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Awareness of Cataract and Glaucomain the Rural Population of Western India

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Abstract--- Purpose: *To assess the awareness, knowledge and treatment seeking tendencies about cataract and glaucoma in rural western India.*

Methods: *This study was conducted over a period of 3 months from July 2019 to September 2019 by evaluating 1000 subjects in the rural population in the vicinity of Dhiraj general hospital, pipariya. Demographic details about age, gender and literacy were collected. A questionnaire based door to door survey was done and their responses were graded and data was analysed.*

Results: *There were 475(47.5%) males and 525(52.5%) females. 590(59%) were between the ages of 20-50 years and 410(41%) were above 50 years of age. 210(21%) were illiterate, 565(56.5%) had received primary education and 225 (22.5%) had received secondary education and above. It was observed that the was more awareness, knowledge and treatment seeking tendencies in educated subjects ($p<0.01$). It was also observed that overall awareness, knowledge and treatment seeking tendencies was more for cataract than for glaucoma ($p<0.001$). Younger subjects had more knowledge about glaucoma and older subjects had more knowledge about cataract.*

Conclusion: *Our study strongly suggests that there is lack of awareness, knowledge and treatment seeking tendencies in the rural population in western India especially for glaucoma. More effective health education in the form of public health care programmes and mass media awareness might be beneficial.*

Keywords--- *Awareness, Knowledge, Treatment Seeking Tendencies, Cataract, Glaucoma, Rural India.*

I. INTRODUCTION

Cataract and glaucoma are the leading causes of blindness around the world.One of the major factors for high burden of blindness has been the poor awareness about prevention of eye diseases and available eye care services[1]. In India, cataract alone is responsible for nearly two- third of blindnessburden despite nationwide initiatives implemented under the "National Program for Control of Blindness" (NPCB) in the past two decades[1]. The rate of development of senile cataract is generally slow and the vision loss is usually gradual but can result in blindness if treatment is delayed.

As per WHO, the blind population will keep increasing due to rise in population and longer life expectancy[2].

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Cataract is the leading cause of blindness all over the world. It is responsible for around 48% of blindness and accounting for around 18 million people who are blind[3]. 80% of the blindness in India is due to cataract[4].

A study done in rural eastern china by Zhou JB et al, over a period of 1 year showed that, a total of 89.6% of patients had been aware of their condition while 49.8% knew that the cataract can be treated[5]. The increased life expectancy because of better healthcare and other factors has led to an increase in population of the elderly, thereby increasing the prevalence of senile cataract.

Glaucoma is the leading cause of bilateral and irreversible blindness. It is known as a "silent killer" as it is asymptomatic in the early stages. Early detection and treatment can control the disease. The prevalence of glaucoma is 67 million worldwide and 6.7 million are blind because of it[6].The prevalence of glaucoma in India is around 12.8 million which accounts for 1/5th of the global burden in India, glaucoma is the 3rd most common cause of blindness after cataract and uncorrected refractive errors with a prevalence of 5% among the blind[7]. The prevalence is more in remote rural compare to urban.

Hence, cataract and glaucoma are the two important causes of avoidable blindness. Therefore, in this study we assessed the awareness, knowledge and treatment seeking tendencies about cataract and glaucoma among the rural population in the vicinity of Dhiraj General Hospital, Pipariya.

In 1998, it was estimated that some 20 million people were blind due to cataract.[1] Cataract is a clouding of the lens of the eye, due to the clumping of the protein elements of the lens or a discoloration that occurs with age, excessive sunlight exposure, diabetes, under nutrition, and other risk factors. The normal lens, clear and transparent, sits behind the colored iris and pupil and helps focus light on the retina, which converts the light images to electrical and chemical signals that are carried to the brain. A cataract blurs the image on the retina, producing a visual effect that is like looking through a window that is frosted or fogged with steam. Cataracts can affect one or both eyes. In addition to blurry vision and changes in color perception, symptoms can include glare and halo effects from lights and sun, failing night vision, and double vision. Cataract is detected by an eye examination that includes a visual acuity test and dilated eye exam.[2]

II. MATERIALS AND METHODS

A community based observational, cross-sectional study was conducted among the rural population in the vicinity of Dhiraj General Hospital, Pipariya.1000 subjects more than 20 years of age and who were willing to give their verbal consent were included in the study. Study was conducted over a period of 3 months from July 2019 to September 2019.

