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A report on an exploratory study on visual conditions of older people living in public housing

Cheung Ming, Alfred CHAN
sscmchan@ln.edu.hk

Meng Soi, Florence FONG

Hon Yui, Eric WONG

Ka Yu, Kenneth AU-YEUNG

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**A REPORT ON AN EXPLORATORY STUDY ON VISUAL
CONDITIONS OF OLDER PEOPLE LIVING IN PUBLIC HOUSING**

CHAN CHEUNG MING, ALFRED Ph.D.

FONG MENG SOI, FLORENCE BSoc Sc, MPhil

WONG HON YUI, ERIC BSoc Sc, MPhil

AU-YEUNG KA YU, KENNETH PDOT, BSoc Sc, ROT

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Research Team:

Principal Investigator: Professor Alfred Cheung Ming Chan
Director of Asia-Pacific Institute of Ageing Studies (APIAS)
Lingnan University

Co-investigator(s): Ms. Florence Meng Soi Fong
Senior Project Officer
Asia-Pacific Institute of Ageing Studies (APIAS)
Lingnan University

Mr. Eric Hon Yui Wong
Project Officer
Asia-Pacific Institute of Ageing Studies (APIAS)
Lingnan University

Mr. Kenneth K.Y. Au-Yeung
Programme Director (Hong Kong)
HOPE worldwide

A Report on an Exploratory Study on Visual Conditions of Older People Living in Public Housing

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Section I: Introduction

1.1 Background Information

HOPE *worldwide* (HWW) has been a chartered charity organization in Hong Kong since 1993, with its focus on organizing service programmes in China and Hong Kong. Volunteers for Seniors Day (formerly Hope for Seniors Day) is one of the many programmes initiated by HWW to meet the urgent needs of the growing ageing population in Hong Kong. Starting in 1996, volunteers from corporations and social organizations have been recruited for Volunteers for Seniors Days on an annual basis. Since 2000, the programme has been jointly organized with the Housing Authority to provide cleaning and painting services to single elderly tenants living in public housing estates. It also helps to build relationships between the volunteers and the elderly people in the community. Over the past nine years, the programme has served over 5,300 single elderly people and mobilized more than 20,000 volunteers to participate.

In the survey conducted by HWW during Volunteers for Seniors Day 2004, we found that there were up to 40.1% and 49.6% of the single elderly living in public housing estates suffering from various kinds of eye diseases and poor eyesight respectively. The prevalence of eye diseases and poor eyesight would result in a high percentage of falls and thereby affect their functional activities of daily living (ADL). In fact, most of the eye diseases are curable with early detection and treatment, and elderly people with poor eyesight may need minor home adaptation e.g. handrails or night lights to prevent home accidents. According to a study by the Department of Orthopaedics & Traumatology of Chinese University, exercise is important to the elderly and can strengthen their low-limb and upper-limb muscles, which in turn prevents falls at home or on the street.

Due to the above findings, HWW cooperated with Housing Authority to initiate a pilot programme to help identify the eye diseases as well as provide public health education to the elderly in 30 public estates in the second half of 2004. Health care professionals provided training to 150 volunteers on eye care knowledge and simple eye screening tests that could be carried out in road shows in shopping arcades of public housing estates. In addition, experienced ophthalmologists or optometrists were present to answer elderly participants' inquiries on eye health and delivered health information during the kick-off ceremony and road shows in the shopping arcades. The programme had the following objectives:

1. To enhance the awareness of eye health and eye diseases of the elderly through 30 public eye screenings at public housing arcades:
2. To carry out a survey on the visual conditions of elderly living in public housing:
and,
3. To foster partnership between government, NGO and business sectors in promoting the health of the elderly in the community.

1.2 Implementation

A survey was conducted along with the eye health promotion programme in the public housing estates. Volunteers were first trained with knowledge about common elderly eye diseases and skills to carry out eye screening¹ for the elderly. A questionnaire was design to collect information on visual acuity and the elderly's medical background. Housing officers used posters and face-to-face recruitment to promote the programme in the housing estates. Elderly living in that estate were eligible to participate in the programme and would receive a numbered card for confirmation.

¹ For a flow chart of the eye screening, please refer to Appendix I.

1.3 Objectives of the Survey

Through the eye health promotion programme in 30 public housing estates, we reached out to a total of 2,346 elderly people. They had been interviewed and each had gone through a number of eye screenings to determine their visual profiles. Generally speaking, the current survey would like to address the visual profile of elderly people in the following two dimensions:

1. To describe the visual conditions of elderly people in respect to gender and age;
2. To find out whether there is any correlation / association between visual conditions, gender and age; and,
3. To recommend some preliminary suggestions on future senior services for HWW in Hong Kong.

Section II: Survey Methods

2.1 Selection Criteria and Sampling Method

All of the respondents (N=2,346) came from eight districts in Hong Kong: Wong Tai Sin, Kwun Tong, Shatin, Kwai Tsing, Kowloon City, Sham Shui Po, Tuen Mun and Lantau Island. Most of them are old urban areas with large elderly population. Residents, who were over 60 years old and recruited through the housing officers of Housing Department, were interviewed from September to October 2004.

2.2 Questionnaire Design

A semi-structured questionnaire was designed for gathering information on the visual profile of the elderly. Respondents were asked to provide some facts about their health profiles. The respondents were required to respond primarily to two closed-ended questions during the interviews.

The questionnaire ²was divided into two parts that each contained approximately 10 questions (items). The first part focused on measuring distance vision (by using the Tumbling E chart) and near vision (by using Rosenbaum Pocket Vision Screener) of the elderly people, and determining whether the elderly people have aged-related macular degeneration (AMD) (by using Amsler Grid). The second part centered on whether respondents have regular check-ups by eye doctors, have undergone previous eye operations including the type of operation, and any of chronic diseases.

² Please find in Appendix II

Section III: Survey Findings

The findings will be basically divided into three parts. The first part will focus on the description of the general eye profile of respondents. The second part will describe the eye profile of the elderly by dividing them into groups based on gender and age. The third part will explore the correlations and relationship between visual acuity and the factors of gender and age. The conclusion will recommend some preliminary suggestions by referring to the survey findings.

3.1 Respondent Profile

Table 1: Sex and age distributions of elderly respondents (N=2,283)

| Age / Sex | Male | Female |
|---------------------|--------------------|----------------------|
| Group 1: 50-64 | 55 (7.4%) | 117 (7.6%) |
| Group 2: 65-74 | 401 (53.9%) | 687 (44.6%) |
| Group 3: 75-84 | 242 (32.5%) | 611 (39.7%) |
| Group 4: 85 or over | 46 (6.2%) | 124 (8.1%) |
| Total | 744 (32.6%) | 1,539 (67.4%) |

Table 1 presents four groups of elderly respondents in respect to their sex and age distributions; Group 1 is called the “sooner-to-be old age group”. Males occupied 7.4% while females occupied 7.6%. Group 2 is called the “young-old age group”. Most of the males fell into this age group; males occupied 53.9% while females occupied 44.6%. Group 3 was the second largest age group and is called the “middle-old age group”; males occupied 32.5% while females occupied 39.7%. Group 4 was the smallest age group and is called the “old-old age group”; males only occupied 6.2% while females occupied 8.1%. In sum, in respect to the sex distribution, males made up around 32.6% of the total while females made up 67.4%.

Table 2: Overall situation of distance vision of respondents (right and left eyes)

| Visual acuity | Respondents (N=2,335) (right eye) | Respondents (N=2,338) (left eye) |
|----------------------|--|---|
| Poor vision | 173 (7.4%) | 166 (7.1%) |
| 0.1 | 151 (6.5%) | 163 (7%) |
| 0.12 | 109 (4.7%) | 97 (4.1%) |
| 0.15 | 155 (6.6%) | 155 (6.6%) |
| 0.2 | 147 (6.3%) | 154 (6.6%) |
| 0.25 | 246 (10.5%) | 219 (9.4%) |
| <u>0.3</u> | <u>355 (15.2%)</u> | <u>378 (16.2%)</u> |
| 0.4 | 323 (13.8%) | 346 (14.8%) |
| 0.5 | 287 (12.3%) | 261 (11.2%) |
| 0.6 | 217 (9.3%) | 213 (9.1%) |
| 0.8 | 118 (5.1%) | 141 (6%) |
| 1.0 | 43 (1.8%) | 35 (1.5%) |
| 1.2 | 10 (0.4%) | 6 (0.3%) |
| 1.5 | 1 (0.04%) | 4 (0.2%) |

Table 2 shows that most of the elderly respondents had a visual acuity of 0.3 (15.2%), with the same finding in the left eye at 16.2%. 7.4% of the respondents had poor vision in their right eye and 7.1% of them in their left eye.

Table 3: Overall situation of near vision of respondents (both eyes)

| Visual acuity | Respondents (N=2,306) |
|----------------------|------------------------------|
| Poor vision | 54 (2.3%) |
| 20/800 | 21 (0.9%) |
| 20/400 | 104 (4.5%) |
| 20/200 | 217 (9.4%) |
| 20/100 | 410 (17.8%) |
| 20/70 | 446 (19.3%) |
| <u>20/50</u> | <u>641 (27.8%)</u> |
| 20/40 | 248 (10.8%) |
| 20/30 | 91 (3.9%) |
| 20/25 | 53 (2.3%) |
| 20/20 | 21 (0.9%) |

Table 4: General information of health and visual conditions of respondents

| Areas | Number of respondents and percentage |
|----------------------------------|---|
| Age-related macular degeneration | Right eye: 309 (13.5%) Left eye: 314 (13.7%) |
| Regular eye check-up | Have regular eye check-up: 729 (31.6%) No regular eye check-up: 1,579 (68.4%) |
| History of eye surgery | Have eye surgery: 361 (16.5%) No eye surgery: 1,950 (89.2%) |
| Nature of eye surgery | Cataract operation: 265 (11.5%) Glaucoma operation: 14 (0.6%) Laser therapy: 29 (1.3%) |
| Types of chronic illnesses | High blood pressure: 945 (40.5%) Diabetes: 345 (14.8%) |
| Provision of follow-up service | Heart diseases: 239 (10.2%) Optician: 642 (66.1%) Ophthalmologist 199 (20.5%) Both optician and ophthalmologist: 129 (13.3%) |

Table 3 shows that the largest group of the elderly respondents had visual acuity in near vision is 20/50 (27.8%) and only 0.9% of the people had the visual acuity of 20/800 and 20/20. In addition to the visual acuity, Table 4 shows some general information about the respondents on their visual profile, including the number of people suspected to have age-related macular degeneration, frequency of having regular eye check up, history of eye surgery, nature of eye surgery, types of chronic diseases suffered and the necessity to provide follow-up eye-related services.

