

Knowledge Attitude Practice Study Regarding Age Related Macular Degeneration among Diagnosed Patients at A Tertiary Eye Hospital in Central Nepal

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ABSTRACT

Background: Age Related Macular degeneration (ARMD) is among the five leading causes of blindness worldwide and among the top causes of retinal blindness. Patients should be made aware of the implications of the disease.

Methods: A novel Knowledge Attitude Practice (KAP) questionnaire with 25 questions was formulated in understandable language. 50 patients diagnosed with any stage ARMD were administered the questionnaire verbally with the aid of skilled ophthalmic personnel and the answers recorded on questionnaire sheets.

Results: Socio-demographic parameters of patients enrolled in the study included male: female ratio of 24:26, a majority from Chitwan district (88%). Most patients were illiterate (62%) and farmer by profession. 60% had no prior awareness of the disease. 76% had good knowledge of disease and 56% had a positive attitude towards the disease and 70% had good practice regarding the disease. However, there was no significant association between the level of knowledge attitude or practice with gender, area of residence, occupation or educational status.

Conclusion: There is a gap in awareness regarding ARMD in the elderly population, even in patients suffering from the disease. Mass awareness programs are necessary targeting the community level and the country at large.

Keywords: age related macular degeneration, questionnaire, retinal blindness.

INTRODUCTION

Globally, life expectancy has increased by more than 6 years between 2000 and 2019 - from 66.8 years to 73.4 years.¹ Nepal is no exception as the life expectancy has increased from 65.3 in 2000 AD to 70.0 in 2021.² Separate meta-analyses on causes of blindness worldwide had projected that the population with moderate to severe visual loss due to ARMD would be 8.8 million (0.8 million to 32.1 million) in 2020 and this number is prospectively to rise to an expected 288 million in 2040 (205-399 million).³⁻⁵ In Nepal, a population-based study in a representative district, Bhaktapur, revealed presence of ARMD in 35.43% of the population over 60 years of age.⁶ A previous study done in 2011 in a tertiary Eye Hospital in Nepal had established that Dry ARMD was more common in ages 45-65 years and the wet variant was more common in >65 years of age.⁷ This shows that the prevalence is increasing. Global studies

state no variation between prevalence patterns in Asians and Africans.³⁻⁵ However, this irreversible disease has not received due public health importance in the country. This hospital-based study was done to evaluate the knowledge and practice of patients recently diagnosed with the disease at a tertiary eye hospital in central Nepal. This is intended to assess the unmet need for public health programs addressing the disease at community level in Nepal.

METHODS

This study is based on a 25-point novel questionnaire titrated to the expected level of understanding of the intended population. The formulated questionnaire had 10 questions based on Knowledge, 10 questions based on attitude and 5 questions based on practice. Knowledge questions were answered in “yes”/ “no” format and there was no gap left for ambiguity by the “don’t know”. A “don't know” response was not

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included as an option as research has found that there are a variety of reasons an individual might select the midpoint including item characteristics (e.g., items are sensitive, multidimensional or unclear) and individual respondent characteristics (e.g., individual ambivalence or anxiety about responding)⁶ Pre-testing was done on a cohort of patients attending the hospital which was used in validating the questionnaire but these responses were not included in the study. Sample size calculation for the study was done as follows: A population-based study in a representative district, Bhaktapur, revealed presence of ARMD in 35.43% of the population over 60 years

$$\text{Sample size}(n) = \frac{z^2 pq}{e^2} = \frac{1.96^2 0.3543 * 0.6457}{0.10^2} = 45$$

of age. As study conducted in Bhaktapur, revealed presence of ARMD in 35.43%.

$p=0.3543$, $q=0.6457$, $e=0.10$, Z-score value at given level of significance, its value at 95% CI is 1.96

Then using formula:

Adding 10% non-response error, optimal sample size is $45+10\%$ of $45 = 50$.

