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Original Article

Age and social related risk factors for age related macular degeneration among patients attending eye care at Jinja regional referral hospital. A cross-sectional study.

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Abstract

Background
Age-related macular degeneration causes irreversible blindness. Two types of Age-related Macular Degenerations are Wet macular degeneration and Dry macular degeneration. The study aims to assess the aim of the study is to assess the Age and social related Risk factors for Age-Related Macular Degeneration

Methodology
A Cross-sectional descriptive study design involving quantitative methods of data collection,
The study population comprised of all patients receiving eye care services for Age-related Macular Degeneration conditions at the eye unit of Jinja Regional Referral Hospital for a period of 6 months from October 2022 to March 2023. Non-probability sampling was used to select 50 participants.

Results
The majority of 29/50 (58%) respondents were females and 21/50 (42%) males. Most 39/50 (78%) of the respondents lived in Rural areas while a lower number 11/50 (22%) lived in Urban areas. The majority 25/50 (50%) were between 61-70 years, followed by respondents 14/50 (28%) who were between 51-60 years, followed by respondents 2/50 (4%) which were 41-50 years while the least were respondents 2/50 (4%). Most 24/50(48%) strongly agreed that smoking is a risk factor for Age-related Macular Degeneration. 32/50 (64%) took alcohol while18/50 (36%) did not take alcohol.

Conclusion
The significant risk factors for Age-related Macular Degenerations were, increasing age groups of 61-70 years and 51-60 years, smoking, and low level of education.

Recommendations
The Government should sensitize people on the risk factors for Age related Macular Degenerations. At the same time, the Government should set up more eye clinics to increase accessibility to eye care services.

Keywords: Macular Degenerations, Smoking, Irreversible blindness, Jinja Regional Referral Hospital

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Background
Age-related macular degeneration causes irreversible blindness among people aged 50 years and above. There are two types of Age-related Macular Degenerations that's to say Wet macular degeneration and Dry macular degeneration. Age-related Macular Degeneration (AMD) is a progressive disease that preferentially affects the macular region of the retina (Pennington and Deangelis, 2016). About 170 million individuals have been affected by AMD globally, thus being the third leading cause of vision loss in the world (Wong et al., 2014). In the United States, the prevalence of AMD reaches 11 million, similar to that of invasive cancers combined, leading to an annual $4.6 billion in direct healthcare costs (Xiayan et al., 2020). 200

million people worldwide are estimated to have AMD, and by 2040, this number is projected to rise to 300 million. By 2050, 5.4 million Americans are anticipated to be affected by rising patterns similar to this one (Deng et al., 2022).
Dry AMD causes blurred or reduced central vision, due to thinning of the macula. It can affect one or both eyes. At any stage, dry AMD can turn into wet AMD. In the wet AMD or exudative form of Age-related Macular Degeneration (AMD or ARMD), pathologic choroidal

neovascular membranes (CNVM) develop under the retina. The CNVM can leak fluid and blood and, if left untreated, ultimately cause a centrally blinding disciform scar (F Ryan Prall, Andrew A Dahl, 2023). Patients of Age-related Macular Degeneration may experience visual distortions like straight lines or surfaces appearing to be bent or wavy, Low light may cause visual challenges, and you may not be able to recognize faces as easily as you have in the past (Bamini Gopinath, 2016). You might even experience a visual hallucination called Charles Bonnet syndrome. However, other signs may include Colors may look dull, or it may be difficult to tell the difference between subtle shades of colors or textures**,** what at first glance appears to be clumsiness may be related to your eyesight**,** Blind spots in your central vision might make it difficult to read, sew and do close work. The study aims to assess the aim of the study is to assess the Age and social-related risk factors for Age-Related Macular Degeneration.

METHODOLOGY

Study design
A Cross-sectional descriptive study design involving quantitative methods of data collection

Study Area
The study area was the eye clinic of Jinja Regional Referral Hospital. The hospital is located in the South Eastern region of the country in the central division of Jinja city near the source of the Nile which is located 80km east of Kampala the capital city of Uganda. The hospital was founded in 1962 and has a bed capacity of 600. Jinja Hospital is a regional referral hospital serving several clients/ patients across the Busoga region and other neighboring districts of Buikwe, Kayunga, and others. Some clients are referred from other hospitals and health centers IV while others are self-referred. Among the services provided include, medical, surgical, orthopedic, eye care, private, gynecology, pediatrics dental, ENT, Lab, X-Ray/Scan, Immunization, HIV testing and counseling, Reproductive health services, and Safe Male Circumcision among others**.**The hospital has 15 wards which include surgical female/male, medical female/male, TB, Eye, Urology, Grade A, Annex, TB, Psychiatric and Children's wards, Intensive Care Unit, postnatal, Gynecological, and Maternity wards.