After obtaining approval from ethics sub-committee of our hospital, our study was done which adhered to the tenets of the declaration of Helsinki. Data was collected by personal interview with every individual by door to door house visits by medical students and residents. First we randomly selected the individual, then obtained verbal consent for the study. Apre-formed questionnaire prepared by the ophthalmologists in gujarati (local) and English language were given to the subjects and were asked to answer all the questions to the best of their knowledge. A total of 10 questions were asked for cataract and glaucoma each. Most of the questions required Yes/ No/Not sure

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response and subject's responses were ticked by the surveillance team. The subjects were not allowed to take questionnaires away.

Questionnaire

Name:

Age: 20- 50yrs ☐ More than 50yrs ☐

Sex: Male ☐ Female ☐

Education: Illiterate ☐ Primary education ☐ Secondary and above ☐ Bottom of Form

CATARACT

Awareness

1. Have you ever heard of cataract? Yes ☐ No ☐
2. If yes, then what was the source?
    a. Media (Radio, TV, Newspaper, Mobile) ☐
    b. Family (Friends, Relatives, Neighbors) ☐
    c. Health care systems (Medical Camps, Medical Professional) ☐

Knowledge

3. Can cataract cause diminution of vision? Yes ☐ No☐ Not sure☐
4. Do you think cataract cause white opacity in the eye? Yes ☐ No ☐ Not sure☐
5. Do you know if trauma causes cataract? Yes☐ No☐ Not sure☐
6. Do you think that cataract can be caused by diabetes? Yes ☐ No☐ Not sure☐
7. Do you think cataract is age related? Yes ☐ No☐ Not sure☐
8. Do you think that cataract can cause blindness?

Yes☐ No☐ Not sure ☐

Treatment Seeking Tendencies

9. Do you think cataract can be treated? Yes☐ No☐ Not sure ☐
10. Do you know that artificial lens can be implanted inside the eye?

Yes☐ No☐ Not sure ☐

GLAUCOMA

Awareness

1. Have you ever heard about it? Yes ☐ No ☐
2. If yes, then what was the source of knowledge?

Media (Radio, TV, Newspaper, Mobile) ☐

Family (Friends, Relatives, Neighbors)☐

Health care systems (Medical Camps, Medical Professional) ☐

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Knowledge

3. What is glaucoma?

Increase in eye pressure ☐Increase in blood pressure ☐ Not sure ☐

4. Do you think that risk of glaucoma increases with age?

Yes☐ No☐ Not sure ☐

5. Can you inherit glaucoma if your family members have it?

Yes☐ No☐ Not sure ☐

6. Do you think that glaucoma can occur in any age group?

Yes☐ No☐ Not sure ☐

7. Can glaucoma be prevented? Yes☐ No☐ Not sure ☐

8. Can glaucoma lead to blindness? Yes☐ No☐ Not sure ☐

Treatment Seeking Tendencies

9. Can glaucoma be controlled?

Yes☐ No☐ Not sure ☐

10. Is the treatment required lifelong? Yes☐ No☐ Not sure ☐

After filling up all the questionnaires by our survey team, marks were given as follows: 2 for yes answer, 1 for not sure and 0 forno answer. As 6 questions were asked for the knowledge category, grading based on total marks was done as follows:- 0-3 poor, 4-7 fair and 8-12 for good . As 2 questions were asked in the treatment seeking tendencies category, grading based on total marks was done as follows:- 0-1 poor, 2 fair ,3-4 good. No marks were given for the awareness category. The data obtained was then statistically analyzed.

Statistical Methods

Collected data was compiled in Microsoft office Excel 2007 format. Data was processed using Epi info statistical software. Descriptive and analytical statistical methods were used for the preparation of results. In analytical methods chi square was applied to find out significance level. P< 0.05 was considered statistically significant. Data was presented in tabulated format.

