

## Factors that Enforced Patients to Attend a Free Cataract Surgery Eye Camp in Yemen

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### Abstract

**Purpose:** Cataract remains the leading cause of blindness in Yemen. The aim of this study is to determine the factors which enforced patients to attend a free eye camp for their cataract surgery.

**Methods:** This prospective study interviewed 284 patients who attended a free cataract surgical eye camp at Noor Al-Eyoon Eye Centre in Sana'a, Yemen in the period from 20 to 25 August 2016. The questionnaire of the study aimed at addressing factors that enforced patients to attend a free cataract surgery eye camp. Data analyzed included the governorate, demographic data, clinical and surgical data.

**Results:** A total of 284 patients were enrolled in this study. The mean age among patients who underwent cataract surgery operation in this study was (65.21 ± 12.66 SD) years old with range between (11) years old and (95) years old. Among this study the females (153) outnumbered males (131), with a percentage of 53.9% and 46.1% respectively. 232 (81.7%) of these patients attended the eye camp due to financial reasons, 29 (10.2%) due to war and security instability (internal refugees) and 23 (8.1%) due to difficulty of transportation.

**Conclusion:** Financial reasons and civil war status were the main causes for these patients not to have their cataract surgery at an early stage and preferred to attend free cataract surgery eye camps. These factors acted as barriers to do the cataract surgery in governmental or private eye care centers.

**Keywords:** Barriers for Surgery; Blindness; Cataract Surgery; Eye Camps; Yemen

### Introduction

Republic of Yemen is located in the south west part of the Arab peninsula with an area of 555,000 square kilometers. Yemen population is around 28.0 Million distributed in 21 governorates in addition to the capital city of Sana'a [1]. About 69 percent of the population lives in rural areas [2].

Yemen is one of the WHO Eastern Mediterranean Region countries, the estimated prevalence of blindness in this region is 0.97 [3,4] and Yemen is regarded as one of the countries with high prevalence rate of blindness [5,6].

Cataract blindness is a public health problem of major proportions in developing countries. The major contributors to blindness in Yemen are cataract (49% - 70%), glaucoma (11%), retinal diseases (9 - 10%), corneal diseases including microbial and traumatic corneal opacities (5 - 9%) and others [5,6].

Cataract-related blindness treatment is one of the priorities of WHO and the International Agency for the Prevention of Blindness (IAPB) especially after the presentation of the VISION 2020: the Right to Sight initiative in 1999 [7,8]. However, 75% of blindness is avoidable; defined as blindness that can be either treated or prevented by a cataract surgery which is a successful, cost-effective intervention [9]. One of the VISION 2020 strategies is monitoring the cataract surgical rate (CSR) and evaluating its trend over time.

Noor Al-Eyoon Eye Center has a well-equipped eye care services in the Capital Sana'a, with one consultant and two junior ophthalmologists. This eye center provides cataract surgery eye camp for the poor and is sponsored by Al-Nibras Health Society which is one of the main free cataract surgery eye camp providers in Yemen. Cataract surgery is the most beneficial of all ophthalmic procedures worldwide with the benefit outweighing the cost [10]. Many patients find difficulty in doing cataract surgery due to different reasons, namely financial constraints, socio-economic factors, fear and difficult transportation to eye centers [11]. There is only one study regarding barrier toward the routine utilization of cataract surgery in Yemen and was done during the Rapid Assessment of Avoidable Blindness (RAAB) in 2012 [12].

### Aim of the Study

The aim of this study is to determine the factors which enforced patients to attend a free eye camp for their cataract surgery.

### Patients and Methods

This prospective descriptive study interviewed 284 patients who attended a free cataract surgical eye camp at Noor Al-Eyoon Eye Centre in Sana'a, Yemen in the period from 20 to 25 August 2016. This eye center is sponsored by Al-Nibras Health Society. Al-Nibras Health Society is one of the main charity organizations in Yemen that provides free cataract surgery eye camps. These eye camps are covered by local or international sponsors. Each eye camp provides free cataract surgery to a number of patients ranging from 100 to 300 cataract surgery in each eye camp.