3.2 Visual Conditions of the Elderly People by Sex and Age Groups

a. Visual conditions of the elderly people measured by Tumbling E chart (Distance vision in the right eye)

Table 5: Distance vision of elderly people in the right eye

| <u>Visual acuity</u> | <u>Sooner-to-old age group (50-64)</u> | | <u>Young-old age group (65-74)</u> | |
|----------------------|--|-------------------|--|--------------------|
| | <u>Male</u> | <u>Female</u> | <u>Male</u> | <u>Female</u> |
| Poor vision | 0 (0%) | 2 (1.7%) | 22 (5.5%) | 34 (4.9%) |
| 0.1 | 2 (3.6%) | 3 (2.6%) | 20 (5.0%) | 25 (3.6%) |
| 0.12 | 2 (3.6%) | 5 (4.3%) | 12 (3.0%) | 23 (3.3%) |
| 0.15 | 1 (1.8%) | 7 (6.0%) | 19 (4.7%) | 37 (5.4%) |
| 0.2 | 3 (5.5%) | 6 (5.1%) | 18 (4.5%) | 33 (4.8%) |
| 0.25 | 1 (1.8%) | 16 (13.7%) | 41 (10.2%) | 77 (11.2%) |
| <u>0.3</u> | <u>13 (23.6%)</u> | <u>14 (12.0%)</u> | <u>66 (16.5%)</u> | 107 (15.6%) |
| 0.4 | 5 (9.1%) | 17 (14.5%) | 59 (14.7%) | <u>111 (16.2%)</u> |
| 0.5 | 6 (10.9%) | <u>19 (16.2%)</u> | 55 (13.7%) | 95 (13.8%) |
| 0.6 | 10 (18.2%) | 15 (12.8%) | 38 (9.5%) | 87 (12.7%) |
| 0.8 | 6 (10.9%) | 10 (8.5%) | 33 (8.2%) | 44 (6.4%) |
| 1.0 | 6 (10.9%) | 3 (2.6%) | 11 (2.7%) | 12 (1.7%) |
| 1.2 | 0 (0%) | 2 (1.7%) | 3 (0.7%) | 1 (0.1%) |
| 1.5 | 0 (0%) | 0 (0%) | 1 (0.2%) | 0 (0%) |
| <u>Visual acuity</u> | <u>Middle-old age group (75-84)</u> | | <u>Old-old age group (85 or above)</u> | |
| | <u>Male</u> | <u>Female</u> | <u>Male</u> | <u>Female</u> |
| Poor vision | 19 (7.9%) | 56 (9.2%) | <u>11 (23.9%)</u> | <u>22 (17.7%)</u> |
| 0.1 | 22 (9.1%) | 51 (8.3%) | 7 (15.2%) | <u>18 (14.5%)</u> |
| 0.12 | 13 (5.4%) | 41 (6.7%) | 2 (4.3%) | 8 (6.5%) |
| 0.15 | 21 (8.7%) | 51 (8.3%) | 3 (6.5%) | 12 (9.7%) |
| 0.2 | 17 (7.0%) | 52 (8.5%) | 5 (10.9%) | 16 (12.9%) |
| 0.25 | 26 (10.7%) | 68 (11.1%) | <u>6 (13.0%)</u> | <u>18 (14.5%)</u> |
| 0.3 | 31 (12.8%) | <u>97 (15.9%)</u> | 2 (4.3%) | 12 (9.7) |
| 0.4 | <u>32 (13.2%)</u> | 78 (12.8%) | 3 (6.5%) | 13 (10.5%) |
| 0.5 | 26 (10.7%) | 74 (12.1%) | 3 (6.5%) | 4 (3.2%) |
| 0.6 | 26 (10.7%) | 28 (4.6%) | 3 (6.5%) | 1 (0.8%) |
| 0.8 | 7 (2.9%) | 11 (1.8%) | 0 (0%) | 0 (0%) |
| 1.0 | 2 (0.8%) | 0 (0%) | 0 (0%) | 0 (0%) |
| 1.2 | 0 (0%) | 1 (0.2%) | 0 (0%) | 0 (0%) |

Table 5 shows distance vision of the elderly in the right eye. Regarding the sooner-to-old age group, most of the males have a visual acuity of 0.3 (23.6%) and females had a visual acuity of 0.5 (16.2%). The whole range of visual acuity for males was from 0.1 to 1.0 and for females was from 0.1 to 1.2.

As for the young-old age group, most of the males had a visual acuity of 0.3 (16.5%) and females had a visual acuity of 0.4 (16.2%). The whole range of visual acuity for males was from 0.1 to 1.5 and for females was from 0.1 to 1.2.

Concerning the middle-old age group, most of the males had a visual acuity of 0.4 (13.2%) and females had a visual acuity of 0.3 (15.9%). The whole range of visual acuity for males was from 0.1 to 1.0 and females, from 0.1 to 1.2.

As for the old-old age group, most of the males and females were suffering from poor vision with 23.9% of males and 17.7% of females. Besides those suffering from poor vision, most of the males had a visual acuity of 0.25 (13.0%) and most of the females had a visual acuity of 0.1 and 0.25 (14.5%). The whole range of visual acuity for both males and females was from 0.1 to 0.6 (please also refer to Figure 1 to 4 for the distribution of visual acuity for each age group).

Figure 1: Visual conditions of elderly people – distance vision in the right eye (aged 50-64)

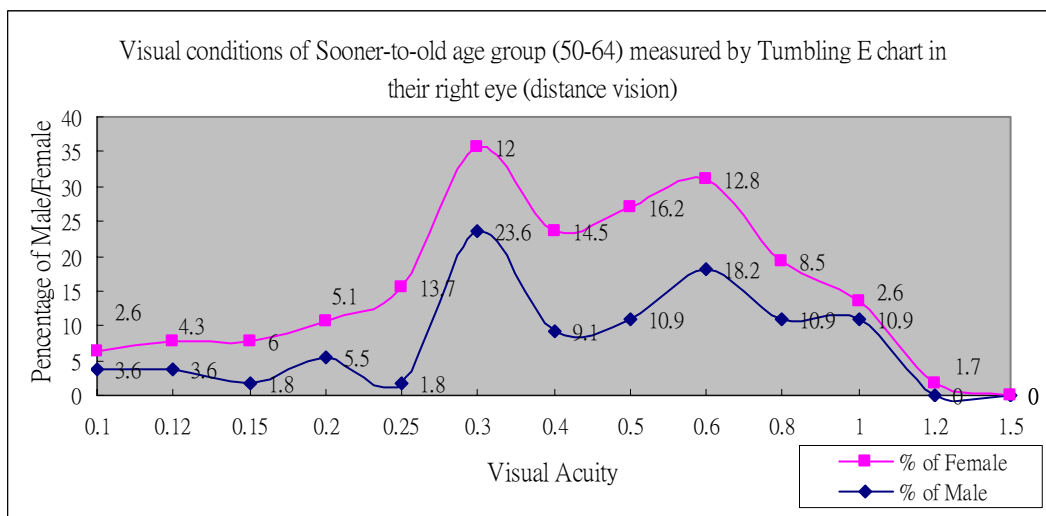


Figure 2: Visual conditions of elderly people – distance vision in the right eye (aged 65-74)

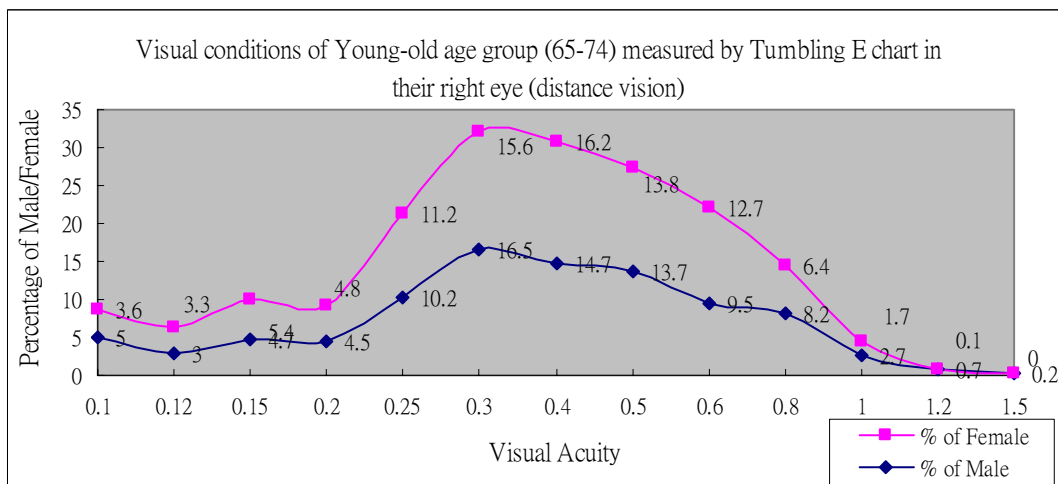


Figure 3: Visual conditions of elderly people – distance vision in the right eye (aged 75-84)

