

Self-Reported Vision Impairment and Eye Care Utilisation among Malay and Chinese aged 50 years and older residing in urban and rural areas in Klang Valley

MOHD IZZUDDIN HAIROL, CHUAY KAI YING & NURUL NAQUIAH HAMZAH

ABSTRACT

The Behavioral Risk Factor Surveillance System (BRFSS) *Vision Impairment and Access to Eye Care* module was used to determine self-reported prevalence of vision impairment, eye diseases and eye care utilisation among Malay and Chinese population aged 50 years and above residing in urban and rural regions in the Klang Valley area. Five hundred participants responded to the BFRSS questions on vision-related tasks, eye diseases and eye health service utilisation. Higher prevalence of eye diseases was reported by Malay respondents in urban, compared with those in rural, areas. 12.8% of rural Malays visited their eye care provider within the last year, compared with 44.0% of urban Malays. 51.2% of rural Malays never visited an eye care provider (versus 24.0% of urban Malays). There was no significant difference in prevalence of eye diseases between Chinese respondents residing in urban and in rural areas. Similar percentages of urban and rural Chinese visited their eye care provider at some point of time. Urban Malays appear to be more aware of their visual conditions, and higher percentage of them had visited an eye care provider compared with rural Malays. Urban and rural Chinese reported similar awareness of their visual conditions and they utilise access to eye care service equally. These self-reported data could be compared with the Ministry of Health's eye disease prevalence data as part of the effort to raise the awareness on eye diseases and utilisation of eye care services among those who are 50 years and older.

Keywords: self-reported prevalence, vision impairment, access to eye care, Behavioral Risk Factor Surveillance System

INTRODUCTION

The structure and function of eye degrade due to the aging process, with an increase of incidence of ocular diseases. The common factors of vision impairment among the elderly are presbyopia, cataracts, macular degeneration, glaucoma and diabetic retinopathy ¹ and these problems are likely to affect and disrupt the freedom of the elderly. Vision loss can cause difficulties in visual processing speed, light sensitivity, dynamic vision, near vision and visual search ²⁻⁴.

These problems can lead to trauma and accidents at home. About 11% of elderly patients with a history of visual problems fall in a year compared to older people who have good vision, which is 4.4% only. Chronic vision problem will also cause an increase in psychological incidence such as depression, anxiety, irritability, low self-esteem, self-isolation from the crowd and memory loss ¹.

Studies regarding the body health of the ageing population was conducted in 70 countries around the world in 2002-2003. Subjects 60 years and older from 52 countries (n = 35 839) were asked, "When was the last time you received an eye examination by eye health professionals?" The studies found that only 18% of subjects received an eye examination within one year.

Rates of having eye examination within one year in low-income countries, low-medium, medium-high and high is 10%, 24%, 22%, and 37% respectively ⁵. There are also studies that showed the phenomenon of age-related disease increases in Asian populations ⁶. A study conducted among rural residents in Temerloh Hospital showed that out of the 1081 patients examined (with mean age of 45 years old), the majority (56.1%) were males, and Malays (72.4%). Cataract was most commonly found (22.9%), followed by retinal disease (11.5%) and ocular trauma (9.8%) ⁷.

The objectives of this study were to determine the self-reported prevalence of vision impairment, eye diseases and eye care utilisation among Malay and Chinese population aged 50 years and above residing in urban and rural areas in the Klang Valley region using the Behavioral Risk Factor Surveillance System (BRFSS) *Vision Impairment and Access to Eye Care* module. These self-reported data could then be part of the effort to raise the awareness on eye diseases and utilisation of eye care services among those who are 50 years and older.

METHODOLOGY

This cross sectional surveillance survey involved a questionnaire taken from the Vision Impairment

and Access to Eye Care module of the Behavioural Risk Factor Surveillance System (BRFSS). The BRFSS is an annually administered program in the United States, designed to measure the prevalence of self-reported visual impairment, eye disease, eye injury and lack of eye care insurances and eye examination, generally to those who are 50 years of age and older⁸⁻¹⁰.

This study was conducted in Kuala Lumpur and around Selangor, Malaysia. Participants were self-identified Malay and Chinese aged 50 years and older. The questionnaire was administered to 250 Malay participants and 250 Chinese participants. For each ethnic group, 125 subjects were randomly selected in urban area and another 125 subjects in rural area. There were similar numbers of male and female participants in each sub-group. Written consent was obtained from each participant before the questionnaire was administered. The conducts of this research were approved by Universiti Kebangsaan Malaysia's Research Ethics Committee, which complied with the tenets of the Declaration of Helsinki.

