



# Socio-demographic Determinants of Eye Health Literacy among Nigerian Medical Enrollees

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## Abstract

To determine socio-demographic factors affecting eye health literacy among Nigerian medical enrollees. The population of the study consisted of 315 enrollees. A sample size of 115 was drawn. To achieve specific objectives of the study, five research questions were raised and five hypotheses formulated and tested at 0.05 Alpha level. An ex post facto survey design was used for the study. The mean age of the participants was 52 years  $\pm$  1.5 years, 51% were men and 53% were either students in tertiary institutions or graduates. There were no age or gender disparities in eye health literacy. However, there were significant associations between eye health literacy and place of residence, education and level of income. Education, income and place of residence are associated with eye health literacy among Nigerian medical enrollees.

**Keywords:** Eye health literacy, eye service utilization, medical enrollees, Nigeria

## INTRODUCTION

The term health literacy (HL) has been used in health literature for at least 30 years (Kellerman R, 1999). According to the United States National Library of Medicine (Ratzan SC, 2001), HL is the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions. Eye health literacy (EHL), on the other hand, is yet to be commonly discussed in health literature. As a subset of health literacy, it can be considered as the extent to which eye care services are utilized. In a publication (Nielsen-Bohlman L, 2001), EHL was defined as the capacity of individuals to obtain, interpret and understand basic eye health information and services, as well as the competence and motivation to use such information and services in ways that enhance the health of their eye.

HL has a wide coverage ranging from health service utilization, compliance to treatment and medications, understanding medical prescriptions among others. This study is a modest attempt to promote renewed attention to the role of EHL in eye health promotion and disease prevention and seeks to advocate improvements in the dissemination of contemporary eye health education strategy. EHL in this study will be contextually adapted to eye service utilization among the research subjects who are holders of Nigeria health insurance policies.

The specific objectives of this study were: to examine the association of age, sex, resident, income and education on eye health literacy among the respondents

## METHODOLOGY

This study adopted ex post facto survey research design as it was not an experimental study. It was considered appropriate because it enabled the researchers to examine the option and the characteristics of the sampled population to obtain information using a survey questionnaire.

The population of the study included all the medical enrollees at St. Athanasius Hospital. According to the updated

**Table 1.** Pearson Correlation of Age and Eye Health Literacy (n = 115)

Variable	$\sum x \sum y$	$\sum xy$	r-cal.	r-crit.	df	Decision
Age (x)	410					
Eye Health Literacy (y)	521	32,151	0.11	0.16	113	Not significant

**Table 2.** Pearson Correlation of Sex and Eye Health Literacy (n = 115)

Variable	$\sum x \sum y$	$\sum xy$	r-cal.	r-crit.	df	Decision
Gender (x)	321					
Eye Health Literacy (y)	521	29,073	0.09	0.16	113	Not significant

2015 hospital's register, there were 315 enrollees into one of Nigerian national health insurance policies.

Using Taro Yamane formula, 115 sample size was used for the study. In selecting the respondents/medical enrollees to participate in the study, simple random sampling technique was used, which enabled avoidance of bias and allowed every enrollee equal chance of being selected.

The questionnaire titled: Socio-demographic Determinant of Eye Health Literacy Questionnaire (SDEHLQ) was used to collect data for this study. The instrument had two sections: A and B. Section 'A' elicited demographic data while section 'B' contained information on eye service utilization of respondents. It was measured with a four point options (4 point scale).

The research instrument was submitted to an expert in the department of Ophthalmology of the University of Uyo for face and content validation. The expert was required to evaluate and vet the items for clarity and if they were in consonance with the objectives of the study.

The internal consistency of the instrument was determined using Cronbach alpha reliability method. Test retest was adopted using 30 medical enrollees at St. Luke's hospital, Anua. These enrollees were not included in the main study. Data collected were analyzed which yielded reliability coefficients ranged between 0.72-0.91, which showed that the instrument was reliable to measure what was intended.

The questionnaires were administered to the respondents by hand. The necessary explanations were made on how respondents should fill the questionnaire. Two assistants were trained to assist the researcher administer the questionnaires. Responses were collected back immediately.

Data generated from the study was processed, presented and analyzed using tables and percentages and hypotheses tested with Pearson Product Moment Correlation at 0.05 level of significance.

## RESULTS

The mean age of the participants was 52 years  $\pm$  1.5 years, 51% were men and 53% were either students in tertiary institutions or graduates.

### Hypothesis 1

There is no significant relationship between age and eye health literacy among medical enrollees.

In table 1, the computed r-value (0.11) was less than the critical value (0.16) at 0.05 level of significance with the degree of freedom 113. Thus, the hypothesis is accepted, meaning that there is no significant relationship between age and eye health literacy among medical enrollees in Uyo metropolis

### Hypothesis 2

There is no significant relationship between gender and eye health literacy among medical enrollees.

