IJHS 2016;2(1):23-27

http://ijhs.shmu.ac.ir

doi: 10.22100/ijhs.v2i0.84

Original Article

IJHS
International Journal of Health Studies

Outpatient and Hospitalization in Cataract Surgery: Iranian Cataract Surgery Survey

Hassan Hashemi[1,2], Mohammad Miraftab[1], Fatemeh Alipour[3], Farhad Rezvan[1],Abbasali Yekta[4], Mehdi Khabazkhoob[5*]

[1] Noor Research Center for Ophthalmic Epidemiology, Noor Eye Hospital, Tehran, Iran.
[2] Noor Ophthalmology Research Center, Noor Eye Hospital, Tehran, Iran.
[3] Farabi Eye Hospital, Tehran University of Medical Sciences, Tehran, Iran.
[4] Dept. of Optometry, School of Paramedical Sciences, Mashhad University of Medical Sciences, Mashhad, Iran.
[5] Dept. of Medical Surgical Nursing, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

Received: 3 February 2016
Accepted: 7 March 2016

Abstract

Background: *To determine the prevalence of outpatient and hospitalization for cataract surgery in Iran.*

Methods: *A random cluster sampling was done in a cross-sectional study on cataract surgeries performed in treatment centers of ophthalmology in Iran between 2000 and 2005. One week of each season was selected randomly and all cataract surgery files of the center were studied. This study reported the prevalence of outpatient surgery and length of hospital stay in all surgeries in Iran between 2000 and 2005.*

Results: *Among 13,409 studied files on cataract surgery, mean hospitalization time was 0.79±0.82 days, 31.42% of surgeries were done on an outpatient basis, and 62.32% were hospitalized for one night. About 4.45% and 1.81% were hospitalized for two nights and more, respectively. Hospitalization time after surgery showed no significant difference with sex. Also, There was no significant difference between mean age of inpatients and outpatients (P=0.08). The most common method used for surgeries was Phaco (52.33%) and the least was lensectomy (11.38%).*

Conclusions: *A major proportion of cataract surgeries required hospitalization. Due to the costs of hospitalization in this surgery, the phaco method can play an important role in reducing the costs of treatment.*

Keywords: Hospitalization, Cataract surgery, Iran, Middle-east
***Corresponding to:** M Khabazkhoob, **Email:** khabazkhoob@yahoo.com
Please cite this paper as: Hashemi H, Miraftab M, Alipour F, Rezvan F, Yekta A, Khabazkhoob M. Outpatient and hospitalization in cataract surgery: Iranian cataract surgery survey. Int J Health Stud 2016;2(1):23-27.

Introduction

Cataract is the most common senile eye disorder and the leading causes of blindness worldwide.[1-7]

A prevalence of 75% has been reported in people older than 50 years. Age-related cataract is the cause of 48% of blindness.[8] According to some reports, there are 18 million cases of bilateral cataract blindness around the world.[1] Despite the high prevalence of cataract in elderly and the general expectation of high coverage of surgery, the coverage is not still at an acceptable level in some countries. Cataract surgical coverage has been reported from 9.1% to 60%.[9-15] Some studies reported the coverage as 42%, 47.8%, 39.2%, and 35.6% in Nepal[16], China[17], Nigeria[18], and Malawi[11], respectively.It is worth mentioning that the main goal of Vision 2020 project is to increase cataract surgical rate (CSR) up to 85% worldwide to prevent a high proportion of cataract blindness and ultimately abolish preventable blindness caused by cataract.[11,17-21]

According to previous studies from Iran, the prevalence of blindness ranges from 0.28% to 1.33%.[22-24] However, they have all identified cataract as the main cause of blindness based on the corrected visual acuity. The cataract surgical rate has been reported to vary from 526 in 2000 to 1331 in 2005, which is low when compared to other studies.[25] Moreover, cataract surgical coverage was 66.4% in Varamin study by Katibeh et al.[26]

However, in recent years in addition to the quality of cataract surgery, the quantity is also one of the important issues. Besides the quantity and quality of the surgery, there are some other factors important to patients and even health systems.The cost of cataract surgery is also an important indicator from the viewpoint of health economics in this procedure.