Two undergraduate Optometry & Vision Science students, who were proficient English and Bahasa Malaysia/Mandarin speakers, were involved in administering the questionnaire. This questionnaire was divided into four parts. In the first part the participants needed to provide their name, age, sex, monthly income and education level. Part two included self-reported vision impairment that affected the participants. Distance vision was assessed by difficulty in recognising a friend at across a street. Near vision was assessed by difficulty in reading print at near. These tasks were assessed while taking into account the participants' habitual refractive correction. Those who reported "A little difficulty", "Moderate difficulty", "Extreme difficulty" and "Unable to do because of eyesight" were classified as having "Any difficulty" in their distance and near vision reported in Results. If they reported having no difficulty to do the tasks, they were categorised as not having visual impairment. The same classification has been

used in the analysis of the BRFSS visual difficulty questions¹⁰.

In part three, participants were asked if they had been informed by their eye care provider if they had cataract, glaucoma and/or macular degeneration. In part four, participants were asked when they last visited an eye care provider and had a dilated eye exam. They were also asked about the reasons not visiting an eye care provider in the last year, if applicable, and if they were covered by eye/health insurance.

Overall and dwelling-specific self-reported prevalence of vision difficulties and eye diseases were analysed. The percentages of participants reporting utilisation of eye care services were similarly analysed. Chi-squared (χ^2) tests were conducted to evaluate whether any differences within the dwelling area accounting for the sampling design employed by the BFRSS. P values ≤ 0.05 (two-sided) were considered statistically significant.

RESULTS

The upper section of Table 1 presents overall and residency-specific self-reported prevalence of visual difficulty and eye diseases by urban and rural Malays and Chinese. Rural Malays reported difficulty in distance vision (74.4%) that is significantly higher than that reported by urban Malays (52.8%) ($p < 0.0001$). There was no significant difference in difficulty with near vision between urban and rural Malays ($p = 0.53$). For selected eye diseases, urban Malays reported statistically higher prevalence of cataract (1.8 times higher), glaucoma (8.8 times higher) and macular degeneration (1.5 times higher) than that reported by rural Malays (all $p < 0.0001$). Urban Chinese reported difficulty in near vision (40.0%) that is significantly higher than that reported by rural Chinese (24.8%) ($p < 0.0001$). There was no significant difference in difficulty with distance vision between urban and rural Chinese ($p = 0.75$). Unlike the Malay groups, there was no significant difference in self-reported prevalence of cataract, glaucoma and macular degeneration between urban and rural Chinese (all $p > 0.10$).

TABLE 1. Overall and residency-specific self-reported prevalence (%) of visual difficulty, eye diseases, eye care utilisation and eye/health insurance coverage by Malays and Chinese residing in urban and rural areas

Self-reported prevalence of visual difficulty and eye diseases				
Malays				
Residency	All	Urban	Rural	<i>p</i> value
Any difficulty with distance vision	63.6	52.8	74.4	< 0.0001*
Any difficulty with near vision	54.8	56.8	52.8	0.53
Cataract	37.6	48.8	26.4	< 0.0001*
Glaucoma	6.0	10.4	1.6	< 0.0001*
Macular degeneration	6.0	7.2	4.8	< 0.0001*
Chinese				
Residency	All	Urban	Rural	<i>p</i> value
Any difficulty with distance vision	19.2	18.4	20.0	0.75
Any difficulty with near vision	32.4	40.0	24.8	0.01*
Cataract	15.6	17.6	13.6	0.67
Glaucoma	1.6	1.6	1.6	0.36
Macular degeneration	0.4	0.8	0.0	0.29
Self-reported prevalence for eye care utilisation & eye/health insurance coverage				
Malay				
Residency	All	Urban	Rural	<i>pP</i> values
Reason did not visit eye doctor				

Cost/insurance	6.0	3.2	8.8	< 0.001*
Do not know eye doctor	6.0	7.2	4.8	
Transportation	8.8	2.4	15.2	
No reason to go	46.8	42.4	51.2	
Have not thought of it	4.4	6.4	2.4	
Other	28.0	38.4	17.6	
Eye insurance				
Yes	12.0	17.6	6.4	0.02*
No	84.0	78.4	89.6	
Not sure	4.0	4.0	4.0	
Chinese				
Residency	All	Urban	Rural	<i>p</i> value
Reason did not visit eye doctor				
Cost/insurance	8.4	7.9	8.9	0.19
Do not know eye doctor	5.0	5.0	5.0	
Transportation	11.4	9.9	12.9	
No reason to go	40.1	38.6	41.6	
Have not thought of it	28.2	26.7	29.7	
Other	6.9	11.9	2.0	
Insurance coverage				
Yes	37.6	47.2	28.0	0.01*
No	51.2	41.6	60.8	
Not sure	11.2	11.2	11.2	

Figure 1 shows the last time urban and rural Malay participants visited an eye care provider. Forty-four percent of urban Malays had visited their eye care provider within the last 12 months, compared with only 12.8% of rural Malays. Overall, 62.4%

of Malay participants visited their eye care provider at some point of their life. Among the rural Malays, 51.2% never visited an eye care provider, compared with 24.0% of urban Malays.

