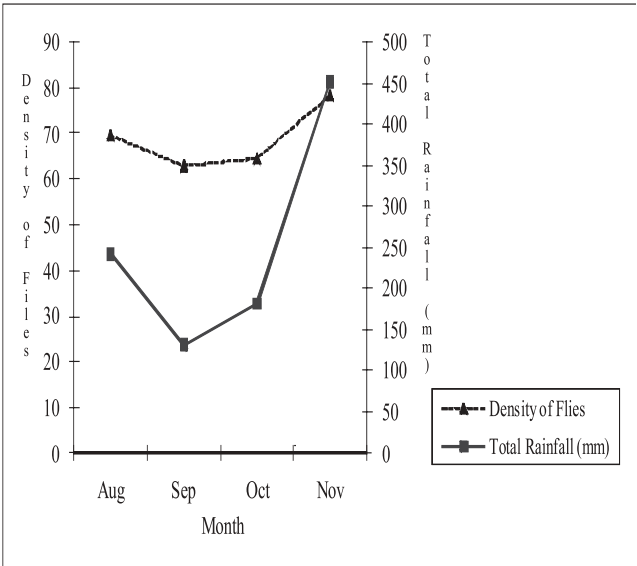


FIGURE 2. Age distribution of all patients seen at the UKM-MAB low vision clinic compared with the age distribution of all patients seen at the current UKMLVC

OCULAR PATHOLOGY

The ocular pathology seen in this study can be divided into three pathological categories; conduction, media and congenital. The conduction pathological category appears to be the major cause of LV (63.9%). The conduction category is divided into the following areas; various types of retinal diseases (55.5%), followed by optic nerve diseases (23.1%), macula disease types (19.4%) and finally posterior visual pathways diseases (1.9%). Within the area 'various type of retinal diseases', the majority of the cases were diagnosed as retinitis pigmentosa (RP), diabetic retinopathy, refractive problems (such as degenerative myopia), retinopathy of prematurity (ROP), non-accidental injuries and albinism. Within the area 'optic nerve disease types', most of the cases diagnosed were glaucoma, optic atrophy, and tumours. While for 'macular disease types', these cases were mostly age related macula degeneration (ARMD).

The media pathological category was the second most common cause of LV in this study. Out of 24.9% of cases, the majority was related to various types of crystalline lens disease (73.8%), followed by various types of corneal diseases (26.2%). Under the 'various types of crystalline lens disease', congenital cataract was the most common cause followed by cataract, lens subluxation and aphakia. Under the 'various types of corneal disease', the majority of cases were diagnosed as related to corneal opacity, vascularisation, microcornea and dry eye.

The congenital pathological category was the least common cause of LV (11.2%) in this study. Childhood nystagmus was the major disease (68.4%) followed by rubella (21.1%) and others diseases (10.5%). Table 1 described the summary of the major causes of LV presenting at UKMLVC.

LOW VISION DEVICES PRESCRIBED

Before the prescription of any LVDS, all patients who required such devices were given a 2 week trial at home. This was to allow the patient to get familiar with the LVD and to identify any potential issues with the use of such a device. From the analysis it was found that almost 84% of the LV patients who attended the UKMLVC received LVDS to improve either their near or/and distance vision and the LV patients decided to purchase the LVDS being prescribed. Another 4% were referred to other rehabilitation services while the other 12% rejected the LVDS recommended by the optometrists due to either poor motivation, vision that was too poor or their vision was still good enough (subjectively) without the LVDS prescribed. The types of LVDS prescribed for near tasks included spectacle magnifiers, hand held magnifiers and stand magnifiers while telescopes were prescribed for distance tasks (Table 2). Some patients required more than one device for different tasks.

TABLE 1. Summary of the major causes of low vision presenting at UKMLVC

Diagnosis	Number of cases
Congenital cataract	17
Childhood nystagmus	16
Retinitis pigmentosa	16
Glaucoma	13
Cataract	12
Diabetic retinopathy	11
Aphakia	9
Non-accidental injuries	7
Optic atrophy	7
Age related macula degeneration	6
Rubella	4
Stagardt's disease	4
Exudative vitreous retinopathy	3
Myopia	3
Myopia degeneration	3
Retinoblastoma	3
Retinopathy of Prematurity	3
Albinism	2
Chorioretinal scar	2
Congenital coloboma	2
Disciform scar on macula	2
Corneal opacity	2
Exotropia	2
Marfan's Syndrome	2
Microcornea	2
Subluxation of lenses	2
Aniridia	1
Herperitic retinitis	1
Chronic hypertensive retinopathy	1
Juvenile x-linked retinochisis	1
Leber's Optic neuropathy	1
Medulloblastomas	1
Pinealoblastomas	1
Unknown	6
Total number of patients	169

TABLE 2. Summary of optical devices prescribed at UKMLVC

Optical devices	Number (n)	Percentages (%)
Spectacles		
Distance spectacles	15	9
Near high addition spectacles	46	28
Low vision devices		
Hand magnifiers	41	25
Stand magnifiers	36	22
Distance telescopes	26	16
Total	164	100