Some reports showed that in addition to the surgery cost, the patient should bear some other costs before and after surgery.[27,28] Due to his condition after surgery, the patient may have to be hospitalized. If so, the patient and the health system may have to bear some other unforeseen costs. Castells etal.[29] reported that cost of cataract surgery for outpatients and inpatients was significantly different. He reported a cost of 349 Euros per night of hospital stay after surgery.[29]Hamed and Fedorowicz[30] also reported that hospitalization increases the cataract surgery costs by 20%. However, advances in cataract surgical techniques are not only expected to change this time and causes patient's satisfaction, but also provide us with more cost effective surgeries. The current report, which is part of the Iranian Cataract Surgery Survey (ICSS),[31] reviewed some effective factors on hospitalization time in cataract surgery with a focus on surgery type for the period of 5 years in Iran.

Materials and Methods

The target population of this cross sectional descriptive retrospective study was the Iranian population with cataract who underwent surgery in a cataract surgery center between 2000 and 2005. Although the method of sampling and methodology of this project has been already reported in detail,[31] we briefly present its methodology.

First, all cataract surgery centers in Iran were identified and categorized to minor and major centers according to the

primary information. The basis of categorization was the total number of eye surgeries in 2004. Centers with more than 1000 surgeries were regarded as major and centers with 1000 surgeries or fewer were considered minor centers. Of 292 centers, 213 centers that had more than 50 surgeries during six months entered the study. Nine centers had more than 1000 surgeries during six months which were regarded as major centers. After sorting the minor centers according to the number of surgeries, one out of every 10 centers (a total of 21 centers) was selected (since there were about 205 centers). The data of two minor centers was not collected since they were not cooperative. Therefore, the data of 28 centers (9 major and 19 minor centers) was collected which was one center less than the estimates.

After eliminating the first two weeks of the year (the new year holidays) when elective surgeries are not performed, one week in every season was randomly selected (one week in each season between 2000 and 2005 included 24 weeks in each center) and all cataract surgery files in that period of time were evaluated and the required information was extracted by the trained physicians.

Since cataract surgeries are performed in the operation room in Iran, this stage is appropriate for patient evaluation. After identifying the number of cataract surgeries in surgery centers through providing a list of eye surgery operating rooms of Iran and estimating their activities, the researchers attended the centers and supervised the process of retrieving the files and extracting the required data after obtaining authorization from hospital managers. The required information included age, sex, type of surgery, type of lens, admission and discharge dates, type of cataract, and intraoperative complications.

Hospitalization time as the percentage of hospital stay days, and its mean based on variables such as age, sex, type of surgery, cataract type, years of study and intraoperative complications were calculated and reported. The percentage of hospital stay days was reported with 95% confidence interval. To review the factors affecting number of postoperative hospitalization days, average hospitalization time was analyzed using ANOVA test. The design effect was calculated using 95% CI and standard errors and the results were adjusted.

The Ethics Committee of Tehran University of Medical Sciences approved the study protocol, which was conducted in accord with the tenets of the Helsinki Declaration.

Results

Of 13,409 files of the patients who underwent cataract surgery between 2000 and 2005, 13,103 had information on admission and discharge dates.

The mean age of the patients was 64.89±14.7 years (ranged from 1 month to 110 years). Of the mentioned number, 50% (n=6557) were male and 49.7% (n=6514) were female. Sex was not recorded in 0.2% (n=32) of the cases.

Mean hospitalization time of cataract surgery was 0.79 (SD=0.7). There was no significant difference between sexes (P=0.446) and it significantly decreased with age (P=0.036). Mean hospitalization was 1.05 and 0.57 in 2000 and 2005, respectively. The 6-year trend of hospitalization showed a significant decrease (P<0.001) (Figure 1)

The longest and shortest hospitalization time was related to lensectomy (1.44±1.42 days) and Phaco (0.53±0.82 day) methods, respectively. ANOVA test showed a significant difference between Lensectomy, Phaco, Intracapsular, and extracapsularmethods (P<0.001).