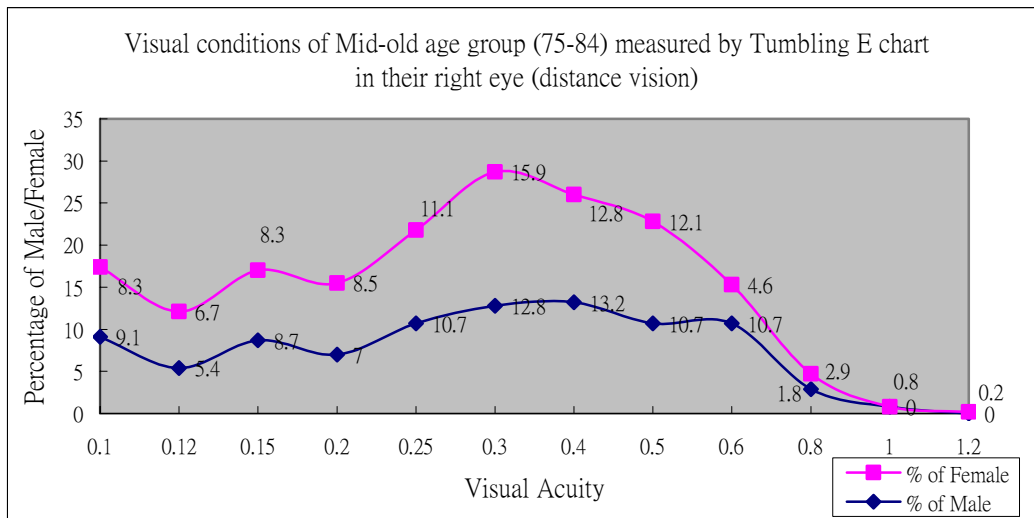
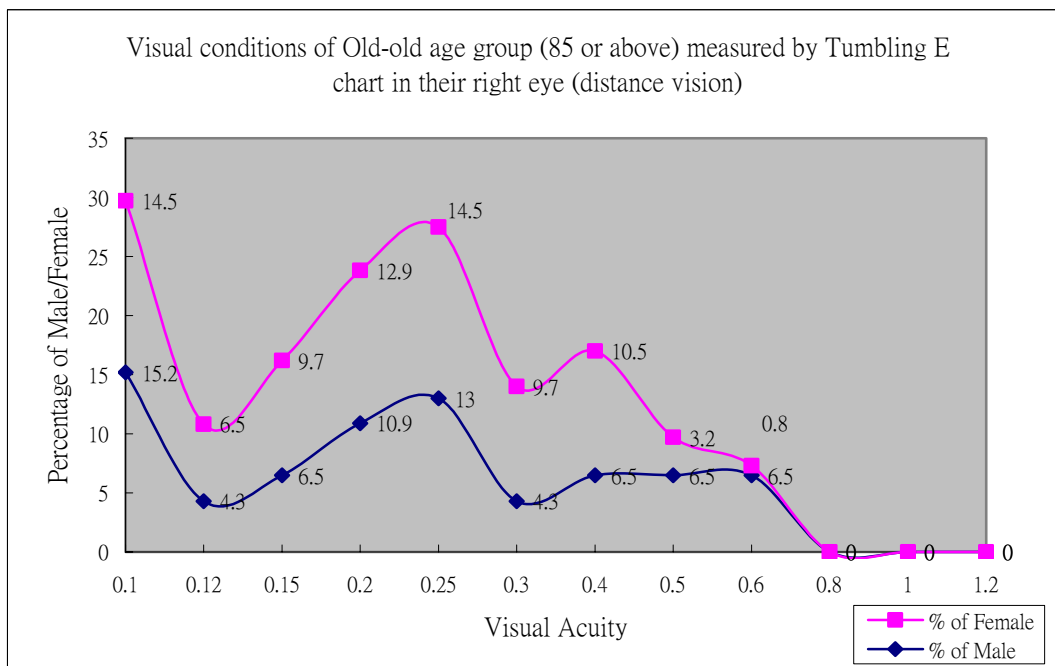


Figure 4: Visual conditions of elderly people – distance vision in the right eye (aged 85 or above)



b. Visual conditions of the elderly people measured by Tumbling E chart (distance vision in the left eye)

Table 6: Distance vision of elderly people in the left eye

| <u>Visual acuity</u> | <u>Sooner-to-old age group (50-64)</u> | | <u>Young-old age group (65-74)</u> | |
|----------------------|--|-------------------|--|--------------------|
| | <u>Male</u> | <u>Female</u> | <u>Male</u> | <u>Female</u> |
| Poor vision | 0 (0%) | 2 (1.7%) | 21 (5.2%) | 28 (4.1%) |
| 0.1 | 1 (1.8%) | 4 (3.4%) | 24 (6.0%) | 26 (3.8%) |
| 0.12 | 1 (1.8%) | 2 (1.7%) | 11 (2.7%) | 15 (2.2%) |
| 0.15 | 0 (0%) | 5 (4.3%) | 16 (4.0%) | 36 (5.2%) |
| 0.2 | 2 (3.6%) | 3 (2.6%) | 26 (6.5%) | 34 (4.9%) |
| 0.25 | 4 (7.3%) | 3 (2.6%) | 36 (9.0%) | 68 (9.9%) |
| 0.3 | 8 (14.5%) | 20 (17.1%) | <u>72 (18.0%)</u> | <u>130 (18.9%)</u> |
| 0.4 | 7 (12.7%) | 14 (12.0%) | 70 (17.5%) | 106 (15.4%) |
| 0.5 | <u>10 (18.2%)</u> | 13 (11.1%) | 43 (10.7%) | 101 (14.7%) |
| 0.6 | <u>10 (18.2%)</u> | 19 (16.2%) | 37 (9.2%) | 79 (11.5%) |
| 0.8 | 7 (12.7%) | <u>25 (21.4%)</u> | 34 (8.5%) | 47 (6.8%) |
| 1.0 | 4 (7.3%) | 7 (6.0%) | 8 (2.0%) | 10 (1.5%) |
| 1.2 | 1 (1.8%) | 0 (0%) | 2 (0.5%) | 2 (0.3%) |
| 1.5 | 0 (0%) | 0 (0%) | 1 (0.2%) | 1 (0.1%) |
| <u>Visual acuity</u> | <u>Middle-old age group (75-84)</u> | | <u>Old-old age group (85 or above)</u> | |
| | <u>Male</u> | <u>Female</u> | <u>Male</u> | <u>Female</u> |
| Poor vision | 19 (7.8%) | 62 (10.1%) | <u>12 (26.1%)</u> | 16 (12.9%) |
| 0.1 | 26 (10.7%) | 49 (8.0%) | 6 (13.0%) | <u>23 (18.5%)</u> |
| 0.12 | 14 (5.8%) | 40 (6.5%) | 2 (4.3%) | 8 (6.5%) |
| 0.15 | 21 (8.6%) | 62 (10.1%) | 3 (6.5%) | 11 (8.9%) |
| 0.2 | 18 (7.4%) | 50 (8.2%) | <u>7 (15.2%)</u> | 13 (10.5%) |
| 0.25 | 26 (10.7%) | 61 (10.0%) | 3 (6.5%) | 16 (12.9%) |
| 0.3 | 29 (11.9%) | <u>93 (15.2%)</u> | 5 (10.9%) | 13 (10.5%) |
| 0.4 | <u>39 (16.0%)</u> | 80 (13.1%) | 4 (8.7%) | 17 (13.7%) |
| 0.5 | 22 (9.1%) | 60 (9.8%) | 2 (4.3%) | 2 (1.6%) |
| 0.6 | 19 (7.8%) | 38 (6.2%) | 1 (2.2%) | 1 (0.8%) |
| 0.8 | 7 (2.9%) | 14 (2.3%) | 1 (2.2%) | 2 (1.6%) |
| 1.0 | 3 (1.2%) | 1 (0.2%) | 0 (0%) | 0 (0%) |
| 1.2 | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |
| 1.5 | 0 (0%) | 1 (0.2%) | 0 (0%) | 0 (0%) |

Table 6 shows the distance vision of the elderly people in the left eye. Regarding the sooner-to-old age group, most of the males had a visual acuity of 0.5 and 0.6 (18.2%). On the other hand, most of the females had a visual acuity of 0.8 (21.4%). The whole range of visual acuity for males was from 0.1 to 1.2 and females, from 0.1 to 1.0.

As for the young-old age group, most of the males had a visual acuity of 0.3 (18%) and most of the females had a visual acuity of 0.3 (18.9%). The whole range of visual acuity for males and females was from 0.1 to 1.5.

Concerning the middle-old age group, most of the males had a visual acuity of 0.4 (16%) and most of the females had a visual acuity of 0.3 (15.2%). The whole range of visual acuity for males was from 0.1 to 1.0 and females, from 0.1 to 1.5.

As for the old-old age group, most of the males were suffering from poor vision (26.1%) and most of the males had a visual acuity of 0.2 (15.2%) On the other hand, most of the females had a visual acuity of 0.1 (18.5%). The whole range of visual acuity for males and females was from 0.1 to 0.8 (please refer to Figures 5-8 for the distribution of visual acuity for each age group).

