Knowledge and Awareness of Age Related Eye Diseases: a Population-Based Survey

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Purpose: To determine general awareness and knowledge about cataracts, glaucoma and diabetic retinopathy (DR), as common avoidable causes of blindness in an Iranian population.

Methods: This cross-sectional population-based survey was performed on residents over 45 years of age in Tehran. The sampling frame was the list of all landline phone numbers registered by the Telecommunications Center of Iran, through which systematic random sampling was performed. Data was collected by phone-call interviews and completing a semi-structured questionnaire. Awareness was defined as whether the respondent had ever heard of the disease. Knowledge was assessed by realizing different aspects of each disease.

Results: Of a total of 1,084 eligible people including 574 (52.9%) women and 510 (47.1%) men were included and 957 subjects (response rate, 88.3%) completed the interview. Awareness regarding glaucoma, cataract and DR was 46.6% (95% confidence interval [CI]:43.4 -49.8%), 82.9% (95% CI: 80.5 -85.3%) and 86.2% (95% CI: 84-88.4%). In addition, 19.2% (95% CI: 16.7 -21.7%), 57.3% (95% CI: 54.2-60.4%) and 72% (95% CI: 69.2 -74.8%) of respondents could give at least a basic definition of the mentioned diseases, respectively. Only 22.6% (95% CI: 20-25.2%) and 41.6% (95% CI: 38.5-44.7%) realized glaucoma and DR as a treatable condition; in contrast, 77.2% (95% CI: 74.5-79.9%) categorized cataract as treatable. Only 19% and 7.1% knew that DR and glaucoma may commence without any apparent symptoms.

Conclusion: Compared with cataract and DR, most participants had limited information about glaucoma. In addition, few of the respondents were familiar with the initial symptoms of DR and glaucoma.

Keywords: Public Health; Health Education; Glaucoma; Cataract; Diabetic Retinopathy

INTRODUCTION

Avoidable conditions, which can be influenced by socioeconomic factors such as low education and poverty, account for the majority of blindness in the elderly population worldwide.¹² With increased life expectancy in different countries, an upward trend in the prevalence of age-related eye diseases is expected in the future unless appropriate modifications are made in both eye...
care delivery systems and lifestyles.

According to a recent population-based study in Iran, close to 44% of blinding conditions are attributed to cataracts (31.7%), diabetic retinopathy (DR, 9.8%) and glaucoma (2.4%) which is in line with global and regional studies in this field. Therefore, in the current study we focused specifically on these three avoidable diseases.

Health promotion can reduce the burden of eye diseases and will ultimately limit avoidable causes of blindness and low vision. For instance, many studies have reported the importance of glycemic and blood pressure control in the development and progression of diabetic retinopathy. Studies on knowledge, attitudes and practice (KAP studies) can help health providers design better health promotion and education programs.

In recent years, the level of public awareness of major causes of blindness has been reported by some researchers; the results are not encouraging, even in developed countries. Previous studies in our country, Iran, reflect less acceptable eye care behaviour in diabetic patients as only 22% of patients with diabetes had regular eye examinations. In another population-based study in Tehran, only 40% of people with visual defects had a history of previous eye examinations, which points to inadequacy of the health services.

The current study evaluates the knowledge, awareness and practice of people from the capital city of Iran, Tehran. The population of Tehran constitutes about one-fifth of the total population of the nation and is a mixture of different ethnic groups from all over the country.

METHODS

This cross-sectional study was performed with the approval of the Ethics Committee of the Ophthalmic Research Center at Shahid Beheshti University of Medical sciences. Five trained assistants collected data through telephone interviews with residents of Tehran. The interviewers received 4 hours of training about the general interviewing principles and the study protocol. Corresponding questionnaires were completed after explaining the purpose of the study and obtaining oral informed consent from all individuals. All the researchers observed the tenets of the Declaration of Helsinki throughout the study.

Sample size was based on an assumed general awareness of 50% and an ability to detect 3% difference, yielding a sample size of 1,084 individuals. A set of landline telephone numbers of people residing in Tehran was provided by the Telecommunications Company of Iran. Eligible individuals were selected by systematic random sampling. People who were not mentally or physically able to communicate, as well as those who did not consent to participate in the study or dropped out of the three follow-ups were considered as non-responders. In order to avoid information bias (recall bias) and to eliminate the possible correlation between individuals living in the same place, for each contact number, only one person was randomly selected to take part in the study.