Hence, 50 treatment-naïve patients attending the department of uveitis and vitreoretinal services of Bharatpur Eye Hospital were enrolled in the study. Basic demographic parameters were noted including name, age, gender, address in terms of district of residence. In addition, literacy status and occupation were recorded. As the study was non-interventional and questionnaire based, verbal consent was obtained from each study participant. Auxiliary eyecare personnel were given the responsibility of data collection whereby they questioned each participant in understandable local language regarding the questions present in the questionnaire.

Age related Macular degeneration is not a disease that has been given due public health importance. Hence extremely basic questions related to the eye, aging and vision were placed in the questionnaire. These questions included knowledge whether age was a risk for poor vision, or retinal disease. Respondents were also asked of lifestyle factors that placed them at increased risk for development of age-related macular degeneration like smoking. Patients were

further asked what they had understood regarding the prognosis of the disease, considering that it is a lifelong disease that can only be controlled and limits even the ability to identify faces. Patients' attitudes were tested by questions on when they should go for an eye checkup and whether a routine retinal evaluation was considered necessary besides that for cataract. They were also asked whether they should self-monitor their vision, ask for the help of caregivers and help in spreading awareness about the disease. Patients were also questioned whether lifestyle changes were thought to prolong the visual rehabilitation. In terms of practice, patients were inquired whether they themselves had been cognizant enough to take elderly family members for retinal evaluation and spread awareness for the need of regular checkup. Information was also sought regarding their interest in spreading awareness regarding the disease at the community level.

RESULTS

50 treatment-naïve patients attending the Retina clinic of Bharatpur Eye Hospital and diagnosed with any form of Age-related Macular Degeneration were included in the study. There were 26 males and 24 females involved (52% vs. 48%). 88% patients were from Chitwan district followed by neighboring districts of Nawalpur (6%) and 1 patient each from Dhading, Tanahun and India. The literacy level is depicted in Fig.1 where most (62%) were illiterate. In terms of occupation, 40% (20) of patients were

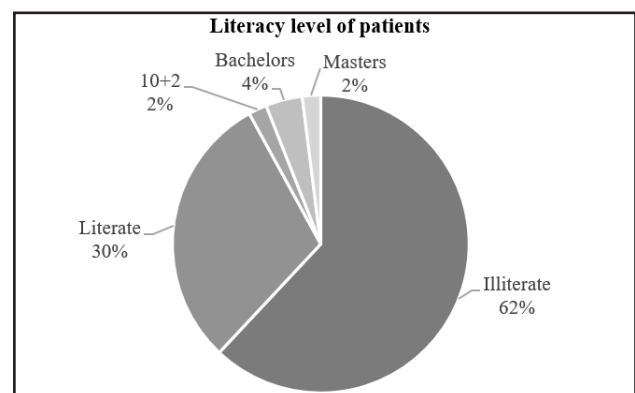


Figure 1. Literacy level of patients. (n=50)

previously aware of the condition of which most (65%) was through family members as some

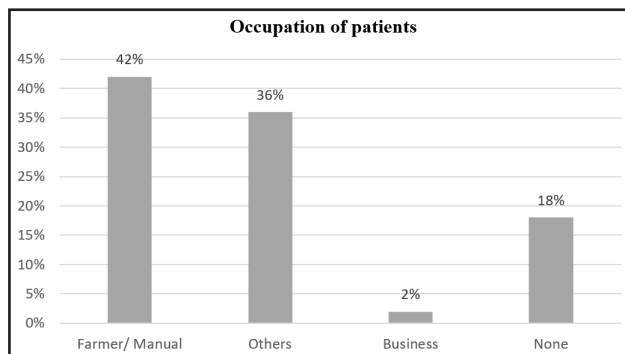


Figure 2. Occupation of patients. (n=50)