Figure 5: Visual conditions of elderly people – distance vision in the left eye (aged 50 to 64)

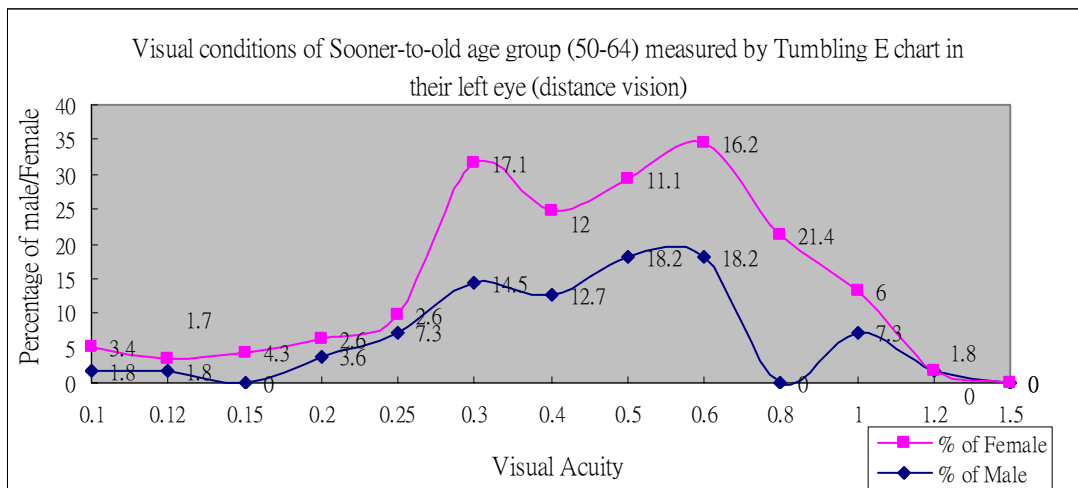


Figure 6: Visual conditions of elderly people – distance vision in the left eye (aged 65-74)

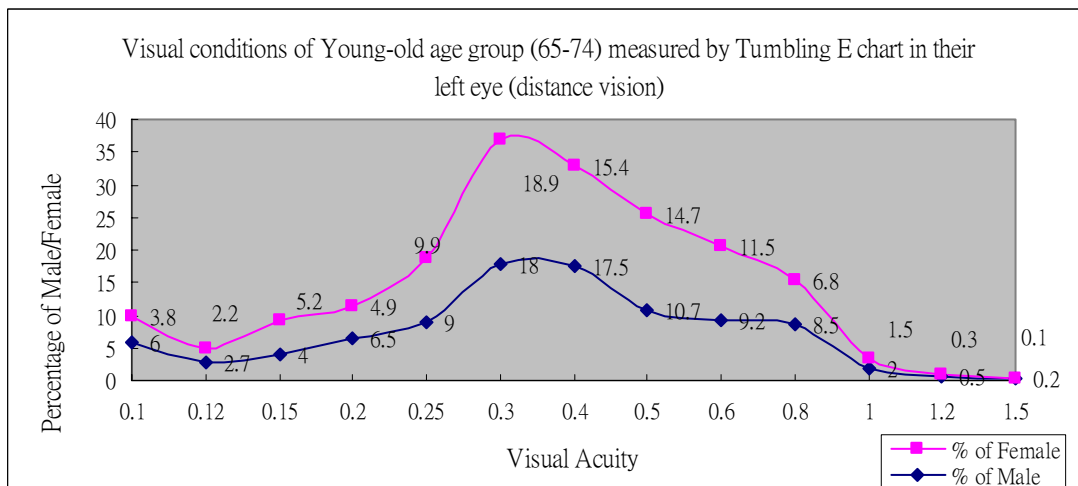


Figure 7: Visual conditions of elderly people – distance vision in the left eye (aged 75 to 84)

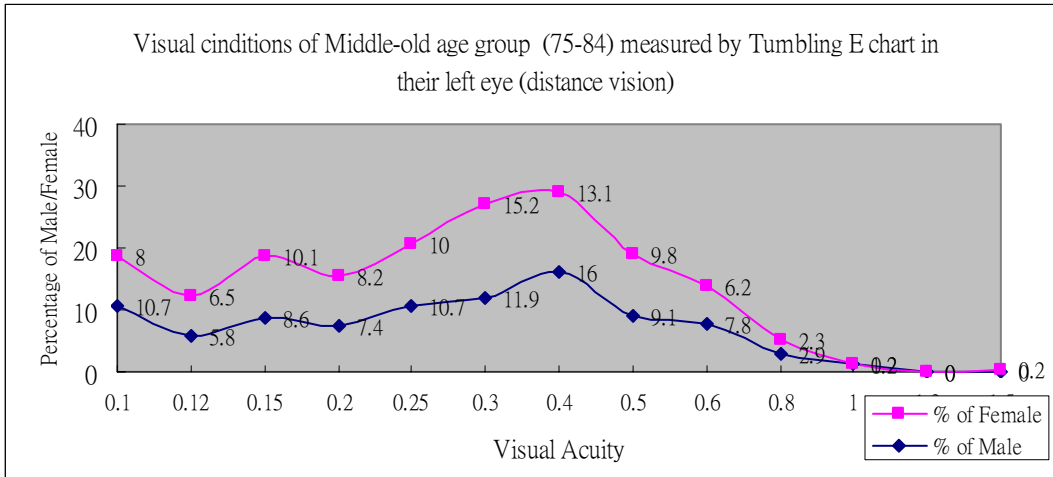


Figure 8: Visual conditions of elderly people – distance vision in the left eye (aged 85 or above)

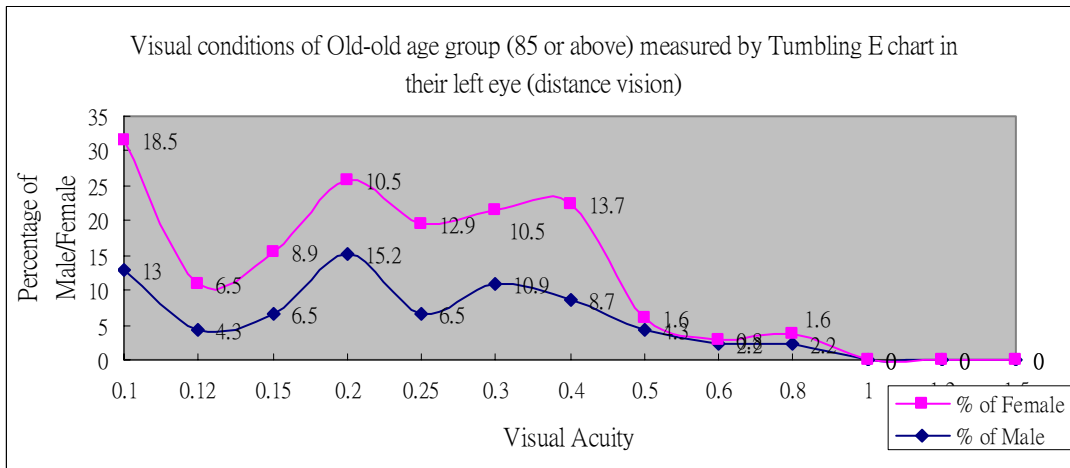


Table 7: Visual conditions of elderly people measured by Rosenbaum Pocket: Near vision (both eyes)

| <u>Visual acuity</u> | <u>Sooner-to-old age group (50-64)</u> | | <u>Young-old age group (65-74)</u> | |
|----------------------|--|--------------------|--|--------------------|
| | <u>Male</u> | <u>Female</u> | <u>Male</u> | <u>Female</u> |
| Poor vision | 1 (1.8%) | 2 (1.7%) | 8 (2.0%) | 7 (1.0%) |
| 20/800 | 1 (1.8%) | 0 (0%) | 3 (0.8%) | 8 (1.2%) |
| 20/400 | 1 (1.8%) | 4 (3.5%) | 9 (2.3%) | 25 (3.7%) |
| 20/200 | 2 (3.6%) | 11 (9.6%) | 32 (8.1%) | 70 (10.3%) |
| 20/100 | 5 (9.1%) | 14 (12.2%) | 63 (16.0%) | 122 (18.0%) |
| 20/70 | 9 (16.4%) | 26 (22.6%) | 73 (18.6%) | 125 (18.4%) |
| 20/50 | <u>19 (34.5%)</u> | <u>36 (31.3%)</u> | <u>109 (27.7%)</u> | <u>194 (28.6%)</u> |
| 20/40 | 8 (14.5%) | 11 (9.6%) | 47 (12.0%) | 81 (11.9%) |
| 20/30 | 4 (7.3%) | 8 (7.0%) | 25 (6.4%) | 24 (3.5%) |
| 20/25 | 4 (7.3%) | 2 (1.7%) | 15 (3.8%) | 19 (2.8%) |
| 20/20 | 1 (1.8%) | 1 (0.9%) | 8 (2.0%) | 3 (0.4%) |
| <u>Visual acuity</u> | <u>Middle-old age group (75-84)</u> | | <u>Old-old age group (85 or above)</u> | |
| | <u>Male</u> | <u>Female</u> | <u>Male</u> | <u>Female</u> |
| Poor vision | 4 (1.7%) | 16 (2.7%) | 3 (7.0%) | 12 (9.7%) |
| 20/800 | 0 (0%) | 6 (1.0%) | 1 (2.3%) | 1 (0.8%) |
| 20/400 | 18 (7.5%) | 35 (5.8%) | 2 (4.7%) | 7 (5.6%) |
| 20/200 | 16 (6.6%) | 65 (10.8%) | 5 (11.6%) | 14 (11.3%) |
| 20/100 | 37 (15.4%) | 121 (20.1%) | <u>10 (23.3%)</u> | <u>34 (27.4%)</u> |
| 20/70 | 49 (20.3%) | 123 (20.5%) | 8 (18.6%) | 20 (16.1%) |
| 20/50 | <u>71 (29.5%)</u> | <u>152 (25.3%)</u> | 8 (18.6%) | 28 (22.6%) |
| 20/40 | 32 (13.3%) | 53 (8.8%) | 3 (7.0%) | 6 (4.8%) |
| 20/30 | 9 (3.7%) | 17 (2.8%) | 2 (4.7%) | 1 (0.8%) |
| 20/25 | 3 (1.2%) | 7 (1.2%) | 1 (2.3%) | 0 (0%) |
| 20/20 | 2 (0.8%) | 4 (0.7%) | 0 (0%) | 1 (0.8%) |

Table 7 shows the near vision of the elderly people in both of their eyes. Regarding the sooner-to-old age group, most of the males and females had a visual acuity of 20/50, which made up 34.5% and 31.3 respectively. As for the young-old age group, most of the males and females had a visual acuity of 20/50 with 27.7% and 28.6% respectively.

Concerning the middle-old age group, most of the males and females had a visual acuity of 20/50 with 29.5% and 25.3% respectively. As for the old-old age group, most of the males and females had a visual acuity of 20/100 with 23.3% and 27.4% respectively (please refer to Figure 9 to 12 for the distribution of visual acuity for each age group).