The data collection tool was a semi-structured questionnaire (Appendix 1) that contained questions on demographic information, awareness, attitudes and practice with regard to visual impairment in general, and the three major age-related diseases, (glaucoma, cataract and DR). The content of the questionnaire was verified by an expert panel considering previous published studies in this field. In a pilot study, 40 questionnaires were completed and based on the results, the questionnaire was modified. The results of the pilot phase were not used in the final data analysis. During the study, five percent of the questionnaires were randomly re-evaluated by a supervisor.

The questionnaire included four boxes that were completed by the interviewers during the phone conversation. The first box corresponded to demographic data, overall eye health, the use of ophthalmologic services and overall attitude and performance regarding eye diseases and visual health.

Each of the three next boxes related to a major age-related eye disease. In these boxes, the first question, which evaluated the individual’s awareness, consisted of general information...
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about the disease and whether the respondent had ever heard the name of the disease. If the answer to the first question was positive, subsequent questions including definition, initial symptoms, curability and worst visual effects, indicating the participants’ knowledge, were asked. The source of information was also recorded. Knowledge consisted of providing at least one simple and correct definition of the disease and overall knowledge was defined as having more information about other subsequent questions, too. If a person was unaware of a disease, the subsequent questions in the related box were left blank.

For each question a series of answers were provided in the questionnaires, but these answers were not read for the interviewees. Instead, the interviewer matched the participant’s response with the closest answer in the questionnaire.

Simple and multiple logistic regression analyses were used to study the relationship between the studied variables and demographic data stated as simple and adjusted odds ratio (OR). The ANOVA test and t-test were used when necessary. Data was analyzed by SPSS software (version 17; SPSS, Chicago, IL, USA).

RESULTS

From 1,084 eligible persons, including 510 male (47.1%) and 574 female (52.9%) subjects, 957 answered the questionnaire (response rate, 88.3%). There was a significant difference in the level of illiteracy between responders and non-responders (10.9% vs. 25.3%, P=0.02). In contrast, no significant difference was observed in terms of gender (P=0.6), history of ophthalmic therapy (P=0.6) and the type of insurance (P=0.4) between these two groups.

The mean age of participants, including 509 women (53.2%) and 448 men (46.8%) was 56.2±9.0 (range 45 to 95) years. There was no significant difference in the mean age of women and men (55.8±8.4 vs. 56.7±9.7, P=0.103). The age and sex composition of participants and the survey area are compared in Table 1.

Table 2 shows the demographic characteristics and also general vision care practice of the participants. The proportion of male and female individuals was almost equal and around 10% of participants were illiterate. The coverage of complete or partial insurance in our sample was 83.8% while 16.2% were not covered by any kind of insurance. Only around one third of the participants were employed at the time of the interview, while the other two thirds were retired, housewives or unemployed. The majority of the interviewees (85.6%) mentioned that they have problems in near and/or far vision. Among participants, 28.1% did not use any form of spectacles and 22.6% had not been prescribed any spectacles.

To approximate the attitude of participants toward eye health care, they were asked how much visual loss would affect their daily performance. Around two thirds (60.2%) of the participants believed that vision loss would profoundly affect their daily performance, 15.1% believed in a moderate effect and 16.2% believed in a minimal effect; surprisingly, 8.4% believed that vision loss would have no effect on their daily performance at all.

The results of the awareness and knowledge regarding three major age-related eye diseases are presented separately as follows.

Table 1. Age and sex constitution of individuals over 45 years of age living in Tehran and in the study participants