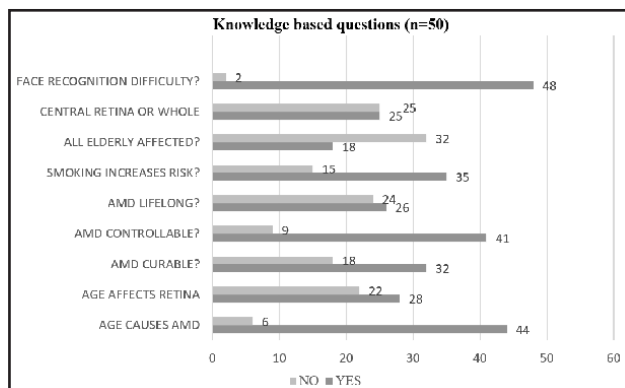


Figure 3. Knowledge based questions. (n=50)

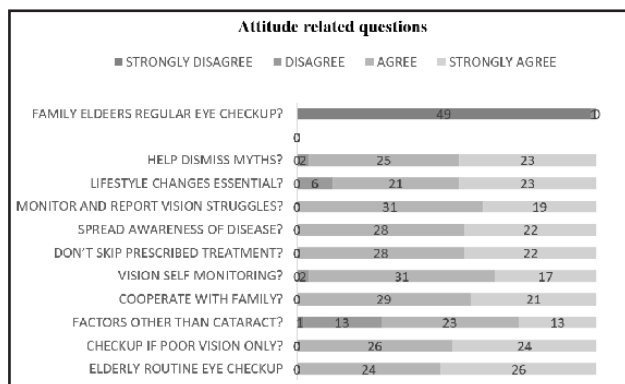


Figure 4. Attitude related questions. (n=50)

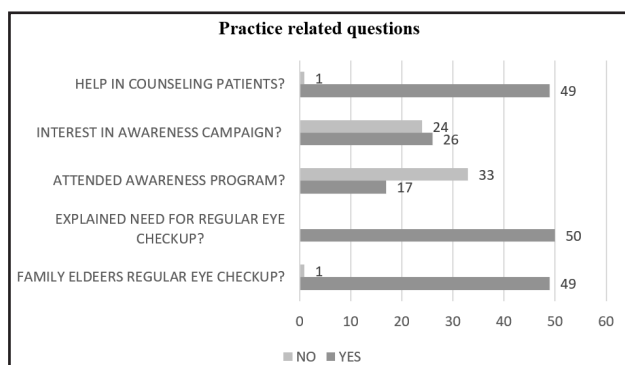


Figure 5. Practice related questions. (n=50)

family members had suffered from the disease. The remaining (35%) had learnt of the disease from

Table 1. Association between level of knowledge with selected sociodemographic variables. (n=50)

Characteristic	Level of Knowledge		p-value ²
	Poor n(%)	Good n(%)	
Sex			
Female	7 (58%)	17 (45%)	0.4
Male	5 (42%)	21 (55%)	
District			
Chitwan	11 (92%)	33 (87%)	0.6
Nawalpur	0 (0%)	3 (7.9%)	
Dhading	1 (8.3%)	0 (0%)	
Tanahun	0 (0%)	1 (2.6%)	
India	0 (0%)	1 (2.6%)	
Education			
Illiterate	9 (75%)	22 (58%)	>0.9
Literate	3 (25%)	12 (32%)	
10+2	0 (0%)	1 (2.6%)	
Bachelors	0 (0%)	2 (5.3%)	
Masters	0 (0%)	1 (2.6%)	
Occupation			
Farmer/manual	9 (75%)	12 (32%)	0.13
None	1 (8.3%)	8 (21%)	
Business	0 (0%)	1 (2.6%)	
Others	2 (17%)	16 (42%)	
Retired army	0 (0%)	1 (2.6%)	
Awareness			
Yes	3 (25%)	17 (45%)	0.3
No	9 (75%)	21 (55%)	
¹ n (%)			
² Fisher's exact test; Pearson's Chi-squared test			

awareness campaigns or eye camps.

There was no single factor in terms of gender, area of residence or occupation that either affected the knowledge, attitude or practice level in the patients questioned (Table 1, 2 and 3).