Figure 9: Visual conditions of elderly people – near vision in both eyes (aged 50 to 64)

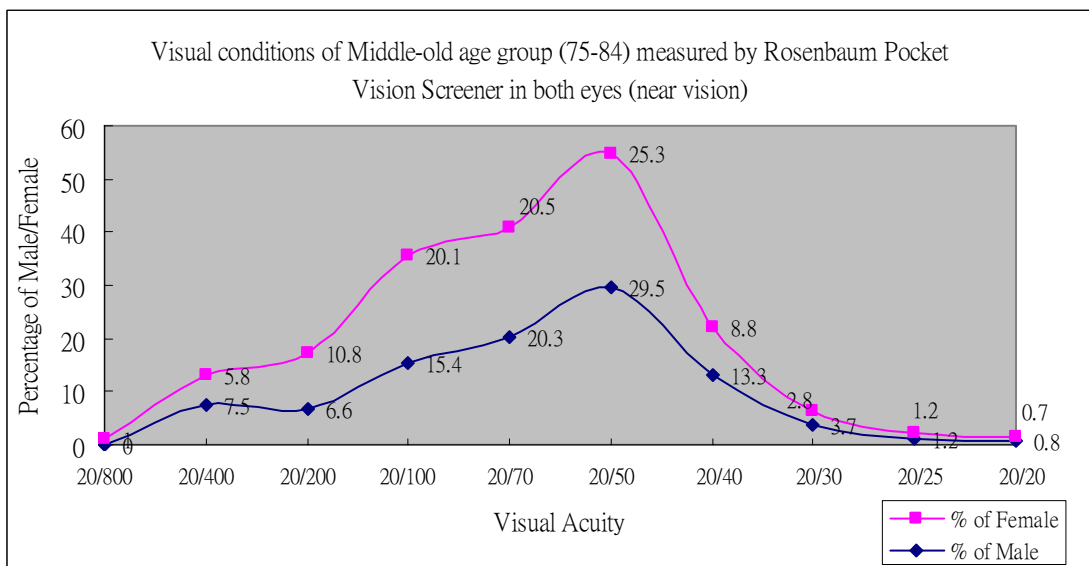
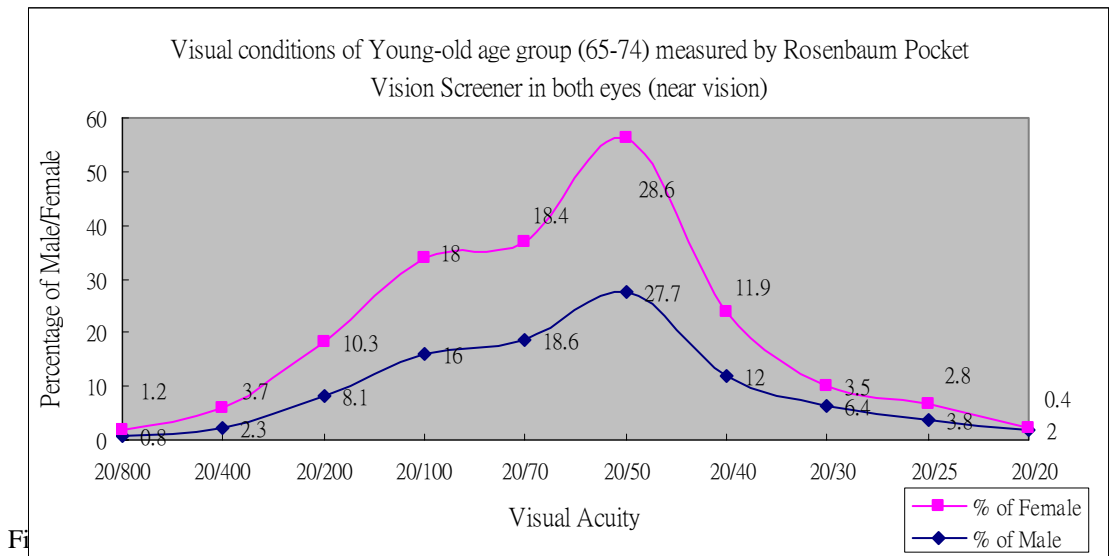
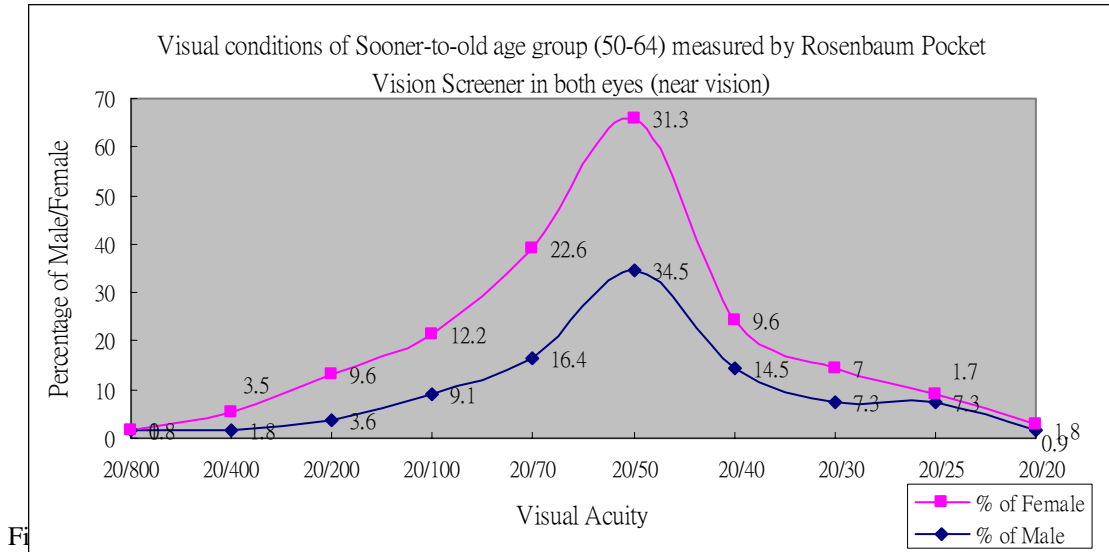
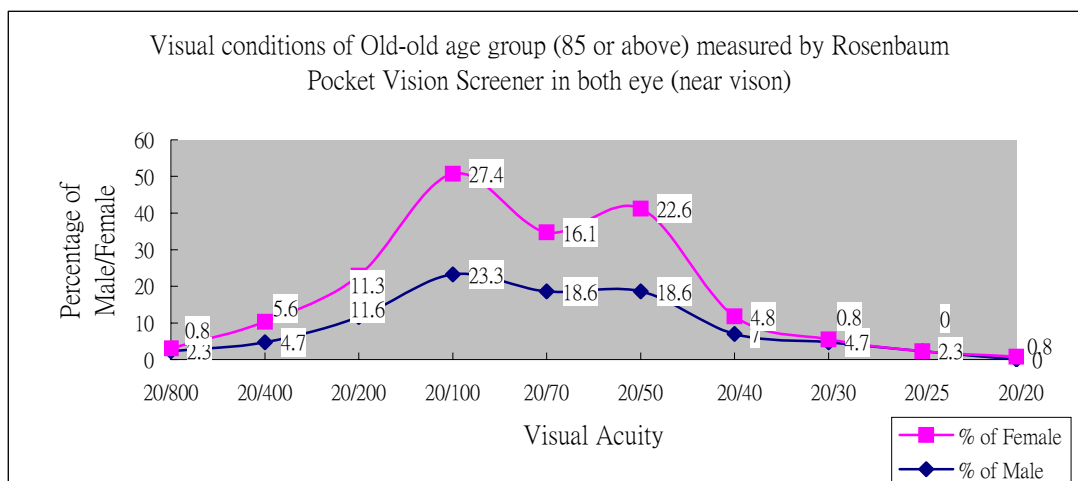


Figure 12: Visual conditions of elderly people – near vision in both eyes (aged 85 or above)



c. Poor vision (distance vision) amongst elderly respondents

Table 8: Poor vision (distance vision) of elderly respondents in each age group and sex

| Age / Sex | Male | | | | Female | | | |
|---------------------|-------------------|--------------|-------------------|--------------|-------------------|----------------|-------------------|----------------|
| | Right eye | | Left eye | | Right eye | | Left eye | |
| Group 1: 50-64 | 0 (0%) | (55) | 0 (0%) | (55) | 2 (1.7%) | (117) | 2 (1.7%) | (117) |
| Group 2: 65-74 | 22 (5.5%) | (401) | 21 (5.2%) | (401) | 34 (4.9%) | (687) | 28 (4.1%) | (687) |
| Group 3: 75-84 | 19 (7.9%) | (242) | 19 (7.8%) | (243) | 56 (9.2%) | (611) | 62 (10.1%) | (611) |
| Group 4: 85 or over | <u>11 (23.9%)</u> | (46) | <u>12 (26.1%)</u> | (46) | <u>22 (17.7%)</u> | (124) | <u>16 (12.9%)</u> | (124) |
| Total | 52 (7.0%) | (744) | 52 (7.0%) | (745) | 114 (7.4%) | (1,539) | 108 (7.0%) | (1,539) |

Table 8 shows the percentage of poor vision amongst males and females in both eyes in different age groups. It was revealed that most the old-old age group had the largest percentage of poor vision in both males and females. The figures showed that older respondents have the larger percentage suffered from poor vision. (Please also refer to Figure 13 and 14 for the graphs).

