Awareness and Knowledge of Mountainous People on Major Blinding Eye Disease in Nepal

*1 Gurung KB, 2Rai NK, 3Pandey S, 4Gurung R, 5Ruit S

1 Outreach Program Coordinator, Tilganga Institute of Ophthalmology, Kathmandu, Nepal
2 Tilganga Institute of Ophthalmology Nepal
3 KIST Medical College and Teaching Hospital, Nepal

Abstract
Background
The blindness and visual impairment are public health problems in the mountainous region of Nepal. By assessing awareness level of people on eye disease is essential for reduction blindness and visual impairment in those regions.

Material and Method
The cross-sectional study was carried out with the objective of determining the awareness and knowledge level on major blinding diseases in mountainous people of Nepal. Population based cluster random sampling method was applied to select the study populations from two mountainous districts. The study population and clusters were selected based on probability proportional to size sampling procedure. A trained senior ophthalmic assistant conducted an interview of the respondent of 18 years and above at house to house visit by using a semi-structured questionnaires.

Result
Of the 1,668 respondents, 59% of respondent were aware of cataract, 55% on ocular trauma and 18% on glaucoma. The respondent below 50 years was more aware than its counterpart the respondent from the age of 50 years and over. A total of 91.1% respondent reported their knowledge about vision loss due to cataract, 88.5% for ocular trauma, 85.5% for glaucoma and 65.1% for refractive error. Overall 46% respondents received the information about major eye diseases from their *1 neighbor, friends and relative who were affected by eye disease.

Conclusion
Half of the respondent were not aware of major blinding diseases. The eye health education programs should be targeted towards community people to increase awareness on ocular blinding diseases in the study population.

Keywords
Awareness; Eye Health; Mountainous; People

Introduction
Blindness and visual impairment are a public health problem in the mountainous region of Nepal. Estimated more than 90% of blind people reside in rural and remote areas where often have limited or no eye health services facilities [1-3]. Many people in a rural population who require eye health services merely use existing eye health services facilities [4]. Despite the large proportion of the population are in need of eye health services, the service utilization is below 24% in low to lower middle-income countries [5].
Assessing awareness and knowledge of eye diseases of people is the important tool for developing eye health strategy to improve the eye health level in the population. It also helps to understand the level of awareness and knowledge on eye diseases of people in a study population. In this study, the awareness and knowledge level of study of people were assessed on major blinding eye diseases such as cataract, glaucoma, refractive error and ocular trauma. Gender and age distribution in awareness and knowledge on eye diseases were assessed. Furthermore, in the knowledge section, knowledge of respondent about the impact of untreated eye diseases and means of treatment of eye diseases were also assessed.

This study was designed for identifying awareness and knowledge on major blinding eye diseases among the people of 18 year and above. The major objective of the study was to identify the level of awareness and knowledge on major blinding eye diseases of people in high altitude mountainous districts of Nepal.

Material and Methods

The study was the population based cross sectional. The cluster random sampling method was applied to select the study populations from all age groups of the two mountainous Districts of Manang and Mustang in Nepal. The study population and clusters were selected by using probability proportional to size (PPS) sampling procedure. A semi-structured questionnaire was used to collect data. The data collection was carried out from August to November 2015. A trained Senior Ophthalmic Assistant conducted face to face interview with the respondents of 18 year and above during house to house visits.

The collected quantitative data were entered into developed online Google data base software. The data analysis performed by using SPSS software version16.5 (SPSS Inc. Chicago, USA). The p-value was calculated by using Chi-square and Fisher’s exact test. It was considered that p values <0.05 to denote statistical significance.

The ethical approval of the study was permitted by the Institutional Review Committee of Tilganga Institute of Ophthalmology. The respondents, with the age of 18 years and older, had given written consent prior to the interview.

Results

In this study, a total of 1,668 respondents participated. Among them 41.1% (677) were male and 58.2% (941) were female respondents. Less than 50 years of respondents were 57% (923) and 50 years and over was 43% (695).