Figure 2 shows the last time these participants underwent a dilated eye exam. Thirty-two percent of urban Malays had their dilated eye exam in the past 12 months, compared with 13.6%

of rural Malays. Sixty-percent of rural Malays and 48.0% of urban Malays reported that they had never had a dilated eye exam.

FIGURE 1. Self-reported prevalence (%) of last time visit to an eye care provider by Malays residing in urban and rural areas ($p < 0.001$)

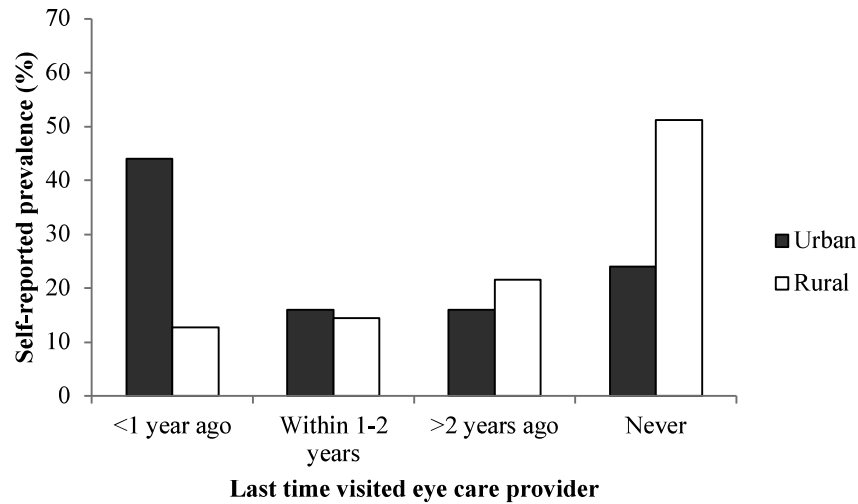
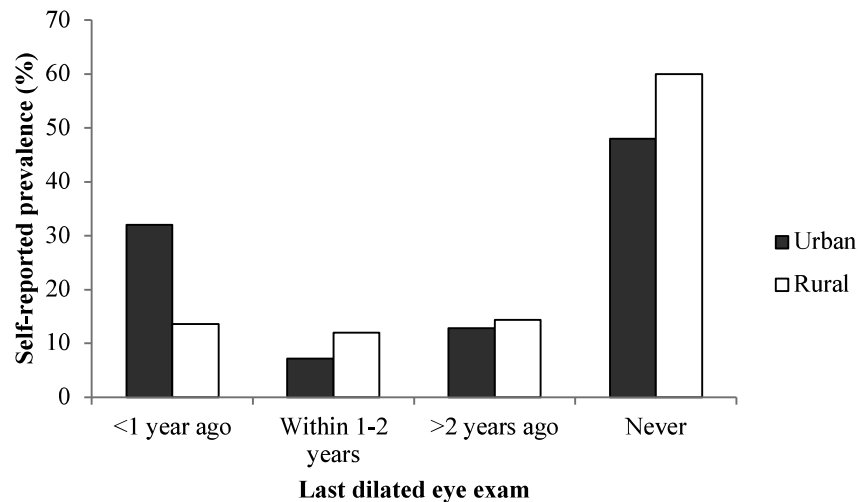


FIGURE 2. Self-reported prevalence (%) of last dilated eye exam of Malays residing in urban and rural areas ($p = 0.006$)



The lower section of Table 1 presents reasons the Malay & Chinese participants gave why they did not visit an eye doctor in the last 12 months. Rural Malays reported that they had no reason to go (51.2%), transportation (4.8%) and cost/insurance (8.8%) as the main reasons. Urban Malays reported the same reasons but with statistically lower percentages (42.4%, 2.4% and 3.2%, respectively). Overall, only 12.0% of Malay participants were covered by health insurance, with urban Malays having the higher percentage (17.6%) than rural Malays (6.4%). Rural Chinese

reported that they had no reason to go (41.6%), transportation (12.9%) and cost/insurance (8.9%) as the main reasons. Urban Chinese reported the same reasons with similar percentages (38.6%, 9.9% and 7.9%, respectively). Overall, 37.6% of Chinese participants were covered by health insurance, with urban Chinese having the higher percentage (47.2%) than rural Chinese (28.0%).

