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Assessing Cataract Awareness and Public Health Implications in Amuwo-Odofin and Alimosho Local Government Areas of Lagos State: A Cross-Sectional Study

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ABSTRACT

Background: Cataracts are the second leading cause of visual impairment and the first of blindness globally. Despite its high prevalence and impact, there is a dearth of studies on the awareness of cataracts and its public health impact in Nigeria. The study aimed to assess the awareness of cataracts and their public health implications in the Amuwo-odofin and Alimosho Local government areas of Lagos State.

Methods: This was a cross-sectional study using a self-administered structured questionnaire to collate data from General Hospital and Ikotun Market in Alimosho Local Government Area as well as the Nigeria Navy Reference Hospital in Amuwo-Odofin Local Government Area of Lagos state.

Results: The study had 162 participants, mostly between 40 and 49 (49.4%). The majority of the participants were females (53.3%). Nearly half (48.8%), of the study participants have tertiary education. In this study, 64.7% of participants have heard about cataracts at some point and 52.2% are aware that cataracts involve the cloudy vision of the eyes.

Conclusion: Cataract remains the primary cause of treatable blindness highlighting the need for awareness through public health campaigns. While the majority of the participants have good knowledge about cataracts, a knowledge gap regarding cataract risk factors and prevention was identified. Therefore, public health campaigns are necessary to address these knowledge gaps.

INTRODUCTION

Cataract are the second leading cause of visual impairment and the first of blindness globally[1]. They account for more than half of the 39 million blind people worldwide, with their impact particularly severe in Sub-Saharan Africa[1]. It is estimated that about 6 million people in Africa are blind due to cataracts[2]. Most cataracts affect the elderly, accounting for most blind people worldwide [2]. Currently, cataracts already blind 750,000 Nigerians, and an additional 200,000 individuals become blind each year, according to the Nigerian National Blindness and Visual Impairment Survey[3]. The visual significance of cataracts cannot be understated, if left untreated, they can result in blindness[3]. Cataracts are the most avoidable cause of blindness, if timely intervention is instituted. Otherwise, they can lead to various catastrophic complications resulting in irreversible blindness[3]. Compared to the general population, the physical and mental health and quality of life of people with cataracts are more likely to be affected [4].

Population-based surveys in some African countries suggest that cataracts are the primary cause of blindness. In their 2009 study on cataracts in children attending schools for the blind and resource centres, Msukwa et al. found that over 18% of children had undergone cataract surgery or had cataracts as a significant cause of visual impairment[5]; similar findings were also reported in Nigeria, whereby a survey was conducted on the risk of cataract among Nigerian metal arc welders and found that although there was an elevated risk of cataract among the welders compared non-welders, the association was not statistically significant[2]. Furthermore, a study by Abdul et al. in northern Nigeria reported that only 35% of the respondents were aware of cataracts, and the level of awareness was significantly associated with age and education level, with older individuals and those with higher education being more aware of cataracts[6]. These findings highlight the limited awareness about cataracts among the general population in Nigeria and the need for targeted educational interventions to improve knowledge about this condition.

Despite its high prevalence and impact, there is a lack of studies on the awareness of cataracts in Nigeria, a public health concern. Conducting a study on cataract awareness in specific LGAs within Lagos State is justified due to the limited awareness about cataracts among the general population, and the need for evidence-based interventions to prevent and manage these conditions. The study results can contribute to the existing knowledge, inform policy decisions, and promote public health strategies to reduce the burden of cataracts in Lagos State. This study, therefore, aims to assess the awareness of cataracts and their public health implications in the Amuwo-odofin and Alimosho Local government areas of Lagos State. This will address the knowledge gap and inform future interventions to prevent cataract-related blindness in Nigeria.

METHODS

Study Setting

Data was collected from General Hospital and Ikotun Market in Alimosho local government and Nigeria Navy Reference Hospital Amuwo-Odofin local government area of Lagos state.

