Awareness and Knowledge of Glaucoma Among Healthcare Workers and Patients in a Big City of Turkey

Türkiye'nin Bir Büyükşehrinde Sağlık Çalışanları ve Toplumun Glokom Bilinç ve Bilgi Düzeyi

Kürşat ATALAY[1], Ahmet KIRGIZ[1], Şenay AŞIK NACAROĞLU[1]

ABSTRACT

Purpose: To assess the awareness and knowledge of glaucoma among healthcare workers and patients in a tertiary hospital and its district polyclinic located in a big city in Turkey.

Material and Methods: A prospective survey study with a face-to-face interview technique was organized. Participants were grouped as healthcare workers (group 1) in a training and research hospital (TRH), patients admitting to a TRH (group 2), and patients referred to our district polyclinic (group 3). Seven questions were asked about the knowledge level.

Results: There were 416 valid contributions of the participants, 113 were in group 1, 138 in group 2, and 165 in group 3 (27.2%, 33.2%, and 39.7%, respectively). 112 participants (99.1%) in group 1, 89 participants (64.5%) in group 2, and 94 participants (57%) in group 3 answered "yes" to the question about awareness of glaucoma. There was a significant difference between the groups (p = 0.00). There was no significant difference between the levels of awareness in groups 2 and 3 (p = 0. 18,95% CI, OR = 1.375). For groups 2 and 3, family members, television, and close acquaintances were important sources of awareness (≥ 20% for both groups). Glaucoma knowledge was different among the three groups (p = 0.002). Groups 2 and 3 differed in terms of knowledge levels (p = 0.009).

Conclusion: Healthcare workers' glaucoma awareness and knowledge levels are good. We believe that awareness of glaucoma would increase with more effective use of mass media and healthcare workers.

Key Words: Glaucoma, Healthcare worker, Awareness of glaucoma, Knowledge of glaucoma, Public health.

ÖZ

Amaç: Türkiye'nin büyük bir kentinde yer alan bir üçüncü basamak hastanenin sağlık çalışanları ve bu hastane ve onun semt polikliniğine başvuran hastaların glokom bilgi ve farkındalığını değerlendirmek.

Gereç ve Yöntem: Yüz yüze görüşme tekniği ile prospektif bir anket çalışması düzenlenmiştir. Katılımcılar, eğitim ve araştırma hastanesinde (EAH) sağlık çalışanı (grup 1), EAH'ne başvuran hastalar (grup 2) ve semt polikliniğimize başvuran hastalar (grup 3) olarak gruplandırıldı. Bilgi seviyesiyle ilgili yedi soru sorulmuştur.

Bulgular: 416 geçerli katkı vardı. Katılımcıların 113'i grup 1'de, 138'i grup 2'de ve 165'i grup 3'te yer aldı (sırasıyla % 27.2, %33.2 ve %39.7). Grup 1'de 112 katılımcı (%99.1), grup 2'de 89 katılımcı (%64.5) ve grup 3'te 94 katılımcı (% 57) glokom farkındalığı konusunda "evet" yanıtını vermiştir. Gruplar arasında anlamlı fark vardı (p = 0.00). Grup 2 ve 3'teki farkındalık düzeyleri arasında anlamlı fark yoktu (p = 0.18, % 95 CI, OR = 1.375). Grup 2 ve 3 için, aile üyeleri, televizyon ve yakın tanıdıkları önemli bir farkındalık kaynağıydı (her iki grup için ≥% 20). Glokom bilgisi üç grup arasında farklıydı (p = 0.002). Grup 2 ve 3, bilgi düzeyleri açısından farklıydı (p = 0.009).

Sonuç: Sağlık çalışanlarının glokom farkındalığı ve bilgi düzeyleri iyidir. Kitle iletişim araçlarının ve sağlık çalışanlarının daha etkin kullanımıyla glokom farkındalığının artacağına inanıyoruz.

Anahtar Kelimeler: Glokom, Sağlık çalışanı, Glokom farkındalığı, Glokom bilgisi, Halk sağlığı.