Figure 13: Poor vision (distance vision) of male elderly respondents

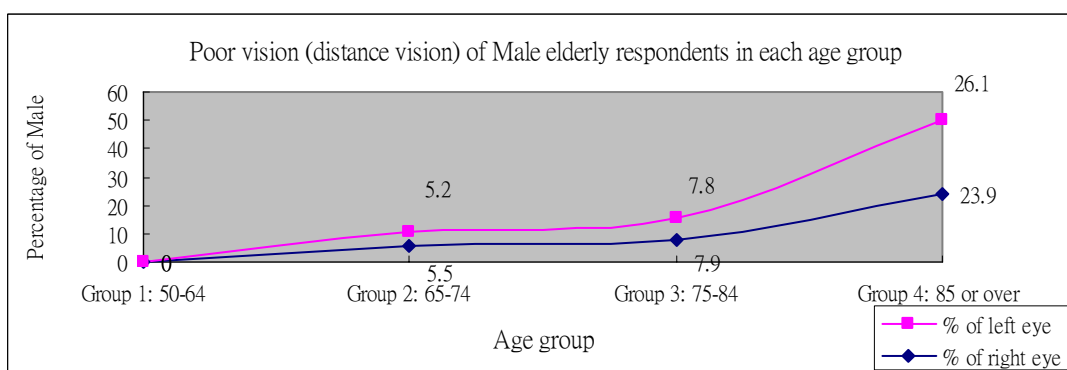


Figure 14: Poor vision (distance vision) of female elderly respondents

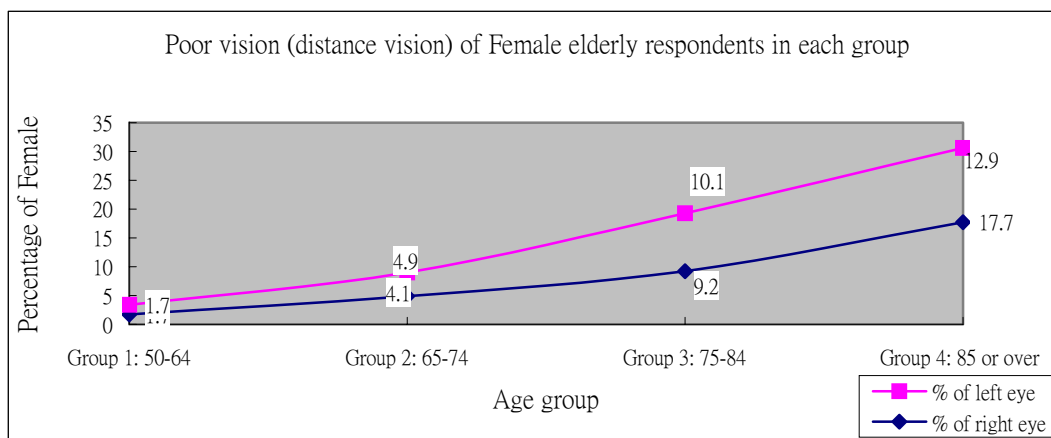
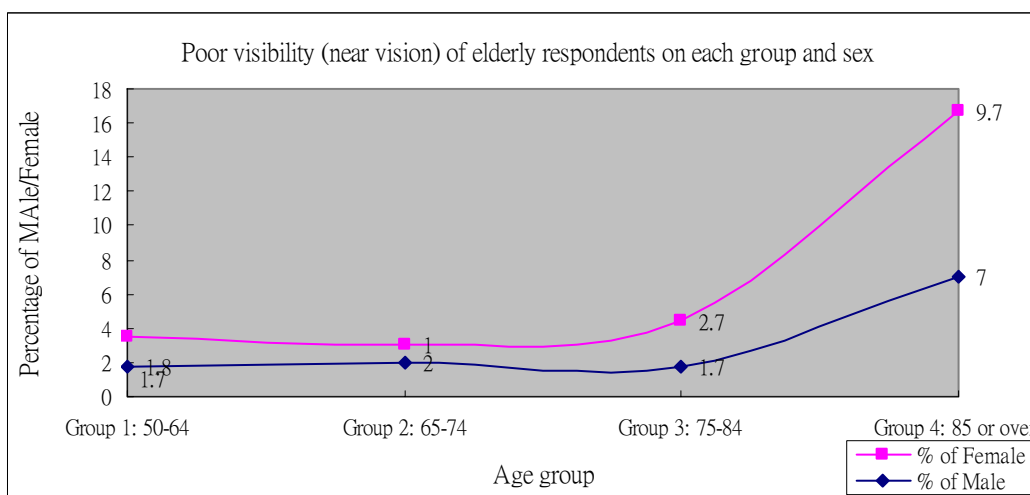


Table 9: Poor vision (near vision) of elderly respondents in each age group and sex

| Age / Sex | Male | | Female | |
|---------------------|------------------|--------------|------------------|---------------|
| | Both eye | | Both eye | |
| Group 1: 50-64 | 1 (1.8%) | (55) | 2 (1.7%) | (115) |
| Group 2: 65-74 | 8 (2.0%) | (393) | 7 (1.0%) | (678) |
| Group 3: 75-84 | 4 (1.7%) | (241) | 16 (2.7%) | (601) |
| Group 4: 85 or over | <u>3 (7.0%)</u> | (43) | <u>12 (9.7%)</u> | (124) |
| Total | 16 (2.2%) | (732) | 37 (2.4%) | (1518) |

Table 9 shows that only 2.2% and 2.4% of males and females had poor vision in both of their eyes respectively when measuring their near vision. However, most of the elderly respondents with poor vision fell into the old-old age group (male, 7%; female, 9.7%). Please also refer to figure 15 for the graph illustration.

Figure 15: Poor vision (near vision) of elderly respondents



d. Suspected age-related macular degeneration amongst elderly respondents

Table 10: Suspected age-related macular degeneration of elderly respondents in each age group & sex

| <u>Age / Sex</u> | <u>Male</u> | | | | <u>Female</u> | | | |
|------------------------|------------------------------|-----------------------------|------------------------------|------------------------------|--------------------------------|------------------------------|--------------------------------|------------------------------|
| | <u>Right eye</u> | | <u>Left eye</u> | | <u>Right eye</u> | | <u>Left eye</u> | |
| | <u>Normal</u> | <u>Abnormal</u> | <u>Normal</u> | <u>Abnormal</u> | <u>Normal</u> | <u>Abnormal</u> | <u>Normal</u> | <u>Abnormal</u> |
| Group 1: 50-64 | 49 (89.1%) | 6 (10.9%) | 47 (85.5%) | 8 (14.5%) | 103 (89.6%) | 12 (10.4%) | 105 (91.3%) | 10 (8.7%) |
| Group 2: 65-74 | 336 (85.9%) | 55 (14.1%) | 341 (87.2%) | 50 (12.8%) | 596 (88.4%) | 77 (11.4%) | 609 (90.4%) | 65 (9.6%) |
| Group 3: 75-84 | 220 (90.9%) | 22 (9.1%) | 211 (87.2%) | 31 (12.8%) | 495 (83.9%) | 95 (16.1%) | 493 (83.6%) | 97 (16.4%) |
| Group 4: 85 or over | 33 (78.6%) | <u>9</u> <u>(21.4%)</u> | 31 (73.8%) | <u>11</u> <u>(26.2%)</u> | 92 (78%) | <u>26</u> <u>(22%)</u> | 87 (73.7%) | <u>31</u> <u>(26.3%)</u> |
| Total | 638 (87.4%) | 92 (12.6%) | 630 (86.3%) | 100 (13.7%) | 1,286 (86.0%) | 210 (14.0%) | 1,294 (86.4%) | 203 (13.6%) |

Table 10 shows that 12.6% of males had suspected age-related macular degeneration in their right eye and 13.7% of them had the disease in their left eye. Regarding the females, 14% of them suspected to have the disease in their right eyes and 13.6% of them had it in their left eye. The age-related macular degeneration was also suspected in a large percentage of the old-old age group (over 20% amongst males and females).

3.3 Case History of the Elderly People

a. Number of elderly respondents with and without eye doctor check ups

Table 11: Number of elderly respondents with and without eye doctor check ups in each age group & sex

| <u>Age / Sex</u> | <u>Male</u> | | <u>Female</u> | |
|---------------------|---------------------------------------|--|---------------------------------------|--|
| | <u>Regular check up by eye doctor</u> | <u>No regular check up by eye doctor</u> | <u>Regular check up by eye doctor</u> | <u>No regular check up by eye doctor</u> |
| Group 1: 50-64 | 5 (9.3%) | 49 (90.7%) | 23 (19.7%) | <u>117 (80.3%)</u> |
| Group 2: 65-74 | 84 (21.4%) | <u>308 (78.6%)</u> | 200 (29.4%) | 480 (70.6%) |
| Group 3: 75-84 | 70 (29.0%) | 171 (71.0%) | <u>257 (42.5%)</u> | 347 (57.5%) |
| Group 4: 85 or over | <u>17 (37.8%)</u> | 28 (62.2%) | <u>51 (42.5%)</u> | 69 (57.5%) |
| Total | 176 (24.0%) | 556 (76.0%) | 531 (34.4%) | 1013 (65.6%) |

Table 11 shows that 24% of males had regular check ups by eye doctors while 76% of them did not have regular check ups. Regarding females, 34.4% of them did have regular check ups while 65.6% of them did not. There was no clear sex and age difference regarding regular check-ups by eye doctors.

b. Number of elderly respondents have eye surgery

Table 12: Number of elderly respondents with and without eye surgery in each age group and by sex

| <u>Age / Sex</u> | <u>Male</u> | | | <u>Female</u> | | |
|------------------------|-------------------------------------|------------------------|---------------------|-------------------------------------|------------------------|-----------------------|
| | <u>Did not have eye surgery</u> | <u>Had eye surgery</u> | | <u>Did not have eye surgery</u> | <u>Had eye surgery</u> | |
| | | <u>Right eye</u> | <u>Left eye</u> | | <u>Right eye</u> | <u>Left eye</u> |
| Group 1: 50-64 | <u>50</u> (94.3%) | 2 (3.8%) | 1 (1.8%) | 103 (89.6%) | 10 (8.7%) | 8 (6.8%) |
| Group 2: 65-74 | 361 (91.6%) | 23 (5.8%) | 21 (5.2%) | <u>610</u> (89.8%) | 46 (6.8%) | 46 (6.7%) |
| Group 3: 75-84 | 206 (85.5%) | 23 (9.5%) | 22 (9.1%) | 463 (76.7%) | 97 (16.1%) | 105 (17.2%) |
| Group 4: 85 or over | 35 (76.1%) | <u>9</u> (19.6%) | <u>8</u> (17.4%) | 82 (66.1%) | <u>32</u> (26.0%) | <u>31</u> (25.0%) |
| Total | 652 (85.7%) | 57 (7.5%) | 52 (6.8%) | 1,258 (77.0%) | 185 (11.3%) | 190 (11.6%) |

* Since some of the elderly respondents had eye surgery on both eyes, therefore the total percentage of individual age group for each sex may exceed 100.