III. RESULTS

Data from1000 individuals were collected from the vicinity of Dhiraj General Hospital, pipariya, Vadodara. A total of 475 males (47.5%) and 525 (52.5%) females participated in this study, out of which 590(59%) were between the ages of 20 - 50 years and 410 (41%) were above the age of 50 years. Based on their level of education, 210(21%) were illiterate, 565 (56.5%) had received primary education and 225 (22.5%) had received secondary education or higher.

Awareness, knowledge and treatment seeking tendencies were compared in both cataract and glaucoma and also among the age, gender and literacy groups and p values were obtained.

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Awareness

Table 1: Percentage of awareness based on age, gender and literacy and their respective p- values in cataract and glaucoma

	GENDER			***AGE IN YEARS***			***LITERACY***			
	Male	***Female***	***P - value***	***20-50***	***>50***	***P - value***	***Illiterate***	***Primary Education***	***Secondary Education***	***P - value***
Cataract	90.50%	85.70%	0.5405	84.70%	92.70%	0.6446	71.40%	90.30%	97.80%	0.0062
Glaucoma	40%	35.20%	0.2913	39%	35.40%	0.2401	26.20%	28.30%	71.10%	0.00004

As seen in table1., the subjects evaluated for cataract and glaucoma, the difference between the age groups and gender were statistically insignificant although there was marginally more awareness in males than females. Young people were more aware about glaucoma and older people were more aware about cataract but it was statistically insignificant. In both diseases the level of awareness increased with the level of increasing education($p<0.005$, extremely significant).

Knowledge

Table 2: Percentage of knowledge based on age, gender and literacy and their respective p -values in cataract and glaucoma

	GENDER			***AGE IN YEARS***			***LITERACY***			
	Male	***Female***	***p-value***	***20 - 50***	***>50***	***p-value***	***Illiterate***	***Primary Education***	***Secondary Education***	***p-value***
Cataract	44.2%	32.3%	0.2095	35.60%	41.5%	0.4992	23.8%	37.2%	53.3%	0.0061
Glaucoma	21%	11.4%	0.1299	18%	13.4%	0.6821	9.5%	11.5%	33.3%	0.00001

As seen in table 2., the subjects evaluated for cataract and glaucoma, the difference between the age groups and gender were statistically insignificant although there was marginally more knowledge in males than females. Young people had more knowledge about glaucoma and older people knew more about cataract. In both diseases the level of knowledge increased with the level of increasing education($p<0.005$, extremely significant).

Treatment Seeking Tendencies

Table 3: Percentage of Treatment Seeking Tendencies based on Age, Gender and Literacy and their Respective p-Values in Cataract and Glaucoma

	GENDER			***AGE IN YEARS***			***LITERACY***			
	Male	***Female***	***P-value***	***20 - 50***	***>50***	***p-value***	***Illiterate***	***Primary Education***	***Secondary Education***	***p-value***
Cataract	57.90%	40.00%	0.0266	48.30%	48.80%	0.5722	28.20%	53.10%	55.60%	0.0075
Glaucoma	19%	14.30%	0.6611	18%	14.60%	0.7565	11.90%	11.50%	35.60%	<0.00001

As seen in table3.,in the subjects evaluated for glaucoma, the difference between both genders was insignificant while there was more treatment seeking tendency amongst males as compared to females for cataract which was statistically significant($p <0.05$). Based on age there was no difference in treatment seeking tendencies for both diseases. In both diseases the level of treatment seeking tendencies increased with the level of increasing education ($p<0.0001$ in glaucoma, extremely significant and $p < 0.01$ in cataract).

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Table 4: Comparison of Awareness, Knowledge and Treatment Seeking Tendencies in Cataract and Glaucoma with p - values

	Cataract			***Glaucoma***			***Statistical data***
	GOOD	***FAIR***	***POOR***	***GOOD***	***FAIR***	***POOR***	***P value***
Knowledge	48.5%	23.5	35%	18%	21%	63%	<0.0001
Treatment Seeking Tendencies	38%	16.5	38.5%	16%	20%	63.5%	<0.0001

As per table 4, there were statistically significant differences in awareness, knowledge and treatment seeking tendencies about cataract as compared to glaucoma($p < 0.0001$).