1- Uz. Dr., Bağcılar Eğitim ve Araştırma Hastanesi, Göz Hastalıkları, İstanbul, Türkiye

Geliş Tarihi - Received: 23.10.2018
Kabul Tarihi - Accepted: 27.05.2019
Glo-Kat 2019; 14: 123-128

Yazışma Adresi / Correspondence Adress:
Kürşat ATALAY
Bağcılar Eğitim ve Araştırma Hastanesi, Göz Hastalıkları, İstanbul, Türkiye

Phone: +90 555 722 6755
E-mail: drkursatalay@gmail.com

INTRODUCTION

Glaucoma keeps its importance among the diseases that cause blindness.[1] The initiation of treatment with early diagnosis allows for long-term preservation of functional visual acuity in the chronic phase of the disease.[2,3] Insufficient awareness of the disease has a significant effect on the late diagnosis of glaucoma.[4] Although an early diagnosis of glaucoma in different countries suggests different problems with access to healthcare centers and recognition, many studies indicate that early recognition may be related to the level of social awareness.[5, 6]

Community-based and hospital-centered research in different countries has different outcomes for glaucoma social awareness and knowledge level.[7, 8] High levels of awareness and knowledge are found in developed countries, but awareness and knowledge levels are reported to be low in developing countries.[7-11] Turkey is a developing country, where socio-demographic differences exist with migratory movements. Bagcilar, a district of Istanbul, grew rapidly in terms of population due to migration from different regions of the country. As such, it reflects the socio-demographic outlook of society.

To the best of our knowledge, this research is the first of its kind to be presented in Turkey, even though there are reports of awareness and knowledge levels in glaucoma in many countries. In this research, we conducted a survey to determine the awareness and knowledge levels of glaucoma among healthcare workers in a tertiary training and research hospital (TRH), patients referred to the TRH, and patients who applied to a district polyclinic of the TRH in Bagcilar district of Istanbul Province.

MATERIALS AND METHODS

The survey was done in the Bagcilar district of city of Istanbul in Turkey. The population of the Bagcilar is 748.483 and makes up 4.98% of the population of Istanbul. In this cross-sectional, randomized, prospective study, a questionnaire was applied to three groups of participants. Participants were grouped as healthcare workers working in a TRH (group 1), patients applied to the TRH (group 2), and patients referred to a district polyclinic of the TRH (Group 3). Group 1 consisted of doctors, nurses, radiology technicians, physiotherapists, anesthesia technicians, and laboratory staff. The local ethics committee granted permission for our research. Informed consent was received from all participants before the survey. The researchers conducted the survey in accordance with the guidelines described in the Helsinki Declaration. The proposals in the questionnaire were prepared in Turkish. The survey was administered between January 2017, and June 2017. The questionnaire was administered by a single investigator (KA), with a face-to-face interview technique, at the outpatient clinic and services, except for the eye clinic, on non-consecutive days. Patients diagnosed with glaucoma were not included in the survey. Relatives of glaucoma patients were included in the questionnaire. Doctors who have previously received ophthalmology residency training, nurses and healthcare workers who have worked in ophthalmology clinics were not included in the study. The sample size of 384 was calculated using the Epi Info7 program. However, we planned to ask about 20% more people (450 people) to avoid missing data for reasons such as rejection of participation in the survey.

The answers to questions about the level of knowledge in the survey were organized as “right” and “wrong”. However, after the first 10 surveys, some patients answered “I do not know” to the questions, so an “I do not know” option was added and the questionnaire was reapplied. Thus, each of the questions had the options of “right”, “wrong”, and “I do not know”.

After questioning about the socio-demographic characteristics of participants in the questionnaire, two questions were asked about the awareness of the patients: “Have you ever heard of glaucoma (eye pressure disease)?”; “How did you hear of glaucoma (eye pressure disease)?”. We included the definition of “eye pressure disease” to the survey because it is usually used synonymously with glaucoma in society. A historical term for glaucoma in Turkey, “Karasu disease”, was verbalized for the conceptualization of elderly patients by the investigator who conducted the survey. The answer "No" to the question “Have you ever heard of glaucoma (eye pressure disease)?” was the reason for cessation of the survey.

