Impact of Socio-Economic and Infrastructure Factors on the Prevalence of Preventable Blindness among Patients at Hoima Regional Referral Hospital

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ABSTRACT

The study aimed to determine the prevalence of blindness at Hoima Regional Referral Hospital in Western Uganda, focusing on socio-economic factors and infrastructural-related factors. A facility-based cross-sectional study was conducted, recruiting 300 participants using a structured questionnaire. The data was analyzed using STATA version 14.0 and bivariate and multivariate logistic regressions. The mean age of the participants was 45.09 years, with a median age of 41 years. The prevalence of blindness was 4% (12/300), with socio-economic factors being age over 65, illiteracy, and monthly income below 500,000. Infrastructural-related factors included a history of cataract, having no eye treatment center near the home, and eye trauma. The study found that the prevalence of blindness at Hoima Regional Referral Hospital is higher than the national prevalence in Uganda. Health policymakers and advocates should develop programs to regularly screen and monitor eye health indicators to prevent blindness and improve eye health, ultimately reducing the prevalence of blindness.

Keywords: Vision impairment, Eye health and vision, Affordable eye care, Blindness, Eye health indicators.

INTRODUCTION

There are 36 million people who are blind and 217 million people with severe or moderate visual impairment (MSVI), making a total of 253 million people who were visually impaired, in 2015 all over the world [1]. 89% of visually impaired people live in low and middle-income countries [2]. The worst affected areas for visual impairment are in South and East Asia. Parts of sub-Saharan Africa also have particularly high rates. Approximately 80% of all vision impairment globally is considered avoidable [1]. Although the prevalence of blindness and vision impairment combined has dropped from 4.58% in 1990 to 3.37% in 2015, new data published in the Lancet Global Health shows that decades of declining "avoidable blindness"—those with uncorrected refractive errors and cataract—is plateauing, and is projected to increase between 2015 and 2050. Similarly, trends in ageing and growing global population coupled with the increase in myopia and diabetic retinopathy are taking us into a new era of blindness and vision impairment—an era where existing efforts are at serious risk of being overwhelmed, potentially leading to a threefold increase in blindness by 2050. Taking this new data into consideration, a new section on the IAPB Vision Atlas looks at the possibility of achieving the World Health Organization's Global Action Plan target(GAP) of 25% reduction in avoidable vision impairment (blindness and MSVI combined) by 2019 (based on 2010 figures). Africa contributes to sixteen percent of global cases of blindness. Prevalence of blindness decreased by 32% from 1.9 %(95% CI 1.5% to 2.2%) in 1990 to 1.3% (95% CI1.1% to 1.5%) in 2010.However, there was a 16% increase in the absolute numbers with blindness, in sub-Saharan Africa [3]. Of these,

6200000 people are in East Africa. In East Africa, there was decrease in the prevalence of blind people from 7. 4% to 5.4% among men and from 8.3% to 6.0% between 1990 and 2010. In East Africa, (Kenya, Uganda and Tanzania), the prevalence of blindness is 6.3% % with Uganda with the highest proportion of blind people, standing at 7.3 % [3]. Recent surveys show that the prevalence of blindness in Uganda is 0.4%. [4], which resembles the global decline in the proportion of blindness. The leading causes of blindness in the country are cataract which accounts for 56.7%, trachoma, river blindness, Vitamin A deficiency and measles. Fortunately, 80% of the blindness that occurs could be avoided easily and efficiently by treatment or prevention with known cost-effective means.

