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TO EVALUATE THE PRESCRITION TRENDS AND PREVALENCE OF CATARACT IN THE REGION OF SIALKOT, PAKISTAN

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Abstract

Cataract, the opacity of the lens due to age is a major public health problem, which leads to blindness if not treated. This study was carried out to evaluate the prescription trends and prevalence of cataract in whole population without the age limitation and prescription trends in Sialkot. A prevalence type of study design based on the single blinded randomized method was used for the evaluation of prevalence rate in the region of Sialkot. Total 50 patients were randomly selected which included male, female and children.The questionnaire form was designed so that data collected according to the need of the research. Total 50 patients were examined in which prevalence rate was evaluated i.e. female (54%), male (38%) and children (8%) and according to age groups 0-20 years (8%), 21-40 years (6%). 41-60 years (42%) and 61- 80 years (44%). Surgery was the only option for the treatment of cataract, extracapsular cataract extraction and phacoemulsification techniques were used in Sialkot. Percentage utilization of these surgeries was 45% extracapsular cataract extraction and 55% (phacoemulsification).**Conclusion:** Cataract is highly prevailing in female than male. As the age increases cataract prevalence rate increases mostly in between 60-80 age groups. No medication only treatment with surgery is the option.

Keywords: *Cataract, Prevalence, Phacoemulsification*

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Introduction

Any cloudiness in lens or capsule is known as Cataract and may be generally divided into early-onset (congenital or juvenile) and age-related cataract [1].Cataract is the opacity of the lens of the eye and remains the most common cause of vision loss in humans. Cataract is painless, clouding of the eye lens which blocks the light entrance into the retina. various causes of cataract formation are lens protein denature and degrade by the passage of time and this process enhanced by diabetes and hypertension, ultraviolet light, genetic diseases like down syndrome, Edwards syndrome, skin diseases like atopic dermatitis, eczema and drugs like corticosteroids, antipsychotics and cigarette smoking, other causes are infection such as leprosy, varicella and toxoplasmosis also metabolic and nutrition disorders such as diabetes mellitus, hypertension and Wilson's disease [2].Oxidation of proteins of lens and lipids is linked with the cataract formation whereas little oxidation is associated with control objects[3]. Another mechanism of development of cataract due to diabetes is due to aldose reductase which initiates the cataract formation in diabetic animals. Sugar is converted to polyols by lens aldose reductase. In diabetes induce cataract there is accumulation of polyols which cause hypertonicity leading to lens swelling [4].

In US 20.5 million Americans older than 40 are suffering from cataract and women have significantly odds ratio = 1.37; 95% confidential interval, 1.26 to 1.50 [5].In Pakistan 570000 adults are blind and 3560000 eyes having a visual acuity [6]. From past study in Nepal the primary cause of blindness were cataract (48.1%), retinal disorders (4%) and corneal opacity (3.8%) [7].The prevalence of cataract in Africa was: Nuclear subcapsular cataract 15.6%, cortical cataract 8.8% and posterior subcapsular cataract was 1.9%. All forms of cataract increased with age and prevail most commonly in women than men [8].

Recent results from a case-control study of cataract are showed that the risks of cataract are associated with a number of factors some of them are diarrhea, renal failure and diabetes mellitus [9]. Diagnosis is made by eye examination, ophthalmoscopy and tonometry [10]. There are three types of surgeries for cataract such as extracapsular cataract surgery, phacoemulsification and intracapsular cataract surgery. Phacoemulsification procedure cause cell loss rapidly in patients with hard cataract so for these patients phacoemulsification may not be the optimal procedure so extracapsular cataract surgery should be preferred [11]. Cataract postoperative surgery complications are Retinal detachment, corneal decompensation, Endophthalmitis, Cystoid macular edema, Posterior capsular opacification [12]. Rare type of complications are intraoperative complications are Suprachoroidal hemorrhage, Posterior capsular rupture and Complications in patients with other ocular co-morbidities are Diabetic neuropathy, Glaucoma, Uveitis. Reducing ocular exposure to ultraviolet radiations and quitting smoking are the only preventive measures that can minimize the factors that enhance the risk of cataract. Cataract surgery is not equally accessible to all and the surgery which is available does not produce accurate and equal outcomes [13].

