

The Impact of Knowledge and Attitudes on Access to Eye-Care Services in Cambodia

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Purpose: To investigate how knowledge and attitudes influence the access to eye-care services in Takeo Province, Cambodia.

Design: A cross-sectional survey (n=600).

Methods: 30 villages were randomly selected. Groups included: >50 years, 30–49 years, and parents with children <5 years. A newly developed Knowledge, Attitude and Practice in Eye Health (KAP-EH) questionnaire about knowledge and treatment of eye diseases, practices and attitudes to accessing services was used to interview respondents. Descriptive analysis, including Chi square and logistic regression tested for associations with sub-groups of gender, age group, education and self-reported type of disability.

Results: The proportion of respondents who reported having knowledge of specific eye conditions ranged from 97% for eye injury, to 8% for diabetic eye disease. While 509 (85%) people reported knowledge of cataract, 47% did not know how cataract was treated and only 19% listed surgery. The older group (66.5%) were least informed about cataract (p=0.001) compared to other groups, and were least likely to believe that some blindness could be prevented (p < 0.001). Women (55%) were more likely than men (46%) (p=0.003) to report that a child with blindness could attend school, as did people without a disability compared to those with a disability (58% vs 34%) (p < 0.001).

Conclusions: The knowledge about cataract and refractive error and what to do to resolve the problems was low among this population and this study suggests that poor knowledge of eye diseases might contribute to the occurrence of un-operated cataract and uncorrected refractive error.

Key Words: barriers, knowledge, attitudes, eye-care practices, Cambodia

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Avoidable blindness remains a major cause of morbidity, and worldwide millions of people still do not access eye-care services.^{1,2} Overcoming the barriers that hinder peoples' access to eye-care is essential to avert the burden of avoidable blindness.³ Cambodia is a country where adequate eye care remains limited in most rural areas.

Cambodia, as a new democratic nation with a predominantly rural population, faces many challenges, and is one of the poorest

countries in Southeast Asia.⁴ Years of conflict destroyed much of the country's health care infrastructure and decreased skilled human resources. This period also influenced people's attitudes. Some older, less-educated people remain reserved about wearing glasses because of the association with the Pol Pot regime. This theme emerged during focus group discussions conducted in Kirivong District, October 2008 and June 2011 (unpublished).

During 2007, a Rapid Assessment of Avoidable Blindness (RAAB) was undertaken throughout Cambodia by Seiha and Limburg.⁵ The RAAB provides data on the prevalence and causes of vision impairment and blindness among people 50 years or older and is an efficacious means to obtain relevant information about eye diseases relating to avoidable blindness. The RAAB is conducted in randomly sampled clusters, and eye examinations carried out at the household level.⁶ The RAAB includes a question about barriers encountered by individuals in accessing cataract surgery services.^{5,6}

Results from the 2007 Cambodian RAAB revealed the causes of presenting blindness in persons were cataract (74.7%), corneal scar (8.0%), and glaucoma (3.1%). The main reason for presenting vision impairment was uncorrected refractive error (52.8%).⁵ The prevalence of blindness in better eye (best corrected visual acuity <3/60) was 2.8% (95% confidence interval, ±0.52; 2.28–3.32), giving an estimate of 43,769 blind people in Cambodia. The barriers that hindered the seeking of eye-care services reported by respondents included "cannot afford" (28.5%), "no caretaker" (11.2%), "fear of surgery" (13%), and "being unaware of treatment" (12%), "old age, and no need" (10.7%).⁵

The World Report on Disability makes suggestions about quantifying disability and recommends the use of the World Health Organization International Classification of Function, Disability, and Health as a framework for concepts and classifications for disability.^{7,8} Donor countries are also emphasizing the inclusion of disability in all development programs.⁹ Although it was not the primary focus of the study, in this study, an attempt is made to include people with disability as a subgroup within an eye health program.

While the countrywide prevalence of vision impairment remains relatively high, the implication of these results presents a public health concern hindering Cambodia's health/economic status. In addition, studies have raised questions about the fact that although people have knowledge of appropriate treatment for eye disease, they may remain skeptical about seeking appropriate services.¹⁰ Therefore, to improve the delivery of eye-care services, a comprehensive understanding of the barriers is required.^{9–12} This study aimed to assess the knowledge, attitudes, and practices about eye health in a population-based sample of rural Cambodians.