The loss of sight causes enormous human suffering for the affected individuals and their families. It also represents a public health, social and economic problem for countries, especially the developing ones, where 9 out of 10 of the world's blind live. In fact, around 60% of them reside in sub-Saharan Africa, China and India [1]. Despite a half century of efforts, commencing with organized trachoma control activities, the global action plan (GAP) is growing largely because of the population growth and ageing, coupled with the increase in myopia and diabetic retinopathy which are taking us into a new era of blindness and vision impairment—an era where existing efforts are at serious risk of being overwhelmed, potentially leading to a threefold increase in blindness by 2050. The developing countries will bear the brunt [5]. Significant progress in the prevention of avoidable blindness has already been made through individual efforts of the international community, including those by the World Health Organization (WHO) and its Member States, other UN agencies, nongovernmental organizations (NGOs) and the private sector. Given the scope of the problem, the time has come for a major focused and concerted international effort to combat avoidable blindness [1]. The global AP sets out objectives and means to achieve significant reductions in avoidable blindness and visual impairment world-wide, and the responsibilities of the different stakeholders – governments, WHO and international partners. The objectives are on evidence, used to advocate for political commitment and investment, development and strengthening of national plans advancing universal eye health, and strengthening multi-sector engagement and partnership [5]. Monitoring the magnitude of visual impairment is essential for policies aiming at the prevention and elimination of the avoidable causes. The global estimates have significant uncertainties that could be reduced with population based studies from regions with limited or old data and with studies conducted at national level for all ages recording all causes of blindness. Particularly urgent is to determine the extent of posterior segment diseases as causes of visual impairment, since these require the development of eye care systems, including human resources and infrastructures [6]. Recent surveys show that the prevalence of blindness in Uganda is 0.4% [4] which previously was 0.73% in 2010. The leading causes of blindness in the country are cataract which accounts for 56.7%, trachoma, river blindness, Vitamin A deficiency and measles. Fortunately, 80% of the blindness that occurs could be avoided easily and efficiently by treatment or prevention with known cost-effective means [4]. Given the estimated global escalation of blindness in the near future, and the need for a more determined course of action among which is vigilance, and increased accuracy of regional blindness, this study therefore sought to provide a more accurate knowledge of the prevalence and factors influencing blindness among patients in Hoima Regional Referral Hospital.

METHODOLOGY

Study Design

This study used a cross-sectional descriptive study design for collecting quantitative and qualitative data.

Area of Study

The study area was Hoima Regional Referral Hospital, located in Albertine region, Hoima City, Uganda.

Study Population

The study population was adults attending the eye department at Hoima Regional Referral Hospital.

Inclusion Criteria

Those who were 18 years and above.
Those who consented to participate in the study.
Those who will be receiving eye health services at Hoima regional referral hospital.

Exclusion Criteria

- Those who did not consent to participate in the study.
- Those who were too ill to participate in the study.

Sample Size Determination

Using kish and Leslie's formulae. i.e.
$$n = \frac{z^2 p(1-p)}{d^2}$$
where;
n is the sample size.
z is confidence interval.
p is the proportion of population that is under study.
d is the margin of area.
Since p of the blind population of HHRH is not known, it shall be set at 50% d acceptable marginal error of is 5% and as the confidence interval is 95%.
Making z value to be z=1.96
p=0.5
d=0.05.
$$n = \frac{1.96^2 \times 0.5 \times (1-0.5)}{0.05^2}$$
n=382 Study Participants

Sampling technique

This study employed the simple random sampling technique. Here every participant had an equal chance of participation in the study. The researcher wrote the words YES and NO on a piece of paper, folded them and placed them in a box with equal numbers of YES and NO. The respondents were given the opportunity to select the papers from the box and those who picked YES were selected to participate in the study that very day this continued throughout the study. The main advantage of this method was that it was easy to do.

Data collection Methods

All the study participants were assessed for eligibility after the primary reason for their visit had been taken care had been done. The purpose of the study was first fully explained to the participants, who were then requested to sign a written informed consent statement or used a thumb print for those who were unable to write in order to participate in the study. A copy of the signed consent form was given to the participant and other copy kept by the researcher. During data collection, face-to-face-interview were used to collect data from the study participates. The participant who met the inclusion criteria was taken to a gazetted room within the hospital where the interview was carried out. Data including the socio-economic characteristics and infrastructural-related characteristics were collected. These included; age, sex, address, religion, occupation, level of education, and average monthly income among others. Privacy and confidentiality were ensured and consequently upheld.

Data Analysis

Collected data was verified to ensure completeness, coded, entered in an Excel (Microsoft Corporation) spreadsheet, cleaned and edited for inconsistency before they were exported into STATA software for analysis. The outcome variable was blind or not blind and was assigned one (1) when a respondent was blind and zero (0) when otherwise. The socio-demographic characteristic was calculated in frequencies and percentages and the information was summarized in the form of graphs, pie charts, narrations and tables to give descriptive statistics.

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Frequencies and percentages of the respondent's characteristics were produced. At a descriptive level, these variables were compared between the entire study samples. This will be done using Pearson's chi-square statistic. Statistical significance was considered to be p-value < 0.05. The factors associated with the prevalence of blindness were assessed using logistic regression. Both bivariate and multivariate logistic regression analyses were carried out. The variables in the final multivariate model were significant when $p < 0.05$. The measure of association was reported as odds ratios (ORs) with corresponding 95% CI and p-value. All statistical analyses were carried out in the STATA version.