Figure 3 shows the last time urban and rural Chinese participants visited an eye care provider. Similar percentages of urban and rural Chinese had visited an eye care provider within

the last 12 months (21.6% and 16.8%, respectively). Overall, 74.4% of Chinese participants visited their eye care provider at some point of their lives (versus 62.4% of Malays). Similar percentages of urban and rural Chinese never visited and eye care provider (23.2% and 28.0%, respectively). Overall, there is no significant difference in the timing of eye care service utilisation between urban and rural Chinese ($p = 0.86$)

Figure 4 shows the last time the Chinese participants underwent a dilated eye exam. Compared with Malay participants, lower percentages of urban and rural Chinese reported having a dilated eye exam within the past 12 months (urban Chinese: 15.2%; urban Malay: 32%; rural Chinese: 8.0%; rural Malays: 13.6%). Eighty-percent of rural Chinese and 73.6% of urban Chinese reported that they had never had a dilated eye exam (compared with 48% for urban Malays and 60% for rural Malays).

FIGURE 3. Self-reported prevalence (%) of last time visit to an eye care provider by Chinese residing in urban and rural areas ($p = 0.86$)

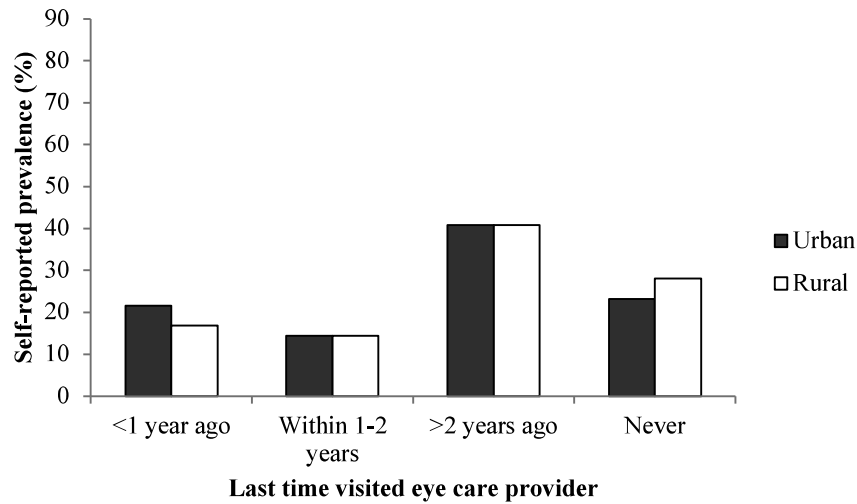
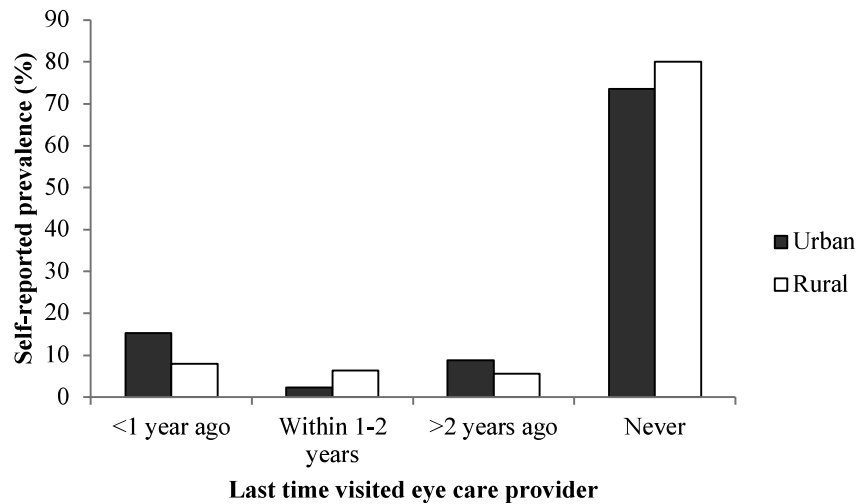


FIGURE 4. Self-reported prevalence (%) of last dilated eye exam of Chinese residing in urban and rural areas ($p = 0.17$)