A total of 59.2% of respondent reported that they were aware of cataract and 55.3% was aware of ocular trauma and 17.9% were aware of glaucoma by 17.9%. Surprisingly, more female were aware on most of the eye diseases except in glaucoma than its male counterpart, whereas in the unaware side, more female were reported unaware than its male counterpart, which looks debatable (table 1).

| Table 1: Age and gender distribution of respondents in awareness on cataract, glaucoma, refractive error and ocular trauma in study population (n,%) |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                | Cataract | Glaucoma | Refractive Error | Ocular Trauma | p-value |
| **Sex/Age**    | Yes      | No       | Yes            | No             | Yes         | No             | Yes             | No             |
| **Male**       | Yes      | No       | Yes            | No             | Yes         | No             | Yes             | No             |
|                | 450      | 227      | 148            | 529            | 393         | 284            | 401             | 276            |
|                | 47%      | 34%      | 51%            | 40%            | 48%         | 36%            | 45%             | 38%            |
| **Female**     | Yes      | No       | Yes            | No             | Yes         | No             | Yes             | No             |
|                | 508      | 433      | 141            | 800            | 433         | 508            | 494             | 447            |
|                | 53%      | 66%      | 49%            | 60%            | 52%         | 64%            | 55%             | 62%            |
| **18 to 49**   | Yes      | No       | Yes            | No             | Yes         | No             | Yes             | No             |
|                | 607      | 316      | 225            | 698            | 585         | 338            | 587             | 336            |
|                | 65.80%   | 34.20%   | 24.40%         | 75.60%         | 63.40%      | 36.60%         | 63.60%          | 36.40%         |
| **50 & over**  | Yes      | No       | Yes            | No             | Yes         | No             | Yes             | No             |
|                | 351      | 344      | 64             | 631            | 241         | 454            | 308             | 387            |
|                | 50.50%   | 49.50%   | 9.20%          | 90.80%         | 34.70%      | 65.30%         | 44.30%          | 55.70%         |
| **Total**      | Yes      | No       | Yes            | No             | Yes         | No             | Yes             | No             |
|                | 958      | 660      | 289            | 1329           | 826         | 792            | 895             | 723            |
|                | 59.20%   | 40.80%   | 17.90%         | 82.10%         | 51.10%      | 48.90%         | 55.30%          | 44.70%         |
Respondents below 50 years were more aware than respondent from the age of 50 years and over. The respondents from the both age group were more aware of cataract, refractive error and ocular trauma and less on glaucoma. The respondent of an age group of 50 years and over reported that the awareness level of eye diseases of cataract, ocular trauma, refractive error, and glaucoma was found to be 50.5%, 44.3%, 34.7% and 9.2% respectively. The association between awareness level with gender and age found to be statistically significant (p <0.05) (table 1).

In the knowledge of respondent about the result of untreated eye diseases, a total of 91.1% respondent reported correctly for cataract, 88.5% for ocular trauma, 85.5% for glaucoma and 65.1% for refractive error. Less than 10% of respondents reported incorrectly except for refractive error was and a similar proportion of respondent responded ‘do not know’ for all of four diseases (table 2). Thus, the majority of respondents had a good level of knowledge about the result of untreated ocular diseases.

Table 2: Knowledge of respondents on cataract, glaucoma, refractive error and ocular trauma in study population (can cause blind if it is left untreated?) (n, %)

<table>
<thead>
<tr>
<th>Response</th>
<th>Cataract</th>
<th>Glaucoma</th>
<th>Refractive error</th>
<th>Ocular Trauma</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>873(91.1%)</td>
<td>247(85.5%)</td>
<td>538(65.1%)</td>
<td>792(88.5%)</td>
</tr>
<tr>
<td>No</td>
<td>37(3.9%)</td>
<td>21(7.3%)</td>
<td>224(27.1%)</td>
<td>47(5.3%)</td>
</tr>
<tr>
<td>Don’t know</td>
<td>48(5%)</td>
<td>21(7.3%)</td>
<td>64(7.7%)</td>
<td>56(6.3%)</td>
</tr>
<tr>
<td>Total</td>
<td>958(100%)</td>
<td>289(100%)</td>
<td>826(100%)</td>
<td>895(100%)</td>
</tr>
</tbody>
</table>

While assessing the gender distribution of respondents on knowledge about eye diseases, relatively high number of female respondents reported correctly for cataract, refractive error, and ocular trauma as well as incorrectly for cataract, glaucoma and ocular trauma than its male counterpart (table 3). This shows that the program should focus on both male and female genders to increase the knowledge on eye diseases in the study districts.

Regarding treatment of four major blinding eye diseases: i.e. cataract, glaucoma, refractive error and ocular trauma; the correct answer ‘surgery for cataract was obtained from 84.3% of respondents. Similarly, 69.6% of respondents mentioned ‘spectacle for refractive error’, 41.5% of respondents indicated ‘medicine and 34.4% of respondent pointed out ‘operation for glaucoma’. Less than 7% of respondents reported wrongly as ‘pray to god’ and ‘go to traditional healer or hamachi, use ‘herbal medicines’ or ‘mother’s milk’ for treatment of eye diseases. This is the positive side of this study about the awareness and knowledge level of respondent on major eye diseases in the study population (table 4).