For the reduction of all types of cataracts antioxidants are used, but more studies are needed [14]. Reduction of postoperative inflammation corticosteroids, cycloplegics and non-steroidal anti inflammatory agents has been used. Topical non-steroidal anti inflammatory preparations such as Diclofenac sodium 0.1% and ketorolac have similar efficacy to corticosteroids [15]. Diclofenac eye drops reduce the incidence of ocular inflammation and reduce the occurrence of angiographic cystoids macular edema after cataract surgery [16]. 0.5% solution of ketorolac tromethamine was very effective to reduce the inflammation after ECCE and intraocular lens (IOL) implantation and also very effective topical NSAID after intraocular implantation and ECCE surgery [17]. For the prevention of endophthalmitis operative and non-operative both factors are very important. Antibiotics injection by subconjunctival route is beneficial for the prophylaxis of endophthalmitis. 81% incidence of endophthalmitis is reduced by this strategy [18].

Methodology

Study sample and its recruitment:

The study on cataract was done to check the quantitatively prevalence of the cataract disease. Single blinded Randomized multistage clinical study was conducted in which researchers evaluated the eligible subjects from the range of 50 of various age groups suffering from cataract. Eligible subjects belong to area of Sialkot and its relevant areas. Data was collected on a questionnaire.

Type of study:
The studyhad been conducted under the prevalence type of study design based on the single blinded randomized method in the region of Sialkot and relevant areas. Prevalence study (Cross sectional), randomly selected patients study was conducted [19]. The questionnaire form was designed according to the need of the research and data was collected on questionnaires during patient interviewing.

Methods of Data Collection:
Research was conducted, on the base of single blinded randomized method. Subjects that were evaluated in 50 numbers suffering from cataract disease of various age and gender (Male, Female and children).The people having history of other diseases such as hepatitis, UTI's, diabetes etc. Diabetes cause cataract [20]. The various hospitals, eye center and other relevant departments Such as Allama Iqbal Memorial hospital, Sardarbeigum hospital and Hussain eye center visited by researcher. This research was conducted during the period of one year from January 2016 to November 2016. The researchers were conducted and recorded one thousands patient's data during the specified period of research, in which asked about the past medical history, family history, social activities, job and present medical history. Researcher gives the opportunity to the patients who visited the hospitals or eye clinic to ask questions for clarification. The data, during the interviewing of the patients, collected on the questionnaire (as shown in the figure 1).

Selection Criteria:
Patients selection criteria is given in table 1 which include inclusion and exclusion criteria of patients.

Data Analysis:
In this research data analyzed by using the bar chart on excel and interoperated prevalence of cataract in the Sialkot district according to according to age groups and female, male, children comparison chart. Percentage (%) of surgeries used for cataract also analyzed detail given in result and discussion section.

Discussion

Prevalence: From 50 patients, 27 were cataract female, 19 male and 4 children and their prevalence was 54%, 38% and 8% (as shown in figure 2). This data shows that the maximum numbers of female patients were subjected to cataract as compared to male and children. In a study, women had a higher percentage of prevalence than men that is 64.0% and men have 56.1%. Increased age and female gender were the main factors that were associated with the increased risk of all forms of cataract in female [21]. In past 20 cigarettes per day increase the incidence of cataract development but not nuclear sclerosis cataract. For present cigarettes smokers fewer than 20 cigarettes per day, no risks were examined [22]. Childhood cataract is the most common cause of treatable cataract. Approximately 20,000-40,000 children formulate bilateral cataract are born every year [23]. According to age groups prevalence was 0-20 (8%) i.e. 4 patients, 21-40 (6%) i.e. 3 patients, 41-60 (42%) i.e. 21 patients and 61- 80 (44%) i.e. 22 patients (as shown in figure 3). Prevalence rate was higher in age groups 60-80 this is due to age related factors. In past, 3 district of Punjab were surveyed for age related cataract that depict that prevalence rate was 1% for age between 30- 49 and then increased remarkably in 6th and 7th decades to 67% for age greater than 70 [24]. Over 60 years of age prevalence was 76.9±18% in male and 83.2±1.3% [25].

Treatment: Surgery was the only option for the treatment of cataract, extracapsular cataract extraction and phacoemulsification techniques were used in Sialkot. Percentage utilization of these surgeries was 45% extracapsular cataract extraction and 55% (phacoemulsification) (as shown in figure 4). In the past 10 years the surgical treatment for cataract has improved by using phacoemulsification technique. This technique is clinically beneficial and reduced individual expenses [26].

