

An Epidemiological Study of Cataract in Patients Attending Ophthalmology OPD at Tertiary Care Hospital

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ABSTRACT

Introduction: Cataract is one of the most common ocular diseases and its incidence increases with age. The objectives of the study is to study the risk factors of cataract, proportion of cataract and to find the association between epidemiological factors and type of cataract in among patients attending ophthalmology OPD of tertiary care hospital.

Materials and methods: Hospital based observational cross-sectional study. Total of 400 (males -236 and females- 164) patients of diagnosed cases of cataract were studied. The data was collected using a self structured questionnaire. Descriptive and inferential statistical analysis are applied, Chi-square/ Fisher Exact test has been used. SPSS version 23.0 and R environment ver.3.2.2 were used for analysis.

Results: 400 patients belonged 4 - 80 years of age group. Majority were 41-70 yrs (82 %). 67.35 belonged to modified B.G. Prasad socio economic class 3 & 4. Locality wise 347 patients were rural areas, 53 patients (13.3%) from urban area. Mixed type of cataract was most common variety (38.3%), nuclear (26.8), posterior cub capsular variety (25.3 %) and posterior polar variety (9.8 %). Prevalence of diabetes mellitus was 15.5 %, hypertensive patients was 10.3 % and alcoholic patients was 9.5 % among study subjects. Majority (295) had ultra violet rays' exposure mainly in form of

sunlight.

Association of Age, gender, religion, education, occupation and family history with type of cataracts were studied and gender association was significant statistically and others were non-significant statistically. Association of socio-economic status, locality, housing, overcrowding and fuel were studied and fuel (Kerosene oil, Firewood and LPG) association was significant statistically and others were non-significant statistically.

Conclusions: *Diabetes, Hypertension, Exposure to Ultraviolet Rays, Female gender, Kerosene oil and Firewood among fuels are risk factors of cataract. Mixed type of cataract is most common followed by nuclear type and by posterior sub-capsular type and posterior polar variety was minimal among patients attending OPD.*

Kerosene oil use is associated with increased association of nuclear type. Both ultra violet rays' exposure and alcoholism are associated with mixed type cataract. Further studies on factors like housing, overcrowding, exposure to ultra violet rays with larger samples are required for policy decisions.

Key words: *Cataract, Risk factors, OPD patients*

INTRODUCTION

Cataract is one of the most common ocular diseases and its incidence increases with age. Cataract is featured usually by slowly progressive diminution of vision which hampers vision significantly unilaterally or bilaterally. In India alone 3.8 million people become blind from cataract each year. Cataract is a major cause of blindness worldwide, particularly so in India (1). Cataract constitutes 55% of total blindness in this country (2).

Global estimates suggest that approximately two thirds of the blind population are females (3). Cataract accounts for over half of all blindness worldwide (4). Similarly, Barman S K et al 2014 concluded in a study that cataract forms a major portion of morbidity in patients of 60-69 years of age, and occurrence was 61.25% (5). A study by Agarwal P in 2013 found that world is ageing and in patients of more than 60 years of age, cataract forms one of significant morbidity ocular disease and its occurrence was 17.5 % (6). A study by Srivatsav in rural setting patients above 65 years of age had cataract as second most common ocular disease contributing morbidity and prevalence of cataract was 14.3 % in the study (7).

As per a recent study by the Lancet Global Health, nearly 74 million people in India could have significant vision loss by 2025, with cataract predicted to remain a significant contributor (8).

Cataract significantly occurs in elderly patients. Slow and painless progression of this disease is one of important factors which is why patients don't attend doctor for diminution of vision. Cataract can be cured by surgery by various techniques. But coverage of surgery and essential infrastructure for surgery is lacking in developing countries like India. Fear of cataract surgery, lack of financial support, lack of family support physically and psychologically for cataract surgery also hampers cataract surgery coverage. As cataract occurs in mainly in elderly patients, among which large proportion of patients are neglected by family which also hampers coverage of cataract surgery.