Study Area

Lagos State is in the southwest of Nigeria. Lagos is situated 3°15'21" east of the Greenwich Meridian and 6°36'38" north of the equator. Lagos state has 20 local government areas, and the study was carried out in two central local governments: Amuwo-Odofin and Alimosho. Amuwo-odofin is about 40km from the state's capital (Ikeja) and has a population of over 328,975 inhabitants according to the 2006 census. It is bounded on the north by the central Ojo town, on the south by Orile Iganmi\Coker, on the east by Oshodi/llasamaja/mushin, and the west by Apapa seaport/kirikiri. Alimosho is the largest local government in Lagos, with 1,288,714 inhabitants, according to the official 2006 Census.

Study Design

The study is a descriptive cross-sectional survey of adults in the Amuwo-Odofin and Alimosho communities to assess the level of awareness and attitude toward cataracts.. Adults aged 40 years and above were eligible to participate. Study participants were recruited from adult patients visiting the eye clinics and adult patients with eye defects who visit community pharmacies. All consenting adults were recruited into the study.

Inclusion Criteria

This study included all participants aged 40 years and above from the various study locations.

Exclusion criteria

Children and adults below 40 years, Adults outside the study locations and those who denied informed consent were excluded from the study.

Sample size calculations

Using the Taro Yamane formula for calculating sample size

n = N/ (1+N(e)^2)

where;

n = estimated sample size

N = actual population size

N = 328,975 (Amuwo-odofin) and 1,288,714 (Alimosho). This is according to the 2006 population census

e = margin of error. Setting the level of confidence at 95%, therefore, the margin of error will be 5%, which is 0.05The final sample size to be used is **400.**

Data Collection Tool

Data were collected using a self-administered structured questionnaire. The questionnaire was developed from a thorough review of literature. The survey tool consists of 4 sections; the sociodemographics, knwolegdge of cataracts and its causes, previous experience with cataracts and knowledge of treatment options. The first section consist of questions about the sociodemographics of participants such as age, gender, marital status, employment status, level of education, occupation and annual income. The second section contained questions that assessed the knowledge of participants towards cataracts and its causes. Knowledge of cataracts was assessed by questions relating to simple definitions, risk factors, possible complications. The third section comprised of questions that aimed to assess if participants had previous experiences with cataract either through family history or former diagnosis. The fourth section contained queries that assess participants awareness of available treatment options such as surgery, herbal, orthodox or mixed. The questionnaire was pretested on a volunteer sample of 20 individuals aged 40 years and older in Amuwo-Odofin and reviewed as required.

Data Collection

The questionnaire was subjected to validation through face validity, content validity, and test-retest by experts in the relevant field. The instrument's reliability was assessed by administering a Cronbach's alpha test, which yielded a value of 0.75. Data were collected using a structured questionnaire administered through two methods: an online survey established electronically on the Kobo toolbox platform and a self-administered paper-based questionnaire. Three volunteers were responsible for managing the online survey link and inputting the responses from consenting participants. Each online survey took about 2-3 minutes to be completed. Convenience sampling technique was employed in the collection of data. A total of 450 self-administered paper-based questionnaires were distributed among consenting study participants in the study area, and each questionnaire was filled out in an average of 3-4 minutes. Data from the paper-based questionnaires and online survey were inputted into an Excel sheet and then analyzed.

Ethical Approval

Ethical approval was obtained from the Health Research and Ethics Committee of Lagos State University Teaching Hospital (Registration number: NHREC04/04/2008) with reference number LREC/06/10/2173. Informed consent was obtained from all respondents who participated in the study.

Data Analysis

Descriptive statistics and Data processing was done using the statistical package for social sciences (SPSS version 22) for Windows. Data were presented as frequencies, percentages, bar charts, and co-relations. $P<0.05$ was considered statistically significant. The association between local government residence of the participants and their key knowledge about cataracts was evaluated using the Chi-square test. The level of significance was set at $p< 0.05$.