Table 12 shows that 85.7% of males did not have a record of eye surgery while 7.5% and 6.8% of them did have surgery in their right and left eyes respectively. Regarding females, 77.0% of them did not have a record of eye surgery while 11.3% and 11.6% of them did have surgery in their right and left eyes respectively. It was found that 19.6% (right eye) and 17.4% (left eye) of the elderly respondents aged 85 or over did have eye surgery with an even larger percentage of females, with 26% (right eye) and 25% (left eye) respectively.

c. Types of eye surgery

Table 13: Types of eye surgery in each age group and by sex

| <u>Age / Sex</u> | <u>Male</u> | | | <u>Female</u> | | |
|------------------------|-------------------------------|-------------------------------|--------------------------|-------------------------------|-------------------------------|--------------------------|
| | <u>Cataract operation</u> | <u>Glaucoma operation</u> | <u>Laser therapy</u> | <u>Cataract operation</u> | <u>Glaucoma operation</u> | <u>Laser therapy</u> |
| Group 1: 50-64 | 1 (1.9%) | 0 (0%) | 0 (0%) | 6 (5.2%) | 0 (0%) | 2 (1.7%) |
| Group 2: 65-74 | 21 (5.3%) | 0 (0%) | 2 (0.5%) | 52 (7.7%) | 6 (0.9%) | 8 (1.2%) |
| Group 3: 75-84 | 24 (10.0%) | 0 (0%) | 4 (1.7%) | 109 (18.1%) | 5 (0.8%) | <u>11</u> (1.8%) |
| Group 4: 85 or over | <u>8</u> (17.4%) | 0 (0%) | <u>1</u> (2.2%) | <u>32</u> (26.0%) | <u>3</u> (2.4%) | 0 (0%) |
| Total | 54 (88.5%) | 0 (0%) | 7 (11.5%) | 199 (85.0%) | 14 (6.0%) | 21 (9.0%) |

Table 13 shows that amongst those elderly respondents that had records of eye surgery, 88.5% of males had cataract operations, 7% of them had laser therapy but none of them had glaucoma operations. Regarding the females, 85% of females had cataract operations, 6% of them had glaucoma operations and 9% of them had laser therapy. The old-old age group had a relatively larger percentage of eye operations, with 17.4% having records of cataract operations amongst males and 26% amongst females.

d. Types of chronic diseases

Table 14: Types of chronic diseases in each age group and by sex

| <u>Age / Sex</u> | <u>High blood pressure</u> | <u>Male Diabetes</u> | <u>Heart diseases</u> | <u>High blood pressure</u> | <u>Female Diabetes</u> | <u>Heart diseases</u> |
|------------------------|------------------------------|-----------------------------|-----------------------------|------------------------------|------------------------------|------------------------------|
| Group 1: 50-64 | 18 (33.3%) | 7 (13%) | 4 (7.4%) | 35 (29.9%) | 21 (17.9%) | 5 (4.3%) |
| Group 2: 65-74 | 151 (37.8%) | 51 (12.8%) | 46 (11.5%) | 294 (42.9%) | 103 (15.0%) | 59 (8.6%) |
| Group 3: 75-84 | 98 (40.3%) | <u>32</u> <i>(13.2%)</i> | 30 (12.3%) | <u>266</u> <i>(43.8%)</i> | <u>103</u> <i>(16.9%)</i> | <u>70</u> <i>(11.5%)</i> |
| Group 4: 85 or over | <u>19</u> <i>(41.3%)</i> | 3 (6.5%) | <u>7</u> <i>(15.2%)</i> | 41 (33.1%) | 12 (9.7%) | 12 (9.7%) |
| Total | 286 (61.4%) | 93 (20.0%) | 87 (18.7%) | 636 (62.3%) | 239 (23.4%) | 146 (14.3%) |

Table 14 shows that amongst those elderly respondents that had chronic illnesses, 61.4% of males had high blood pressure, 20% of them had diabetes and 18.7% of them had heart disease. Regarding the females, 62.3% of females had high blood pressure, 23.4% of them had diabetes and 14.3% of them had heart disease. The figure showed that chronic illness appeared most frequently in the middle-old age group and the old-old age group.

3.4 Correlation between Age Groups and Visual Acuity of the Elderly Respondents

a. Correlation between age groups and the degree of distance vision (right and left eyes)

There was significant correlation between age and distance vision in both the right and left eyes of the elderly respondents. Gamma statistic was used; it is the simplest and most popular form of measuring the association between ordinal measures. Table 15 shows the correlation between age and the distance vision in both eyes. As for the right eye, the correlation was significant in a negative relationship, with the correlation coefficient at -0.208 ($p=-0.208$, $p<0.05$), while the left eye showed that the correlation was also significant in a negative relationship, with the correlation coefficient at -0.205 ($p=-0.205$, $p<0.05$). This means the higher the age groups, the lower the score in visual acuity, implying that deterioration of distance vision becomes more serious with advance in age for both right and left eye. However, one note was that the correlation was rather weak, since it was only around 0.2.

Table 15: Correlation between age groups and the degree of distance vision in both eyes

| Measurement | Value | Significant (2-tailed) |
|--------------------|--------------|-------------------------------|
| Gamma (right eye) | -.208 | .000 |
| Gamma (left eye) | -.205 | .000 |

b. Correlation between age groups and the degree of near vision (both eyes)

There was significant correlation between age groups and near vision in both eyes of the elderly respondents. Gamma statistic was used the measure the correlation between the ordinal variables. Table 16 shows the correlation between age and the degree of near vision in both eyes. The correlation was significant in a negative relationship, with the correlation coefficient at -0.108 ($p=-0.104$, $p<0.05$). This means the higher the age groups, the lower the score in visual acuity, implying that deterioration of near vision becomes more serious in both eyes. However, one note was that the correlation was rather weak, since it was only around 0.1.

Table 16: Correlation between age and the degree of near vision in both eyes

| Measurement | Value | Significant (2-tailed) |
|--------------------|--------------|-------------------------------|
| Gamma (both eyes) | -.108 | .000 |

c. Correlation between age groups and suspected age-related macular degeneration

There was significant correlation between age groups and suspected age-related macular degeneration in the left eye. Gramer's V statistic was used to measure the correlation between the nominal variables. Table 17 shows that there was a significant correlation between age groups and age-related macular degeneration in the left eye. The correlation was significant in a positive relationship, with the correlation coefficient at 0.124 ($p=0.124$, $p<0.05$). This means the higher the age, the larger the

chance of having age-related macular degeneration, implying that people with a higher age have a higher chance of having this illness. However, one note was that the correlation was rather weak, since it was only around 0.1. This correlation did not exist in the right eye amongst elderly respondents.

Table 17: Correlation between age groups and suspected age-related macular degeneration (left eye)

| Measurement | Value | Significant (2-tailed) |
|-----------------------|-------|------------------------|
| Gramer's V (left eye) | .124 | .000 |

d. Correlation between age groups and non-regular check-up by eye doctor

There was significant correlation between age groups and non-regular check-up by eye doctor. Gramer's V statistic was used the measure the correlation between the nominal variables. Table 18 shows a significant correlation between age groups and non-regular check ups by an eye doctor. The correlation was significant in a positive relationship, with the correlation coefficient at 0.164 ($p=0.164$, $p<0.05$). That means the higher the age, the higher the chance of elderly not having regular check-ups by an eye doctor. However, one note was that the correlation was rather weak, since it was only around 0.2.

Table 18: Correlation between age groups and non-regular check-up by an eye doctor

| Measurement | Value | Significant (2-tailed) |
|-------------|-------|------------------------|
| Gramer's V | .164 | .000 |

e. Correlation between age group and history of eye surgery

There was significant correlation between age groups and history of eye operations. Gramer's V statistic was used the measure the correlation between the nominal variables. Table 19 shows the significant correlation between age groups and history of eye operations. The correlation was significant in a positive relationship, with the correlation coefficient at 0.197 ($p=0.197$, $p<0.05$). That means the higher the age, the higher the chance of them having previous eye operations. However, one note was that

the correlation was rather weak, since it was only around 0.2.

Table 19: Correlation between age group and history of eye surgery

| <u>Measurement</u> | <u>Value</u> | <u>Significant (2-tailed)</u> |
|--------------------|--------------|-------------------------------|
| Gramer's V | .197 | .000 |

Section IV: Conclusion and Recommendations

The current survey examined a total sample of (N=2,283) in 30 public housing estates of eight districts in Hong Kong, including Wong Tai Sin, Kwun Tong, Shatin, Kwai Tsing, Kowloon City, Sham Shui Po, Tuen Mun and Lantau Island. In view of the difficulties in conducting a representative sampling of Hong Kong elderly people, the selected districts are mostly old urban areas with large number of elderly population. Visual acuity testing and questionnaire survey were carried out by trained volunteers, led by both optometrists and ophthalmologists, from September to October 2004 in the above 30 housing estates. The visual acuity testing aims at collecting some general information on the visual acuity of the older persons living in public housing and acting as a basis for further research on visual acuity of older persons in Hong Kong. The questionnaire centers on the following dimensions: the distance vision, near vision, suspected age-related macular degeneration, frequency of eye check-up, history of eye surgery, nature of eye surgery, types of chronic illnesses and whether respondents are in need of follow-up services by opticians or ophthalmologists.