Though cataract surgeries are curative for cataract in most instances, still awareness about this ocular condition and its treatment is lacking in many portion of rural setting. Prevalence of cataract in

multiple studies have shown varying prevalence, but definitely showing a significant prevalence of cataract as ocular morbidity. Hence cataract needs attention on global basis for its awareness, natural history, clinical features, risk factors and treatment modalities available.

Cataract is one of most common ocular condition causing morbidity in elderly, and has been shown to be linked with multiple risk factors. So, studying this epidemiological risk factors in details and evaluating them can significantly decrease burden of this ocular morbidity and improve quality of life. Hence this study is intended to know the risk factors, proportion of type of cataracts and find out various epidemiological risk factors associated with cataract in patients attending ophthalmology OPD of tertiary care hospital.

OBJECTIVES:

1. To study the risk factors of cataract in patients attending ophthalmology OPD at tertiary care hospital.
2. To know the proportion of cataract cases in patients attending ophthalmology OPD.
3. To find out the association between epidemiological factors and type of cataract in patients attending ophthalmology OPD.

METHOD AND MATERIALS

Ethical Clearance: Ethical clearance was obtained from Institutional Ethics committee of the institution prior to the start of study.

After obtaining the ethical clearance, patients diagnosed as cataract case in ophthalmology OPD of tertiary care hospital were included as participants of the study. Patients fulfilling inclusion criteria were selected. After obtaining informed consent, patients were interviewed using semi structured questionnaire especially designed for the study.

Study Design: Hospital based observational cross-sectional study.

Study Setting: Area under tertiary care center Ophthalmology OPD at Dr V.M.G.M.C hospital Solapur.

Study Population: Patients attending Ophthalmology OPD of tertiary care hospital.

Study Duration: 18 months; from 1 Jan. 2016 to June 2017.

Sample Size: Prevalence of cataract in India is 33% $n = \frac{4pq}{(L)^2}$

$$n = \frac{4 \times 33 \times 67}{25} = 353.76$$

$$n = 354$$

here, n = sample size

P = prevalence of cataract q = 100-p

L= level of precision

So according to sample size calculation, minimum sample size was 354. According to feasibility of study, sample size was taken as 400. So total of 400 patients of diagnosed cases of cataract were included for the study.

Sampling Unit: Diagnosed cataract case

Selection of Cases

Inclusion Criteria:

All the confirmed cases of cataract attending outpatient department of Dr. V.M. Govt. Medical College, Solapur

Exclusion Criteria:

Patient not willing for study and who did not give consent.

Statistical Methods: Descriptive and inferential statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean \pm SD (Min-Max) and results on categorical measurements are presented in Number (%). Significance is assessed at 5 % level of significance. The following assumptions on data is made, Assumptions: 1. Dependent variables should be normally distributed, 2. Samples drawn from the population should be random, Cases of the samples should be independent.

Chi-square/ Fisher Exact test has been used to find the significance of study parameters on categorical scale between two or more groups, non-parametric setting for Qualitative data analysis. Fisher Exact test used when cell samples are very small.

Statistical software: **The Statistical software namely SPSS 23.0, and R environment ver.3.2.2 were used for the analysis of the data and Microsoft word and Excel have been used to generate graphs, tables etc.**

RESULT AND ANALYSIS

Tab.1. Sociodemographic profile of patients attending OPD

Variables	Numbers	Percentage
Age in years		
1-10	4	1.0
11-20	3	0.75
21-30	8	2.0
31-40	19	4.75
41-50	102	25.5
51-60	101	25.25
61-70	125	31.25
71-80	38	9.5
Total	400	100

Gender		
Female	234	58.5
Male	166	41.5
Total	400	
Religion		
Hindu	173	43.3
Muslim	128	32.0
Boudha	71	17.8
Christian	28	7.0
Total	400	
Education		
Primary	175	43.8
Secondary	93	23.3
Illiterate	90	22.5
Graduate	42	10.5
Total	400	
Occupation		
Unemployed	227	56.8
Unskilled	108	27
Skilled	35	8.8
Shop owners	30	7.5
Total	400	
Socio Economic status		
Class I	26	6.5
Class II	31	7.8
Class III	117	29.3
Class IV	152	38