DISCUSSION

This study examined the self-reported prevalence of visual difficulties, eye diseases and utilisation

of eye care services among a sample of Malay and Chinese aged 50 years and older residing in urban and rural areas. Our results show that generally, elderly Malays living in urban areas have higher

prevalence of self-reported eye diseases, compared to elderly Malays living in rural areas. This appears to contradict the Malaysia National Eye Survey conducted in 1996 findings that reported a slightly higher prevalence of visual impairment in rural (2.9%) than in urban areas (2.5%). However, in the Malaysia National Eye Survey, VA was used as one of the indicators of visual function status while in this study, VA was not measured and visual clarity was only based on subjects' self-report of their ability to recognize a face across the street. Thus, this study may have underestimated the prevalence of visual impairment. Indeed, one has to be cautious to draw conclusions that living in urban areas increases the chances of a person having eye problem. Indeed, other studies have shown that disease-specific prevalence are higher in rural population¹¹ than in urban population¹². It could be that elderly Malays living in rural areas in the present study reported lower prevalence because they are more than twice as likely not to visit an eye care provider, compared with elderly Malays living in urban areas. There could be more elderly rural Malays with eye diseases who may not experience any eye symptoms, hence do not visit any eye care provider. Almost a quarter (24%) of rural elderly Malays did not have an eye exam for the past 12 months when this study was conducted because of cost and transportation factors and half of them (51.2%) thought there was no reason to have one. It is known that most visual functions do not deviate outside what is considered as

"normal limits", in elderly healthy adults, as is the case for visual acuity that is still better than 6/6 at more than 75 years of age¹³. However, the probability of ocular pathology incidence increases with advancing age¹⁴. A lower awareness on deteriorating vision that are not due to natural ageing process could cause the elderly, especially those living in rural areas, to not seek the necessary help and treatment. Hence, directed actions need to be taken by relevant bodies to ensure that those living in rural areas have adequate access to an eye care provider and to increase their awareness to seek regular eye examinations even when they think that they do not have to.

Our results also show that Chinese residing in urban and rural areas reported similar percentages in visual difficulty and eye diseases (except for near vision difficulty), as shown in Table 1. Amongst urban and rural Chinese, similar percentages of them had visited an eye care provider within the questionnaire's timeline, which may explain why urban and rural Chinese are similarly aware of their eye conditions. As a whole, around a quarter of Chinese participants (24%) had never visited an eye care provider, which is lower compared with Malay participants (37.6%). The attitude of not paying attention to eye health care services provided is one of the reasons that causes the increase of prevalence of blindness among adults¹⁵. Changes in this attitude could enhance early detection of ocular pathology.

TABLE 2. Comparison of prevalence of cataract, glaucoma and macular degeneration of various studies with different sources of data

Source of data	Self-report	Register	Community based	Hospital
Condition	Current study (overall, n = 500)	Reddy et al., (2008) UMMC [†]	(Reddy, Rampal, & Nurulaini, (2004) Sepang	Thevi et al., (2012) Temerloh
Cataract	26.6	32.9	20.1	22.84
Glaucoma	3.8	23.4	4.4	2.77
Macular degeneration	3.2	-	-	0.27
Diabetic retinopathy	-	9.6	1.3	7.21

[†]University of Malaya Medical Centre, Kuala Lumpur

When we compared our results with recent studies of eye disease prevalence in selected location in

Malaysia, the prevalence of self-reported eye diseases is not too dissimilar from studies with

data obtained from direct medical findings (see Table 2). Note that the figures from Reddy et al¹² study are always higher than other studies as the study was done in a referral centre.

Limitations of the study

The BFRSS *Vision Impairment and Access to Eye Care* module consists of a series of questions that covers limited number of eye diseases. Diabetic retinopathy, a commonly reported eye disease in prevalence study amongst Malaysians^{7,11,12,16} is not included. Perhaps in a future version of the module, diabetic retinopathy, among others, may be included as part of the questionnaire.

Self-reported prevalence visual difficulties and eye diseases may not capture the real prevalence obtained from prospective or retrospective (i.e. medical records) methods. The BFRSS *Vision Impairment and Access to Eye Care* module have been used extensively in the United States as a tool to evaluate population-based estimates of health status and eye care utilisation. A recent study reported that there is a considerable agreement between self-reported eye diseases (using BFRSS *Vision Impairment and Access to Eye Care* module) and medical records¹⁷, although the same study also found that self-report tended to overestimate the number of patients who visited an eye care provider in the previous year.

ACKNOWLEDGEMENTS

We would like to thank all participants and personnel who were involved in this project.

Conflict of interest

None

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