Full Length Research Paper

HOW DO KNOWLEDGE AND ATTITUDE TO COMMON EYE DISEASES RELATE TO EYE SERVICE UTILIZATION BY MEDICAL ENROLLEES IN UYO METROPOLIS?

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This study was on knowledge and attitude to common eye diseases as related to eye service utilization by medical enrollees in Uyo metropolis. Ex-post facto research design was adopted. Five research questions were answered and five null hypotheses were tested at 0.05 level of significance. The population of the study comprised 5410 and simple random sampling technique was used in selecting a sample of 541 medical enrollees. Simple Linear Regression Coefficient was used in answering the research questions and testing the hypotheses. The finding of the study revealed that knowledge and attitude to common eye diseases such as cataract, glaucoma, age-related macular degeneration and refractive errors had positive and significant relationship with utilization of eye services by medical enrollees in Uyo metropolis. Based on the findings, it is recommended that Managers of Nigerian Health Insurance such as Hygeia, and Mansard should create awareness campaigns about common eye diseases among their enrollees so that they can access available eye services.

Keywords: Knowledge, Attitude, Eye Diseases, Service Utilization, Medical Enrollees.

INTRODUCTION

Kyari et al. (2009) reported that the leading causes of visual impairment and blindness in Nigeria are cataract, glaucoma, Age-related Macular Degeneration (AMD), and uncorrected refractive errors. Unfortunately, there is accumulated evidence that even when eye services are available, they are underused by potential beneficiaries (Astrid et al., 1999; Ajaiyeoba et al., 2006; Alexander, et al., 2008). Individual level of knowledge and attitude towards eye diseases are important factors in health service utilization (Aldebasi, 2011). This has been demonstrated in diseases such as hypertension. However, epidemiological surveys, specifically discerned to determine knowledge about eyes diseases and actions taken in times of eye health challenges among those with health insurance policies have been limited especially in developing countries. Consequently, it is apt to investigate knowledge, attitude to common eye diseases and eye service utilization among medical enrollees in Uyo which could provide an insight to a regional and indeed a national picture on the same subject.

MATERIALS AND METHODS

Research Design

The ex-post facto research design was used in this
study. This design enabled the researcher to establish cause and effect relationship as the variables were actually existing among medical enrollees, hence their effect on eye service utilization was what this study sought.

Area of the Study

The study was conducted in Uyo metropolis. Uyo, on latitude 5.0333°N, and longitude 7.9167°E, is a city in South-South, Nigeria. It is the capital of Akwa Ibom State, a major oil producing State in Nigeria.

Population of the Study

The population of the study was all the 5410 medical enrollees in Uyo metropolis.

Sample and Sampling Techniques

The sample was 541 enrollees. Simple random sampling technique was adopted for this study. This represented 10 percent of the total population. Nkpa (1997) suggested that for a population of 5,000 to 10,000, 10 percent of the population should be used as sample.

Instrumentation

The researcher-developed questionnaire titled: “Knowledge, Attitude and Eye Service Utilization Questionnaire” (KAESUQ) was used for data collection. The questionnaire had two sections, one on demography and the other based on dependent and independent variables. Cataract had 15 items, Glaucoma had 15 items, Apollo had 15 items, Age related macular degeneration had 15 items and Refractive error had 15 items as well. The response options were: Strongly Agree (SA) – 4 points, Agree (A) – 3 points, Disagree (D) – 2 points and Strongly Disagree (SD) – 1 point.

Validation of the Instrument

Two experts in statistics and another in Ophthalmology read and vetted the items in research instrument for clarity, relevance and suitability. The inputs and corrections from these experts were used in modifying the questionnaire items. Therefore, the initial 65 items were increased to 75 items.

Reliability of the Instrument

The internal consistency of the instrument was determined using Cronbach’s Alpha reliability method which yielded a reliability coefficient of .79. Pilot test was conducted to effect necessary modifications in the research instrument and to train research assistants.

Administration of the Instrument

Written informed consent was taken from each respondent. The questionnaire was self-administered while the services of two research assistants were engaged. All copies of the questionnaire were returned giving a 100% return rate.

Method of Data Analysis

The data generated were analyzed using Simple Linear Regression. Regression Co-efficient was used to answer the research questions, while F-ratio was used in testing the null hypotheses at 0.05 level of significance.

RESULT

Research question 1

What is the relationship between knowledge and attitude to cataract and eye service utilization by medical enrollees in Uyo metropolis?

Table 1 with R value of 0.863 indicates that the relationship between knowledge and attitude to cataract and eye service utilization by medical enrollees in Uyo metropolis is positive. Additionally, the positive value of the adjusted R square indicates positive relationship. The R square of 0.639 implies that knowledge and attitude to cataract account for 63.9% variation in eye service utilization by medical enrollees in Uyo metropolis. This means that knowledge and positive attitude to cataract facilitate eye service utilization among medical enrollees in Uyo metropolis.