Quality control

The quality of data collection was ensured by subjecting the questionnaire and structured interview questions to professional scrutiny, and pre-testing them before they could be employed for data collection. And the collected data was verified for completeness, appropriateness and truthfulness of the response by questions that confirm the consistency of a former response.

Ethical consideration.

The research proposal was submitted to the IREC of KIUWC for ethical clearance. A letter of introduction was obtained from the Dean of school of clinical medicine and dentistry, which was presented to the hospital director, HRRH, from which a letter of approval was obtained to carry out the research in the HRRH. The letter of approval was presented to eye care health facility and record department heads and permission was sought to carry out the study in their facilities. The consent of adult individuals was sought based on sound ethical principles; full and accurate information and no persuasion or coercion [7].

RESULTS

Socio-economic Characteristics

Table 1 shows the socio-economic characteristics of the study participants. It can be observed that that majority of the study participants 38.33% (115/300) were in the age group of 20 – 35 years meanwhile the minority 12.33% (37/300) were in the age group of 46 – 55 years. Furthermore, the majority of the study participants 34.00% (102/300) were Anglicans who were uneducated 38.00% (114/300) coming from urban areas of residence 80% (240/300) and were married 50.00% (150/300). Additionally, the majority of the study participants were vegetarians to some extent 38.00% (114/300), and were non-smokers 64.00% (192/300). Results showed that the majority of the participants 52.00 (156/300) wore eye protective glasses, were employed 46.00 (138/300), and were earning a monthly income of less than 500,000 Ugandan shillings 61.00% (183/300).

Table 1; Shows Frequency distribution for socio-economic Characteristics of the Study Participants

Variable	Frequency (n)	Percentage (%)
Age in years		
20 – 35	115	38.33
36 – 45	53	17.67
46 – 55	37	12.33
56 – 65	50	16.67
≥66	45	15.00
Religion		
Catholic	90	30.00
Anglican	102	34.00
Muslim	30	10.00
SDA	42	14.00
Born Again	36	12.00
Education		
Uneducated	114	38.00
Primary	78	26.00
Secondary	96	32.00
Tertiary	12	04.00
Area of Residence		
Urban	240	80.00
Rural	60	20.00
Marital Status		
Single	60	20.00
Married	150	50.00
Cohabiting	36	12.00
Divorced	54	18.00
Vegetarian		
Yes	102	34.00
To some extent	114	38.00
No	84	28.00
Smokes		
Yes	108	36.00
No	192	64.00
Wears Protective Eye Glasses		
Yes	156	52.00
No	144	48.00
Employment status		
Employed	138	46.00
Unemployed	126	42.00
Student	36	12.00
Monthly Income		
<500,000	183	61.00
500,000 – 1M	81	27.00
>1,000,0000	36	12.00

Table 2 shows the summary statistics for the variable of age of the study participants. The mean age of the study participants was 45.09 years with a standard deviation of 16.88. The median age was 41 years with an inter-quartile range of 30 years to 60 years. The minimum age was 20 years whereas the maximum age was 80 years. The data on age of the participants had a variance of 284 with a positive skewness of 0.36 and a kurtosis of 1.85.

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Table 2: Summary statistics of age of study participants.

Observations	Mean	Std Dev	Median	IQR	Min	Max	Variance	Skewness	Kurtosis
300	45.09	16.88	41	30,60	20	80	284	0.36	1.85

Std Dev = Standard Deviation, Min = Minimum, Max = Maximum, IQR = Inter quartile Range

Infrastructural related Characteristics of Study Participants

As shown in table 3 below, majority of the study participants 62.33% (187/300) had a negative history of cataract surgery, had no eye treatment center near their homes 54.00% (162/300) and had a positive history of uveitis 66.00% (198/300). Furthermore, minority of study participants 47.67% (143/300) had positive history of eye trauma as well as positive history of diabetic retinopathy 34.00% (102/300). On the other hand, majority of the study participants 64.00% (194/300) perceived that the health workers were overworked and 60.00% (180/300) were not satisfied with the health services offered at the hospital. The study showed that majority of the participants 62.00% (186/300) confessed that they had to wait for long hours before they are given services and 68.00% (204/300) said that the distance between their homes and Hoima Regional Referral Hospital is far.