RESULTS

A total of 169 persons participated in the study. Almost half of the participants are between 40-49 years of age (49.4%), with 53.3% being females. Marital status showed that 81.5% are married, while 11.3% were widows/widowers. Among the participants, 53% are skilled workers and 51.2% primarily self-employed, while the unemployed and students are 5.4% and 0.6% respectively. The study also showed that nearly half (48.8%) of the participants possess a university degree.

Table 1. Sociodemographic characteristics of study participants. N=169

S/N	Variables	Frequency (n)	Percentage (%)
1.	**Age**		
	40-49	80	49.4
	50-59	62	38.3
	60-69	16	9.9
	70-79	3	1.9
	80 and Above	1	0.6
2.	**Gender**		
	Male	65	38.5
	Female	90	53.3
	Others	14	8.3
3.	**Marital Status**		
	Single	6	3.6
	Married	137	81.5
	Divorced	5	3.0
	Separated	1	0.6
	Widowed	19	11.3
4.	**Employment Status**		
	Employed	49	29.5
	Unemployed	9	5.4
	Self Employed	85	51.2
	Student	1	0.6
	Retired	22	13.3
5.	**Level of Education**		
	Primary	24	14.5
	Secondary	60	36.1
	Tertiary	81	48.8
	Nil	1	0.6
6.	**Occupation**		
	Skilled	88	53.0
	Unskilled	27	16.3
	Semi-skilled	51	30.7
7.	**Annual Income (Naira)**		
	<100,000	14	8.6
	100,000 to 299,999	33	20.2
	300,000 to 499,999	41	25.2
	500,000 to 1,000,000	50	30.7
	Above 1,000,000	25	15.3

Table 2., shows the awareness of the participants towards cataract and their causes. More than half, (64.7%) have heard of cataract and correctly identified cloudy vision as a symptom of cataract (52.2%). Whether diabetes, obesity, or High Blood Pressure (HBP) causes cataract is not specific to most participants (No=47.3%, Not sure=23.1%). Among the participants, 27.3% strongly agree that cataracts can lead to blindness, 37.6% agree while 35.2% had no idea that cataract can lead to blindness.

Table 2. Awareness of participants towards cataracts and the Causes. N=169

S/N	Question	Frequency (n)	Percentage (%)
1.	**Ever heard of cataract**		
	Yes	108	64.7
	No	47	28.1
	Maybe	12	7.2
2.	**Cataracts involves cloudy vision**		
	Yes	84	52.2
	No	42	26.1
	Not Sure	35	21.7
3.	**Risk factors of cataract include smoking, diabetes, obesity, previous eye injury, high blood pressure, excessive exposure to sunlight?**		
	Yes	49	29.3
	No	79	47.3
	Not Sure	39	23.1
4.	**Cataracts can lead to blindness**		
	Strongly Agree	45	27.3
	Agree	62	37.6
	I do not know	58	35.2
	Disagree	Nil	Nil
	Strongly disagree	Nil	Nil

A personal history and experience of the participants with cataracts is shown in **Table 3.** From the table, 62.4% of participants have no family history of cataract. One-fifth of them (20.2%) had been diagnosed with cataracts, while 67.5% of the participants had been diagnosed with other eye conditions.

Table 3. History of Participants with Cataract

S/N	Question	Frequency (n)	Percentage (%)
1.	**Is there any history of cataract in your family?**		
	Yes	34	20.6
	No	103	62.4
	Maybe	8	4.8
	Don't know	20	12.1
2.	**Have you ever had cataract before?**		
	Yes	33	20.2
	No	125	76.7
	Maybe	2	1.2
	Don't know	3	1.8
3.	**Have you been diagnosed with any other eye condition**		
	Yes	52	32.5
	No	108	67.5

Table 4 shows the participants' level of awareness towards cataracts treatment options is shown. Participants were located very close (18.9%) and close (45.7%) to the eye clinics. If eye examination were free, 69.9% would opt to go to be examined. More than half did not know any treatment option for cataract. Treatment options reported is mainly surgery (85.9%), while orthodox (5.6%) and herbal (5.6%) medications were also included as alternatives.