In table 2, the computed r-value (0.09) was less than the critical value (0.16) at 0.05 level of significance with the degree of freedom 113. Therefore, the hypothesis is accepted, meaning that there is no significant relationship between gender and eye health literacy among medical enrollees in Uyo metropolis

### Hypothesis 3

There is no significant relationship between education and eye health literacy among medical enrollees.

**Table 3.** Pearson Correlation of Education and Eye Health Literacy (n = 115)

Variable	$\sum x \sum y$	$\sum xy$	r-cal.	r-crit.	df	Decision
Age (x)	495					
Eye Health Literacy (y)	521	47,613	0.79	0.16	113	Significant

**Table 4.** Pearson Correlation of Place of Residence and Eye Health Literacy (n = 115)

Variable	$\sum x \sum y$	$\sum xy$	r-cal.	r-crit.	df	Decision
Place of Domicile (x)	479					
Eye Health Literacy (y)	521	43,103	0.53	0.16	113	Significant

**Table 5.** Pearson Correlation of income and Eye Health Literacy (n = 115)

Variable	$\sum x \sum y$	$\sum xy$	r-cal.	r-crit.	df	Decision
Income (x)	481					
Eye Health Literacy (y)	521	44,631	0.62	0.16	113	Significant

In table 3, the computed r-value (0.79) was higher than the critical value (0.16) at 0.05 level of significance with the degree of freedom 113. Thus, the hypothesis is rejected. This implies that there is a significant relationship between education and eye health literacy among medical enrollees in Uyo metropolis

#### Hypothesis 4

There is no significant relationship between place of residence and eye health literacy among medical enrollees.

In table 4, the computed r-value (0.53) was more than the critical value (0.16) at 0.05 level of significance with the degree of freedom 113. Thus, the hypothesis is rejected, meaning that there is significant relationship between place of domicile and eye health literacy among medical enrollees in Uyo metropolis.

#### Hypothesis 5

There is no significant relationship between Income and eye health literacy among medical enrollees.

In table 5, the computed r-value (0.62) was more than the critical value (0.16) at 0.05 level of significance with the degree of freedom 113. Thus, the hypothesis was rejected. This means that there is significant relationship between income and eye health literacy among medical enrollees in Uyo metropolis.

## DISCUSSION

It has been reported that utilization of existing eye infrastructure in Nigeria communities is as low as 25% compared to the optimum target utilization set at 90% (Ebeigbe JA, & Ovenseri-ogbomo GO, 2014). Health status is influenced by individual characteristics and lifestyles but continues to be significantly determined by the different social, economic and environmental circumstances of individuals and populations. In the current study the impacts of age, sex, income, education, and place of residence on eye service utilization, a key component of EHL, are focused upon.

The finding from this study showed that age was not significantly related to eye service uptake among the subjects. With a mean age of 52 years in the current study, it is possible that the opinions sampled may have been influenced by the relatively young and perhaps homogenous age group. A different scenario may present if younger and older age groups were in the sampled population. That was the case in an Indian study (Dandona R, 2000) where it was reported that eye care utilization increased significantly with increasing age. Nirman et al (2004) corroborated that increasing age was associated with increased utilization of eye care services. Surprisingly, in a recent multi-national survey (Vela C et

al, 2012), global data indicate that eye care utilization in older adults in much of the world is terribly low. This is in spite of older adults having the highest rates of visual impairment due to age-related eye diseases and conditions like cataract, glaucoma and age-related macular degeneration. This reason for this is possibly multi-factorial ranging from poor general health status with attendant physical lethargy to financial incapability as the aged are unlikely to be gainfully employed.

There have been inconsistent reports on the relationship between sex and eye service utilization. In the current study sex had no significant relationship with eye service uptake. In a study of individuals aged higher than 18 years in Tehran (Fotouhi A, 2006), men showed a higher probability of not having used eye care services. Several studies (Gu Q, 2008; Santosh J, Crampton P, 2009; Shalev V, 2005; Prajna NV et al, 1999) observed that men used less health care services than women. This may be related to the finding that women have a higher prevalence of vision loss than men. However, Elliott et al (2010) in a study among women aged  $\geq 40$  years, it was reported that 12% of women with self-reported glaucoma, and 8% of women with self-reported age related macular degeneration did not visit an eye-care provider in the recommended follow-up period. This could be due to prohibitive cost.

Issues relating to costs continue to be the bane of adequate uptake of eye services among women population. In an elaborate review, Mohammad et al (2014) reported that females did not access eye facilities like their male counterparts because of economic inequality. Gender disparity in eye diseases and access to eye care services has also been reported by Jansen et al (2007). The inter-gender difference reported by Nirman et al (2004) in rural India was that men were more likely to receive eye care services in hospitals. The reason for this has also been hinged on affordability.