DISCUSSION

KAP studies are conducted on the basis that knowledge is the foundation of behavioral change and attitudes are the driving forces for these transformations.⁸ The theory underlying KAP and consequent behavioral changes state that behavioral changes occur in 3 consecutive stages: acquiring knowledge, changing attitudes and forming relevant practices.^{9,10} Previous KAP studies in different sites around the world have demonstrated deficits in awareness regarding the

Table 2. Association between level of attitude with selected sociodemographic variables. (n=50)			
Characteristics	Level of attitude		p-value ²
	Negative n(%)	Positive n(%)	
Sex			
Female	12 (55%)	12 (43%)	0.4
Male	10 (45%)	16 (57%)	
District			
Chitwan	19 (86%)	25 (89%)	0.7
Nawalpur	1 (4.5%)	2 (7.1%)	
Dhading	1 (4.5%)	0 (0%)	
Tanahun	1 (4.5%)	0 (0%)	
India	0 (0%)	1 (3.6%)	
Education			
Illiterate	6 (27%)	9 (32%)	0.5
Literate	16 (73%)	15 (54%)	
10+2	0 (0%)	2 (7.1%)	
Bachelors	0 (0%)	1 (3.6%)	
Masters	0 (0%)	1 (3.6%)	
Occupation			
Farmer/manual	7 (32%)	14 (50%)	0.11
None	7 (32%)	2 (7.1%)	
Business	0 (0%)	1 (3.6%)	
Others	8 (36%)	10 (36%)	
Retired army	0 (0%)	1 (3.6%)	
Awareness			
Yes	8 (36%)	12 (43%)	0.6
No	14 (64%)	16 (57%)	
¹ n (%)			
² Fisher's exact test; Pearson's Chi-squared test			

disease. A large systematic review and meta-analysis of the prevalence of ARMD found a higher prevalence of early and any age-related macular degeneration in Europeans than in Asians (early: 11.2% vs 6.8%, Bayes factor 3.9; any: 12.3% vs 7.4%, Bayes factor 4.3), and early, late, and any age-related macular degeneration to be more prevalent in Europeans than in Africans (early: 11.2% vs 7.1%, Bayes factor 12.2; late: 0.5% vs 0.3%, 3.7; any: 12.3% vs 7.5%, 31.3).⁵ Recent studies state that the prevalence in Asians is not much lower than as previously referred to.¹¹ However, even in the developed countries in Europe and North America, the knowledge about ARMD as a leading cause of blindness was found to be poor-the majority of respondents (70%) were not at all familiar with

Table 3. Association between level of Practice with selected sociodemographic variables. (n=50)			
Characteristics	Level of Practice		p-value ²
	Poor n(%)	Good n(%)	
Sex			
Female	10 (67%)	14 (40%)	0.084
Male	5 (33%)	21 (60%)	
District			
Chitwan	13 (87%)	31 (89%)	0.15
Nawalpur	0 (0%)	3 (8.6%)	
Dhading	1 (6.7%)	0 (0%)	
Tanahun	1 (6.7%)	0 (0%)	
India	0 (0%)	1 (2.9%)	
Education			
Illiterate	4 (27%)	11 (31%)	0.8
Literate	11 (73%)	20 (57%)	
10+2	0 (0%)	2 (5.7%)	
Bachelors	0 (0%)	1 (2.9%)	
Masters	0 (0%)	1 (2.9%)	
Occupation			
Farmer/manual	4 (27%)	17 (49%)	0.3
None	5 (33%)	4 (11%)	
Business	0 (0%)	1 (2.9%)	
Others	6 (40%)	12 (34%)	
Retired army	0 (0%)	1 (2.9%)	
Awareness			
Yes	4 (27%)	16 (46%)	0.2
No	11 (73%)	19 (54%)	
¹ n (%)			
² Fisher's exact test; Pearson's Chi-squared test			

Table 4. Association between level of knowledge with level of attitude and level of practice. (n=50)			
Characteristics	Level of Knowledge		p-value ²
	Poor n (%)	Good n (%)	
Level of attitude			
Negative	8 (67%)	14 (37%)	0.07
Positive	4 (33%)	24 (63%)	
Level of Practice			
Poor	3 (25%)	12 (32%)	>0.9
Good	9 (75%)	26 (68%)	
¹ n (%)			
² Pearson's Chi-squared test; Fisher's exact test			