Class V	74	18.5
Total	400	
Locality		
Rural	347	86.3
Urban	53	13.7
Total	400	
Marital status		
Married	308	77
Unmarried	37	9.3
Widow	55	13.8
Total	400	
Housing		
Kutchra	244	61.0
Pucca	156	31.0
Total	400	
Overcrowding		
Negative	291	72.8
Positive	109	27.3
Total	400	
Fuel		
Firewood	77	19.3
Kerosene Oil	149	37.3
LPG	174	43.5
Total	400	

This study comprised of patients from 4 - 80 years of age group. Major proportion was from age group 41-70 comprising 82 %. Patients of 71-80 years of age group were 9.5% in this study. Study comprised of total of 400 cases of cataract of which major portion was of females with 58.5 %, suggesting increased prevalence of cataract in female patients. Whereas male comprised of total of 41.5 % of total

cataract cases. Study included patients of different religion including hindu, muslim, boudha, Christian. 43.3 % patients were from hindu religion after which muslim patients comprised of 32 %. Apart from these boudha patients formed 17.8 % of study population. So major patients attending ophthalmology opd for cataract belonged from hindu and muslim religions. Major patients attending cataract opd were from group which educated upto primary class only. Graduated patients were only 10.5 %. So, this study had patients who were illiterate, primary, secondary, graduated. Coverage of patients from all groups attending opd for cataract was present.

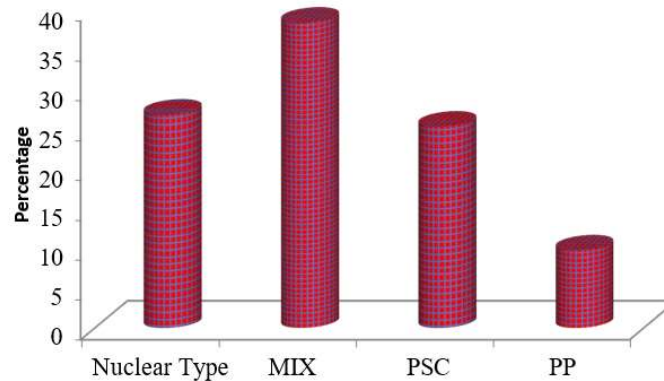
Majority of patients presenting with cataract belonged to modified B.G. Prasad socio economic class 3 & 4 comprising of 67.3 %. Minimum patients were from socio economic class 1 ie. Only 6.5 %. class 1 & 2 collectively comprised of minimal number of patients out of total 400 patients ie. Only 57 patients.

Out of total 400 patients of cataract, 347 patients were from rural areas and only 53 patients (13.3%) belonged from urban area. Dharmadhikari et al in 2017 concluded that factors such as coexisting system illness, staying in rural areas and no one to accompany, and fear of surgery were other important factors that we observed through the study (9).

Out of total 400 patients, 244 patients (61.3%) had kutcha houses and 156 cases had pucca houses. Hence it could be said that majority of patients belonged were poor economically. In this study, only 109(27.3%) patients were living in overcrowding conditions. Among household cooking, LPG was found to be most commonly used (43.5 %) fuel, followed by kerosene oil (37.3%). Least used fuel was firewood found in only 19.3 % of population. This concludes that, though LPG use is significantly increased for household cooking purpose, still kerosene oil and firewood is used for household purpose.

Table 2: Distribution of patients according to Type of cataracts

Type of Cataract	No. of patients (n=400)	Percentage
NUCLEAR	107	26.8
MIXED	153	38.3
POST. SUB CAPSULAR	101	25.3
POST. POLAR	39	9.8
Total	400	100%



Type of Cataract

Out of total 400, mixed type of cataract was most common variety comprising 38.3 % followed by nuclear followed by posterior cub capsular variety (25.3 %). Whereas posterior polar variety of cataract was least common forming only 9.8 %. This may suggest multiple socio-epidemiological factors playing role in development of cataract.