Patients who attended the eye camp and were listed for cataract surgery were the study group. These groups of patients were not referred from a governmental or private eye centers or hospitals. The eye camp covers all the costs for the surgery, pre-operative evaluation and post-operative medications and follow-up. The group of patients in this study attended an eye camp in Noor Al-Eyoon Eye Center in Sana'a (the capital of Yemen). During the pre-operative evaluation stage the patients attending the eye camp were interviewed and asked to answer the questionnaire. The questionnaire administered includes information on patient age and sex, demographic data and reasons for not having the cataract surgery prior to attending this free eye camp. The information obtained was coded and analyzed using Statistical Package for Social Sciences (SPSS) version 21.

The questionnaire of the study aimed at addressing the main reasons which enforced patients to attend a free cataract surgery eye camp and not having it done in governmental or private center or hospital. Ethical approval was given by the ethics and research committee of Al-Nibras Health Society.

### Results

A total of 284 patients were enrolled in this study. The mean age among patients who underwent cataract surgery operation in this study was (65.21 ± 12.66 SD) years old with range between (11) years old and (95) years old. Among this study the females (153) outnumbered males (131), with a percentage of (53.9% and 46.1%) respectively. 232 (81.7%) of these patients attended the eye camp due to financial reasons, 29 (10.2%) due to war and security situations (internal emigrants) and 23 (8.1%) due to absence of transportation. Table 1 describes the age and sex distribution of patients attending the eye camp.

Age Group	Gender					
	Male		Female		Total	
	Count	%	Count	%	Count	%
Less than 18 years old	1	.8	2	1.3	3	1.1
(19 - 40) years old	5	3.8	3	2.0	8	2.8
(41 - 60) years old	45	34.4	51	33.3	96	33.8
(61 - 80) years old	74	56.5	92	60.1	166	58.5
More than 80 years old	6	4.6	5	3.3	11	3.9
Total	131	100.0	153	100.0	284	100.0

**Table 1:** Age and Sex distribution of eye camp patients.

Table 2 shows the distribution of eye camp patients by governorate. To our surprise most patients came from Ibb governorate which is situated in the middle of Yemen. Ibb governorate has received majority of internal immigrants from war zone areas in Taiz, Makha and Aden.

Governorate	No of Patients	%
Ibb	185	65.1
Sana'a city	59	20.8
Taiz	9	3.2
Dhamar	9	3.2
Sana'a governorate	9	3.2
Hodeidah	5	1.8
Reimah	3	1.1
Mahweet	2	0.7
Al-Beidah	2	0.7
Hajjah	1	0.4
TOTAL	284	100

**Table 2:** Distribution of eye camp patients by governorate.

Table 3 shows the factors and barriers that enforced patients to attend a free cataract surgery eye camp.

Stated Reason	No of Patients	%
Financial reasons	232	81.7
Civil war status	29	10.2
Transportation difficulty	23	8.1
Total	284	100

**Table 3:** Factors and barriers that enforced patients to attend a free cataract surgery eye camp.

From the questionnaire, 54 (19%) of patients attending this eye camp had a previous cataract surgery in one eye. Eleven patients had their cataract surgery in a previous eye camp while the remaining (43) had their cataract surgery in a governmental or private eye center or hospital. Majority of patients (250, 88%) had visual problems due to the cataract for more than six months. 129 patient (45.4%) had bilateral poor vision due to blinding cataract while 155 (54.6%) had their blinding cataract only in one eye.

Visual acuity in the operated eye was perception of light (POL) in 47 patients (16.5%), hand movement (HM) in 94 patient (33.1%) and counting fingers (CF) in 143 patients (50.4%). No patient had a visual acuity of 6/60 or better. Majority of cases were done under retrobulbar local anesthesia (243, 85.6%), 38 patients (13.4%) had peribulbar local anesthesia and 3 patients (1.1%) had topical anesthesia. Most cases (259, 91.2%) were done by small incision cataract surgery (SICE), fifteen cases (5.3%) were done by extracapsular cataract extraction (ECCE) and seven cases (2.5%) were done by phacoemulsification. 282 patient (99.3%) had intraocular lens implantation (IOL).