ARMD. Only 2% of participants knew that ARMD is the leading cause of severe vision loss in adults 50 years of age or older.¹² In Beijing China, the awareness of ARMD as a leading cause of blindness, as tested

in a representative population was only 6.8%, which was poor.¹³

This type of study has not been done in Nepal on Age Related Macular Degeneration (ARMD) and in the hospital setup hence it is believed to be a novel approach especially advocating for a counseling system not only in the hospital but also in the community and establishing the need for elderly to seek ophthalmic consultation as a routine practice. Previous studies have mainly been clinical where patterns of ARMD have been studied as well as quality of life in patients living with ARMD.¹⁴⁻¹⁵. A previous landmark study done in the Bhaktapur district had studied about the population awareness in the community, however, this was in the capital city, whereas the circumstances differ in the present city.¹⁶ Age related Macular degeneration is a well-recognized disease of the elderly population. As this is the population with maximum cognitive decline, it is reasonable that they will be unable to interpret the implications of this visually incapacitating disease. This also entails a great deal of physical, financial as well as emotional liability on the part of their families and caretakers. Decrease in physical strength associated with a decline in visual function can be mentally and emotionally taxing. It is of utmost importance that the patients affected are counseled delicately and in a manner that they understand, regarding the prognosis of their disease. Hence, it is a matter of quality care to understand the existing level of knowledge regarding the disease and also what the patient and primary caretaker understands from interaction with the treating eyecare professional. The older generation should receive care with compassion so that it doesn't add to the emotional trauma of the physical limitations already faced by the aging patient. Statistical analysis showed that gender did not have specific effect on the level of knowledge in the tested population ($P=0.4$). Even though educational level was associated with better knowledge of the disease overall, this association was not statistically significant ($p>0.9$). there was also no significant association in relation to occupation ($p=0.13$). Patients who had exposure to previous

educational/awareness programs on the disease had better knowledge, attitude and practice related to the disease but this was not statistically significant ($p=0.3$). This study showed no association of correct attitude or practice toward the disease with gender, area of residence, educational status or occupation.

The necessity of spreading awareness about the vision limiting effects is on the doctor as well as public health personnel. In Nepal, as per the Bhaktapur Eye study, ARMD (28.3%) was the most common vitreo-retinal disorder amongst people aged 40 years and older. This narrowed down to 35.3% in people aged 60 years and older. In the same study, taking a sample of 1000 subjects above the age of 60 years, the awareness about ARMD had been assessed, which showed only 7.6 % of subjects were aware of AMD as a vision limiting age related eye disease. 7.5 and 7.4 % were aware about its aggravation with smoking and sunlight exposure. Older age groups, females, illiterates, farmers, and those with poor visual acuity were less aware of these blinding diseases.^{6, 16} In this study, 70% were aware that smoking increased the risk for worsening AMD and 64% were aware that sunlight exposure was a risk. These statistics are important in the light that besides eye care personnel, the patients and their families have been found to be the primary source of community health awareness on the disease. The above study is an attempt to quantify the existing knowledge in patients attending hospitals for eye care themselves. It is our understanding that these patients are the strongest bearers of health education as they themselves have suffered from the consequences of the disease.

Limitations

Large scale community-based screening of awareness would give a better idea of the population awareness of ARMD. This strategy would help in planning a focused program to spread awareness of the disease

CONCLUSIONS

ARMD is a condition on the rise as a result of increased life expectancy. The general population must be made aware of the visually debilitating effects of the disease so that timely intervention can

be done. This will decrease the disease related burden on the family, community and country as a whole.

Recommendations

Public awareness campaigns must be integrated with other eye health related programs to prevent avoidable blindness. As in initial studies done in the community in Bhaktapur also, we recommend community-based eye health education programs targeted at raising

awareness of these diseases and preventive measures

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