*some patients being prescribed more than one optical devices

DISCUSSION

The current study showed that almost 76.9% of the low vision patients at this clinic were less than 50 years of age. This indicates that the majority of the patients attending the LV clinic were in the working age group. It is therefore important to expand the coverage of low vision services to these groups of patients to ensure that they can continue function productively even with irreversible vision loss. This finding agrees with a previous study conducted at the Universiti Kebangsaan Malaysia and Malaysian Association for the Blind (UKM-MAB) LV clinic (Mohidin & Yusoff 1998). In that study, Mohidin & Yusoff (1998) reported that 74% of the LV patients attending the UKM-MAB low vision clinic were less than 50 years of age. These findings suggest that the referrals concentrate on productive patients as well as patients who are more aware of the availability of LV services.

The trend of the patients attending these clinics appears to be similar when the current study was being compared with patient attending the UKM-MAB LV clinic (Figure 2). These two findings however were contrary to the findings in other studies on LV populations in other countries. Almost all these previous studies (Robbins 1981; Jackson et al. 1987; Leat & Rumney 1990) have shown a higher proportion of older people attending their LV clinics. One possible explanation is that in developed countries such as the United Kingdom, Australia or United States of America, there is greater access to LV services as well as greater awareness among both patients, medical and allied health professionals of the availability of these services. Furthermore Malaysia has a younger population when compared to these developed countries. A previous study by Leat et al., (1994) reported that 18 % of Americans more than 85 years and 6.5 % of Americans aged 75-84 years, reported difficulty reading newsprint with spectacles (Leat et al. 1994). Of the most common conditions that cause a need for assistance in activities of daily living for people older than 70 years old,

vision loss ranks third behind arthritis and heart disease (Leat et al. 1994). As the population ages, healthcare workers will encounter more patients with vision loss. Therefore general medical practitioners as primary healthcare providers can help identify these LV patients and refer them appropriately for LV services.

Our study also showed that generally more males presented at the clinic for LV assessment. A similar observation was noted by Mohidin & Yusoff (1998). One possible explanation is that the patients attending the clinic were from the working age group and they were possibly more aware of the availability of such services. Other researchers (Robbins 1981; Jackson et al. 1987; Leat & Rumney 1990) however found a preponderance of female patients in their LV clinic populations which became increasingly noticeable with age. Mohidin & Yusoff (1998) did not study the effect of ethnicity of patients who sought LV assessment. In our study it was found that Malays formed the majority of patients attending the UKMLVC (72.8%) followed by Chinese (15.4%), Indian (7.7%) and others (7.1%). This does conform to the demographic pattern of ethnicity in Malaysia where Bumiputera (which includes the Malays) comprised 65.1%, Chinese 26.0% and Indians 7.7% (Jabatan Statistik Malaysia, 2000). The ethnic components in Malaysia includes Malays, Chinese, Indian, and others such as Orang Asli, Sikhs etc. (Jabatan Statistik Malaysia, 2000; Zainal et al. 2002).

Conduction pathology category appear to be the most common cause of low vision in this study which include various types of retinal diseases, optic nerve diseases, macular diseases and posterior visual pathways diseases. However, Zainal et al. (2002) reported that the main causes of LV in Malaysia of all ages were uncorrected refractive errors (48%) and cataract (36%). One possible explanation is that the patients who attended the UKMLVC were from a younger age group and also drawn from an urban population that may not have been representative of the population in the study by Zainal et al. 2002. This can be seen in the distribution of patients attending the UKMLVC in Figure 1. Similar findings were noted by Mohidin & Yusoff (1998). Another possible reason is that the visual requirements of the elderly are not as high as the younger patients and therefore they do not feel that they need LVDS. Furthermore some elderly patients come to accept their reduced vision as normal aging process and do not come forward for referrals. Previous studies have shown that visual impairment can be reduced with the usage of LVDS (Margrain 2000; Faye 1994; Pollard et al. 2003). Hence it is recommended that optometrists, ophthalmologists and also general practitioners play a more active role in identifying these patients and referring them for LV services (Pollard et al. 2003; Johnston 1990).

84% of the LV patients in this study received some form of LVDS to improve their near and/or distance vision after a review at the UKMLVC and the patients decided to purchase the LVDS as compared to 12% of the LV patients who rejected the devices. This finding shows that the majority of LV patients' functional vision can be improved with LVDS. This means that the LV patient has a good chance of continuing with his or her daily routine independently. It was

also found that the proportion of patients who benefited from the LVDS was similar to other previous studies conducted by Jackson et al. (1987) 75%, Leat and Rumney (1990) 81% and Johnston (1990) 79%. The most common LVD prescribed in this study was the spectacle magnifier. 75% of the LVDS prescribed were simple devices such as spectacle magnifiers, handheld and stand magnifiers. This is due to the limited availability of the LVDS in Malaysia as currently there are few suppliers or vendors who are able to supply these LVDS. Furthermore, simple magnifiers are generally the cheapest form of LVD (Goodrich & Kirby 2001). In many cases the prescription of cheaper LVDS such as spectacle magnifiers, handheld and stand magnifiers are sufficient to provide the patient with the necessary rehabilitative aids to enable them to maintain or improve their quality of life. However, with progression of disease and advancing age, sometimes these patients require more complex LVDS in their rehabilitation.