Table 3: Frequency Distribution table for Infrastructural Related Characteristics

Variable	Frequency (n)	Percentage (%)
History of Cataract Surgery		
Yes	113	37.67
No	187	62.33
Eye Treatment centre near home		
Yes	138	46.00
No	162	54.00
History of Uveitis		
Yes	198	66.00
No	102	34.00
History of Eye Trauma		
Yes	143	47.67
No	157	52.33
Diabetic Retinopathy		
Yes	102	34.00
No	198	66.00
Health workers overworked		
Yes	192	64.00
No	108	36.00
Satisfied with the health services		
Yes	120	40.00
No	180	60.00
Long waiting time		
Yes	186	62.00
No	114	38.00
Long distance to the health facility		
Yes	204	68.00
No	96	32.00

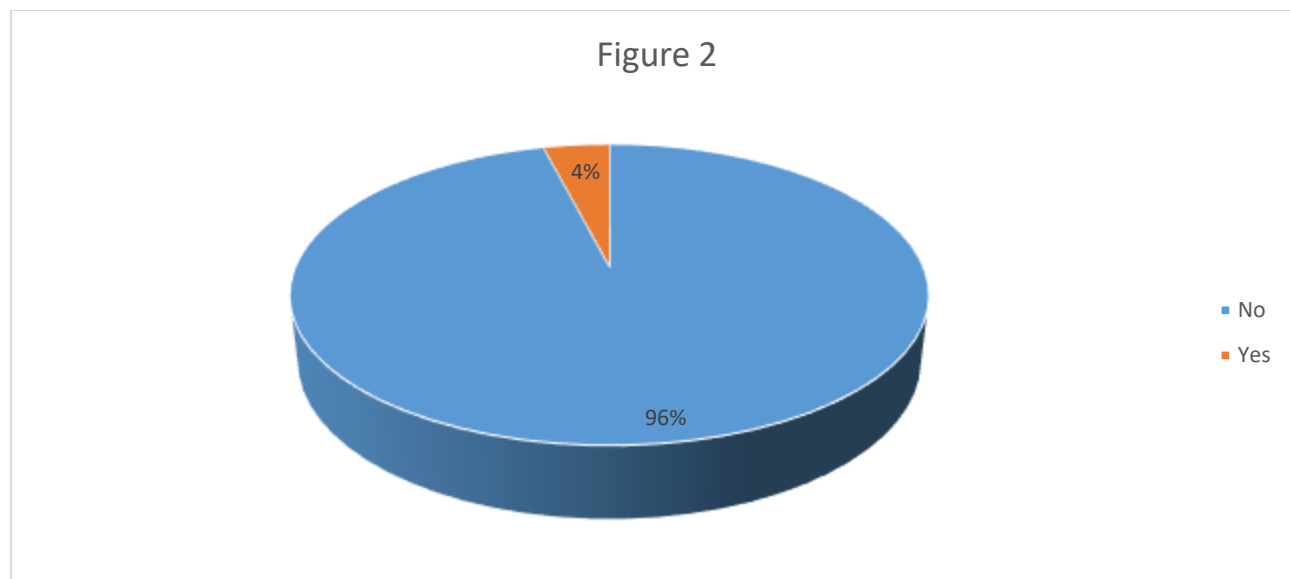### The Prevalence of Blindness in Hoima Regional Referral Hospital.

Table 4 shows the level of utilization of cervical cancer screening services by the study participants. As observed from the table, 24.00% (12/50) of the study participants utilized cervical cancer

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screening services with a 95% CI of 11.74   – 36.26.

Table 4: The Overall Utilization of Utilization Of Cervical Cancer Screening Services

Blindness	Frequency (n)	Percentage (%)	95% Confidence Interval
No	288	96.00	93.77 – 98.23
Yes	12	04.00	01.77 – 06.23

Figure 1: Pie Chart Showing the prevalence of Blindness in HRRH

The Socio-Economic Factors Influencing the Prevalence of Blindness at HRRH.

A bivariate logistic regression was run to establish the socio-economic factors influencing the prevalence of blindness among the study participants and the results are presented in table 5 below. Results of the analysis showed that Age, Education level and monthly income were the only socio-demographic factors influencing the prevalence of blindness. Study participants who were above 65 years were 10.41 times more likely to be blind compared to study participants who were in the age group of 20 – 25 years (cOR 10.41, 95%CI 2.07-52.27, P=0.004). Participants who were illiterates were 8.57 times more likely to be blind than their counterparts who had attained a secondary level of education (cOR 8.57, 95%CI 1.64-44.86, P=0.011). Lastly, those who were earning a monthly income of less than 500,000 were 7.11 times more likely to be blind than those who were earning a monthly income of more than 1 million (cOR 7.11, 95%CI 1.23-40.99, P=0.028).