MATERIALS AND METHODS

A Knowledge, Attitude and Practice in Eye Health (KAP-EH) structured questionnaire (Supplemental Digital Content 1;

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<http://links.lww.com/APJO/A25>) was developed using focus group discussions with monks and community leaders, people who were blind, health center, and eye hospital staff. These discussions were conducted in Kirivong District during October 2008 and June 2011 (unpublished). Questions focused on knowledge of eye diseases, attitudes to treatment, and practices.

While we recognize that there are challenges with including “disability” in a survey such as this, we followed the recommendations of the International Classification of Function, Disability, and Health.^{7,8} We defined disability as a functioning disability: seeing difficulty, hearing difficulty, physical difficulty, and learning/understanding difficulty. We allowed respondents to self-report if they had a difficulty. There were no means of verification.

The questionnaire was translated into Khmer and field tested among community people before the survey. Local health workers were trained in interviewing techniques. A supervisor from Takeo Eye Hospital monitored the quality of the recorded information during the survey and monitored the data entry process.

Using the KAP-EH questionnaire, a cross-sectional survey to recruit 600 adults was conducted in 2010, in 3 operational districts (Donkeo, Kirivong, and Bati) in Takeo Province. The survey included 3 groups with the aim to recruit 200 respondents for each group. Consistent with RAAB studies, the group of those 50 years or older is where vision loss and blindness are most prevalent.^{2,5} The 30- to 49-year age group was sampled to understand a younger age group’s perspective, and parents with children 5 years or younger to understand whether parents with young children seek early treatment for eye problems.¹¹ The methodology was adapted from the expanded program for immunization random walk method.^{13,14} Using district, commune, and village population data segmented by gender and age group, 30 clusters were randomly selected.^{13,14} The target was to interview 20 people per cluster. Starting from a randomly selected village landmark, interviewers visited 20 consecutive houses, interviewing up to 3 persons (one per age group) per household to recruit 200 people in each age group.

Associations between knowledge of eye diseases and age, education, and disability using Pearson χ^2 were conducted using SPSS software (version 19; SPSS Inc, Chicago, Ill). Multivariable analyses were undertaken to model combined effects of disability, age, and education on knowledge and practices of eye disease.

Ethics approval was obtained from the Royal Victorian Eye and Ear Hospital Human Research and Ethics Committee, the Takeo Provincial Health Department, and Takeo Eye Hospital. The study followed the tenets of the Declaration of Helsinki.

RESULTS

Demographic Information

A total of 599 of 600 individuals completed interviews; 50 years or older (50% female, 101/201), 30 to 49 years old (52% female, 104/202), and parents with children 5 years or younger (92% female, 178/196). Of the total sample, the majority were farmers (82%), and 64% were women. Gender, education disability, and household income are reported in Table 1.

Education levels varied. More men than women (24 vs 16%) ($P = 0.002$) reported they had “never been to school,” and more men than women reported completing secondary school (34% vs 22%, $P = 0.002$). Furthermore, there was a significant association between groups and education levels ($P < 0.01$): 39% of the group 50 years or older reporting “never been

to school,” 17% of the 30- to 49-year age group, and 9% for the parents’ group.

Of the total group, among the subgroup that self-reported, having a disability (57%) was higher in the age group 50 years or older compared with the other groups (Fig. 1), of whom 31% reported “never been to school.” Additionally, education level attained differed by district ($P < 0.001$); 32% of participants from Kirivong (furthest from Phnom Penh, the capital of Cambodia) had never attended school compared with 18% for Donkeo and 15% for Bati (closest to Phnom Penh). Multivariate analysis showed that the 30- to 49-year age group (odds ratio, 0.28; 95% confidence interval, 0.18–0.44) and parents’ group had lower odds (odds ratio, 0.07; 95% confidence interval, 0.14–0.38) of reporting vision impairment compared with the age group 50 years or older.

Knowledge of Eye Diseases

We defined knowledge as follows: the respondent had heard of the disease. The proportion of people who had knowledge of eye diseases was highest for eye injury (97%), red eye (95%), and cataract (94%). Smaller proportions of people knew about corneal scar (15%), age-related macular degeneration (12%), glaucoma (12%), and diabetic eye-related disease (8%) (Fig. 2).

With the exception of eye injury/foreign body, knowledge of each eye disease was significantly associated ($P \leq 0.05$) with younger groups (30–49 years and the parents’ group). Older people were less likely to have knowledge of different eye diseases compared with younger people (Fig. 3). Furthermore, the level of knowledge was lowest in Kirivong District.