Table 3: Risk Factors of cataract

Factors	No. of patients (n=400)	%
Diabetes Mellitus		
• Negative	338	84.5
• Positive	62	15.5
Hypertension		
• Negative	359	89.8
• Positive	41	10.3
H/O Ultra violet Rays		
• Negative	105	26.3
• Positive	295	73.8
Alcohol Consumption		
• Negative	362	90.5
• Positive	38	9.5

Prevalence of diabetes mellitus was 15.5 % comprising of 62 patients out of 400 patients.

Prevalence of hypertensive patients (SBP > 140 mmhg / and DBP > 90 mmhg) in this study was found to be 10.3 %.

Prevalence of alcoholic patients was 9.5 %, comprising of total of 38 patients, all of them were male patients. Majority of total 400 patients, had an sunlight exposure for prolonged period, may be over decades causing exposure to ultra violet rays without proper skin/ sunlight protection. Total of 295 patients had ultra violet rays exposure mainly in form of sunlight.

Table 4: Association of Clinical variables in relation to Type of cataract of patients

Variables	Type of Cataract				Total (n=400)	P value
	Nuclear Type (n=107)	Mix (n=153)	PSC (n=101)	PP (n=39)		
Age in years						
• 40-50	32(29.9%)	51(33.3%)	25(24.8%)	12(30.8%)	120(30%)	0.366
• 51-60	29(27.1%)	44(28.8%)	24(23.8%)	12(30.8%)	109(27.3%)	
• 61-70	37(34.6%)	43(28.1%)	44(43.6%)	9(23.1%)	133(33.3%)	
• 71-80	9(8.4%)	15(9.8%)	8(7.9%)	6(15.4%)	38(9.5%)	
Gender						
• Female	86(80.4%)	73(47.7%)	56(55.4%)	19(48.7%)	234(58.5%)	<0.001**
• Male	21(19.6%)	80(52.3%)	45(44.6%)	20(51.3%)	166(41.5%)	
Religion						
• Hindu	53(49.5%)	61(39.9%)	47(46.5%)	12(30.8%)	173(43.3%)	0.143
• Muslim	28(26.2%)	53(34.6%)	28(27.7%)	19(48.7%)	128(32%)	
• Boudha	22(20.6%)	25(16.3%)	17(16.8%)	7(17.9%)	71(17.8%)	
• Christian	4(3.7%)	14(9.2%)	9(8.9%)	1(2.6%)	28(7%)	
Education						
• Illiterate	26(24.3%)	35(22.9%)	18(17.8%)	11(28.2%)	90(22.5%)	0.787
• Primary	46(43%)	65(42.5%)	47(46.5%)	17(43.6%)	175(43.8%)	
• Secondary	28(26.2%)	34(22.2%)	23(22.8%)	8(20.5%)	93(23.3%)	
• Graduate	7(6.5%)	19(12.4%)	13(12.9%)	3(7.7%)	42(10.5%)	
Occupation						
• UNE	67(62.6%)	76(49.7%)	65(64.4%)	19(48.7%)	227(56.8%)	0.110
• USK	29(27.1%)	46(30.1%)	20(19.8%)	13(33.3%)	108(27%)	
• SKD	7(6.5%)	13(8.5%)	10(9.9%)	5(12.8%)	35(8.8%)	
• SOW	4(3.7%)	18(11.8%)	6(5.9%)	2(5.1%)	30(7.5%)	
Family History						
• NC	79(73.8%)	126(82.4%)	77(76.2%)	30(76.9%)	312(78%)	0.297
• JTF	18(16.8%)	19(12.4%)	16(15.8%)	3(7.7%)	56(14%)	
• TGF	10(9.3%)	8(5.2%)	8(7.9%)	6(15.4%)	32(8%)	

In current study, type of cataract was compared with multiple factors and following correlation was found, Patients from age 40-80 were present in study, and was divided in age group 40-50, 51-60, 61-70, 71-80 years. Majority of patients were from age group 50-70 years. No particular age group was found to have statistically significantly increased prevalence of cataract p-value (0.366).