| Age (years) | Men (%) | Women (%) | Total (%) |
|-------------|---------|-----------|-----------|
|             | Survey Area | Participants | Survey Area | Participants | Survey Area | Participants |
| 45-49       | 246,788 (25.8%) | 122 (27.1%) | 246,425 (27.03%) | 136 (26.6%) | 493,213 (26.4%) | 258 (23.6%) |
| 50-54       | 204,449 (21.4%) | 103 (23%) | 195,527 (21.4%) | 121 (23.8%) | 399,976 (21.4%) | 224 (23.4%) |
| 55-59       | 147,780 (15.5%) | 71 (15.9%) | 139,638 (15.3%) | 81 (15.9%) | 287,418 (15.4%) | 152 (15.9%) |
| 60-64       | 112,843 (11.8%) | 63 (14.1%) | 104,196 (11.4%) | 90 (17.7%) | 217,039 (11.6%) | 153 (16.02%) |
| 65-69       | 87,814 (9.2%) | 30 (6.7%) | 79,107 (8.6%) | 30 (5.9%) | 166,921 (8.9%) | 60 (6.2%) |
| 70-74       | 72,965 (7.6%) | 32 (7.2%) | 64,842 (7.1%) | 34 (6.7%) | 137,807 (7.3%) | 66 (6.9%) |
| 75-79       | 43,125 (4.5%) | 13 (2.9%) | 41,897 (4.5%) | 14 (2.8%) | 85,022 (4.5%) | 27 (2.8%) |
| 80+         | 37,647 (3.9%) | 14 (3.1%) | 40,008 (4.3%) | 3 (0.6%) | 77,655 (4.1%) | 17 (1.7%) |
| Total       | 953,411 (100%) | 448 (100%) | 911,640 (100%) | 509 (100%) | 1,865,051 (100%) | 957 (100%) |
Out of 957 participants, 793 (82.9%) had heard about cataracts before the interview and 548 (57.3%) could give a simple, correct definition of cataract. About half (47.6%) of the participants mentioned cataract as a cause of vision loss and 77.2% believed that the disease is treatable (Table 3). The main sources of information were friends and relatives in 66.8%, and the media in 17.9% of participants (Table 4).

The overall level of knowledge about cataracts was 1.48 times higher in women as compared to men. There was no significant difference in cataract awareness by type of insurance (partial vs. complementary); however, the overall knowledge was 2.2 times higher in those with complementary insurance than subjects with no insurance at all. There was no correlation between occupation and overall knowledge about the disease. Overall knowledge was 1.5 times higher in individuals with a history of self-reported visual problems than those with no history of previous ophthalmic disease. Compared with illiterate people, individuals with academic education (university or college) and those with 6 to 12 years of school education had 1.9 and 1.8 times higher knowledge, respectively (Table 5).

### Diabetic Retinopathy

Among participants, 86.2% were aware of and 72% had basic knowledge about diabetic retinopathy. The majority (71.4%) of individuals mentioned DR as a reason for vision loss and 41.6% believed that the disease is treatable (Table 3). Two thirds of individuals mentioned their friends and relatives and 29.8% of individuals mentioned the media as their main source of information, respectively (Table 4).
Only 19% of individuals believed that the disease may start without any signs or symptoms and most of them had no information about the initiating symptoms.

In this study, women’s knowledge of DR was 1.84 times higher than that of men. Moreover, individuals with academic education had 2.2 times and individuals with 6 to 12 years of school education had 2.1 times more information about the disease as compared to illiterate respondents, respectively. There was no significant correlation between history of previous ophthalmic disease or occupation with the level of knowledge (Table 5).

### Glaucoma

Only 46.6% of participants had heard about glaucoma and only 19.2% could give a simple correct definition of the disease. About one third of individuals (32.5%) mentioned glaucoma as a cause of vision loss and 22.6% of the participants believed that the disease is treatable (Table 3). Sixty-two percent of participants mentioned their friends and relatives and 25.8% of participants mentioned the media as their main source of information, respectively (Table 4).

In all fields, the participants had significantly less information about glaucoma in comparison with the other two diseases (P<0.001 for all comparisons, Table 3).

Only 31 participants (7.1%) believed that the onset of glaucoma may be without any signs or symptoms and the majority of individuals had no information about the initiating symptoms. Women were two times more likely to know about glaucoma than men. There was no

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**Table 4.** Source of information in people over 45 years of age in Tehran who had overall knowledge about three avoidable causes of blindness

| Information Source | Glaucoma n (%) | 95% CI | Cataract n (%) | 95% CI | Diabetic Retinopathy n (%) | 95% CI | P-value |
|--------------------|----------------|--------|----------------|--------|---------------------------|--------|---------|
| Ophthalmologists   | 37 (8.4)       | 6.6 to 10.2 | 100 (12.8) | 10.7 to 14.9 | 36 (4.4) | 3.1 to 5.7 | <0.001 |
| Health workers     | 16 (3.7)       | 2.5 to 4.9  | 20 (2.6)      | 1.6 to 3.6  | 50 (6.2) | 4.7 to 7.7  | <0.001 |
| Family / Friends   | 272 (62.1)     | 59 to 65.2 | 523 (66.8)    | 63.8 to 69.8 | 483 (59.6) | 56.5 to 62.7 | <0.001 |
| Media              | 113 (25.8)     | 23 to 28.6  | 140 (17.9)    | 15.5 to 20.3 | 242 (29.8) | 26.9 to 32.7 | <0.001 |