Results

Prevalence: Total 50 patients were selected randomly. From 50 patients prevalence rate in female were 54%, male (38%) and children (8%). According to age groups prevalence rate was increases as age increases i.e. 0-20 (8%), 21-40 (6%), 41-60 (42%) and 61-80 (44%).

Treatment: Surgery was used for the treatment of cataract. Percentage utilization of phacoemulsification was 55% and extracapsular cataract extraction was 45%.

Conclusion

In the region of Sialkot and its relevant areas limited number of patients randomly selected i.e. only 50 and data is evaluated which shows that cataract is highly widespread in female than male. As the age increases cataract prevalence rate

increases mostly in age greater than 60. No medication treats the cataract only treatment with surgery is the option.

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References

1. Vijaya, R., Gupta, R., Panda, G., Ravishankar, K., &Kumaramanickavel, G. (1997). Genetic analysis of adult-onset cataract in a city-based ophthalmic hospital. *Clinical genetics*, *52*(6), 427-431.
2. Taylor, H. R., & Muñoz, B. (1989). Risk factors for cataract. *The British journal of ophthalmology*, *73*(7), 579.
3. Spector, A. (1995). Oxidative stress-induced cataract: mechanism of action. *The FASEB Journal*, *9*(12), 1173-1182.
4. Kinoshita, J. H., Fukushi, S., Kador, P., &Merola, L. O. (1979). Aldose reductase in diabetic complications of the eye. *Metabolism*, *28*(4), 462-469.
5. Eye Diseases Prevalence Research Group. (2004). Prevalence of cataract and pseudophakia/aphakia among adults in the United States. *Archives of Ophthalmology*, *122*(4), 487.
6. Jadoon, Z., Shah, S. P., Bourne, R., Dineen, B., Khan, M. A., Gilbert, C. E., ... & Pakistan National Eye Survey Study Group. (2007). Cataract prevalence, cataract surgical coverage and barriers to uptake of cataract surgical services in Pakistan: the Pakistan National Blindness and Visual Impairment Survey. *British Journal of Ophthalmology*, *91*(10), 1269-1273.
7. Sherchan, A., Kandel, R. P., Sharma, M. K., Sapkota, Y. D., Aghajanian, J., & Bassett, K. L. (2010). Blindness prevalence and cataract surgical coverage in Lumbini Zone and Chetwan District of Nepal. *British Journal of Ophthalmology*, *94*(2), 161-166.
8. Congdon, N., West, S. K., Buhrmann, R. R., Kouzis, A., Munoz, B., &Mkocha, H. (2001). Prevalence of the different types of age-related cataract in an African population. *Investigative ophthalmology & visual science*, *42*(11), 2478-2482.
9. Harding, J. J., & Van Heyningen, R. (1987). Epidemiology and risk factors for cataract. *Eye*, *1*(5), 537-541.
10. Javitt, J. C., Wang, F., & West, S. K. (1996). Blindness due to cataract: epidemiology and prevention. *Annual review of public health*, *17*(1), 159-177.
11. Bourne, R. R., Minassian, D. C., Dart, J. K., Rosen, P., Kaushal, S., & Wingate, N. (2004). Effect of cataract surgery on the corneal endothelium: modern phacoemulsification compared with extracapsular cataract surgery. *Ophthalmology*, *111*(4), 679-685.
12. Sabanayagam, C., Wang, J. J., Mitchell, P., Tan, A. G., Tai, E. S., Aung, T., ... & Wong, T. Y. (2011). Metabolic syndrome components and age-related cataract: the Singapore Malay eye study. *Investigative ophthalmology & visual science*, *52*(5), 2397-2404.
13. Brian, G., & Taylor, H. (2001). Cataract blindness: challenges for the 21st century. *Bulletin of the World Health Organization*, *79*(3), 249-256.
14. Seddon, J., Fong, D., West, S. K., &Valmadrid, C. T. (1995). Epidemiology of risk factors for age-related cataract. *Survey of ophthalmology*, *39*(4), 323-334.
15. Simone, J. N., & Whitacre, M. M. (2001). Effects of anti-inflammatory drugs following cataract extraction. *Current opinion in ophthalmology*, *12*(1), 63-67.
16. Rossetti, L., Bujtar, E., Castoldi, D., Torrazza, C., &Orzalesi, N. (1996). Effectiveness of diclofenac eyedrops in reducing inflammation and the incidence of cystoid macular edema after cataract surgery. *Journal of Cataract & Refractive Surgery*, *22*, 794-799.
17. Flach, A. J., Lavelle, C. J., Olander, K. W., Retzlaff, J. A., & Sorenson, L. W. (1988). The effect of ketorolac tromethamine solution 0.5% in reducing postoperative inflammation after cataract extraction and intraocular lens implantation. *Ophthalmology*, *95*(9), 1279-1284.
18. Ng, J. Q., Morlet, N., Bulsara, M. K., &Semmens, J. B. (2007). Reducing the risk for endophthalmitis after cataract surgery: population-based nested case-control study:

endophthalmitis population study of Western Australia sixth report. *Journal of Cataract & Refractive Surgery*, *33*(2), 269-280.
19. Reidy, A., Minassian, D. C., Vafidis, G., Joseph, J., Farrow, S., Wu, J., ... & Connolly, A. (1998). Prevalence of serious eye disease and visual impairment in a north London population: population based, cross sectional study. *Bmj*, *316*(7145), 1643-1646.
20. NIELSEN, N. V., & VINDING, T. (1984). THE PREVALENCE OF CATARACT IN INSULIN-DEPENDENT AND NON-INSULIN-DEPENDENT-DIABETES MELLITUS. *Actaophthalmologica*, *62*(4), 595-602.
21. Tsai, S. Y., Hsu, W. M., Cheng, C. Y., Liu, J. H., & Chou, P. (2003). Epidemiologic study of age-related cataracts among an elderly Chinese population in Shih-Pai, Taiwan. *Ophthalmology*, *110*(6), 1089-1095.
22. Christen, W. G., Manson, J. E., Seddon, J. M., Glynn, R. J., Buring, J. E., Rosner, B., &Hennekens, C. H. (1992). A prospective study of cigarette smoking and risk of cataract in men. *Jama*, *268*(8), 989-993.
23. Foster, A., Gilbert, C., &Rahi, J. (1997). Epidemiology of cataract in childhood: a global perspective. *Journal of Cataract & Refractive Surgery*, *23*, 601-604.
24. Chatterjee, Arin, Roy C. Milton, and Sydney Thyle. "Prevalence and aetiology of cataract in Punjab." *British Journal of Ophthalmology* 66, no. 1 (1982): 35-42
25. Yoon, K. C., Mun, G. H., Kim, S. D., Kim, S. H., Kim, C. Y., Park, K. H., ... & Yang, S. W. (2011). Prevalence of eye diseases in South Korea: data from the Korea national health and nutrition examination survey 2008-2009. *Korean Journal of Ophthalmology*, *25*(6), 421-433.
26. Gogate, P., Deshpande, M., &Nirmalan, P. K. (2007). Why do phacoemulsification? Manual small-incision cataract surgery is almost as effective, but less expensive. *Ophthalmology*, *114*(5), 965-968.

Table 1: Selection criteria

Inclusion	Exclusion
The subjects of Sialkot and relevant areas.	The subjects are not belonging to Sialkot and relevant areas.
The subjects are suffering from cataract.	The subjects having no cataract illness.
The subjects are informed to consent of research.	The subjects have other than cataract diseases such as Heart problems, UTI's, Infectious disease and hepatitis etc.
The subjects are suffering from DM.	History of allergy to any corticosteroids.

Table 2: To check the prevalence of cataract in whole population of Sialkot

Sr.no	Population	Sample size(n)	Total cataract patients	Percentage (%) prevalence
1	Female	50	27	54%
2	Male	50	19	38%
3	Children	50	4	8%

Table 3: To check the commonly used surgeries

Sr.no	Commonly used surgeries	Percentage (%) usage
1	ECCE	45%
2	Phacoemulsification	55%

Table 4: To check the prevalence of cataract according to age groups

Sr.no	Age groups	Sample size (n)	Total cataract patients	Female cataract patients	Male cataract patients	Child cataract patients	Percentage (%) prevalence
1	0-20	50	4	0	0	4	8%
2	21-40		3	1	2	0	6%
3	41-60		21	13	8	0	42%
4	61-80		22	13	9	0	44%

Questionnaire:

TO ASSESS THE PREVALENCE OF CATARACT IN WHOLE P OPULATION AND PRESCRIPTION TRENDS

Patient's details	Hospital details
Patient name:	Hospital name:
Address:	City:
	Ophthalmologist details
Age:	Name:
Phone no:	Practice:

This form is design to help you have your cataract treated in the best way possible.