### Discussion and Conclusion

Cataract blindness is a public health problem of major proportions in developing countries and cataract surgery is a cost-effective ophthalmic procedure [9,13]. Unfortunately many patients cannot afford to do the cataract surgery due to many reasons and they remain blind. The aim of this study is to determine the factors which enforced patients to attend a free eye camp for their cataract surgery. Patients who attended the eye camp and were listed for cataract surgery were the study group. These groups of patients were not referred from a governmental or private eye centers or hospitals.

The main barrier to have cataract surgery before attending this eye camp was financial reason (81.7%). Other reasons given include civil war status (10.2%) and transportation difficulty (8.1%).

Financial reason was the main barrier for patients to visit a governmental or private eye center or hospital to have their cataract surgery since there is no well-developed structured health-insurance system in Yemen [14,15]. In Yemen the average income is very low and Yemen is one of the lowest incomes in the Eastern Mediterranean Region Countries [14,16]. During the political crisis in Yemen, the income got lower for most people and governmental employees stopped getting their monthly salary for the year 2016 and 2017 [14,17,18]. One of the cases that attended this eye camp was a Professor in Sana'a University and was without salary for months and could not afford to do his cataract surgery in a governmental or private eye center. Cost as a barrier to cataract surgery has also been found in many studies [19,20]. In this study we reported 81.7% as being due to financial difficulty.

Other studies reported different proportions but could not be compared as our patients were patients attending an eye camp and not a regular eye clinic. For instance in a study in India it was reported to be 76.1% [21] while in Tanzania it was reported to be 79% [22]. An outstanding proportion of 91% was reported in Ghana [23] and this higher proportion might be a reflection of the socioeconomic status of their studied population.

The Arab spring that started in February 2011 and the civil war in Yemen that started in March 2015 had very bad effect on the health situation in Yemen [18,24,25]. A good proportion of patients with blinding cataract prefer to stay at their home village rather than going to a health center in the major cities because they are afraid of the security instability in these major cities. In this study 10.2% of the operated patients attributed not having their cataract surgery due to political crisis in Yemen.

8.1% of this study group attributed the barrier to have their cataract surgery due to distance and difficulty in transportation. Fuel for cars became difficult to find in the Yemeni market since 2011 and since then the black market became the main source of petrol with huge increase in its cost which led to increase in prices of transportation between governorates and in the major cities. During 2015 civil war, many of the main roads and bridges between villages and cities have been destroyed by air strikes which made transportation more difficult especially to the elderly [24]. In Madagascar distance was reported as the major barrier for cataract surgery uptake [26].

Because of the civil war there is increase in security check-points in the roads, which sometimes makes the trip to a city a nightmare for the passengers because of the long time spent for checking documents of passenger in these roads. This prevented many people to travel easily from one governorate to another governorate or a major city easily.

Women in Yemen cannot visit an eye center alone except with the presence of their husband, son or next of kin. This social habit reflected on delay in seeking ophthalmological opinion when needed and this explains why females (153, 53.9%) outnumbered males (131, 46.1%) in eye camps.

In our study, no case reported an untreated medical problem such as diabetes, hypertension and arthritis as a cause of barrier for cataract surgery. A study in Nigeria for instance reported untreated medical problem as the most common barrier [10].

No patients reported fear of surgery or religious belief as a barrier to have cataract surgery. Eye camps in Yemen are done by ophthalmic consultants or specialists with high success rate due to modern hi-tech cataract surgery with intraocular lens implantation [27]. In this study majority are done by small incision cataract surgery (SICE) (91.2%) and also some cases are done by phacoemulsification (2.5%). Most cases had intraocular lens implantation (99.3%). Due to this reason it got popularity in all governorates of Yemen [27].

Majority of operable cataract in this study were unioocular 54.6%, whereas bilateral accounted for 45.4%. Usually people with unioocular cataract are not blind so they do not go to an eye doctor for cataract surgery.

The mean age among patients who underwent cataract surgery operation in this study was 65.21 years old and this is consistent with our knowledge that cataract is an age related problems and usually seen in the elderly. The data presented in this study cannot be compared with governmental or private center findings because all patients who attended the eye camp did not go to governmental or private centers.

### Financial Support

None.

### Competing Interest

No competing interests.

### Ethical Approval

Yes.

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