Table 3: Knowledge of respondents on cataract, glaucoma, refractive error & ocular trauma in study population (can cause blind if it is left untreated?) (n, %)

<table>
<thead>
<tr>
<th>Disease</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cataract</td>
<td>413,47%</td>
<td>460,53%</td>
<td>17,46%</td>
<td>20,54%</td>
<td>20,42%</td>
<td>28,58%</td>
</tr>
<tr>
<td>Glaucoma</td>
<td>129,52%</td>
<td>118,48%</td>
<td>10,48%</td>
<td>11,52%</td>
<td>9,43%</td>
<td>12,57%</td>
</tr>
<tr>
<td>Refractive error</td>
<td>254,47%</td>
<td>284,53%</td>
<td>115,51%</td>
<td>109,49%</td>
<td>24,38%</td>
<td>40,63%</td>
</tr>
<tr>
<td>Ocular trauma</td>
<td>359,45%</td>
<td>433,55%</td>
<td>20,43%</td>
<td>27,57%</td>
<td>22,39%</td>
<td>34,61%</td>
</tr>
</tbody>
</table>

Table 4: Knowledge of respondents on treatment of major blinding diseases in study population (n, %)

<table>
<thead>
<tr>
<th>Diseases</th>
<th>Cataract n-958</th>
<th>Glaucoma, n-289</th>
<th>Refractive error, n-826</th>
<th>Ocular trauma n 895</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using medicines</td>
<td>63,6.6%</td>
<td>120,41.5%</td>
<td>126,15.3%</td>
<td>527,58.9%</td>
</tr>
<tr>
<td>Operation</td>
<td>808,84.3%</td>
<td>100,34.6%</td>
<td>68,8.2%</td>
<td>112,12.5%</td>
</tr>
<tr>
<td>Spectacle</td>
<td>33,3.4%</td>
<td>9,3.1%</td>
<td>575,69.6%</td>
<td>20,2.2%</td>
</tr>
<tr>
<td>According to doctor</td>
<td>31,3.2%</td>
<td>22,7.6%</td>
<td>36,4.4%</td>
<td>96,10.7%</td>
</tr>
<tr>
<td>Pray to god</td>
<td>3,0.3%</td>
<td>0%</td>
<td>4,0.5%</td>
<td>0%</td>
</tr>
<tr>
<td>Don't know</td>
<td>19,2%</td>
<td>19,6.6%</td>
<td>15,1,8%</td>
<td>22,2.5%</td>
</tr>
<tr>
<td>Aamchi/herbal/others</td>
<td>1,0.1%</td>
<td>19,6.6%</td>
<td>0%</td>
<td>118,13.2%</td>
</tr>
</tbody>
</table>
The table five shows that overall 46% respondents received the information about four major eye diseases from their “neighbor, friends and relative who were affected by eye disease and 22% of their “neighbor, friends and relatives who were not affected by eye disease” and 15% of were by self-experience or study or training. The media such as audio, visual and printing was only 7% of respondents. The ophthalmic and general health personnel were also not found to be the influential source of information.

Among the study population, the highest proportion of respondents (32%) had received information about cataract and only 10% of respondents received information about glaucoma. The main source of information for cataract was the neighbour, friend, and relatives (55.1%), followed by self-experience, training and study (18.1%), medium (10.4%), ophthalmologist or health personnel (10%) and eye health institutions (6.2%). The main source of information for glaucoma was the neighbor, friend, and relatives (43.6%), followed by self-experience, training and study (17.6%), ophthalmologist or health personnel (9.3%), eye health institutions (9%) and media (4%). The main source of information for refractive error was the neighbor, friend, and relatives (72.2%), followed by self-experience, training and study (16.2%), ophthalmologist or health personnel (5.7%), eye health institutions (3.8%) and media (2.2%). The main source of information for ocular trauma was the neighbor, friend, and relatives (83%), followed by self-experience, training and study (8.5%), ophthalmologist or health personnel (2.9%), eye health institutions (2.2%) and media (3.4%) (table 5).