The knowledge levels of the participants were checked with seven questions. Three of the questions were related to the etiopathogenesis, three were related to treatment of the disease, and one was related to the follow-up process. The knowledge level of participants was classified as “bad” when two or fewer correct responses were given, “moderate” with greater than two and less than five correct responses, and “good” with five or more correct responses. The education levels of participants were questioned; illiterates or only literates were grouped as “bad”, participants who were primary school or junior high school graduates were grouped as “moderate”, and high school or college graduates were grouped as “good”.

STATISTICAL ANALYSIS

Data were recorded in a Microsoft Excel spreadsheet, and statistical analysis was performed on Statistical Package for the Social Sciences 15 (Chicago: SPSS Inc.). One-way ANOVA was used for comparison of continuous variables, and Pearson chi-square test (X^2) and univariate Fisher’s

exact test (FET) were used for comparison of categorical variables. Correlation analysis was assessed by Spearman rho (r) test. The statistical significance level was taken as p = 0.05.

RESULTS

Of the 450 individuals who agreed to participate in the survey, 416 responded positively and joined in the survey. All invited healthcare workers agreed to participate in the survey. Of the participants, 113 were in group 1, 138 in group 2, and 165 in group 3 (27.2%, 33.2%, and 39.7%, respectively). Demographic data are presented in Table 1. All participants in group 1 are well educated (100%). In terms of educational levels, the three groups were different (FET; p = 0.000).There was no statistically significant difference between the educational levels of groups 2 and 3 (FET; p = 0.209).

The number of respondents who answered positively to the question about glaucoma awareness was 112 (99.1%) in group 1, 89 (64.5%) in group 2, and 94 (57%) in group 3. There was a statistically significant difference when statistical analysis was performed in terms of awareness among the three groups (FET; p = 0.000). However, when compared to groups 2 and 3, there was no significant difference between the levels of awareness (Pearson X^2=1.778, p=0.18; odds ratio [OR] =1.132). There was no significant correlation between the disease awareness and education levels of group 2 participants (p=0.112; r =-0.135). There was no significant correlation between the glaucoma awareness and education level in group 3 (p=0.347; r=-0.073). In terms of awareness of women and men in group 2, it was observed that the female participants had a higher level of difference, although their awareness was near the level of meaninglessness (Pearson X^2 =3.928, p=0.047; OR=1.288). In group 3, it was observed that female participants had significant disease awareness (Pearson X^2=10.089, p=0.001; OR=1.573). When subgroup analysis was performed among healthcare workers, the level of awareness was not different between doctors (subgroup 1), nurses (subgroup 2), and other health personnel (subgroup 3) (FET; p=0.43).

The source of awareness about glaucoma according to the groups is presented in Table 2.

Table1. *Demographic data about participants in the survey.*

		Group1	Group 2	Group 3
Age (mean±SD)		21-64 (32.4±7.9)	19-74 (46.8±13.7)	18-82 (41.6±16.3)
Sex	Female	72 (63.7%)	72 (52.2%)	93 (56.4%)
	Male	41 (36.3%)	66 (47.8%)	72 (43.6%)
Education Level	Bad	0 (0%)	21 (15.2%)	13 (7.9%)
	Moderate	0 (0%)	86 (62.3%)	98 (59.4%)
	Good	113 (100%)	31 (22.5%)	54 (32.7%)

Table 2. *Source of awareness in each group about glaucoma.*

		Group 1		Group 2		Group 3	
		n=112	100%	n=89	100%	n=94	100%
How did you hear of glaucoma?	Family member	18	16.1%	30	33.7%	28	29.8%
	School	65	58.0%	3	3.4%	5	5.3%
	Newspaper	1	0.9%	0	0%	2	2.1%
	Radio	0	0%	0	0%	0	0%
	Television	2	1.8%	19	21.3%	19	20.2%
	Internet	6	5.4%	5	5.6%	2	2.1%
	Doctor	4	3.6%	5	5.6%	3	3.2%
	Ophthalmologist	5	4.5%	8	9.0%	13	13.8%
	Another health worker	1	0.9%	1	1.1%	0	0%
	Close acquaintance	10	8.9%	18	20.2%	22	23.4%

Table 3 shows how each group of participants responded to the questions about the etiopathogenesis, treatment, and follow-up of glaucoma.