Table 4. Awareness of participants about treatment options for cataract. N=169

S/N	Question	Frequency (n)	Percentage (%)
1.	**How close is an eye clinic to where you live?**		
	Very Close	31	18.9
	Close	75	45.7
	I don't know	19	11.6
	Not Close	24	14.6
	Not very close	15	9.1
2.	**Would you randomly go for an eye routine examination if free?**		
	Yes	116	69.9
	No	39	23.5
	Not Sure	11	6.6
3.	**Are you aware of the treatment options for cataract?**		
	Yes	70	43.5
	No	91	56.5
4.	**What treatment options of cataract do you know?**		
	Herbal	4	5.6
	Surgery	61	85.9
	Orthodox Medications	4	5.6
	Mixed	2	2.8

Table 5 attempts to understand the association between local government residence of the participants and their key knowledge about cataracts. All key variables at their level of association were found to be significant. Though cataract was higher among Amuwo LGA residents, there is nearly an equal number of diagnosis of other eye conditions in the two LGAs (Amuwo=69.2%; Alimosho=51.9%). Residents in Amuwo have more eye clinics that are very close to them than Alimosho. The willingness to go for a routine free eye examination and the knowledge of treatment options for cataract we're significantly higher among residents of Amuwo.

Table 5. Association between LGI and knowledge of participants about cataract N=169

Variables	Alimosho LG		Amuwo LG		X^2 (p-value)
	N	%	n	%	
Is there any history of cataract in your family?					
Yes	6	17.6	28	86.4	13.9 (0.003) *
No	52	50.5	51	49.5	
Maybe	5	62.5	3	37.5	
Don't know	6	30.0	14	70.0	
Have you ever had cataract before?					
Yes	4	12.1	29	87.9	18.7 (<0.001) *
No	62	49.6	63	50.4	

Maybe	0	0	2	100	
Don't know	0	0	3	100	
Have you been diagnosed with any other eye condition					
Yes	16	30.8	36	69.2	4.33 (0.03) *
No	52	48.1	56	51.9	
How close is an eye clinic to where you live?					
Very Close	1	3.2	30	96.8	43.3 (<0.00) *
Close	42	56.0	33	44.0	
I don't know	11	57.9	8	42.1	
Not Close	7	29.2	17	70.8	
Not very close	5	33.3	10	66.7	
Would you randomly go for an eye routine examination if free?					
Yes	36	31.0	80	69	26.9 (<0.00) *
No	30	76.9	9	23.1	
Not Sure	3	27.3	8	72.7	
Are you aware of the					
treatment options for cataract?					
Yes	16	23.5	52	76.5	22.1 (<0.00) *