CONCLUSION

Loss of vision has a profound effect on an individual's life. Healthcare professionals must therefore recognise the needs of these LV patients. This would include not only the detection and treatment of the eye disorder but also at the same time, referring the visually impaired patients to LV rehabilitation services.

In this study it can be seen that LVDS can benefit the LV patients. These highly specialised and task specific devices help patients maximise their residual visual functions so that they can read, sew, paint, cook and travel independently therefore improving their quality of life. By providing proper referrals, all healthcare professionals can be instrumental in helping LV patients to regain a level of functional vision that will allow them to recapture lost skills and resume an independent, active lifestyle which can restore their sense of independence and self-worth.

REFERENCES

- Bailey, IL. 1978. A profile of low vision population. *Optom Monthly. Feb*: 137-145.
- Burack-Weiss, A. 1992. Psychological aspects of aging and vision loss. In Faye, E. (Ed.), *The aging eye and low vision*. page. 29-34. New York: Lighthouse, Inc.
- Faye, E. 1994. Identifying low vision patient. In: Faye, E. (Ed.). *Clinical low vision* 2nd ed. page: 3-13. Boston: Little, Brown and Company
- Fletcher, D. 1989. Vision Loss: An ophthalmologist's perspective. In: *Providing services for people with vision loss: A multidisciplinary perspective*. Lexington, Massachusetts: Resources for Rehabilitation, c 1989; 16-24.
- Goodrich, G.L. & Kirby, J. 2001. *A comparison of patient reading performance and preference: optical devices, handheld CCTV (Innoventions Magni-Cam), or stand-mounted CCTV (Optelec Clearview or TSI Genie)*. *Optometry* 72(8): 519-28.

- Jackson, A.J., Silver, J.H. & Arche, D.B. 1987. An evaluation of follow up systems in two low vision clinics in the United Kingdom. In: Woo GC, ed. *Low Vision: Principles and Applications*. page: 396-417. Berlin: Springer-Verlag.
- Johnston, A.W. 1990. The low vision team: Roles and responsibilities. In Johnston AW, Lawrance M, eds. *Low Vision Ahead II – Proceedings of the international Conference on Low Vision 1990*. page: 242-246. Melbourne: Association for the Blind
- Laporan taburan penduduk dan ciri-ciri asas demografi banci penduduk dan perumahan 2000 Putrajaya 6 November 2000, http://www.statistics.gov.my/Melayu/frameset_banci.php
- Leat, S.J. & Rumney, N.J. 1990. The experience of a university-based low vision clinic. *Ophthal Physiol Opt*. 8-15.
- Leat, S.J., Fryer, A. & Rumney, N.J. 1994. Outcome of low vision aid provision: The effectiveness of a low vision clinic. *Opto. & Vis. Sci.* 71: 199-206.
- Margrain, T.H. 2000. Helping blind and partially sighted people to read: The effectiveness of low vision aids. *Br. J. Ophthalmol* 84: 919-921.
- Mohidin, N. & Yusoff, S.1998. Profile of a low vision clinic population. *Clin. Exp. Optom.* 81(5): 198-202.
- Pollard, T.L., Simpson, J.A. & Lamoureux, E.L. 2003. Barriers to accessing low vision services. *Ophthalmic Physiol Opt.* 23: 321-27.
- Robbins, H.G. 1981. Low vision care for the over 80s. *Aust. J Optom* 64: 243-521.
- Rosenthal, B. 1996. The Functional-based low vision evaluation. In: Functional assessment of low vision. page: 1-25. St Louis: Mosby.
- Wainapel, S.1989. Vision loss: A patient's perspective. In: *Providing services for people with vision loss: A multidisciplinary perspective*. Lexington, Massachusetts: Resources for Rehabilitation, c 1989; 6-15.
- World Health Organization. 1997. Fact Sheet N 142, *Blindness and Visual Disability, Part I of VII*, February 1997.
- Zainal, M., Ismail, S.M. & Ropilah, A.R. 2002. Prevalence of blindness and low vision in Malaysian population: results from the National Eye Survey 1996. *Br J Ophthalmol* 86(9): 951-956.

Rokiah Omar
 Zainora Mohammed
 Department of Optometry
 Faculty of Allied Health Sciences
 Universiti Kebangsaan Malaysia
 50300 Jalan Raja Muda Abdul Aziz
 Kuala Lumpur

Victor Feizal Knight
 Institut Sukan Negara
 Malaysia,
 Kompleks Sukan Negara
 Bukit Jalil, Sri Petaling
 57000 Kuala Lumpur

Corresponding author: Rokiah Omar
 Email address: r_omar@medic.ukm.my
 Tel: 03-92897495/03-928976236; Fax: 03-26910488

Received: June 2008
 Accepted for publication: September 2008