Of all analyzed cataract operations, 31.42% (n=4117) were performed on an outpatient. 62.32% (n=8166), 4.45% (n=583), and 1.81% (n=237) were hospitalized for 1, 2, and more than two nights, respectively. Table 1 shows the percentage of hospital stay for cataract surgery based on age and sex. Mean age of the outpatients was 65.4 years and it was 64.7 for inpatients with at least a night of hospital stay (P=0.087). Outpatient cataract surgeries consisted of 14.62% (n=210) (11.12-18.13, 95% CI) of all surgeries in 2000 and reached 49.44% (n=1380) (39.13-59.76) in 2005 (P=0.001). The study on surgery type and hospitalization time revealed that Phaco method with a prevalence of 52.33% (n=3220) (45.1-59.56, 95%CI) had the highest prevalence and intracapsular (10.6%, n=5) had the lowest prevalence of outpatient cataract surgery. Table 1 shows the distribution of hospital stay in cataract surgeries by surgical technique. There is a significant difference between different types of outpatient cataract surgery (P<0.001). Based on the results obtained from this study regarding the length of stay and type of cataract, it was revealed that the minimum hospitalization time was related to those with age-related cataract. These people were hospitalized 0.77 days on average, whereas the time for that withtraumatic cataract was 1.36 days. ANOVA test showed a significant difference between mean hospitalization time in different cataract surgery types (P<0.001).

Mean hospitalization time in people who suffered from intraoperative complications was 1.1 days (SD=0.75). The same time for those without complications was 0.75 (SD=0.7). T-test showed a significant difference between hospitalization time of those with and without intraoperative complications (P<0.001).

After evaluating the relationship between hospitalization and the above-mentioned variables, it was found that only the type of surgery was significantly correlated with mean hospitalization (P<0.001) and age (P=0.689), sex (P=0.143), type of cataract (P=0.514) and intraoperative complications (P=0.556) did not have a significant relationship with mean hospitalization.

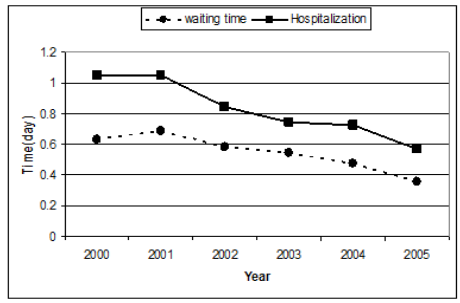

Figure 1. The distribution of hospitalization and waiting time by year

Besides, as Table 1 shows, 31.6% (n=3654) and 13.7% (n=31) of outpatients were those with age-related and traumatic cataract, respectively.

Table 2 shows the relationship between the prevalence of outpatient with other variables through a multiple logistic regression model. According to the model, older age and phaco surgery were significantly correlated with an increase in the prevalence of outpatient, and traumatic cataract and intraoperative complications had a significant correlation with a decrease in the prevalence of outpatient.

Figure 1 shows the relationship between hospitalization and waiting time. As seen, the waiting time (from referral to treatment) has reduced with decrease in hospitalization time over years. Linear regression analysis showed a 0.25 days increase in waiting time per each hospitalization day (P<0.001).

The results of this study showed that the prevalence of outpatient surgery was 35.9% (95% CI 26.7-45.1) and 15.2% (95% CI 8.6-21.8) in major and minor centers, respectively (P<0.001).