Study Population
The study population comprised of all patients receiving eye care services for Age-related Macular Degeneration.

Data Collection procedure
The principal investigator started by creating rapport and explained the objectives of the study to the respondents and re-assured them about confidentiality. The questions were read and interpreted for the respondents to understand. Responses were given in the local language and written in English by the principal investigator and his assistants for those who did not understand the English language. Data was collected for a period of 30 days as at least 2 respondents each taking 20-30 minutes were interviewed daily until the required sample size was obtained. At the end, the respondents were thanked for their co-operation.

Pre-testing
The study tool was pre-tested on a few patients attending the eye clinic and necessary adjustments are to be made to Conditions at the eye unit of Jinja Regional Referral Hospital

Time scope
The study was carried out for a period of 6 months, that is October 2022 to March 2023

Sample size determination
The sample size was calculated using the method below according to Mbuto Samuel (2004)

Sample size = $\frac{DxH}{T}$ Where:

Where:
D -number of days that were available for data collection
H -number of hours taken per day
T -total time that was spent on each event.
D =30days
H =5hours
T =3minutes
N =50partcipants

Sampling technique
The study was a non-probability sampling process specifically purposive sampling technique, where only patients with Age- related Macular Degeneration participated in the study.

Sampling procedure
Patients registered at the reception, their age and sex documented regardless of presenting ocular complaints. Whenever any ophthalmic clinical officer or ophthalmologist identified a case of Age-related Macular Degeneration during the course of history taking, examination or treatment of patient, he/she directed the patient to the principal investigator or any of the research assistants for inclusion into the study.

Data collection method
The principal investigator used interviews as the method of data collection using an interview guide with well-structured questions. All clinicians at JRRH eye clinic were sensitized and requested to identify the participants with Age-related Macular

Data collection tool
A questionnaire filled in by the researcher or researcher assistant was used to collect data from the respondents. Degeneration of eye conditions

ensure validity and reliability. Patients who were included in the study were asked to consent. Those in exclusion were below the age range and those who did not consent to participate in the study.

Data Analysis and presentation

The data collected was manually analyzed through tallying, use of scientific calculators. The results were presented in form of tables, Figures and statements. A computer was used to type the report. Microsoft excel was used in drawing charts and graphs for clear presentation of the findings.

Ethical Consideration

Upon approval of the research proposal by the school, a letter of introduction was provided by the Principal of Ophthalmic Clinical Officers Training School, and then it was delivered to the hospital director JRRH to grant permission to undertake the study in the hospital. The researcher introduced himself to the in-charge of the eye clinic. He then introduced himself and the objectives to the respondents. The principle of confidentiality and anonymity was observed throughout the study.

Results: Social Demographic

Table 1 Shows Social Demographic Characteristic (n=50 Respondents)

Category	Frequency(n=50)	Percentage (%)
Age		
35-40	02	04
41-50	09	18
51-60	14	28
61-70	25	50
Sex		
Female	29	58
Male	21	42
Tribe		
Musoga	27	54
Muganda	13	26
Munyankole	08	16
Others	02	04
Religion		
Anglican	19	38
Muslim	09	18
Catholic	22	44
Level of Education		
Primary	32	64
Secondary	16	32
Tertiary	02	04
Occupation		
Business personnel	10	20
House wife	19	38
Peasant	21	42
Home Area		
Rural	39	78
Urban	11	22

Table 1, on age, 25/50(50%) which is half of the total number of respondents were between 61-70 years and the minority 02/50 (04 %) were 31-40 years.On sex, More respondents 29/50 (58%) were females than 21/50 (42%) males. On tribe, the majority 27/50 (54%) of the respondents were Basoga, while minority 02/50 (04%) were among others. On religion, Most of the respondents 22/50 (44%) were Catholics and a minority 09/50 (18%) were Muslims.The Level of Education established that the majority 32/50 (64%) of the respondents were primary drop outs while the least 02/50 (04%) had attained a tertiary school level of education.On occupation, most of the respondents 21/50 (42%) were peasants while 10/50 (20%) were Business personnel.Concerning home area, the higher number 39/50 (78%) respondents lived in Rural areas while the lower number 11/50 (22%) lived in Urban areas.