CI, confidence interval

**Table 5.** Demographic factors associated with overall knowledge of Tehran residents above 45 years of age

|                         | Glaucoma OR (95% CI) | AOR (95% CI) | Cataract OR (95% CI) | AOR (95% CI) | Diabetic Retinopathy OR (95% CI) | AOR (95% CI) |
|-------------------------|-----------------------|--------------|----------------------|--------------|----------------------------------|--------------|
| Age (per 10 years)      |                       |              |                      |              |                                  |              |
|                         | 0.92 (0.73,1.15)      | 0.94 (0.71,1.23) | 0.94 (0.82,1.07)     | 1.02 (0.86,1.12) | 0.92 (0.79,1.06)                 | 1.08 (0.91,1.29) |
| Sex                     |                       |              |                      |              |                                  |              |
| Male                    | Ref                   | Ref          | Ref                  | Ref          | Ref                              | Ref          |
| Female                  | 2.01* (1.3,3.1)       | 1.93* (1.13,3.32) | 1.48* (1.15,1.92)   | 1.48 (1.06,2.06) | 1.59* (1.21,2.09)               | 1.84* (1.29,2.62) |
| Education               |                       |              |                      |              |                                  |              |
| Illiterate              | Ref                   | Ref          | Ref                  | Ref          | Ref                              | Ref          |
| <6                      | 1.53 (0.55,4.26)      | 1.41 (0.49,4.11) | 1.04 (0.65,1.68)    | 1.0 (0.6,1.67) | 0.97 (0.57,1.64)                | 1.03 (0.59,1.8) |
| 6-12                    | 2.42 (0.93,6.29)      | 2.64 (0.96,7.26) | 1.76* (1.13,2.76)   | 1.8* (1.1,2.97) | 1.84* (1.13,2.99)               | 2.11* (1.23,3.61) |
| Academic                | 4.17* (1.59,10.93)    | 5.32* (1.89,14.99) | 1.93* (1.23,3.12)   | 1.97* (1.15,3.37) | 1.78* (1.06,2.97)               | 2.23* (1.25,3.97) |
| Insurance coverage      |                       |              |                      |              |                                  |              |
| None                    | Ref                   | Ref          | Ref                  | Ref          | Ref                              | Ref          |
| Partial                | 2.14* (1.4,5.6)       | 2.01 (0.93,4.37) | 1.36 (0.95,1.95)    | 1.31 (0.9,1.92) | 0.83 (0.57,1.21)                | 0.85 (0.57,1.25) |
| Complete               | 3.49* (1.56,7.84)     | 2.44* (1.06,5.62) | 2.29* (1.48,3.53)   | 1.77* (1.12,2.79) | 1.22 (0.79,1.89)               | 0.98 (0.61,1.56) |
| Self-reported visual problems |                       |              |                      |              |                                  |              |
| None                    | Ref                   | Ref          | Ref                  | Ref          | Ref                              | Ref          |
| Yes                    | 1.63 (0.82,3.21)      | 1.12 (0.55,2.27) | 1.81* (1.24,2.66)   | 1.52* (1.02,2.27) | 1.25 (0.84,1.86)               | 1.1 (0.73,1.67) |
| Job                    |                       |              |                      |              |                                  |              |
| Employed               | Ref                   | Ref          | Ref                  | Ref          | Ref                              | Ref          |
| Other                  | 2.11* (1.23,3.63)     | 1.89 (0.98,3.65) | 1.32 (0.99,1.75)    | 1.17 (0.8,1.7)  | 1.22 (0.91,1.65)               | 0.95 (0.64,1.41) |

OR, odds ratio; CI, confidence interval; AOR, adjusted odds ratio; Ref, reference group; *P value<0.05
significant difference between those with or without partial insurance in terms of the level of glaucoma awareness; however, participants with complete insurance were 2.4 times more aware than those without any kind of insurance. Similarly, participants with academic education had 5.3 times more information about the disease than those who were illiterate. There was no significant correlation between history of self-reported visual problems or occupation and the level of disease knowledge (Table 5).