Table 5: Results of Bivariate Logistic Regression to show Socio-economic Factors Influencing Blindness

Variables	Blindness		cOR (95% CI)	P Value
	No Count, (%)	Yes Count, (%)		
Age in years				
20 – 35	113 (98.26)	02 (01.74)	Reference	
36 – 45	52 (98.11)	01 (01.89)	1.08 (0.09-12.25)	0.946
46 – 55	36 (97.30)	01 (02.70)	1.57 (0.14-17.82)	0.716
56 – 65	49 (98.00)	01 (02.00)	1.15 (0.10-13.02)	0.908
≥66	38 (84.44)	07 (15.56)	10.41(2.07-52.27)	**0.004***
Religion				
Catholic	85 (94.44)	05 (05.56)	Reference	
Anglican	98 (96.08)	04 (03.92)	3.55 (0.59-21.24)	0.166
Muslim	25 (83.33)	05 (16.67)	0.50 (0.05-5.36)	0.567
SDA	40 (95.24)	02 (04.76)	2.6 (0.28-23.81)	0.398
Born Again	35 (97.22)	01 (02.78)	1.3 (0.10-17.73)	0.844
Education				
Uneducated	105 (92.11)	09 (07.89)	8.57 (1.64-44.86)	**0.011***
Primary	76 (97.44)	02 (02.56)	0.67 (0.05-8.24)	0.752
Secondary	95 (98.96)	01 (01.04)	0.87 (0.34 – 2.24)	0.776
Tertiary	10 (83.33)	02 (16.67)	Reference	
Continuation of table 7				
Area of Residence				
Urban	232 (96.67)	08 (03.33)	Reference	
Rural	56 (93.33)	04 (06.67)	1.48 (0.32-6.90)	0.621
Marital Status				
Single	57 (95.00)	03 (05.00)	Reference	
Married	142 (94.67)	08 (05.33)	1.26 (0.21-7.65)	0.799
Cohabiting	36 (100.00)	00 (0.00)	2.00 (0.20-19.91)	0.554
Divorced	53 (98.15)	01 (01.85)	1.14 (0.13-10.39)	0.906
Vegetarian				
Yes	99 (97.06)	03 (02.94)	Reference	
To some extent	109 (95.61)	05 (04.39)	0.38 (0.06-2.42)	0.307

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No	80 (95.24)	04 (04.76)	2.44 (0.52-11.39)	0.257
Smoker				
Yes	102 (94.44)	06 (05.56)	Reference	
No	186 (96.88)	06 (03.13)	1.44 (0.35-5.95)	0.613
Wears Protective Eye Glasses				
Yes	150 (96.15)	06 (03.85)	Reference	
No	138 (95.83)	06 (04.17)	8.00 (0.35-184.36)	0.194
Employment status				
Employed	132 (95.65)	06 (04.35)	Reference	
Unemployed	122 (96.83)	04 (03.17)	0.85 (0.19-3.70)	0.825
Student	35 (94.44)	02 (05.56)	3.6 (0.55-23.64)	0.182
Monthly Income				
<500,000	174 (95.08)	09 (04.92)	7.11 (1.23-40.99)	**0.028***
500,000 – 1M	80 (98.77)	01 (01.23)	2.00 (0.44-9.01)	0.367
>1,000,0000	34 (94.44)	02 (05.56)	Reference	

CI = Confidence Interval, cOR = Crude Odds Ratio, P-Value is Significant at 0.05 level

The Infrastructural Related Factors Influencing the Prevalence of Blindness in HRRH

Table 6 below shows the results of a bivariate logistic regression which was run to identify infrastructural related factors influencing the prevalence of blindness among the study participants. The statistically significant factors include A history of cataracts, Having an eye treatment centre near home and a history of eye trauma. Participants who had a negative history of cataracts were 88% less likely to have blindness compared to participants who had a positive history of cataracts (cOR 0.12, 95%CI 0.02-0.61, P=0.011), Study participants who had no eye treatment centre near their homes were 11.25 times more likely to be blind compared to study participants who had an eye treatment centre near their homes (cOR 11.25, 95%CI 2.46-51.52, P=0.002), and participants with negative history of eye trauma were 89% less likely to be blind compared to study participants who had a negative history of eye trauma (cOR 0.19, 95%CI 0.05-0.71, P=0.014).