Of the total, commonly reported methods to prevent eye problems were “using clean water,” 19% (163/572); “wearing safety goggles,” 16% (131); and “avoiding sharing face cloths,” 7% (58) (Fig. 4).

Almost half of all respondents (48.5%, 291) reported they did not know “how best to treat cataract,” with only 19% (110) reporting surgery as the best treatment to restore avoidable blindness. Of the total group, among those who self-reported having a disability, 18% (27/149) demonstrated knowledge of “how best to treat cataract,” and this was not found to be statistically significant.

Nearly half (47%, 236/505) of the respondents reported that they did not know how a person could become blind, whereas 26% (129/505) stated “injury to eye,” 10% (50/505) “cataract,” and 2% (12/505) “refraction-related problems.” Of those respondents selecting “other,” 34% (38/111) stated “disease,” 32% (35/111) “old age,” 3% (14/111) “dust,” 13% (14/111) “poor nutrition,” 12% (62/111) “lack of vitamin A,” and 8% (9/111) “working too hard.”

Of the respondents, when asked if some blindness could be prevented, 65% (388/597) answered “yes,” and 25% said “don’t know.” More respondents, (78%, 155/200) from Donkeo (closest to Takeo Eye Hospital) believed that some blindness could be prevented, compared with Kirivong (59%, 117/199) and Bati districts (59%, 116/198, $P < 0.001$).

Attitudes

Just over a half (52%, 310/598) reported “yes” that a child with vision impairment could attend school, whereas 43% (257) reported “no,” and 5% (31) said they “didn’t know.” Women were statistically significantly more likely than men (55% vs 46%, $P = 0.003$) to believe that a child with vision impairment could attend school. In the oldest age group, only 22% (43) believed a child with vision impairment could attend school. Respondents with a self-reported disability were less

TABLE 1. Demographic Characteristics of the Respondents by Group (n = 599)

By Group	≥50 y (n = 201)	30–49 y (n = 202)	Parents' Group (n = 196)
Gender			
Male	49.8%	48.5%	8.2%
Female	50.2%	51.5%	91.8%
Education			
Never been to school	39%	17%	9%
Primary school	52%	45%	60%
Secondary school	9%	38%	31%
Disability (self-reported)			
Seeing difficulty	34%	14%	5%
Hearing difficulty	8%	1%	1%
Physical difficulty	12%	4%	1%
Learning difficulty	1%	1%	0
Household income, US \$/mo			
No income	6%	0	0
<30	49%	53%	18%
30–70	43%	36%	62%
70–100	2%	9%	15%

likely to report that a child with vision impairment could go to school compared with those without a disability (34% vs 58%, *P* = 0.001).

Fewer respondents from the older age group believed that some blindness could be prevented compared with the 30- to 49-year age group (35% vs 75%, *P* < 0.001). People with a self-reported disability compared with those without were less likely to believe blindness could be prevented (34% vs 38%, *P* < 0.001).

Whereas 303 respondents reported that relatives and friends were the most common “source of information,” 25% of respondents (145/573) reported that the “most trusted” source of eye information was from health center staff; a further 24% (138/573) trusted radio, and 13% (73/573) trusted television.

Eye Health Practices

Whereas 56% of the respondents (317/570) reported having had a “general health check” when “sick,” when asked if they had their “eyes checked,” 77% (459/599) reported “never having their eyes checked.” Of those respondents living in Kirivong

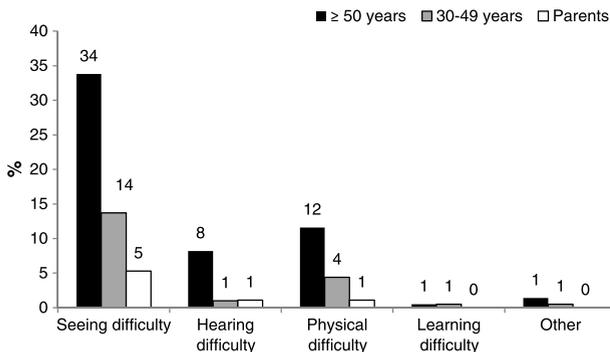


FIGURE 1. Respondents' self-reported type of disability by group (by %) (n = 599).