* Values are significant at p<0.05

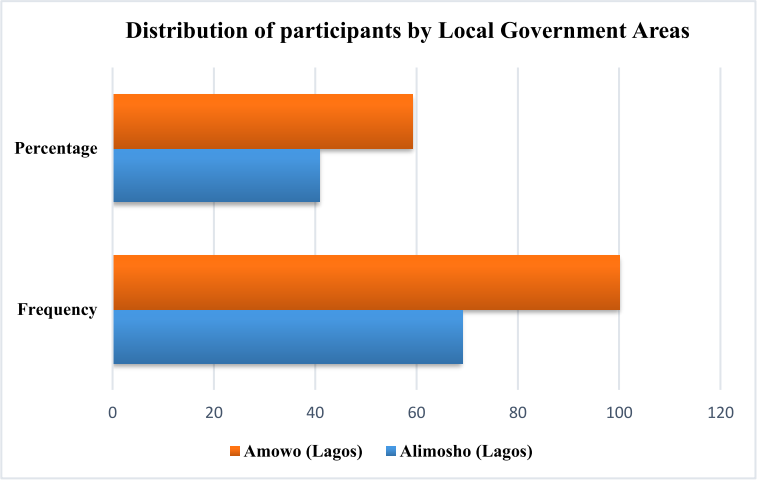

Figure 1. Distribution of participants by Local government Areas

DISCUSSION

Cataracts remains an issue of public health concern, as there is an , , increase in Disability-Adjusted Life Years (DALYs) due to cataracts, as shown by Amaryllis and Travis's retrospective analysis of global burden trends from 1990 to 2019[7] However, cataracts are the primary cause of treatable blindness, and the lack of knowledge and understanding about the disease and its treatment remains a significant obstacle to reducing the blindness caused by cataracts in low and middle income countries (LMIC), particularly in rural regions. We had conducted a cross-sectional study to assess cataracts awareness and public health implications in two local governments in Lagos State, Nigeria: Amuwo-odofin and Alimosho local governments. In this study, participants from Amuwo-Odofin were more knowledgeable about cataract treatment options than those from Alimosho. This result is similar to that obtained by Puri *et al.,*[8] where 54.18% of the study population were aware of cataracts but had no strong knowledge about the disease. Findings from this study can be attributed to the fact that participants with a good knowledge of cataract treatment options had, at one point or the other, heard about cataracts; hence, they may have also been exposed to possible treatment options. Also, participants from Alimosho did not have an eye clinic close to their residence; therefore, this would hinder easy access to information on eye diseases and the willingness of individuals to go for an eye check-up regularly. This is consistent with a study in Southern Ethiopia in 2021 by Samuel et al.[9], which found that the probability of having a strong knowledge of cataracts is 35% lower among persons without access to an eye clinic in their vicinity than those with such access. In agreement with Magliyah et al.,[10] there are often misconceptions about eye diseases owing to limited information on eye health. Also, individuals do not typically schedule eye exams as part of their routine check-ups and only go when they have troubling symptoms that they consider significant enough to schedule an eye visit. Therefore, more awareness of eye diseases needs to be created and public health campaigns should be geared toward eye health and its benefits.

Most study participants (64.7% and 52.2%) have heard about cataracts and were aware that it involves cloudy vision. These findings are consistent with studies in Saudi Arabia by Alshail et al.[11] and by Alimaw et al[3]. In these studies, more than half of the participants had a good knowledge of cataracts, and this was attributed to the fact that the majority of the study population had obtained a university degree and were interested in their health. Hence, they tend to read more and use social media more often, making them better informed on cataracts. Again, in agreement with Alimaw et al.[3,] although most participants knew about the definitions and complications of cataracts, most are not well informed on the associated risk factors. In this study, only a few participants were knowledgeable about the risk factors. This knowledge gap could be as a result of only few participants having a family history of cataracts. However, the study of Alghamdi *et al.*[12] are consistent with this study's findings, where most participants strongly agree that cataracts can lead to blindness.

CONCLUSION

Generally, participants had good knowledge about cataract treatment options. However, there were knowledge gaps on the risk factors associated with the diseases and possible prevention methods. Hence, I strongly recommend that the Ministry of Health and other stakeholders in the health sector to develop public health campaigns that are geared towards creating awareness and educating individuals on different eye diseases and their prevention strategies.

LIMITATIONS

This study is not without limitations, a major limitation in this study is that it was designed as a cross-sectional study which is unable to demonstrate a causal relationship or evaluate behavior longitudinally. To examine the relationship between cause and effect, it is necessary to conduct either a longitudinal study or an experimental study. Moreso, we had a low response rate of 42.25%, although we had projected to achieve a 90% response rate. This low response rate was due to a number of factors such as; inadequate funding to mobilize data collectors as this study was self-funded, inaccessibility to the patients as the hospitals had a lot of protocols that hindered easy access to the patients for data collection despite having an ethical approval. Additionally, the unwillingness by the eligible population to participate in the study and difficulty in retrieving some of the questionnaires taken by the participants posed a significant limitation. Finally, the questionnaires were poorly filled as it was a self-administered questionnaire. some respondents failed to complete most of the questionnaire due to lack of understanding. Given the low response rate, this study cannot be generalized hence, a larger scale study is strongly recommended.

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