Table 6; Results of Bivariate Logistic Regression to show Infrastructural related Factors Influencing the Prevalence of Blindness

Variables	Blindness		cOR (95% CI)	P Value
	No Count, (%)	Yes Count, (%)		
History of Cataract				
Yes	104 (92.04)	09 (07.96)	1.00	
No	184 (98.40)	03 (01.60)	0.12 (0.02-0.61)	**0.011***
Eye treatment Centre near home				
Yes	135 (97.83)	03 (02.17)	1.00	
No	153 (94.44)	09 (05.56)	11.25 (2.46-51.52)	**0.002***
History of Uveitis				
Yes	191 (96.46)	07 (03.54)	1.00	
No	97 (95.10)	05 (04.90)	0.52 (0.14-1.94)	0.329
History of Eye Trauma				
Yes	135 (94.41)	08 (05.59)	1.00	
No	153 (97.45)	04 (02.55)	0.19 (0.05-0.71)	**0.014***
Diabetic Retinopathy				
Yes	100 (98.04)	02 (01.96)	1.00	
No	188 (94.95)	10 (05.05)		
Perception that health workers are overworked				
Yes	186 (96.88)	06 (03.13)	1.00	
No	102 (94.44)	06 (05.56)	1.37 (0.36-5.19)	0.640
Satisfied with health Services				
Yes	113 (94.17)	07 (05.83)	1.00	
No	175 (97.22)	05 (02.78)	2.43 (0.57-10.40)	0.232
Long waiting time				
Yes	180 (96.77)	06 (03.23)	1.00	
No	108 (94.74)	06 (05.26)	1.22 (0.33-4.60)	0.764
Long distance to the health facility				
Yes	197 (96.57)	07 (03.43)	1.00	
No	91 (94.79)	05 (05.21)	1.08 (0.27-4.31)	0.910

CI = Confidence Interval, cOR=Odds Ratio, P-Value is Significant at 0.05 level

DISCUSSION

The Prevalence of Blindness in Hoima Regional Referral Hospital.
Results of the present study have revealed that 4% of the study participants were blind. The result of the present study is in line with the results of a study done in Central Ethiopia which revealed that the prevalence of blindness was 4.4% [8]. Furthermore, result of the present study is consistent with the results of other studies conducted in Africa [9];[10], but higher than the national prevalence of blindness in Uganda which is 0.4% [11]. The finding of the present study is lower

than what was found in a study conducted in South Africa which revealed that the prevalence of blindness was 1.4% [12]. The discrepancy in the study findings could have risen from the fact that South Africa has a well-developed health system with more attention given to eye health compared to Uganda. Furthermore, the result of the present study is lower than the results of a nationwide cross-sectional study which showed that the overall prevalence of blindness among pensioners in Ghana was 3.8% [13]. The findings of the present study are lower than what was found in a cross-sectional study at Debre Berhan town which showed that the prevalence of blindness was 16.8% [14]. This variation could be due to different study designs and the sampling techniques used in the two studies. For example, the previous study utilized a community-based cross-sectional study design and employed a systematic random sampling technique [15] in their study found that the prevalence of blindness 9.2% which is higher than the 4% which was found in the present study. The fact that the previous study was a national health survey while the present study was a hospital-based cross-sectional study conducted in a single hospital can explain the difference in the findings.

The Socio-Economic Factors Influencing the Prevalence of Blindness at HRRH.

This study showed that Age, Education level and monthly income were the socio-demographic factors influencing the prevalence of blindness. Age: Those who were above 65 years were 10.41 times more likely to be blind compared to study participants who were in the age group of 20 – 25 years. This finding is consistent with the result of a study in Ethiopia which showed that the age of the study participants was a determinant of blindness [8]. Similar to what was found in the present study, [16] in their study among adult patients attending tertiary eye care and training center in Ethiopia found that age of greater or equal to 70 years was positively associated with blindness. Result of the present study is in congruence with the results of a study done among adults at Debre Berhan town

which showed that age of age of greater than 64 years was associated with blindness [14]. Education Level: Results of the study showed that those who were illiterates were 8.57 times more likely to be blind than their counterparts who had attained secondary level of education. The result of the present study is consistent with the results of a study done in Ethiopia which revealed that study participants who started sexual intercourse for the first time below 16 years 3 folds the likelihood of utilizing cervical cancer screening services [17]. The result of the present study is in agreement with the result of a study done in South Africa which revealed that people with no formal education were more likely to be blind [12]. This findings is however in disagreement with the result of a study conducted in Ethiopia which found not association between education level of participants and blindness [18]. Monthly Income: The finding of this study which revealed that those who were earning a monthly income of less than 500,000 were more likely to be blind than those who were earning a monthly income of more than 1 million is consistent with the finding of a study done in Ethiopia which showed that monthly income was significantly associated with blindness [18]. The result of a study done in South Africa by [12] showed that the monthly income is a predictor of blindness which is in agreement with the results of the present study.