Study comprised of patients from hindu, muslim, christian, boudha and no particular religion was statistically significantly associated with increased occurrence of cataract. (p value 0.143). Study comprised of patients who were illiterate, educated upto primary, secondary and graduation. But no particular was statistically significantly associated with increased risk of cataract. (p value -0.787).

Study comprised of patients who were either unemployed or unskilled or skilled or shop owner. But no particular group was associated with statistically significant increased risk of cataract. (p value - 0.110).

Patients from this study had either nuclear family or joint family or three generation family. No particular group having particular family type was associated with increased occurrence of cataract. (p value- 0.297)

Table 5: Association of Clinical variables in relation to Type of cataract of patients

Variables	Type of Cataract				Total (n=400)	P value
	Nuclear Type (n=107)	Mix (n=153)	PSC (n=101)	PP (n=39)		
Socio Economic Class						
• 1	9(8.4%)	11(7.2%)	3(3%)	3(7.7%)	26(6.5%)	0.645
• 2	6(5.6%)	13(8.5%)	8(7.9%)	4(10.3%)	31(7.8%)	
• 3	26(24.3%)	47(30.7%)	30(29.7%)	14(35.9%)	117(29.3%)	
• 4	41(38.3%)	56(36.6%)	40(39.6%)	15(38.5%)	152(38%)	
• 5	25(23.4%)	26(17%)	20(19.8%)	3(7.7%)	74(18.5%)	
Locality						
• Rural	97(90.7%)	128(83.7%)	88(87.1%)	34(87.2%)	347(86.8%)	0.439
• Urban	10(9.3%)	25(16.3%)	13(12.9%)	5(12.8%)	53(13.3%)	
Housing						
• K	62(57.9%)	93(60.8%)	64(63.4%)	25(64.1%)	244(61%)	0.845
• P	45(42.1%)	60(39.2%)	37(36.6%)	14(35.9%)	156(39%)	
Over Crowding						
• Negative	73(68.2%)	117(76.5%)	72(71.3%)	29(74.4%)	291(72.8%)	0.506
• Positive	34(31.8%)	36(23.5%)	29(28.7%)	10(25.6%)	109(27.3%)	
Fuel						
• FW	10(9.3%)	37(24.2%)	25(24.8%)	5(12.8%)	77(19.3%)	<0.001**
• KSO	77(72%)	32(20.9%)	34(33.7%)	6(15.4%)	149(37.3%)	
• LPG	20(18.7%)	84(54.9%)	42(41.6%)	28(71.8%)	174(43.5%)	

Marital Status						
• Married	84(78.5%)	122(79.7%)	72(71.3%)	30(76.9%)	308(77%)	0.752
• Unmarried	8(7.5%)	13(8.5%)	13(12.9%)	3(7.7%)	37(9.3%)	
• Widow	15(14%)	18(11.8%)	16(15.8%)	6(15.4%)	55(13.8%)	

Study included patients from kuppuswami socio economic scale 1 to 5. Patients from KSC 3 and 4 comprised of major population of study. But no particular KSC shown statistically significant association with increased occurrence of cataract.

Majority of patients were from rural areas, ie. 86.3 %. Patients from urban areas comprised of 13.7 %. No significant difference of association was seen with cataract considering patients from rural or urban area (p value 0.439).

Housing either kutchra or puccaa house, over crowding (present or absent), marital status (married or unmarried or widowed), these factors were studied in relation with type of cataract and association of increased occurrence of particular type of cataract. No statistically significant difference was observed in between these groups with p values 0.845, 0.506, 0.752 respectively.

Fuel used for household cooking was studied in these cataract patients. Kerosene oil use was significantly associated with nuclear type & (77 patients of 149 patients).

followed by posterior sub capsular (34 out of 149 patients) followed by mixed type (32 of 149 patients). Posterior polar type of cataract was least commonly found in patients who used kerosene oil.

Firewood use as fuel was associated with mixed type (37 out of 77 patients) followed by posterior type of cataract (25 of 77 patients). Nuclear and posterior polar type cataract was least associated with firewood use.