Table 1. The distribution of hospitalization and out-patient by some variables

		Out-patient	1_night	2_night	>2_night	Mean ±SD*
Age	10>	19.57(3.19-35.94)	60.87(47.23-74.51)	7.97(1.80-14.14)	11.59(0.63-22.55)	1.30±1.53
	11-40	24.67(20.35-28.98)	66.12(59.72-72.53)	5.94(3.47-8.41)	3.27(1.40-5.13)	0.91±0.78
	41-50	34.21(23.58-44.84)	60.71(50.49-70.94)	3.65(1.78-5.53)	1.42(0.78-2.06)	0.74±0.66
	51-60	32.97(23.22-42.72)	61.40(51.80-70.99)	4.03(2.69-5.37)	1.60(0.84-2.37)	0.78±0.87
	61-70	30.33(23.40-37.26)	63.80(57.72-69.87)	4.44(3.04-5.84)	1.43(1.03-1.83)	0.79±0.85
	71-80	30.57(23.40-37.74)	63.05(56.32-69.79)	4.58(3.44-5.72)	1.80(1.41-2.19)	0.80±0.79
	80<	34.94(26.97-42.92)	58.87(49.92-67.81)	4.30(3.24-5.37)	1.89(0.85-2.93)	0.74±0.66
Sex	Male	31.63(24.56-38.71)	62.06(54.98-69.14)	4.58(3.46-5.69)	1.74(1.41-2.07)	0.78±0.75
	Female	31.16(23.88-38.45)	62.65(55.55-69.75)	4.31(3.54-5.09)	1.87(1.48-2.27)	0.80±0.87
operation	Intracapsular	10.64(6.10-27.38)	87.23(73.66-100.00)	0	2.13(1.23-9.06)	0.98±0.68
	Extracapsular	12.00(9.50-14.51)	79.09(75.59-82.59)	6.54(5.14-7.94)	2.36(1.68-3.05)	1.02±0.70
	Phaco_e	52.33(45.10-59.56)	44.86(37.67-52.05)	2.06(1.44-2.69)	0.75(0.33-1.16)	0.53±0.82
	lensectomy	11.38(7.57-15.19)	65.45(54.76-76.13)	9.35(3.45-15.25)	13.82(8.93-18.71)	1.44±1.42
Cataract	Senile	31.62(24.34-38.90)	62.60(55.55-69.65)	4.21(3.23-5.18)	1.57(1.35-1.80)	0.78±0.80
	developm	26.07(14.71-37.43)	67.77(52.96-82.59)	4.74(0.59-10.18)	1.42(0.56-4.17)	0.83±0.68
	traumati	13.72(7.25-20.18)	63.27(52.94-73.61)	10.62(5.70-15.54)	12.39(8.45-16.33)	1.36±1.32
	congenit	21.71(2.17-41.24)	65.89(42.65-89.13)	5.43(0.48-10.37)	6.98(3.95-10.00)	1.11±1.31
Year	2000	14.62(11.12-18.13)	73.05(66.21-79.89)	8.91(5.46-12.37)	3.41(0.93-5.90)	1.05±0.84
	2001	15.95(10.31-21.58)	72.13(66.07-78.18)	8.53(4.36-12.70)	3.40(1.96-4.84)	1.05±1.01
	2002	23.99(12.41-35.56)	70.23(60.63-79.83)	4.25(2.33-6.17)	1.53(0.70-2.37)	0.84±0.64
	2003	33.03(26.43-39.63)	62.31(56.15-68.48)	3.05(0.81-5.29)	1.61(0.96-2.25)	0.75±0.68
	2004	34.97(27.18-42.77)	61.04(52.36-69.72)	2.92(2.13-3.71)	1.07(0.33-1.80)	0.73±0.91
	2005	49.44(39.13-59.76)	46.69(36.78-56.59)	2.69(1.44-3.93)	1.18(0.05-2.32)	0.57±0.71
Total		31.42(24.33-38.51)	62.32(55.32-69.32)	4.45(3.65-5.25)	1.81(1.64-1.98)	0.79±0.82

*Mean and standard deviation of the duration of hospitalization after cataract surgery

Table 2. Multiple adjusted logistic regression analysis between outpatient and some variable

Variable		OR (95%CI)	P.V
Age (year)		1.01(1 -1.01)	0.007
Gender	Male	1.0	
	Female	0.94 (0.87 -1.03)	0.175
Type of surgery	Intracapsular	1.0	
	Extracapsular	0.91(0.35 -2.32)	0.840
	Phaco E.	7.5 (2.94 -19.17)	<0.001
	Lensectomy	1.53 (0.53 -4.41)	0.427
Type of cataract	senile	1.0	
	Developmental	0.84(0.58 -1.22)	0.362
	Traumatic	0.50 (0.32 -0.81)	0.004
	Congenital	1.04(0.59 -1.82)	0.896
	others	0.74 (0.59 -0.93)	0.011
Complication	Yes	1	
	No	0.55(0.41 -0.73)	<0.001

OR: odds ratio
CI: confidence interval

Discussion

Reports from around the world showed that outpatient surgery costs is less and each night of hospital stay imposes some costs on the patient and the health system.[29,30,32,33]

Economic importance of hospitalization after cataract surgery was shown in a report by Castells etal.[29] in 2001. The report showed that the cost of cataract surgery for an outpatient was 104.1 Euro, whereas it was 350 for those with at least a night of hospital stay. We reported the status of hospitalization time for cataract surgery in Iran between 2000 and 2005. As noted, 31.42% of all surgeries were performed on an outpatient basis. Mojon-Azzi[34] assessed the same value as 68.5% in 10 European countries that shows obvious difference with our study. However, his study was done between 2004 and 2005 and comparison of our results for the same years shows a smaller difference.[34]Cillino eatl.[35] studied the results of 10 reports in central and southern Italy in 2005 and showed the rate of outpatient surgery from 50% to 100% in different centers.Another report from Italy showed that between 1999 and 2003 the amount of outpatient surgery increased compared with inpatient one and it changed from 27% in 1999 to 74% in 2003. Our study also showed an increase in the trend of outpatient cataract surgeries between 2000 and 2005. As noted in the results, Phacoemulsification was accompanied with the shortest hospital stay and most of outpatient surgeries were performed using this method. The main causes of the difference between the results of these studies seem to be the prevalence of cataract surgery using Phacoemulsification method. Prato reported an average of 2.5 days of hospital stay after cataract

surgery in Puglia which is more than what we measured in our study (0.79 days).[36]