Please complete all the segments.If you are unable to provide any of the information, please ask a member of your family or a friend to help.

If you have any problems completing this form, your eye specialist will help you. Please bring de tail of your medication with you.

SEGMENT 1: PAST EYE HISTORY

1. Do you currently have, or previously had any other eye conditions? Yes Or No
If yes, please give details:
2. Any previous eye operations including refractive surgery or laser treatment?
If yes, please give details:
Please describe any complications with the operation(if any):

SEGMENT 2: PAST MEDICAL HISTORY

Do you have high blood pressure requiring treatment? **If yes: Are you on treatment Yes/No**	**Yes/No**
Do you have diabetes?	**Yes/No**
Do you have angina?	**Yes/No**
Have you had a heart attack within last three month?	**Yes/No**
Do you have epilepsy?	**Yes/No**
Do you suffer from head or neck stiffness?	**Yes/No**
Do you have recurrent breathing difficulties?	**Yes/No**
Can you walk a single flight of stairs without getting short of breath?	**Yes/No**
Can you lie flat for upto30min? Is this due to shortness of breath? **If no:** Is this due to joint or muscle stiffness?	**Yes/No** **Yes/No** **Yes/No**

SEGMENT 3: MEDICATION HISTORY

1.Do you regularly take any of the following medicines?

Heart medicines (e.g Digoxin)	**Yes/No**
High blood pressure medicines	**Yes/No**
Steroids	**Yes/No**
Anticoagulants (e.g Warfarin)	**Yes/No**
Tamsulosin (Flomax)	**Yes/No**
Inhalers	**Yes/No**
Insulin/Blood sugar tablets	**Yes/No**
2. Are you allergic to local anesthetics?	**Yes Or No**
3.Are you allergic to any medicinal agents?	**Yes Or No**
If yes, please give details:	
4. Please detail any other medicines you are taking or attach repeat a prescription?	

SEGMENT 4: SOCIAL HISTORY

Your occupation:
Do you smoke? Yes OR No, If yes packs per day_____, years_____
Do you drink alcohol? Yes OR No, if yes # of drinks per day? _____
Have you ever used any addictive substances? Yes OR No, if yes, what drug(s)? _____

SEGMENT 5: HOW ISA CATARACT AFFECTING YOUR LIFE?

1. If you drive, do you still feel confident to do so?	**Yes Or No**
2.Is your eye problem causing you any difficulty duringcrossing the roads or using buses?	**Yes Or No**
3.Do you have problems with glare in sunlight?	**Yes Or No**
4.Is your vision causing problems socially? **e.g. handling notes, coins and recognizing peoples**	**Yes Or No**
5.Is your quality of life affected by visual difficulties? **e.g. reading books, sports, watching TV**	**Yes or No**
6.Is your vision affecting your ability to look after to yourself? **e.g. cooking, housework or dressing**	**Yes Or No**
7.How much better do you think your life would be without a cataract? **Tick one:**	
• A lot? • Moderately? • Slightly? • Not at all?	

SEGMENT 6: DIAGNOSTIC TOOLS

1. _____

2. _____

3. _____

Follow up:

Days	1	2	3	4	5
Date					
Signs					

SEGMENT 7: FINALLY

1. Do you preferred surgery if your optometrist offers you for surgery? Yes Or No

I am acquiescent to collaborate with the students for this study

Signature of patient: _____ Pharmacist:_____

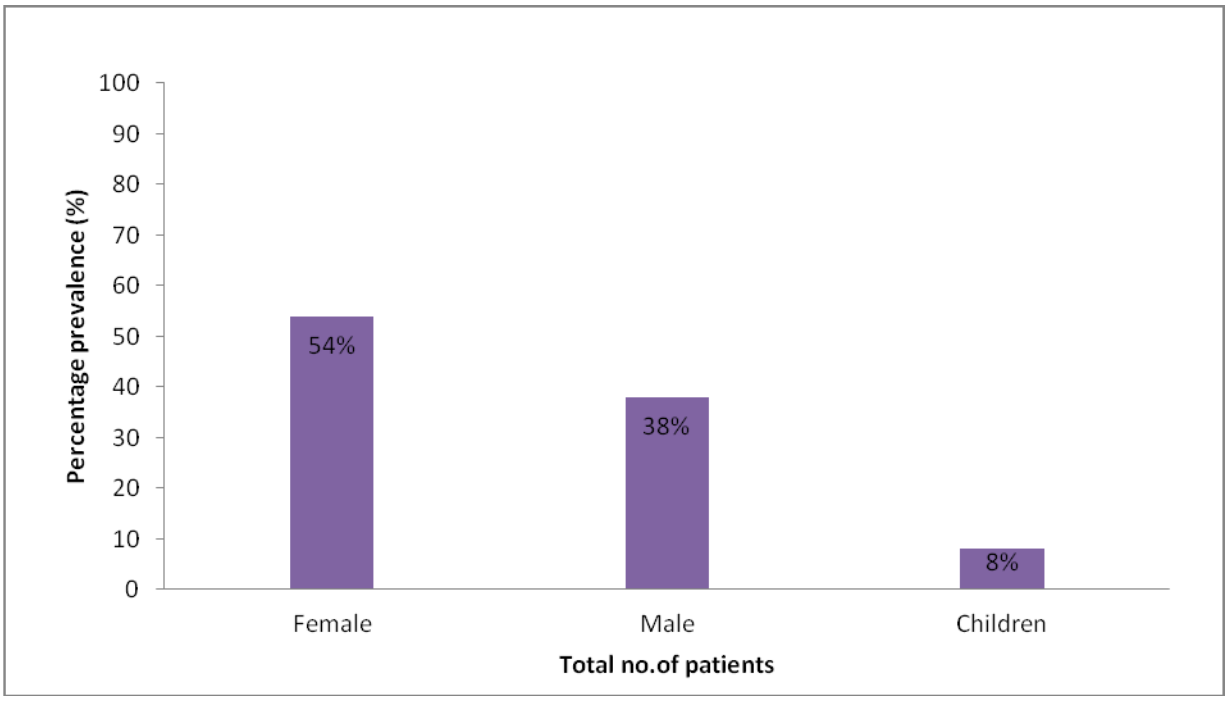