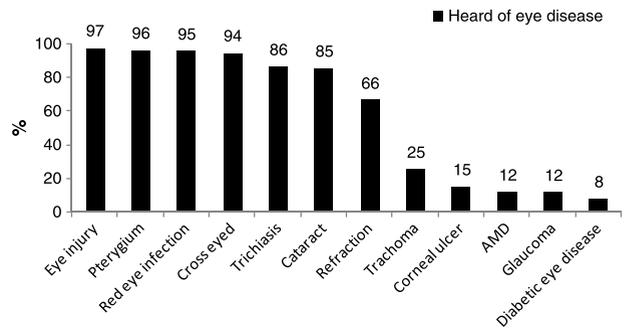


FIGURE 2. Proportion of respondents (by %) who have heard of the following eye problems (n = 599).

District, 94% reported they had never had their eyes checked, followed by 59% in Donkeo and 78% in Bati.

Among all respondents, 62% (371/599) reported they had an eye problem in the past, with a higher proportion reported by males compared with females (69% vs 58%, *P* = 0.013). Of those who reported having had an eye problem, 38% (142/372) went for an eye examination, with women more likely than men to seek treatment for their eye problem (46% vs 26%, *P* < 0.001). Respondents who reported having a disability were less likely to seek treatment compared with those respondents without a disability (83% vs 95%, *P* = 0.009).

More men than women (35% vs 10%, *P* < 0.001) reported wearing glasses, with the majority (68%, 59/94) of glasses being purchased from the market, 26% (24) from an optical shop, 16% (15) given from a relative, and 10% (9) from Takeo Eye Hospital.

Of the total respondents, 2% (11/596) reported having cataracts, and 7 people had received surgery at Takeo Eye Hospital. Knowledge of treatment for cataract was low, and only 19% reported surgery as the best treatment. A proportion of respondents (12%) reported using traditional medicine as a treatment for cataract, whereas 9% (54) of respondents said they “used the steam from boiling rice to fix the eye.”

Two-thirds of respondents (68%, 404/594) reported they could not travel to the eye hospital unaccompanied. Most of the respondents were older, with 82% (164/201) from the age group 50 years or older (*P* < 0.001). Women compared with men, 74% (284/385) versus 58% (124/214), *P* < 0.001, were more likely to report they could not travel alone. Persons with a self-reported disability also reported being unable to travel to

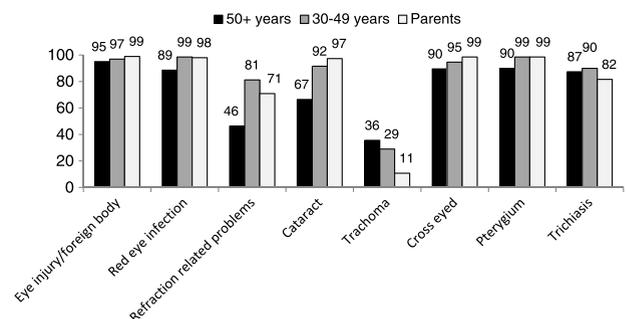


FIGURE 3. Proportion of respondents by group (by %) who have heard of the following eye problems (n = 599).

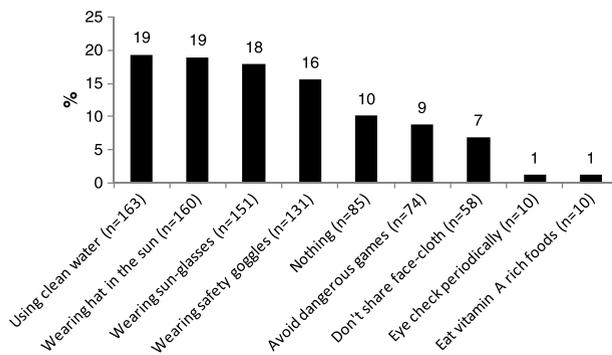


FIGURE 4. Proportion of participants (by %) who knew preventive measures for protecting their eyes.

the hospital alone more frequently as compared with those with no disability (81% vs 64%, $P < 0.001$).

Respondents were also asked if the cost of transport to the Takeo Eye Hospital was expensive in comparison to their income. A total of 34 respondents reported they did not know. Of those who responded, 6% (33/595) of respondents reported that they could not afford the cost of transportation, and of the remainder, 155 reported the cost of transport was expensive but affordable, and 373 said it was not expensive ($P < 0.001$).

DISCUSSION

This Cambodian study in Takeo Province on KAP-EH revealed a number of gaps in peoples' knowledge and best treatment of eye diseases, such as cataract easily treated by surgery to restore avoidable blindness and refractive error through the provision of spectacles.