Considering the post-operative medical expenses because of hospitalization that becomes a burden to patients and the society, it can be said that outpatient surgeries are more cost effective. Nghiem-Buffet etal.[37] reported that outpatient cataract surgery is more cost effective than old methods that need hospitalization. However, he also highlighted the fact that hospitalization after cataract surgery in some circumstances is inevitable.

Hospitalization time of cataract surgery even can affect the waiting time before the surgery. As noted, as the hospitalization time reduces, the waiting time also decreases. The main reason for this is the limited number of beds in surgery centers. As a result, as the hospitalization time increases, the waiting time of other patients increases too. We reported a significant increase in hospitalization time of those with intraoperative complications. Administration of antibiotics for those who suffer from intraoperative complications and their need for more care is the most important reason of hospital stay. Similarly, if there are any changes in IOP after cataract surgery, the patient needs a special care.[38,39]Various reports have approved that loss of vision was probable in patients who suffered intraoperative complications and were not provided with the proper care.[40-43]

As mentioned earlier, outpatient admission in major centers was two times more than the minor centers. It seems that since major centers are mostly single-specialty centers and ophthalmological facilities like Phacoemulsification are more available in these centers, they are capable of providing better ophthalmology services.

Finally, it should be noted that since this study was conducted about one decade ago, and considering the increasing trend of outpatient surgery and the trend of phaco surgery in recent years, outpatient surgery is expected to comprise a high percentage of the operations. Therefore, newer studies are suggested to be performed to determine the status of hospitalization in cataract surgery.

A major proportion of cataract surgeries required hospitalization between 2000 and 2005. Due to the short period of hospitalization in the phaco method, its wide use is expected to lower the hospitalization costs of cataract surgery.

Acknowledgement

This project was supported by Noor Ophthalmology Research Center.

Conflict of Interest

The authors declare that they have no conflict of interests.

References

1.Pascolini D, Mariotti SP. Global estimates of visual impairment: 2010. Br J Ophthalmol 2012;96:614-618. doi:10.1136/bjophthalmol-2011-300539

2.Dandona L, Dandona R. What is the global burden of visual impairment? BMC Med 2006;4:6.doi:10.1186/1741-7015-4-6

3.Dandona L, Dandona R. Estimation of global visual impairment due to uncorrected refractive error. Bull World Health Organ 2008;86:B-C. doi:10.2471/BLT.08.053652

4.Gaynor BD. World blindness: the problem with prevalence. Int Ophthalmol Clin 2007;47:xiii-xv.doi: 10.1097/IIO.0b013e31812f6952

5.Muula AS. The prevalence of low vision and blindness in an inner city in Canada. Eye 2007;21:274-5.doi:10.1038/sj.eye.6702522

6.Salomao SR, Cinoto RW, Berezovsky A, Araujo-Filho A, Mitsuhiro MR, Mendieta L, et al. Prevalence and causes of vision impairment and blindness in older adults in Brazil: the Sao Paulo Eye Study. Ophthalmic Epidemiol 2008;15:167-75.doi:10.1080/09286580701843812

7.Wong TY, Chong EW, Wong WL, Rosman M, Aung T, Loo JL, et al. Prevalence and causes of low vision and blindness in an urban malay population: the Singapore Malay Eye Study. Arch Ophthalmol 2008;126:1091-99.doi:10.1001/archopht.126.8.1091

8.Resnikoff S, Pascolini D, Etya'ale D, Kocur I, Pararajasegaram R, Pokharel GP, et al. Global data on visual impairment in the year 2002. Bull World Health Organ 2004;82:844-51.

9.Sasikumar S, Naved M, Saikumar SJ. Cataract surgical coverage in Kolenchery, Kerala, India. Community Eye Health 1998;11:7.