Table 6: Association of Clinical variables in relation to Type of cataract of patients

Variables	Type of Cataract				Total (n=400)	P value
	Nuclear Type (n=107)	Mix (n=153)	PSC (n=101)	PP (n=39)		
Diabetes Mellitus						
• Negative	106(99.1%)	153(100%)	41(40.6%)	38(97.4%)	338(84.5%)	<0.001**
• Positive	1(0.9%)	0(0%)	60(59.4%)	1(2.6%)	62(15.5%)	
Hypertension						
• Negative	106(99.1%)	153(100%)	61(60.4%)	39(100%)	359(89.8%)	<0.001**
• Positive	1(0.9%)	0(0%)	40(39.6%)	0(0%)	41(10.3%)	

H/O Ultra violet rays						
• Negative	26(24.3%)	41(26.8%)	26(25.7%)	12(30.8%)	105(26.3%)	0.883
• Positive	81(75.7%)	112(73.2%)	75(74.3%)	27(69.2%)	295(73.8%)	
Alcohol Consumption						
• Negative	101(94.4%)	136(88.9%)	91(90.1%)	34(87.2%)	362(90.5%)	0.413
• Positive	6(5.6%)	17(11.1%)	10(9.9%)	5(12.8%)	38(9.5%)	

Study comprised of 62 patients (15.5% of total study population) who were having diabetes mellitus. These patients were statistically significantly associated with posterior sub capsular type of cataract followed by nuclear and posterior polar. These association was significant with p value of less than 0.001.

Study comprised of 41 patients of which 40 patients shown to have posterior sub capsular type of cataract. So hypertensive patients were significantly associated with this type of cataract with p value of less than 0.001.

History of ultra violet rays in form of sunlight for prolonged period was studied. 295 patients had history of UVR exposure. Mixed type (112 of 295 patients) of cataract was most commonly encountered in this patient followed by nuclear type (81 of 295 patients) followed by posterior sub capsular (75 of 295 patients) followed by posterior polar type (27 of 295 patients with history of UVR exposure). No particular type of cataract was statistically significantly associated with UVR exposure. This study had 38 alcoholic patients. Alcohol was statistically significantly associated with any particular type of cataract. Though mixed type was most commonly found (17 of 38 patients) followed by posterior sub capsular (10 of 38 patients) followed by nuclear type (6 of 38 patients) and posterior polar was least common and found in 5 patients.

In this study, 12 patients out of total 400 were found to have congenital cataract whereas 11 patients were found to have traumatic cataract.

DISCUSSION

Mean age for presentation to ophthalmology OPD for cataract was 57.35±10.11 years. Study comprised of patients of age group 40-80 years of age.

Cataract was found more prevalent in female patients forming 58.5 % ie.234 of total 400 patients whereas male patients comprised only 166 patients of 400 patients. This study found significant increased occurrence of cataract in female population compared to male patients. Hira b pant in 2017 said in his study that prevalence of cataract blindness was higher in females compared to males in both surveys. The odds of cataract blindness for females did not change over time as observed in the surveys (1999–2001 and 2006– 2007). Adjusted odds ratio from logistic regression analysis revealed that females continued to be at a higher risk of cataract blindness (10).

Hindu population was most prevalent in study followed by muslim followed by boudha and Christian

population was found least.

Maximum proportion of population was educated upto primary school (43.8%) only whereas graduated population was least common (10.5%) attending ophthalmology OPD at our institute.

Majority of population comprising this study was unemployed forming 56.8 % of total 400 patients ie. 227 patients. Unskilled, skilled and shop owners formed 44.2 % of study population.

86.8 % patients of study was from rural setting constituting 347 patients whereas only 13.2 % patients were from urban area.

Majority of population in study had kaccha house ie.61 % (244 out of 400 patients) in comparison to those having pakka house ie.156 patients (39%).

72.8 % of total population (291 patients) was not having overcrowding at home, due to living alone or with husband or wife and lack of living togetherness of there children.