Figure 2: To check the prevalence of cataract in whole population of Sialkot

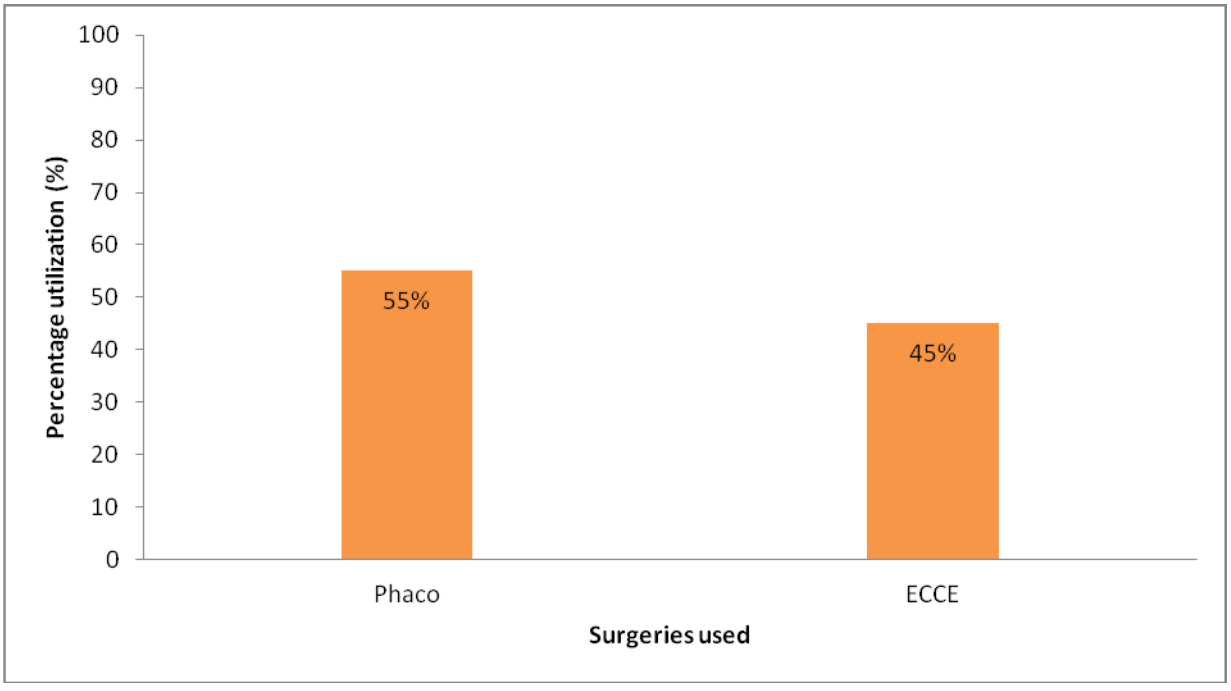

Figure 3: Most commonly used surgeries for cataract

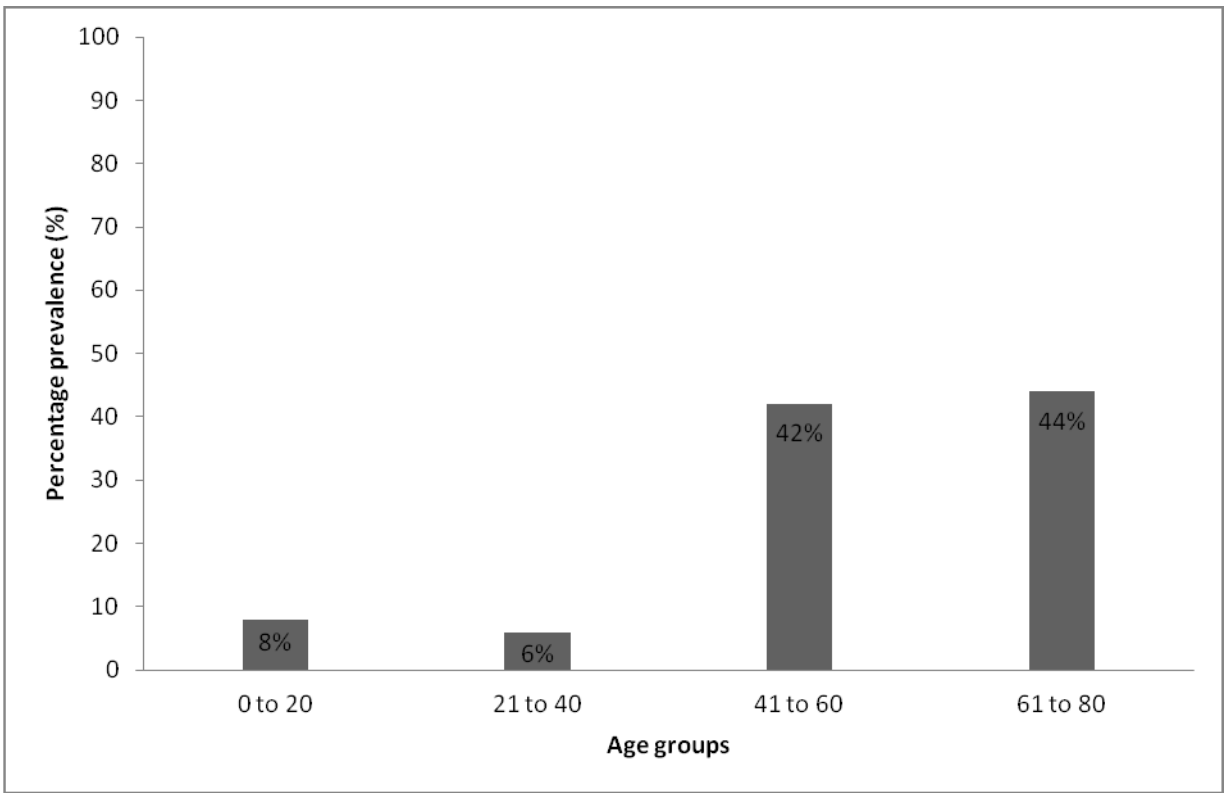

Figure 4: To check the prevalence of cataract according to age groups