Awareness about cataract was 89% and glaucoma was 41% and this difference was statistically extremely significant ($p < 0.0001$).

Source of knowledge for cataract was 54% from health care systems, 30% from family and friends, 16% via media and for glaucoma 32% from health care systems, 40% from family and friends, 28% via media.

IV. DISCUSSION

This study was aimed at assessing the level of awareness, knowledge and treatment seeking tendencies about cataract and glaucoma amongst the rural population in the vicinity of Dhiraj General Hospital, Pipariya. We had a total of 1000 subjects of age 20 years and above. In our study there was preponderance of females (52.5%) as compared to males, more younger population (59%) as compared to older people. There were more people with primary education (56.5%) with equal distribution of illiterates and higher education. A similar study was done in slums of Delhi by Misra V et al, showed that 89.9% were aware of cataract but only 42% had knowledge about it. Out of 84 respondents who had been diagnosed with cataract, the health-seeking practices were observed by 70 (83.3%) participants[1].A study by Lakshmipriya K et al, in Kerala conducted from 2016-2017 having 1000 rural subjects showed that awareness of 717(80.3%) subjects and knowledge was 259(37.2%) about cataract was good while poor in remaining[8].

A study by Lau JT et al, in Hong Kong, nearly 92.9%were aware about cataract but only 22.9% were aware about glaucoma[9]. Our present study showed us that 89% were aware about cataract, 48.5% had good knowledge and only 38% had a treatment seeking tendency. In our study there was no significant correlation between age and gender of participants and their awareness and knowledge about cataract as compared to other studies where males and older people had more knowledge about the disease. Males had a more treatment seeking tendency for cataract.

Our current study showed that only 41% people were aware about glaucoma, 18% had good knowledge and 16.5% had a good treatment seeking tendency. A study done by Baker H et al, showed that some communities in developed countries like the UK too had lack of awareness of glaucoma of about 23% only as compared to our study which was 41%[10]. The APEDS study done in South India by Dandona R et al, showed thatawareness of cataract was (69.8%) and awareness of glaucoma was just (2.3%) in the rural areas. Females and illiterate persons were significantly less aware [11]. In a study done in central Kerala 18.23% were aware of glaucoma and people between the ages of 40 and 59 were more aware of it[12]. Our study also showed that subjects in the younger age group had more knowledge and treatment seeking tendency as compared to older population. The Literacy level of participants had a statistically significant correlation ($p < 0.0001$) with increasing literacy the level of awareness, knowledge and

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treatment seeking tendency also increased which corelates well with the other studies for both cataract and glaucoma. Our study had a higher percentage of awareness and knowledge about glaucoma as compared to other studies.

In Cataract the main source of awareness was health care systems (54%) like medical camps, health care programs which was expected as the studied population was near a tertiary eye care center. In Glaucoma the main source of awareness was from family and friends (40%). Mass media wasn't a primary source of knowledge.

V. CONCLUSION

The study findings suggest the majority of participants have heard of cataract, but there is low awareness of its symptoms and treatment. Gaps in awareness observed can be filled up by implementing proper eye health education programs. Also the leading causes of blindness, glaucoma and cataract can be prevented with early detection and treatment. Literates are more likely to be aware than illiterates.

Awareness of glaucoma is poor in our region where the study was conducted. The data suggests the need for community-based health education programs to increase the level of awareness and knowledge. Mass media like TV, radio, mobile phones can be used effectively to spread awareness and impart knowledge about these two diseases. Health education programs should be actively conducted at rural levels and people should be encouraged to undergo screening programs as much and as early as possible.

Progression of all these diseases can be prevented with timely intervention and imparting awareness and proper knowledge amongst the rural population. More and more programs should be oriented towards them so that the treatment seeking tendencies increases and also reduces the overall burden rate of both these diseases.

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