There was a significant difference when the knowledge levels of all three groups were compared (FET; p = 0.002). In addition, there was a significant difference in the level of knowledge of group 2 and 3 patients (FET; p = 0.009).This difference was because the proportion of patients with good knowledge in group 2 was higher than in group 3 (63.3% versus 36.7%). Family members (group 2: 33.7%, group 3: 29.8%), television (group 2: 21.3%, group 3: 20.2%), and close acquaintances (group 2: 20.2%, group 3: 23.4%) seemed to be the leading sources of awareness.

There was a significant difference between the knowledge levels of group 2 and group 3 participants who heard of glaucoma from family members (FET; p = 0.004). This difference was due to the fact that the proportion of participants with good knowledge in group 2 was higher than in group 3 (78.9%> 21.1%). There was no significant difference in knowledge level between group 2 and 3 participants who stated that they heard of glaucoma from television (FET; p = 0.465). There was no difference in the level of knowledge between group 2 and 3 participants who stated that they heard of glaucoma from close acquaintances (FET; p = 1.0).

There was no significant relationship between the level of education and the level of knowledge of group 2 participants (p = 0.228). However, a weak inverse correlation was observed when a correlation analysis was performed between the level of education and the level of knowledge of group 3 participants (p = 0.025, r= -0.121). There was no difference in knowledge level between male and female participants in group 2 (FET; p = 0.214).The level of knowledge in group 3 also did not differ between male and female participants (FET; p = 0.307).

There was a significant difference in the level of knowledge among subgroups 1, 2, and 3 when subgroup analysis was performed among healthcare workers (p = 0.002 FET). Among all healthcare workers, 74.1% of respondents had two or more correct responses to the proposals for etiopathogenesis (n = 83).There was no significant difference (p = 0.085 FET) when a comparison was made

Table 3. *Responses of each participant to the proposals about glaucoma.*

		Group 1		Group 2		Group 3	
		N	%	n	%	n	%
Familial predisposition can occur in glaucoma (or eye tension).	True	69	61.6	41	46.1	40	42.6
	False	12	10.7	13	14.6	17	18.1
	Don't know	31	27.7	35	39.3	37	39.4
Glaucoma (eye tension) can be seen in children.	True	76	67.9	67	75.3	66	70.2
	False	13	11.6	7	7.9	9	9.6
	Don't know	23	20.5	15	16.9	19	20.2
Glaucoma (eye tension) is a progressive disease and can cause blindness.	True	96	85.7	66	74.2	76	80.9
	False	2	1.8	2	2.2	1	1.1
	Don't know	14	12.5	21	23.6	17	18.1
Glaucoma (eye tension) can be treated with medication.	True	91	81.2	69	77.5	62	66.0
	False	2	1.8	5	5.6	8	8.5
	Don't know	19	17.0	15	16.9	24	25.5
Glaucoma (eye tension) can be treated with lasers.	True	40	35.7	46	51.7	46	48.9
	False	20	17.9	8	9.0	13	13.8
	Don't know	52	46.4	35	39.3	35	37.2
Glaucoma (eye tension) can be treated with surgery.	True	62	55.4	55	61.8	52	55.3
	False	13	11.6	7	7.9	10	10.6
	Don't know	37	33.0	27	30.3	32	34.0
Routine follow-up is important in glaucoma (eye tension).	True	111	99.1	88	98.9	94	100
	Don't know	1	0.9	1	1.1	0	0,0

between subgroups of healthcare workers who answered at least two out of three questions about etiopathogenesis correctly (FET; p = 0.085).The proportion of respondents who gave at least two correct responses to treatment-related questions among all healthcare workers was 59% (n = 66). There was a significant difference among the subgroups when comparing healthcare professionals who answered at least two treatment-related questions correctly (FET; p= 0.000).