In the current study, education was significantly associated with eye service utilization. This was also observed by Nirman et al (2004) that education was associated with accessing eye care services. Nutbeam D (2006) however, hinted that high literacy levels (assessed in terms of ability to read and write) are no guarantee that a person will respond in a desired way to health education and communication activities. The lower level of education in the low-economic group was the main factor responsible for the explained component. Independent associations of limited EHL common to several studies (Nutbeam D, 2006; Fraser et al, 2013; Schaumberg et al, 2000; Haymes SA et al, 2009), included lower education attainment and low income, raising the possibility of increase ocular morbidity due to socio-economic inequalities. Also, those with lower education had lower rates of eye exams by eye care practitioners (Haymes SA, 2009). It is also possible that education is confounded with other factors that affect eye exam utilization such as income and culture.

Limited eye health literacy was significantly associated with place of residence in the current study. This finding is consistent with two separate south Indian studies (Nirman PK, 2004; Robin AL et al, 2006) which found that a large proportion of people in rural populations who required eye care were not utilizing existing eye care services. In a study (Wang D et al, 2010) of people with diabetes in China, 43% of urban people and 69% of rural people had never had an eye exam. However, 46% of urban and 85% of rural Chinese participants reported never having an eye exam. The relatively young mean age of this study compares with a study in rural India by Robin et al, 2006 were 64% of people aged 40 years and older had never had an eye exam. This may be due to the difficulty in finding an eye care provider in rural areas. People living in rural areas in a variety of countries are reported to use less healthcare services including antenatal care (Wu Z et al, 2011) dental services (Martin AB et al, 2010) and immunizations (Zhao Z & Luman ET, 2010) compared to people living in urban or suburban areas. However, the significant heterogeneity between studies, and the paucity of EHL research to date, may explain divergent inferences from studies.

Few prior studies have examined effect of income on health service utilization. Those that did reported inconsistent findings on this relationship. In China, monthly income was not associated with use of eye care services in diabetic patients (Wang D et al, 2010). In high income countries like the United States, women with a higher income were more likely to have had an eye exam in the last 2 years (Schaumberg DA, 2000). Also in the U.S., using data from the National Health Interview Survey, the probability of having a dilated eye exam in those with an eye disease increased with higher income status (Zhang X et al, 2007). But the same cannot be said of sub-Saharan Africa where there is poverty with majority not having enough to feed. In this study, carried out in the most populous country in sub-Saharan Africa, income was significantly associated with eye service utilization. But this finding was unexpected among this population with health insurance policy which was supposed to defray some health expenses. But it was noted that not all the subjects had the full insurance coverage. It was also noted that eye services covered by insurance policies were grossly inadequate. Lee et al (2009), reported a complete failure to utilize eye care services among the uninsured. This indicates the important role of economic status in utilization of eye care services. Gottlieb JL (2002), averred that finances can influence the utilization of ophthalmic health care in developing countries. In a Ghanian study, Ilechie et al (2004), found that cost emerged as a major barrier seeking eye care services. Doorslaer et al (2004) found a pro-rich inequality in the utilization of healthcare services, where people with a higher income were healthier and used more healthcare services.

## **Recommendations**

To enhance EHL and in turn eye service utilization, the content and method of contemporary eye health education should be revamped to embrace community-based educational outreaches and socio-economic empowerment.

Together with political content of health education, people are better equipped to overcome structural barriers to eye health. Marketing of health care availability and utilization, through videos, the media, and local religious and service organizations could also help. Special efforts are needed to target persons, living in the rural areas, and persons who are poorly educated.

Low income as a cause of limited EHL can be reduced by implementing different pricing mechanisms to make sure that the poor can be treated even if they cannot pay. National health Insurance scheme should be made operational at the community level so that more people can gain access to eye care services. Information dissemination through mass media and outreach programs can reach those in rural communities.

Health education intervention should be designed specifically to increase awareness of symptomless diseases and to detect them at early stages and people should be made aware that most vision problems can be corrected and blindness can be prevented by timely seeking eye care services. Health education interventions should be designed based on a good understanding of the patterns of resources available among different socio-demographic groups; such interventions should combine multiple approaches, such as those specifically targeting disadvantaged groups and developing the capacity of the community as a whole to act using available social resources.

### Limitations of this study

It must be emphasized that the inferences drawn in this study do not necessarily reflect causal relationships. In addition, the subject base was narrow and hospital-based and as such generalizability should be with uttermost caution.

### Conclusion

It is concluded that place of residence, economic status and education have a lot of bearing with how available eye services are accessed. By improving people's access to health information and their capacity to use it effectively, paying more attention to literacy and poverty alleviation, eye services can be better utilized and needless blindness prevented. Further studies should focus on the effect of socio-demographic variables on eye service-seeking behavior in a multiple logistic regression.

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