Age related Risk factors for Age Related Macular Degeneration

Figure 1 Age related risk factors for Age related Macular degenerations

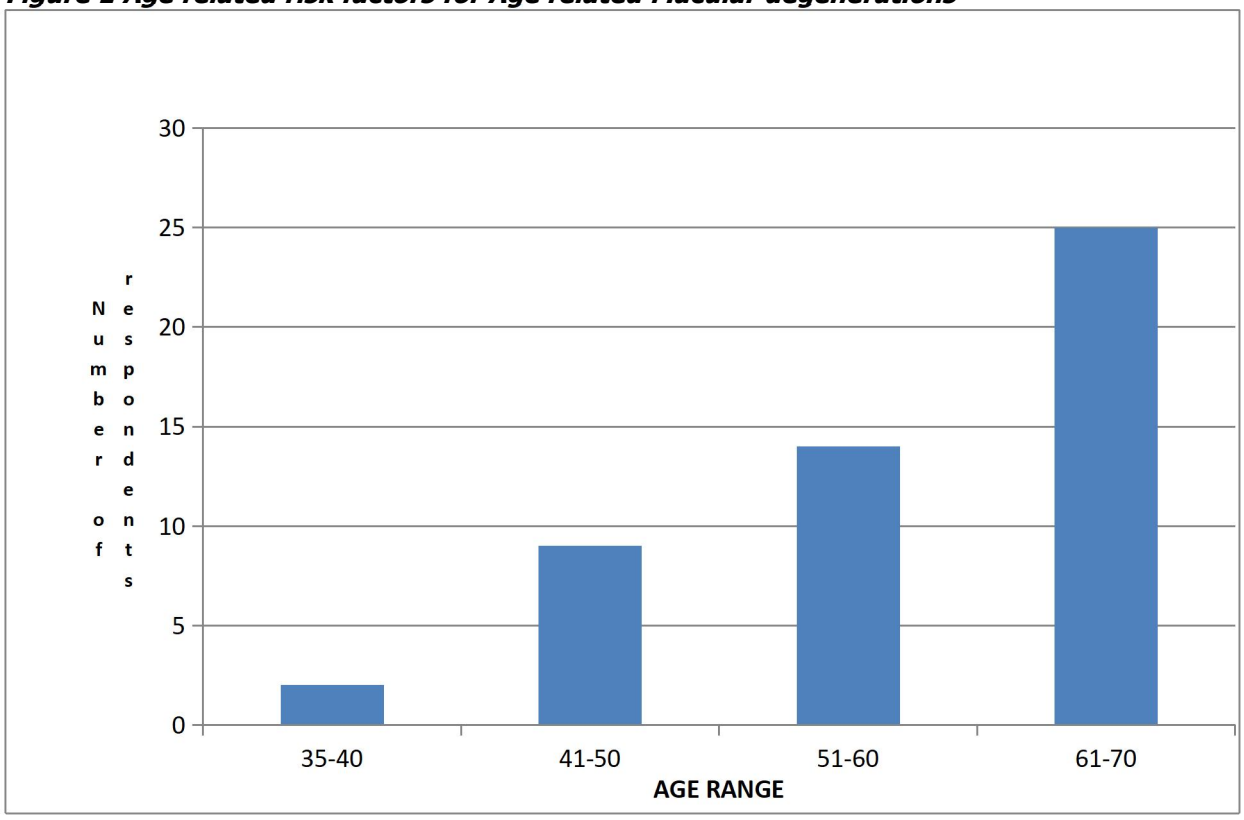

Figure 1, the majority half of the respondents 25/50 (50%) were between 61-70 years, followed by respondents 14/50 (28%) which were between 51-60 years, followed by respondents 2/50 (4%) which were 41-50 years while the least were respondents 2/50 (4%).

Social Related risk factors for Age related Macular Degeneration

Table 2 Shows Smoking as a risk factor of Age related Macular Degeneration.

SMOKING	NUMBER OF RESPONDENTS	PERCENTAGE (%)
Agree	20	40
Strongly Agree	24	48
Disagree	06	12

Table 2, The highest number of respondents 24/50(48%) strongly agreed that smoking is a risk factor for Age-related Macular Degeneration, followed by 20/50(40%) respondents who agreed while the least number of respondents 06/50 (12%) Disagreed

Figure 2 , A Pie Chart Showing Alcohol as a Social related risk factors for Age Related Macular degeneration.