10.Eloff J, Foster A. Cataract surgical coverage: results of a population-based survey at Nkhoma, Malawi. Ophthalmic Epidemiol 2000;7:219-21.doi:10.1076/0928-6586(200009)731-VFT219

11.Courtright P, Metcalfe N, Hoechsmann A, Chirambo M, Lewallen S, Barrows J, et al. Cataract surgical coverage and outcome of cataract surgery in a rural district in Malawi. Can J Ophthalmol 2004;39:25-30.doi:10.1016/S0008-4182(04)80049-8

12.Bassett KL, Noertjojo K, Liu L, Wang FS, Tenzing C, Wilkie A, et al. Cataract surgical coverage and outcome in the Tibet Autonomous Region of China. Br J Ophthalmol 2005;89:5-9.doi:10.1136/bjo.2004.048744

13.Athanasiov PA, Casson RJ, Newland HS, Shein WK, Muecke JS, Selva D, et al. Cataract surgical coverage and self-reported barriers to cataract surgery in a rural Myanmar population. Clin Experiment Ophthalmol 2008;36:521-525.doi: 10.1111/j.1442-9071.2008.01829.x

14.Bejiga A, Tadesse S. Cataract surgical coverage and outcome in Goro District, Central Ethiopia. Ethiop Med J 2008;46:205-10.

15.Rabiu MM, Jenf M, Fituri S, Choudhury A, Agbabiaka I, Mousa A. Prevalence and causes of visual impairment and blindness, cataract surgical coverage and outcomes of cataract surgery in Libya. Ophthalmic Epidemiol 2013;20:26-32.doi:10.3109/09286586.2012.746994

16.Pokharel GP, Regmi G, Shrestha SK, Negrel AD, Ellwein LB. Prevalence of blindness and cataract surgery in Nepal. Br J Ophthalmol 1998;82:600-5.doi:10.1136/bjo.82.6.600

17.Zhao J, Jia L, Sui R, Ellwein LB. Prevalence of blindness and cataract surgery in Shunyi County, China. Am J Ophthalmol 1998;126:506-14.doi:10.1016/S0002-9394(98)00275-X

18.Mpyet C, Dineen BP, Solomon AW. Cataract surgical coverage and barriers to uptake of cataract surgery in leprosy villages of north eastern Nigeria. Br J Ophthalmol 2005;89:936-38.doi:10.1136/bjo.2004.062455

19.Ferrer-Blasco T, Montes-Mico R, Peixoto-de-Matos SC, Gonzalez-Meijome JM, Cervino A. Prevalence of corneal astigmatism before cataract surgery. J Cataract Refract Surg 2009;35:70-5.doi:10.1016/j.jcrs.2008.09.027

20.Liu B, Xu L, Wang YX, Jonas JB. Prevalence of cataract surgery and postoperative visual outcome in Greater Beijing: the Beijing Eye Study. Ophthalmology 2009;116:1322-31.doi:10.1016/j.ophtha.2009.01.030

21.Sapkota YD, Pokharel GP, Nirmalan PK, Dulal S, Maharjan IM, Prakash K. Prevalence of blindness and cataract surgery in Gandaki Zone, Nepal. Br J Ophthalmol 2006;90:411-16.doi:10.1136/bjo.2005.082503

22.Fotouhi A, Hashemi H, Mohammad K, Jalali KH. The prevalence and causes of visual impairment in Tehran: the Tehran Eye Study. Br J Ophthalmol 2004;88:740-745.doi:10.1136/bjo.2003.031153

23.Hashemi H, Khabazkhoob M, Emamian MH, Shariati M, Fotouhi A. Visual impairment in the 40- to 64-year-old population of Shahroud, Iran. Eye 2012;26:1071-77.doi:10.1038/eye.2012.94

24.Shahriari HA, Izadi S, Rouhani MR, Ghasemzadeh F, Maleki AR. Prevalence and causes of visual impairment and blindness in Sistan-va-Baluchestan Province, Iran: Zahedan Eye Study. Br J Ophthalmol 2007;91:579-84.doi:10.1136/bjo.2006.105734

25.Hashemi H, Alipour F, Mehravaran S, Rezvan F, Fotouhi A, Alaedini F. Five year cataract surgical rate in Iran. Optom Vis Sci 2009;86:890-94.doi: 10.1097/OPX.0b013e3181ae1cc6

26.Katibeh M, Ziaei H, Rajavi Z, Hosseini S, Javadi MA. Profile of cataract surgery in Varamin Iran: a population-based study. Clin Experiment Ophthalmol 2014;42:354-59.doi: 10.1111/ceo.12185

27.Agarwal A, Kumar DA. Cost-effectiveness of cataract surgery. Curr Opin Ophthalmol 2011;22:15-18.doi: 10.1097/ICU.0b013e3283414f64

28.Osahon AI. Cataract surgery output and cost of hospitalization for cataract surgery in the University of Benin Teaching Hospital. West Afr J Med 2002;21:174-76.