This KAP-EH, covering a wider age span, complements the RAAB survey (which includes only people 50 years or older in whom cataract is more prevalent) and provided understanding about barriers to the uptake of eye-care services. The RAAB includes only 1 question about barriers to the uptake of cataract services.^{5,6} Although cataract remains the predominant cause of avoidable blindness,^{1,2,5} and 85% of respondents claimed to have knowledge of cataract, only 19% recognized surgery as the best treatment for avoidable blindness. Further health promotion is needed to encourage people with blurred vision to seek treatment from eye-care services.

Avoidable and correctable blindness is likely to remain a problem until effective campaigns are initiated to address the many barriers to uptake of eye-care services. Increased knowledge of eye diseases was shown to be higher in younger people than older people for all conditions except trachoma, possibly reflecting generational differences in exposure to trachoma. However, logistic regression analysis using age, education, and disability as predictors indicated that older age and limited education were the 2 key influences of limited knowledge of eye diseases. Age had the strongest association with eye-care knowledge, and the elderly had less knowledge about how best to treat eye problems.

Respondents' reliance on friends and family for eye health information rather than on informed sources such as health professionals may explain these knowledge and practice deficits. Whereas 56% of people reported having had a general health check when "sick," 3 quarters (77%) had "never had an eye examination," and 17% reported having only an "eye check when

their eyes were infected." This suggests that family and friends whom respondents rely on for knowledge lack such knowledge themselves. Many people are therefore misinformed about eye health information, highlighting the urgency of a community-based health promotion intervention across adult populations. This should include the use of radio because this was also reported as a trustworthy source.

Among the respondents, 12% (72/591) reported using traditional medicine, and 9% (54/591) reported "using the steam from boiling rice to fix the eye." A recent Cambodia medical anthropology study found that people reported less logistical obstacles when a person wanted to visit a "kru" (traditional healer) compared with going to a public health facility. The authors termed this as "there is no mental distance to be overcome" when people wish to travel to a traditional healer.¹⁵

Gender differences varied from other research.^{10,11,12,17-19} In the Bhaktapur eye study conducted in Nepal, India, Bhutan, and Myanmar, more males than females went for treatment of traumatic corneal abrasions. A gender imbalance is evident in the Takeo Eye Hospital medical records (unpublished information), which in contrast shows that more women than men present as patients,²⁰ and this could be explained by the higher proportion of female farmers (64%) reported from this KAP-EH survey. Since corneal scarring was identified as the second leading cause of blindness in the 2007 RAAB,⁵ the low knowledge of corneal ulcer (15%) highlights the need for tailored health information messages. More research is needed to better understand the reasons for the gender difference. Knowledge of treatment for cataract, while being low at about 19%, was the same among men and women. The prevalence of cataract is highest in the older group as evident in the 2007 RAAB. In this age group, we found that there were more barriers related to knowledge, attitude, and practice, illustrating the magnitude of this problem and the challenges of motivating this group to seek eye-care services. A similar pattern has been observed in South India and Timor-Leste, where lack of awareness and remoteness were barriers to seeking eye-care treatment.^{11,21}

Access to eye-care services is now recognized as a problem for people with a disability. Adoption of the United National Convention on the Rights of People With Disabilities in 2008 emphasized the obligation of governments and nongovernment organizations that provide the delivery of health service to be inclusive of all people. Questions on disability are not routinely used in population surveys, and thus literature lacks information about issues of disability for program planning.²⁰⁻²⁴ Although this study did not focus on people with a disability or its prevalence, it was deemed essential to include "disability" to demonstrate the importance of disability inclusive practices for all people as promoted by the World Health Organization and the Australian Agency for International Development.^{8,9} One in 4 people reported having at least 1 disability, and seeing difficulty was the predominant disability reported. Although this was based on self-reported disability, with no verification of disability, this is the first of its kind incorporated in a KAP-EH study and offers an example for future health studies.

Knowledge about cataract and refractive error and what to do to resolve the problems was low among this population sample, and this study suggests that poor knowledge of eye diseases might contribute to the high occurrence of unoperated cataract and uncorrected refractive error. Public awareness messages are required to provide eye-care information that can inform specific groups in the population who are presently not able to access eye health services because of the lack of knowledge. Specifically, the message should be targeted to inform the elderly, those with other disabilities, and those who have received little or no schooling.

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