The Infrastructural Related Factors Influencing the Prevalence of Blindness at HRRH.

A history of cataracts, having an eye treatment centre near home and a history of eye trauma significantly influenced the prevalence of blindness at HRRH. History of Cataracts: This study showed that Participants who had a negative history of cataracts were less likely to have blindness. The finding of the present study is in agreement with the results of an Ethiopian based study which showed that cataract is a predictor of blindness [18]. Similar to the finding of this study, [12] in their study conducted from South Africa found that cataract influenced the

prevalence of blindness. The finding of this study is not in agreement with the results of a study done in Addis Ababa [8]. The possible reason for the discrepancy in the study findings could be because of the difference in the age category of the study participants in that the previous study was done among primary school children. Having an Eye Treatment Center near home. Results revealed that those who had no eye treatment center near their homes were more likely to be blind. This finding is in agreement with the results of a study among adults in Ethiopia which showed a positive association with blindness and having no eye treatment center near home [18]. Result of this study is in line with the results of a study done in South Africa which revealed that having no eye treatment center near home influenced the prevalence of blindness [15]. However, the result of the present study is not in agreement with the result of a study done in Ghana [13]. The possible reason for the discrepancy in the study findings could be because the previous study was done among pensioners. History of eye Trauma: This study showed that participants with negative history of eye trauma were less likely to be blind. The result of the present study is in agreement with the results of a study done in Ethiopia which revealed that previous eye trauma was associated with 4 folds the likelihood of becoming blind [14]. Unlike what was found in the present study, [8] found no association between blindness and trauma. The possible reason for the disagreement in the study findings could be because of the variation in the socio-demographic characteristics of the study participants. Furthermore, contrary to the findings of the present study [15] found not association between eye trauma and blindness probably because of the well-trained eye care health workers in Ethiopia who manage eye trauma cases well therefore not resulting in blindness.

CONCLUSION

The Prevalence of Blindness in Hoima Regional Referral Hospital.
The study has shown that the prevalence of blindness at Hoima Regional Referral Hospital is higher than the national prevalence of blindness in Uganda.

The Socio-Economic Factors Influencing the Prevalence of Blindness at Hoima Regional Referral Hospital
This study has revealed that Age, Education level and monthly income were the socio-demographic factors influencing the prevalence of blindness.

The Infrastructural Related Factors Influencing the Prevalence of Blindness at Hoima Regional Referral Hospital.
The study has concluded that a history of Cataracts, having an eye treatment centre near home and a history of eye trauma were the infrastructural-related factors significantly influencing the prevalence of blindness at HRRH.

Recommendations
The Prevalence of Blindness in Hoima Regional Referral Hospital.
✓ The health policy makers and advocates need to work out programs that will aim at regularly screening and monitoring eye health indicators so that timely intervention can be made and blindness is avoided. This would improve on eye health and would in turn reduce the prevalence of blindness.

✓ A large-scale study is recommended to know the prevalence of blindness in the community since the present study was done with a hospital setting.

✓ The Government of Uganda should aim at increasing access to vision rehabilitation services and creating more inclusive environments through strengthening inclusive policies and laws, providing assistive technology, inclusive education and vocational training, advocacy, and creating accessible spaces.

REFERENCES

1. The WHO | Universal eye health: A global action plan 2014–2019. WHO. 2017. [Last accessed on 2019 Aug]. Availablefrom: http://wwwwhoint/blindness/actionplan/en/

2. World Health Organization. State of the World's Sight: VISION (2020): the Right to Sight: 1999

3. Naidoo, K., Gichuhi, S., Basáñez, M. G., Flaxman, S. R., Jonas, J. B., Keeffe, J., & Vision Loss Expert Group of the Global Burden of Disease Study. (2014). Prevalence and causes of vision loss in sub-Saharan Africa: 1990–2010. *British Journal of Ophthalmology*, *98*(5), 612-618.

4. Berhane, Y., Worku, A., Bejiga, A., Adamu, L., Alemayehu, W., Bedri, A., Haile, Z., Ayalew, A., Adamu, Y., & Gebre, T. (2017). Prevalence and causes of blindness and low vision in Ethiopia. Ethiopian Journal of Health Development, 21(3), 204–210.