Regarding the visual acuity when measuring distance vision, 15.2% and 16.2% of the respondents fell into the category of 0.3 in their right and left eyes respectively. As for the visual acuity when measuring near vision, most of the respondents fell into the category of 20/50, which contributed to the overall 27.8%. In addition, around 14% of the elderly respondents were suspected to have age-related macular degeneration in their right eyes and left eyes. 68.4% of them did not have regular eye check-up, and 16.5% of them had eye surgery in the past, 11.5% due to cataracts. It was suggested that around 66% of the elderly respondents should receive follow-up appointments with an optometrist, 20.5% with an ophthalmologist and 13.3% should have appointments with both.

The current dataset does not show any correlation between sex and visual acuity but does show a number of correlations between age and visual acuity. It was found that the higher the age groups, the lower the score in visual acuity in both distances vision and near vision measurements, showing that visual acuity becomes poorer when people become older. Domestic research in Hong Kong provides limited information on visual acuity by drawing representative and random sampling, but certain Western nations have done a number of studies on national samples and found a similar result (Pols et al., 2000). They revealed that prevalence of visual impairment increased significantly with age and existed in a substantial part of the elderly community, particularly women and people living in nursing homes. Taking into consideration that visual function is an essential element affecting the quality of life (QOL) of the older persons (Lee, 1997), more resources should be allocated in providing more quality medical services to the elderly. In line with the above argument, the findings showed that visual acuity would gradually decrease when people become older; we suggest the promotion of educational programmes to enhance public as well as elderly awareness to improve the effectiveness of health promotion and thus prevent unnecessary blindness (Lau et al., 2002). The educational programmes should be started when people are “sooner-to be old”, and thus able to take more preventive measures in tackling their eye problems and therefore reducing visual deterioration.

The research also found that age-related macular degeneration has a positive correlation with age, meaning that older people had higher chance in getting this disease. Lau et al (2002a) stated that cataracts, glaucoma, and AMD are leading causes of blindness worldwide. A study conducted in 2002 even showed that among Hong Kong Chinese, nearly 80% of cases of reduced vision were caused by the above three eye diseases (Lau et al., 2002b). The research found that around 14% of the elderly respondents had AMD in either the right or left eye. Although the existing information cannot provide

adequate evidence to prove whether respondents had recognized their problems and taken appropriate follow up actions, Lau et al (2002a) stated that only 9.2% of the respondents in the research had heard of AMD, and less than 1% could correctly describe the anatomy or physiology of AMD. It is believable that due to the correlation between age, the chances of AMD, and limited knowledge, it is important to provide more educational programmes to enhance the public awareness of the issue and try to avoid the disease.

Future directions of the research on visual acuity in older persons could be based on educational programmes to enhance awareness of potential eye problems and therefore reduce and prevent unnecessary blindness. Individual awareness and knowledge of eye diseases are important factors in screening, diagnosis, treatment compliance, and prevention. Secondly, it is possible that more knowledge of some common eye illnesses should be delivered in the community, including cataracts, glaucoma, and age-related macular degeneration, which in Hong Kong contributes to around 80% of blindness. Last but not least, “ageing in the community” is the current direction for elderly services in Hong Kong. Besides, most of the expected growth of visual disability is due to the ageing of the population. Therefore, government need to provide more eye care services such as eye clinics to early identify the disease and provide support for living and housing for those low-vision elderly people in order to prolong the period of independent living in the community (Bergman and Sjöstrand, 2002).

To conclude, the current survey provides insights into the services that HWW can provide in the community and future research based on the initial findings are provided for identifying better elderly care service directions, since the public commonly neglects the importance of visual acuity of older persons and its relationship with QOL. It is believed that by gathering more information on the visual profile of older persons

in the major districts, more suitable elderly care services could be provided to enhance living standards and quality of life.

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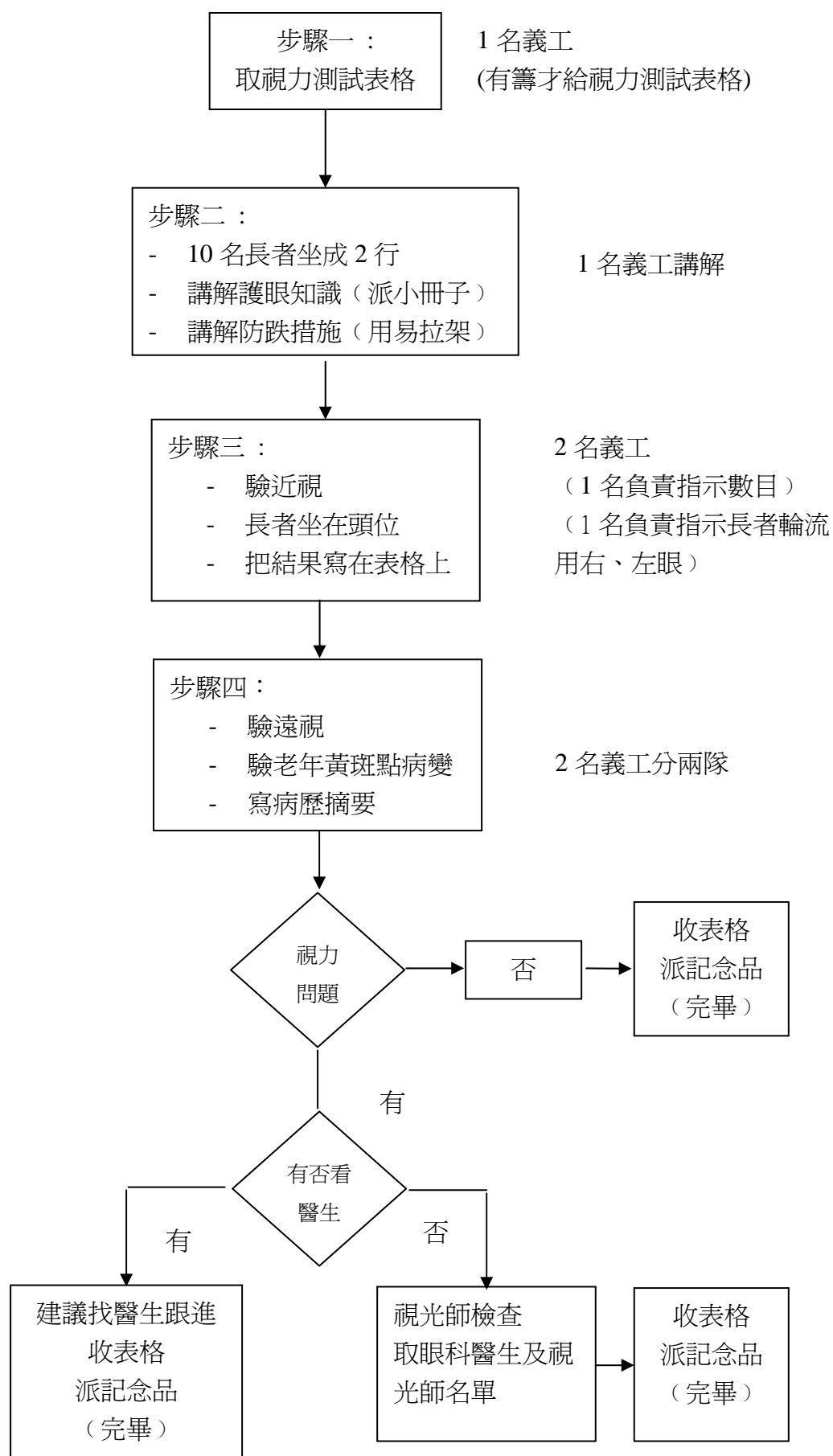
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Appendix I: Flow Chart of eye screening



Appendix II: Questionnaire of the survey

『晴』明長者驗眼日

視力測試表格

籌號：_____ 日期：_____

姓名：_____ 年齡：_____

性別：男 女 居住屋邨：_____

I. 視力檢查：(請填上度數) 請帶上適當的眼鏡

(標準對數視力表, 15 呎距離)

遠用視力 近視：右眼：_____ 左眼：_____

(Rosenbaum Pocket Vision Screener, 14 寸距離)

近用視力 遠視(雙眼)：_____

格仔紙-黃斑點病變：(Amsler Grid, 12 寸距離)

右眼： 正常 不正常

左眼： 正常 不正常

II. 病歷：

1) 有否定期接受眼科醫生診治？ 有 無

2) a) 有否接受眼科手術？ 有 無 (可跳至 3 題)

b) 接受手術的眼睛是： 右眼 左眼

c) 手術性質： a. 白內障 b. 青光眼 c. 激光

d) 其他：_____

3) 有否患以下長期病患？

a. 高血壓 b. 糖尿病 c. 心臟病

d. 其他：_____

注意：此次視力測試，只供個人參考用途，並不是任何醫學建議，如長者需要醫學上意見，請找眼科醫生作詳細的視力檢查。

Asia-Pacific Institute of Ageing Studies (APIAS) at Lingnan University

HISTORY

The Asia-Pacific Institute of Ageing Studies (APIAS) was established as a University-wide institute in 1998 and has been operating as one of the research centers in the Institute of Humanities and Social Science (IHSS) since September 2001. The mission of APIAS is to facilitate and develop research in gerontology and issues related to population ageing in Hong Kong and the Asia-Pacific region.

OUR MISSION

“To develop a better environment for older people and their families in Hong Kong and the Asia-Pacific region.”

OUR OBJECTIVES

- To develop an area of research excellence in programme evaluation and action research; both quantitative and qualitative research methodologies.
- To strengthen our collaboration within the Lingnan University and the local communities, particularly in relation to student learning.
- To strengthen the collaboration and network amongst the Asia-Pacific region.

For further information on APIAS and opportunities for research collaboration and affiliations with the Centre, please contact us :

Lingnan University
Tuen Mun, Hong Kong

ISBN: 978-988-97594-4-6

Tel: (+852) 2616-7425

Email: apias@ln.edu.hk

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