DISCUSSION

To the best of our knowledge, this is the first Iranian study on awareness, knowledge and attitude of individuals aged 45 years or above with regard to major age-related eye diseases, i.e. glaucoma, cataract and diabetic retinopathy. The significance of such studies in community health planning becomes more evident in light of the fact that these diseases are the main causes of blindness in many countries.1 In this study, the participants’ level of awareness about glaucoma was much lower than cataracts and diabetic retinopathy (46.6% vs. 82.9% and 86.2%, respectively). Lack of glaucoma awareness is a major health problem also reported in India,7 China14 and Nepal.15

Participants had significantly less knowledge about glaucoma than they did about either cataracts or DR. In a comparable study conducted in Australia, most people had high knowledge of cataracts (74%), whereas their knowledge of glaucoma was low (19%).8

Table 6 compares the level of awareness and knowledge of individuals about glaucoma and cataract in other countries.

Based on our findings, women had higher knowledge regarding all three diseases. These results have also been reported in studies from the USA17 and Australia.18 Women’s knowledge has been reported to be lower than men’s in regions like southern India19 and Nepal,15 but equal in Switzerland,8 Germany,20 USA21 and Australia.22 In the current study the second source of information was the media. As elderly women in Iran are usually housewives or retired, compared to men, they may have more time to be in touch with educational programs broadcast from different types of media. This may explain the higher level of knowledge about eye disease in women in this study.

In our survey, no correlation was noted between age and knowledge of eye diseases. As the level of education and gender was comparable in different age groups in our study, we do not expect a significant relationship between age and the level of knowledge. The same result has been reported elsewhere; in Switzerland9 and the USA,6 studies also reported that knowledge of glaucoma was independent of age. There are, however, other studies in which older people were more aware of glaucoma.7,16 It seems that there are different patterns of correlation between age, sex and knowledge of these diseases, probably due to differences in culture and educational systems in various communities. As expected, people with higher education were more well-informed about all three diseases compared to illiterate people. This result is similar to several other reports.8,17,19

| Study                  | Year | Country    | Age (year) | Setting | Glaucoma (%) | Cataract (%) |
|------------------------|------|------------|------------|---------|---------------|--------------|
|                        |      |            |            |         | Awareness     | Knowledge    | Awareness    |
| Livingston et al⁸      | 1998 | Australia  | >40        | PB      | 79.0          | 19.0         | 92.0         |
| Gasch et al²³          | 2000 | USA        | All ages   | CB      | 72.0          | -            | -            |
| Dandona et al⁷         | 2001 | India      | 16-70      | PB      | 2.3           | 2.0          | 69.8         |
| Lau et al¹⁴            | 2002 | China      | >45        | PB      | 78.4          | 10.2         | 90.0         |
| Saw et al¹⁰            | 2003 | Singapore  | >35        | CB      | 22.9          | -            | -            |
| Mansouri et al⁹        | 2006 | Switzerland| 35-70      | PB      | 24.7          | -            | -            |
| Tenkir et al¹¹         | 2010 | Ethiopia   | 40-80      | CB      | 2.4           | -            | -            |
| Thapa et al¹⁵          | 2011 | Nepal      | >40        | PB      | 2.4           | 1.1          | 6.7          |
| Current study          | 2014 | Iran       | >45        | PB      | 46.9          | 19.5         | 83.0         |

PB, population-based; CB, clinical-based
In the current study, the main source of information was family and friends followed by the media. This is consistent with previous studies in Ethiopia, Germany and India where the most important source of information was also close family and friends. In a study from Switzerland, ophthalmologists were the primary source of information for patients. In another study in the rural population of India, the media was in the first degree of importance.

Although glaucoma is one of the main causes of blindness worldwide, only 32.5% of individuals recognized it as a blinding disease. This is similar to a study in Nepal where only about a quarter of individuals (26.5%) identified glaucoma as a cause of blindness. Conversely, in Philadelphia, 74% of participants believed that glaucoma caused blindness. The results of these studies indicate that awareness and knowledge of people about glaucoma is lower than the other two diseases; therefore, planning is necessary to increase public awareness to identify symptoms and complications of this disease.

Our study had some limitations that should be taken into account. We only studied residents who lived in households and had landline phone numbers. Although this group of people includes the majority of inhabitants in the capital city of Iran, they may not be representative of the whole population, which may have lower socioeconomic status.

