GSJ: Volume 7, Issue 11, November 2019, Online: ISSN 2320-9186
www.globalscientificjournal.com

STATISTICAL ANALYSIS OF GLAUCOMA IN KAURA NAMODA ZAMFARA STATE – NIGERIA.

***Fahad Suleiman*[1] & Ejiwole Oluwafemi Job [2]**

Department of Mathematics & *Statistics* [1,2]

***Federal Polytechnic Kaura Namoda Zamfara State – Nigeria*[1,2]**

***fssalai@gmail.com*[1] & *enitioluwafemi2012@gmail.com*[2]**

ABSTRACT

Glaucoma is one of the leading sources of blindness to over aged individual. It can occur at any age but is more common in older people. Several forms of glaucoma have no deterrent signs. The consequence is so moderate that you may not notice a change in vision until the condition is at an advanced stage. Eyesight loss due to glaucoma can't be convalesced. This paper is therefore aimed at to investigate the occurrence of glaucoma among gender in the area under study. Chi – square test of independency depicted that the disease is gender related. Systematic comprehensive eye test can help detect glaucoma in its primitivity, before significant destruction occurs. Regular, modest physical exercise may help prevent glaucoma by reducing eye pressure.

Key words: Blindness, Eye care, Eye disease, Gender, Glaucoma.

1.0 Introduction

Human eye is one of the special organs of man. The remarkable organ is delicate and intricately designed, protect by the eyelids and tears help to flush out any unwanted substance that might cause harm to it [1].

The glaucomas are a group of progressive optic neuropathies characterized by degeneration of retinal ganglion cells and resulting changes in the optic nerve head. Loss of ganglion cells is related to the level of intraocular pressure, but other factors may also play a role [2].

Reference [2] also in his research opined that Glaucoma affects more than 70 million people worldwide with approximately 10% being bilaterally blind, making it the leading cause of irreversible blindness in the world. Glaucoma can remain asymptomatic until it is severe, resulting in a high likelihood that the number of affected individuals is much higher than the number known to have it.

Glaucoma is a mixed group of eye disorders sharing common features which typically includes optic disc cupping and visual field loss, thereby more accurately defined as an optic neuropathy. Optic nerve damage results in progressive retinal ganglionic cell loss and irreversible blindness, if not treated [3].

Reference [4] Classified glaucoma into two, namely Open angle glaucoma and Close angle glaucoma in which the open angle glaucoma occurs as a result of a pressure build up in the eyes and causes severe vision loss while closed angle arrives suddenly and painfully when the area between the eye's iris and cornea is not able to drain fluid, causing high pressure in the eye.

Moreover, Reference [5] added that traditionally, glaucoma has been characterized by the existence of raised intraocular pressure (IOP), however nerve damage may occur in the presence of values within the statistically normal range between 8–21 mmHg. Glaucomatous

disc and field changes in the absence of elevated pressure constitutes normal or low tension glaucoma (LTG). Similarly, conditions exceeding the upper limit of 21 mmHg may not be associated with signs of visual field loss or optic disc damage and comprises ocular hypertension In addition to optic neuropathy, the two main types of glaucoma (open angle and closed angle) are described on the appearance of the drainage system within the eye, including associated increase in the IOP.

2.0 Problem Statement

Glaucoma is not a single clinical entity but a group of ocular diseases with various causes that ultimately are associated with a progressive optic neuropathy leading to loss of vision function. Regular comprehensive eye examination is the most cost-effective approach to detecting glaucoma in a high-risk population**.**

3.0 Analysis and Presentation of Data

Data was extracted from the medical record department of the General Hospital Kaura Namoda in Zamfara State of Nigeria and tabulated below

Table I: Reported Cases of Glaucoma in Kaura Namoda General Hospital

Year	Male	Female	Remark
2012	104	104	
2013	120	103	
2014	101	75	
2015	116	138	
2016	127	91	
2017	135	167	
Total	**703**	**678**	

Source: Ministry of Health, Zamfara State

Above data was analysed using Chi – square test in order to test for our hypothesis below.

3.1 Hypothesis:

$\boldsymbol{H_0}$: The occurrence of glaucoma is independent of gender

$\boldsymbol{H_1}$: The occurrence of glaucoma is gender dependent

At 95% level of confidence, i.e, $\alpha = 0.05$ and degree of freedom

$$(r-1)(c-1) = (2-1)(6-1) = 5$$

Using Minitab version 16, the analysis result for the gender below obtained.

Expected counts are printed below observed counts.

	MALE	FEMALE	Total
1.	104	104	208
	105.88	102.12	
	0.033	0.035	
2.	120	103	223
	113.52	109.48	
	0.370	0.384	
3.	101	75	176
	89.59	86.41	
	1.452	1.506	
4.	116	138	254
	129.30	124.70	
	1.368	1.418	
5.	127	91	218
	110.97	107.03	
	2.315	2.400	

6.	135	167	302
	153.73	148.27	
	2.283	2.367	
Total	703	678	1381

$Chi - square = 15.931, Df = 5\,, P - value = 0.007.$

Since $P - value = 0.007$ is less that $\alpha = 0.05$, we reject the null hypothesis $\boldsymbol{H_0}$ and conclude that the occurrence of glaucoma depend on gender.

4.0 Conclusion

Glaucoma, however, presents perhaps an even greater public health challenge than cataracts: because the blindness it causes is irreversible. [5]**.**

It is important to remember that while it is more common as we get older, glaucoma can occur at any age. Unfortunately there is currently no cure for glaucoma and vision cannot be regained, although early detection and adherence to treatment can halt or significantly slow progression.

5.0 Recommendation

The research recommends that:

1. Systematic comprehensive eye test can help detect glaucoma in its primitivity, before significant destruction occurs.
2. Regular, modest physical exercise may help prevent glaucoma by reducing eye pressure.
3. Serious eye injuries can lead to glaucoma. Wear eye protection when using power tools or playing high-speed racket sports in enclosed courts.

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