DISCUSSION

In this study, which was conducted in the Bagcilar district of Istanbul, which has the largest population in Turkey, we investigated the level of glaucoma awareness and knowledge among healthcare workers in a TRH, patients who applied to this hospital, and patients in the district polyclinic of the TRH. As a result of our research, we found that glaucoma awareness among the healthcare workers was close to that of healthcare workers in developed countries (group 1: 99.1%), but community awareness was lower than in some developed countries and higher than in some developing countries (group 2: 64.5%, group 3: 57%) (5, 6, 9, 10, 12). To the best of our knowledge, this is the first research on the awareness and knowledge level of glaucoma that has been conducted on individuals in Turkey who do not have glaucoma.

Many previous studies have reported that women have better awareness, while others have reported no such relationship.[7,13] In our study, there was a difference in the awareness of the disease between the male and female participants in groups 2 and 3 (group 2: $X^2 = 3.928$, p = 0.047, OR= 1.288; Group 3: $X^2 = 10.089$, p = 0.001, OR: 1.573). However, there was no difference in the level of knowledge between women and men between group 2 and 3 participants (p = 0.214 and p = 0. 307, respectively).This may have been due to the fact that women are more interested in the care of sick individuals in the region studied, as found in previous studies.[12]

Pfeiffer et al. show that close acquaintances are a major source of awareness.[14] Other studies reveal that family members, television, and close acquaintances are important in gaining awareness of glaucoma.[5, 15] In our study, family members, television, and close acquaintances seem to be the leading sources of awareness about glaucoma in the community. However, a significant difference was found between the knowledge levels of group 2 and 3 participants who said they heard about glaucoma from family members (p = 0.004).This was because the proportion of group 2 participants with good knowledge was higher than in group 3 (78.9%> 21.1%). For this reason, we agree with Tenkir et al. that it is important to encourage family members of those with glaucoma to have a priority screening.[16] There was no significant difference between the knowledge level of the participants in groups 2 and 3 who stated that they had heard of glaucoma from the television or a close acquaintance (p = 0.465 and p = 1.0, respectively).Another remarkable point in our research was that radio, an important media tool, was not a source of awareness of any of the participants (0% for groups 1, 2, and 3), and this result closely resembles reports by Gyawali et al. (0.0%) and Isawumi et al. (12.2%).[17, 18] Based on the results of other studies and our own research which are proven to be effective in improving awareness and knowledge about glaucoma in the community should be used more efficiently.[17-19]

With regard to eye health, there are some challenges throughout the world in providing information and services from trained individuals.[20, 21] In our study, awareness-raising by physicians, ophthalmologists, and other healthcare workers was 16.0% when group 2 and 3 patients were evaluated together, unfortunately at a lower rate than family members and other sources such as television.In a study conducted by Komolafe et al., the sources of awareness of healthcare workers in a tertiary healthcare facility was reported mainly as lectures and seminars (41.9%), and this finding is similar to our research in which school was the predominant source of awareness among healthcare workers (58%).[6] In our study, 46% of the healthcare professionals correctly answered the proposal "Familial predisposition can occur in glaucoma", which was close to the findings of Komolafe et al., showing that 26.7% of the healthcare workers answered that a family history is a serious predisposing risk factor for glaucoma.[6] In our study, among all health professionals, the proportion of respondents with two or more correct responses to the proposals for etiopathogenesis was 74.1%, but the proportion of respondents with at least two correct responses to the treatment-related questions was 59%, suggesting that healthcare professionals should increase their knowledge of glaucoma treatment options. In addition, in our study, although the knowledge level of healthcare workers was good, it was observed that the community gained awareness of glaucoma from sources other than health workers; thus, it might be useful to create conditions in which healthcare professionals could enlighten patients more about glaucoma.

We should highlight some of the limitations of our study. Firstly, an important limitation of our research is that it may not reflect the general population of Turkey because it is a health center-based study. Secondly, our ethics committee did not approve questions about ethnicity and economic status, and thus we could not search the effects of these data on awareness and knowledge of glaucoma.

CONCLUSION

The level of awareness and knowledge of glaucoma is an important issue in the community and among healthcare workers. In this study, we found that healthcare workers have good awareness and knowledge about glaucoma, but the data demonstrate that the efficient usage of resources such as television and radio may improve social awareness and knowledge.

CONFLICT OF INTEREST

None Declared.

This manuscript has not been published anywhere previously and it is not simultaneously being considered for any other publication.

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