29.Castells X, Alonso J, Castilla M, Ribo C, Cots F, Anto JM. Outcomes and costs of outpatient and inpatient cataract surgery: a randomised clinical trial. J Clin Epidemiol 2001;54:23-9.doi:10.1016/S0895-4356(00)00271-7

30.Hamed WW, Fedorowicz Z. Day care versus in-patient surgery for age-related cataract. Cochrane Database Syst Rev 2003;CD004242.doi: 10.1002/14651858.CD004242

31.Hashemi H, Alipour F, Fotouhi A, Alaeddini F, Rezvan F, Mehravaran S, et al. Iranian Cataract Surgery Survey: Design and Study Protocol. Iran J Ophthalmol 2010;22:39-44.

32.Fedorowicz Z, Lawrence D, Gutierrez P, van Zuuren EJ. Day care versus in-patient surgery for age-related cataract. Cochrane Database Syst Rev 2011;CD004242.doi: 10.1002/14651858.CD004242.pub4

33.Fan YP, Boldy D, Bowen D. Comparing patient satisfaction, outcomes and costs between cataract day surgery and inpatient surgery for elderly people. Aust Health Rev 1997;20:27-39.doi:10.1071/AH970027

34.Mojon-Azzi SM, Mojon DS. The rate of outpatient cataract surgery in ten European countries: an analysis using data from the SHARE survey. Graefes Arch Clin Exp Ophthalmol 2007;245:1041-44.doi 10.1007/s00417-007-0550-4

35.Cillino S, Casuccio A, Di Pace F, Pillitteri F, Cillino G, Lodato G. Day care cataract surgery in Central and Southern Italy: a multicentric survey. BMC Health Serv Res 2007;7:16.doi: 10.1186/1472-6963-7-16

36.Prato R, Germinario C, Pastore R, Napoli C, Squicciarini R, Lopalco PL. [Hospitalisations for cataract surgery in Puglia 2000-2002]. Ig Sanita Pubbl 2005;61:249-59.

37.Nghiem-Buffet MH, de Pouvourville G, Renard G, Ullern M, Boureau C, Chaine G. Cost of managing cataracts. Evaluation of traditional hospitalization and ambulatory surgery. Presse Med 2001;30:1924-26.

38.Casson RJ, Riddell CE, Rahman R, Byles D, Salmon JF. Long-term effect of cataract surgery on intraocular pressure after trabeculectomy: extracapsular extraction versus phacoemulsification. J Cataract Refract Surg 2002;28:2159-64.doi:10.1016/S0886-3350(02)01501-8

39.Brar GS, Ram J, Pandav SS, Reddy GS, Singh U, Gupta A. Postoperative complications and visual results in uniocular pediatric traumatic cataract. Ophthalmic Surg Lasers 2001;32:233-8.doi: 10.3928/1542-8877-20010501-10

40.Naeser K, Hansen TE, Nielsen NE. Visual outcome and complications following intracapsular and extracapsular cataract extraction. A prospective, controlled follow-up study. Acta Ophthalmol 1990;68:733-8.doi: 10.1111/j.1755-3768.1990.tb01704.x

41.Al Faran MF. Visual outcome and complications after cataract extraction in Saudi Arabia. Br J Ophthalmol 1990;74:141-3.doi:10.1136/bjo.74.3.141

42.Naeser K, Rask KL, Hansen TE. Complications and visual outcome 4 months after extracapsular cataract extraction with implantation of posterior chamber lenses. A prospective clinical study. Acta Ophthalmol 1986;64:540-3.doi: 10.1111/j.1755-3768.1986.tb06969.x

43.Eriksen JS, Nielsen NV. Visual outcome and complications in 287 intraocular lens implants (Federow) compared with 290 intracapsular cataract extractions. Acta Ophthalmol (Copenh) 1983;61:67-75.doi: 10.1111/j.1755-3768.1983.tb01396.x