LPG was found to be most commonly used fuel for household cooking followed by kerosene oil and least common was firewood. 46.5 % of total 400 patients still found to use kerosene and firewood which are consistently found to be associated with increased risk of developing cataract. Pokhrel A et al in 2005 studied 205 cataract patients and found that, this study provides confirmatory evidence that use of solid fuel in unflued indoor stoves was associated with increased risk of cataract in women who do the cooking (11). Mixed type of cataract (38.3%) was most common in this study, followed by nuclear (26.8%) followed by posterior sub capsular (25.3%) variety. Posterior polar variety was least common and found in only 9.8%. As mixed type was most common, it may indicate multiple socio-epidemiological factors playing role in development of cataract. A study by Ragni et al showed that among those having cataracts, majority of them has cortical cataracts (66.2%), followed by nuclear (27.1%) and smaller number of posterior subcapsular cataracts (6.6%) (12). Prevalence of diabetes mellitus, hypertension and alcoholism was 15.5 %, 10.3%, 9.5 % in this study. These conditions are consistently shown to be associated with increased risk of cataract. Together these comorbidities also form a physical, psychological and financial burden to these patients. A study by Doss et al risk factors such as age, hypertension, diabetes, tobacco usage and sunlight exposure were significantly associated with the prevalence of cataract ($p < 0.05$, 95% CI) (13). Chen T et al in 1988 concluded that diabetes and hypertension were independently and significantly associated with increased risk of developing cataract (14). Harding JJ et al in 1993 studied total of 1940 patients and concluded that diabetes was shown to be a powerful and highly significant risk factor for cataract with a relative risk of 5.04 (15). Leske M et al in Barbados eye study in 1999, studied 1800 patients of cataract and concluded that high prevalence of cortical opacities was related to diabetes, hypertension, and abdominal obesity (16).

CONCLUSIONS

This study concludes that cataract is significantly affects female patients than male patients. The study shows that Diabetes, Hypertension, Exposure to Ultraviolet Rays, Female gender, Kerosene oil and Firewood among fuels are risk factors of cataract.

Mixed type of cataract is most common followed by nuclear type and then by posterior sub-capsular type among patients attending OPD.

Kerosene oil use is associated with increased association of nuclear type more than posterior sub-capsular and mixed type of cataract. Both diabetes mellitus and hypertension are associated with significantly increased occurrence of posterior sub capsular type of cataract then other types. Both

ultra violet rays' exposure and alcoholism are associated with mixed type cataract more than other types of cataracts.

Early and more intensive diagnostic approach for diabetes and hypertension cataract. Further studies on factors like housing, overcrowding, exposure to ultra violet rays with larger samples are required for policy decisions. IEC activities and camps should aim for zero blindness. This study also recommends improvement in health infrastructure for better detection, investigation and management of cataract patients.

KEY WORDS- Cataract, Risk factors, OPD patients

REFERENCES

1. Hodge WG, Whitcher JP, Satariano W. Risk factors for age-related cataracts. *Epidemiol Rev* [Internet]. 1995 [cited 2017 Dec 3];17(2):336–46. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/8654515>.
2. Bhaduri G, Banerjea A. Blindness--the Indian scenario and plans to combat. *J Indian Med Assoc* [Internet]. 1996 Nov [cited 2017 Dec 3];94(11):401–2. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/9141862>
3. Ojo P, Mpyet C, Ogbuagu M, Akpan S. Highland Medical Research Journal [Internet]. Vol. 15, Highland Medical Research Journal. Highland Medical Research Limited; 2002 [cited 2017 Dec 5]. 35-39 p. Available from: <https://www.ajol.info/index.php/hmrj/article/view/122650>
4. Livingston PM, Carson CA, Taylor HR. The epidemiology of cataract: a review of the literature. *Ophthalmic Epidemiol* [Internet]. 1995 Dec [cited 2017 Dec 5];2(3):151–64. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/8963919>
5. Barman SK, Lata K, Ram R, Ghosh N, Sarker G, Shahnawaz K. GLOBAL JOURNAL OF MEDICINE AND PUBLIC HEALTH A study of morbidity profile of geriatric population in an urban community of Kishanganj, Bihar, India. 2014 [cited 2017 Dec 5];3(1). Available from: <http://www.gjmedph.com/uploads/O1-Vo3No1.pdf>
6. Indian Association of Preventive & Social Medicine. Uttar Pradesh and Uttarakhand (IAPSMUPUK) State Chapter. R, Aggarwal P, Kandpal SD, Bansal SK. Indian journal of community health. [Internet]. Vol. 25, Indian Journal of Community Health. Indian Association of Preventive and Social Medicine Uttar Pradesh and Uttarakhand (IAPSMUPUK) State Chapter; 2013 [cited 2017 Dec 5]. 39-44 p. Available from: <http://iapsmupuk.org/journal/index.php/IJCH/article/view/354>.
7. Indian Association of Preventive & Social Medicine. Uttar Pradesh and Uttarakhand (IAPSMUPUK) State Chapter. A, Srivastava AK, Mishra M, Srivastava VK. Indian journal of community health. [Internet]. Vol. 28, Indian Journal of Community Health. Indian Association of Preventive and Social Medicine Uttar Pradesh and Uttarakhand (IAPSMUPUK) State Chapter; 2016 [cited 2017 Dec 5]. 275-279 p. Available from:

- <http://www.iapsmupuk.org/journal/index.php/IJCH/article/view/736>.
8. Bourne, R., Steinmetz, J. D., Flaxman, S., Briant, P. S., Taylor, H. R., Resnikoff, S., Casson, R. J., Abdoli, A., Abu-Gharbieh, E., Afshin, A., Alam, T., Alipour, V., Aljunid, S. M., AlMahmoud, T., Almasi-Hashiani, A., Alouani, M. M. L., Arabloo, J., Ashrafi-Rizi, H., & Mehrjardi, H. Z. (2020). Trends in prevalence of blindness and distance and near vision impairment over 30 years: an analysis for the Global Burden of Disease Study. *The Lancet Global Health*, 9(2), e130-e143.
 9. Dharmadhikari, Bakare PN, Deshpande M, Hegade A, Kesari A. Study on barriers causing delay in cataract surgery of bilateral cataract blind at a tertiary eye care center in urban India. *J Clin Ophthalmol Res* [Internet]. 2017 [cited 2017 Dec 2];5(2):69. Available from: <http://www.jcor.in/article.asp?issn=2320-3897;year=2017;volume=5;issue=2;spage=69;epage=72;aulast=Dharmadhikari>
 10. Pant HB, Bandyopadhyay S, John N, Chandran A, Gudlavalleti MV. Differential cataract blindness by sex in India: Evidence from two large national surveys. *Indian J Ophthalmol* 2017;65:160-4.
 11. Pokhrel AK, Smith KR, Khalakdina A, Deuja A, Bates MN. Case-control study of indoor cooking smoke exposure and cataract in Nepal and India. *Int J Epidemiol*. 2005.
 12. Ragni K et al A hospital based study on prevalence and clinical representation of cataract in northern India: *JOJ Ophthalmol*.2024 : 10(5).
 13. Doss MSJ et al. *Int J Community Med Public Health*. 2021 Nov;8(11):5338-5344.
 14. Chen TT, Hockwin O, Dobbs R, Knowles W, Eckerskorn U. Cataract and Health Status: A Case-Control Study. *Ophthalmic Res* [Internet]. 1988 [cited 2017 Dec 5];20(1):1-9. Available from: <https://www.karger.com/Article/FullText/266246>.
 15. Harding JJ, Egerton M, van Heyningen R, Harding RS. Diabetes, glaucoma, sex, and cataract: analysis of combined data from two case control studies. *Br J Ophthalmol* [Internet]. 1993 Jan 1 [cited 2017 Dec 5];77(1):2-6. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/8435392>.
 16. Leske MC, Wu S-Y, Hennis A, Connell AM., Hyman L, Schachat A. Diabetes, hypertension, and central obesity as cataract risk factors in a black population: The Barbados Eye Study. *Ophthalmology* [Internet]. 1999 Jan 1 [cited 2017 Dec 4];106(1):35-41. Available from: <http://www.sciencedirect.com/science/article/pii/S0161642099900039>.