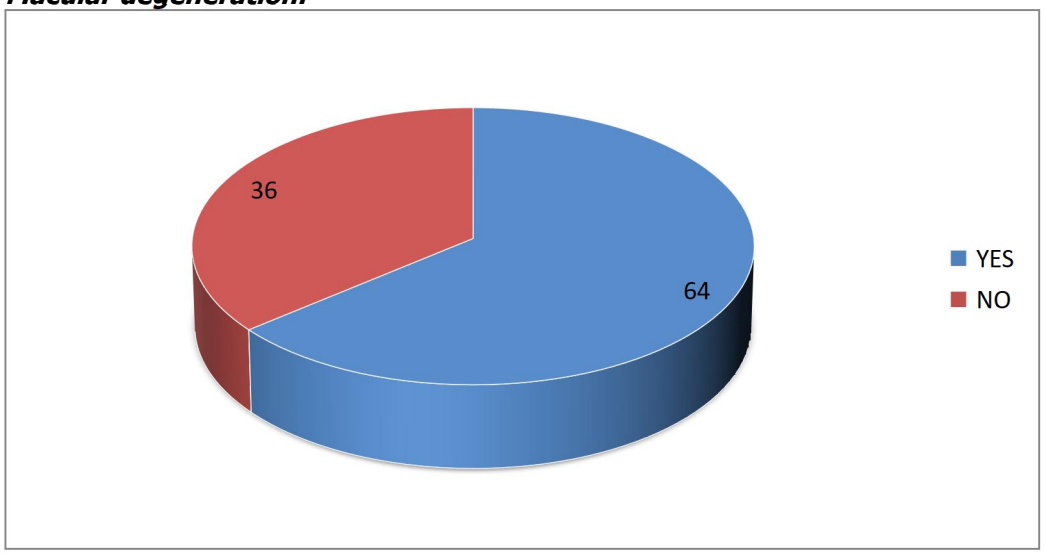

Figure 2, The bigger number of respondents 32/50 (64%) said YES indicating that they took alcohol than 18/50 (36%) respondents who said NO indicating that they did not take alcohol.

DISCUSSION

On Sex, more respondents (58%) were Females an indication that Age related Macular Degeneration affects Females more.On tribe, the majority (54%) of the respondents were Basoga an indication that it is the dominant tribe in the area.On religion, most of the respondents (44%) were Catholics while a few respondents (18%) were Moslems. The study findings for educational levels established that the majority of the respondents (64%) were primary school dropouts, followed by 32% secondary school dropouts while the least number of respondents had archived tertiary Level of education. This could be because illiterates usually have poor health-seeking behaviors. On occupation, the majority of the respondents (42%) were Peasants. According to study findings on Home areas, it established that more respondents (78%) came from Rural areas. Such people usually have limited access to specialized healthcare services.

Social related risk factors

The study results showed that the majority of respondents 48% strongly agreed that smokers are at risk of Age-related Macular Degeneration. This is because smoking (Nicotine) decreases plasma nitrates, nitrites, and antioxidants thus increasing oxidative stress which leads to degenerations including macular degeneration. Similarly, Amstrong and Mousavi (2015) observed that smoking is a risk factor associated with AMD and asserted current smokers are exposed to two or three times higher risk for AMD than non-smokers

Age Related Risk Factors

According to the social demographic data of the respondents on age, (50%) of the total number of respondents were between 61-70 years, followed by (28%) were between 51-60 years then (18%) were between 41-50 years while the minority(4%) were 35-40 years. According to the research results, 02 out of 50 respondents (04%) had Juvenile macular degeneration and their ages were between 30-40 years. This could be because Juvenile Macular Degeneration vision loss may not be noticed easily until a person reaches their 30s. Similarly, (Ziyuan et., 2019) in their research, Deep learning for automated screening and semantic segmentation of age-related and Juvenile atrophic macular degeneration identified Juvenile macular degeneration as one of the causes of blindness among children and young people.

Conclusion

Increasing age groups of 61-70 years and 51-60 years, smoking, and low education level were significant risk factors for Age-related Macular Degenerations.

Recommendations

The Government should sensitize people on the risk factors for Age related Macular Degenerations. At the same time, the Government should set up more eye clinics to increase accessibility to eye care services.

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Conflict of interest

The author did not declare any conflict of interest.

Author's biography

Joshua Tumwebaze is a student of a diploma in Clinical Ophthalmology at Ophthalmic Clinical Officers' Training School Jinja.

Taddeo Mulumba is a tutor at Ophthalmic Clinical Officers' Training School Jinja.

LIST OF ABREVIATIONS

HIV : Human Immunodeficiency Virus
CNVM : Choroidal Neovascular Membranes
JRRH : Jinja Regional Referral Hospital
AMD : Age related macular degeneration

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