In summary, although the majority of people aged more than 45 years in Tehran have a positive attitude toward the importance of vision loss and have heard about common vision threatening eye diseases including cataract and DR, their knowledge about symptoms, complications, treatment and prognosis of these diseases was inadequate. Lack of knowledge and awareness about glaucoma was another predominant finding of this study, which was obvious in most study participants. In the current survey, men, illiterate subjects, people without health insurance and those without a history of self-reported visual problems were less well-informed regarding common and avoidable eye diseases. Therefore, eye health educational programs should be targeted toward these subgroups.

Conflicts of Interest

None.

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### Appendix 1. Questionnaire

| Question                                                                 | Options                                                                 |
|-------------------------------------------------------------------------|-------------------------------------------------------------------------|
| 1- Age:                                                                  |                                                                         |
| 2- Sex                                                                   | Female □ Male □                                                         |
| 3- Education                                                             | Illiterate □ <6 □ 6-12 □ College or university □                         |
| 4- Employment                                                            | Employed □ Retired □ Unemployed □ Housewife □                           |
| 5- Insurance                                                             | Complete □ Partial □ None □                                           |
| (For the questions 6, 7 and 8 please choose one of the following codes) |                                                                         |
| 6- Have you ever had any visual problem?                                | □                                                                       |
| 7- Have you ever been prescribed spectacles for near or far visual impairment? | □                                                                       |
| 8- Which types of spectacles do you wear consistently?                   | □                                                                       |
| 9- Has an ophthalmologist visited you so far?                            | Yes □ No □ Don’t know □                                                |
| Yes because: I had eye problem □ only for check-up □                     |                                                                         |
| No because: no need felt □ financial reasons □ limited time □ other reasons □ |                                                                         |
| 10- History of a major ophthalmologic treatment including surgery, laser or medical therapy? | Yes □ No □                |
| 11- How does vision loss affect your daily performance?                  | Very high □ High □ Moderate □ Low □ None □                             |
| 12- Have you ever heard about cataract?                                  | Yes □ No □                                                            |
| 13- Give a simple definition of cataract                                 | It is a white pupil □ The opacification of the lens □ Any changes in eye lens which make it unclear or white □ Visual loss due to a covering shield in front of light rays □ | |
| 14- From the following items, which one is the main source of your information about cataract? | Ophthalmologist □ Family members or Friends □ General Practitioner □ Optometrist □ Medical Staff □ Media □ Books or Magazines □ Other □ |
| 15- What is the worst effect of cataract?                                | Blindness □ Low Vision □ Pain □ Cosmetic Problems □ Other □               |
| 16- Is cataract a treatable condition?                                   | Yes □ No □ Don’t know □                                                |
| 17- Have you ever heard about diabetic retinopathy (DR)?                 | Yes □ No □                                                            |
| 18- Give a simple definition of DR?                                      | It is a preventable side effect of diabetes or high blood sugar on eyes □ It is a side effect of diabetes on posterior parts of eye □ Any damage of retinal vessels in diabetic patients □ A vision threatening condition caused by high blood sugar □ |
| 19- From the following items, which one is the main source of your information about DR? | Ophthalmologist □ Family Members or Friends □ General Practitioner □ Optometrist □ Medical Staff □ Media □ Books or Magazines □ Other □ |
| 20- What is the worst effect of DR?                                      | Blindness □ Low Vision □ Pain □ Cosmetic Problems □ Other □               |
| 21- Is DR a treatable condition?                                         | Yes □ No □ Don’t know □                                                |
| 22- What is the first presentation of DR in most cases?                  | Visual loss □ Pain □ It may start without any alarming symptoms or signs □ Other □ |
| 23- Have you ever heard about glaucoma?                                  | Yes □ No □                                                            |
| 24- Give a simple definition of glaucoma                                 | High pressure of the eye □ An eye disease which limits the visual field □ An eye disease which damages the optic nerve □ Increasing the internal liquid of eye □ |
| 25- From the following items, which one is the main source of your information about glaucoma? | Ophthalmologist □ Family Members or Friends □ General Practitioner □ Optometrist □ Medical Staff □ Media □ Books or Magazines □ Other □ |
| 26- What is the worst effect of glaucoma?                                | Blindness □ Low Vision □ Pain □ Cosmetic Problems □ Other □               |
| 27- Is glaucoma a treatable condition?                                   | Yes □ No □ Don’t know □                                                |
| 28- What is the first presentation of glaucoma in most cases?            | Visual loss □ Pain □ It may start without any alarming symptoms or signs □ Other □ |