Table 5: Source of information received by respondents about major blinding diseases in study population

<table>
<thead>
<tr>
<th>Source</th>
<th>Cataract</th>
<th>Glaucoma</th>
<th>Refractive error</th>
<th>Ocular trauma</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ophthalmologist/ health worker</td>
<td>96.1%</td>
<td>27.9%</td>
<td>47.5%</td>
<td>26.2%</td>
<td>196.7%</td>
</tr>
<tr>
<td>Eye camp/hospital/CEC</td>
<td>59.6%</td>
<td>26.9%</td>
<td>31.3%</td>
<td>20.2%</td>
<td>136.5%</td>
</tr>
<tr>
<td>Neighbour/friend/relative affected eye disease</td>
<td>352.36%</td>
<td>72.24%</td>
<td>435.52%</td>
<td>493.55%</td>
<td>1352.46%</td>
</tr>
<tr>
<td>Neighbour/friend/relative</td>
<td>178.18%</td>
<td>54.18%</td>
<td>161.19%</td>
<td>250.27%</td>
<td>643.22%</td>
</tr>
<tr>
<td>Radio/tv/paper/ poster</td>
<td>100.10%</td>
<td>59.20%</td>
<td>18.22%</td>
<td>30.34%</td>
<td>207.7%</td>
</tr>
<tr>
<td>Others</td>
<td>173.18%</td>
<td>51.17%</td>
<td>134.16%</td>
<td>76.85%</td>
<td>434.15%</td>
</tr>
<tr>
<td>Total</td>
<td>958.32%</td>
<td>289.10%</td>
<td>826.28%</td>
<td>895.30%</td>
<td>2968</td>
</tr>
</tbody>
</table>

Discussion

Over all about 50%, respondents were aware on four ocular blinding diseases. It was found that total of 59% of respondent was aware of cataract, 55% of them were aware of ocular trauma and 17.9% were aware on glaucoma. Surprisingly, more female were aware on most of the diseases except in glaucoma than its male counterpart. The awareness on cataract is lower than study conducted in Australia (1998) (92%) [6], China (2002) (90%) [7] and (Islam 2015) [8], Rural District, Bangladesh) [8], Chengdu (89. 9%) [9], Tehran study (82.9%) [10] and south Indian population (2001) (69.8%) [11]. It is much higher than finding of Bhaktapur study (6.7%) [12].

In this study, awareness on glaucoma was 18%, which is much lower than study conducted in Australia (79%)[6], China (78.4%), Chengdu China (68.9%) [7, 9] and of Tehran study (46.9%), Switzerland 924.7%) [13], but higher than study of Rural District of Bangladesh (7%) [8]), Bhaktapur study (2.4%) [12] and Oman study [14]. The reason of lower awareness on glaucoma could be due to illiteracy and fewer awareness campaigns in the study population.

Among the aware respondents, knowledge levels were 91.1% on cataract, 88.5% on ocular trauma, 85.5% on glaucoma and 65.1% on refractive error. The knowledge of cataract was higher than the study conducted in Chengdu China (70.9%) [9] and Bhaktapur (70.4%) [12]. The knowledge of glaucoma was higher than the study of Chengdu China (48.1%) [9], Bhaktapur (45.5%) [12], Tehran (19.5%) [10], China (2002) (10.2%) [7], urban south India (2001) (2%) [11], rural southern India (2001) (0.33%) [15], and Ethiopia (2010 (2.4%) [16]. This is the positive side of this study that the knowledge level of respondents in the study populations. However, it was findings of the half of the study (aware) population that could be capitalized to increase awareness campaign in the sub set of the (unaware) population of the study districts.
In this study, the awareness and knowledge on common and avoidable diseases were observed to be strongly associated with age (younger) and sex (females) except in glaucoma. Similar findings were found in the study conducted in Bangladesh [8], Tehran [10] and Australia [6]. Women’s knowledge on common and avoidable diseases were reported to be lower in the study conducted in Bhaktapur Nepal [12] and rural southern India [15].

In this study, the leading source of information about major blinding eye diseases was reported the “neighbor, friends and relative. The media (audio, visual and printing), the ophthalmic or general health personnel were not found to be the influential source of information. A similar finding was reported for cataract and glaucoma diseases in the study conducted in Tehran [10]. Thus, the trend of the source of information for eye diseases has been shifted from media to neighbors, friends and relative.

This study carries some limitation. The study was conducted in two mountainous districts. Therefore, it can’t be generalized for all mountainous region of the country.

Overall 50% of respondents had heard about major blinding diseases such as cataract, refractive error, and ocular trauma and holds good knowledge on vision loss and the average level of treatment of those blinding disease. However, the knowledge rate was higher in glaucoma, the awareness level is inadequate. The respondents over 50 years and men were found to be less aware and knowledgeable about major blinding diseases. Therefore, eye health education programs should be targeted towards these subgroups.

References