5. Ahmad, O. B., Boschi-Pinto, C., Lopez, A. D., Murray, C. J., Lozano, R., Inoue, M. (2017). Age standardization of rates: A new WHO standard. http://www.who.int/healthinfo/paper31.pdf.

6. Lewallen, S., & Thulasiraj, R. D. (2010). Eliminating cataract blindness - how do we apply lessons from Asia to sub-Saharan Africa? Glob Public Health., 5(6):639–48.

7. Ugwu, C. N., Eze, V. H. U., Ugwu, J. N., Ogenyi, F. C., & Ugwu, O. P. C. (2023). Ethical Publication Issues in the Collection and Analysis of Research Data. Newport International Journal of Scientific and Experimental Sciences (NIJSES), 3(2): 132-140. https://nijournals.org/wp-content/uploads/2023/07/NIJSES-32-132-140-2023.pdf

8. Hailu, Y., Hiko, D., & Shaweno, T. (2020). Prevalence of visual impairment and associated factors among primary schoolchildren in Addis Ababa, Central Ethiopia. Clinical Ophthalmology, 14, 767–774. https://doi.org/10.2147/OPTH.S245675.

9. Darge, H. F., Shibru, G., Mulugeta, A., & Dagnachew, Y. M. (2017). The prevalence of visual acuity impairment among school children at Arada Subcity primary schools in Addis Ababa, Ethiopia. Journal of Ophthalmology.

10. Mehari, Z. A., & Yimer, A. W. (2013). Prevalence of refractive errors among schoolchildren in rural central Ethiopia. Clinical and Experimental Optometry, 96(1), 65–69.

11. Bourne, R. R. A., Flaxman, S. R., Braithwaite, T., Cicinelli, M. V, Das, A., Jonas, J. B., Keeffe, J., Kempen, J. H., Leasher, J., & Limburg, H. (2017). Magnitude, temporal trends, and projections of the global prevalence of blindness and distance and near vision impairment: a systematic review and meta-analysis. The Lancet Global Health, 5(9), e888–e897.

12. Cockburn, N., Steven, D., Lecuona, K., Joubert, F., Rogers, G., Cook, C., & Polack, S. (2012). Prevalence, causes and socio-economic determinants of vision loss in Cape Town, South Africa. PLoS ONE, 7(2), 1–7. https://doi.org/10.1371/journal.pone.0030718.

13. Nuertey, B. D., Amissah-Arthur, K. N., Addai, J., Adongo, V., Nuertey, A. D., Kabutey, C., Mensah, I. A., & Biritwum, R. B. (2019). Prevalence, Causes, and Factors Associated with Visual Impairment and Blindness among Registered Pensioners in Ghana. Journal of Ophthalmology, 2019. https://doi.org/10.1155/2019/1717464.

14. Assefa, N. L., Admas, A. W., & Adimasu, N. F. (2020). Prevalence and associated factors of visual impairment among adults at Debre Berhan town, North Shewa, Ethiopia. BMC Ophthalmology, 20(1), 1–8. https://doi.org/10.1186/s12886-020-01586-8.

15. Addo, E. K., Akuffo, K. O., Sewpaul, R., Dukhi, N., Agyei-Manu, E., Asare, A. K., Kumah, D. Ben, Awuni, M., & Reddy, P. (2021). Prevalence and associated factors of vision loss in

Andama

the South African National Health and Nutrition Examination Survey (SANHANES-1). BMC Ophthalmology, 21(1), 1–15. https://doi.org/10.1186/s12886-020-01714-4.

16. Tegegn, M. T., Assaye, A. K., & Mersha, G. A. (2021b). Proportion, Causes and Associated Factors of Blindness Among Adult Patients Attending Tertiary Eye Care and Training Center in Ethiopia. Clinical Optometry, 13, 83.

17. Aynalem, B. Y., Anteneh, K. T., & Enyew, M. M. (2020). Utilization of cervical cancer screening and associated factors among women in Debremarkos town, Amhara region, Northwest Ethiopia: Community based cross-sectional study. PLoS ONE, 15(4), 1–13. https://doi.org/10.1371/journal.pone.0231307.

18. Tegegn, M. T., Assaye, A. K., & Mersha, G. A. (2021a). Proportion causes and associated factors of blindness among adult patients attending tertiary eye care and training centres in Ethiopia. Clinical Optometry, 13, 83–91. https://doi.org/10.2147/OPTO.S295626.