Research Question 2

What is the relationship between knowledge and attitude to glaucoma and eye service utilization by medical enrollees in Uyo metropolis?

Table 2 with R value of 0.871 indicates that the relationship between knowledge and attitude to cataract and eye service utilization by medical enrollees in Uyo metropolis is positive. Additionally, the positive value of the adjusted R square indicates positive relationship. The R square of 0.639 implies that knowledge and attitude to cataract account for 63.9% variation in eye service utilization by medical enrollees in Uyo metropolis. This means that knowledge and positive attitude to cataract facilitate eye service utilization among medical enrollees in Uyo metropolis.
enrollees in Uyo metropolis is positive. Additionally, the positive value of the adjusted R square indicates positive relationship. The R square of 0.626 shows that knowledge and attitude to glaucoma account for 62.6% variation in eye service utilization by medical enrollees in Uyo metropolis. This means that knowledge and positive attitude to glaucoma facilitate increase eye service utilization among medical enrollees in Uyo metropolis.

Research Question 3

What is the relationship between knowledge and attitude to apolo and eye service utilization by medical enrollees in Uyo metropolis?

Table 3 with R value of 0.875 indicates that the relationship between knowledge and attitude to apolo and eye service utilization by medical enrollees in Uyo metropolis is positive. Additionally, the positive value of the adjusted R square indicates positive relationship. The R square of 0.766 shows that knowledge and attitude to apolo account for 76.6% variation in eye service utilization by medical enrollees in Uyo metropolis. This means that knowledge and positive attitude to apolo facilitate increase eye service utilization among medical enrollees in Uyo metropolis.

Research Question 4

What is the relationship between knowledge and attitude to age related macular degeneration and eye service utilization by medical enrollees in Uyo metropolis?

Table 4 with R value of 0.865 indicates that the relationship between knowledge and attitude to age related macular degeneration and eye service utilization by medical enrollees in Uyo metropolis is positive. Additionally, the positive value of the adjusted R square indicates positive relationship. The R square of 0.564 shows that knowledge and attitude to age-related macular degeneration account for 56.4% variation in eye service utilization by medical enrollees in Uyo metropolis. This means that knowledge and positive attitude to age-related macular degeneration facilitate increase eye service utilization among medical enrollees in Uyo metropolis.

Research Question 5

What is the relationship between knowledge and attitude to refractive errors and eye service utilization by medical enrollees in Uyo metropolis?

Table 5 with R value of 0.814 indicates that the relationship between knowledge and attitude to refractive errors and eye service utilization by medical enrollees in Uyo metropolis is positive. Additionally, the positive value of the adjusted R square indicates positive relationship. The R square of 0.564 shows that knowledge and attitude to refractive errors account for 56.4% variation in eye service utilization by medical enrollees in Uyo metropolis. This means that knowledge and positive attitude to refractive errors facilitate increase eye service utilization among medical enrollees in Uyo metropolis.

Testing of Hypotheses

Hypothesis 1

There is no significant relationship between knowledge
Table 3. Regression analysis of the relationship between knowledge and attitude to apolo and eye service utilization by medical enrollees in Uyo metropolis.

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R-Square</th>
<th>Adjusted R-Square</th>
<th>Std Error of the estimate</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.875</td>
<td>0.766</td>
<td>0.765</td>
<td>4.18782</td>
<td>High positive</td>
</tr>
</tbody>
</table>

Table 4. Regression analysis of the relationship between knowledge and attitude to age-related macular degeneration and eye service utilization by medical enrollees in Uyo metropolis.

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R-Square</th>
<th>Adjusted R-Square</th>
<th>Std Error of the estimate</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.865</td>
<td>0.619</td>
<td>0.616</td>
<td>4.14853</td>
<td>High positive</td>
</tr>
</tbody>
</table>

Table 5. Regression analysis of the relationship between knowledge and attitude to refractive errors and eye service utilization by medical enrollees in Uyo metropolis.

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R-Square</th>
<th>Adjusted R-Square</th>
<th>Std Error of the estimate</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.814</td>
<td>0.564</td>
<td>0.560</td>
<td>3.43216</td>
<td>High positive</td>
</tr>
</tbody>
</table>

and attitude to cataract and eye service utilization by medical enrollees in Uyo metropolis.

The result presented in Table 6 reveals that the calculated F-value of 148.938 is greater than the Table value of 3.84. The relationship is significant. Therefore, the null hypothesis which stated that there is no significant relationship between knowledge and attitude to cataract and eye service utilization by medical enrollees in Uyo metropolis is rejected and the alternate hypothesis was retained. This shows that there is a significant relationship between knowledge and attitude to cataract and eye service utilization by medical enrollees in Uyo metropolis. This means that knowledge and attitude to cataract are important determinants in the efficient utilization of eye services among medical enrollees in Uyo metropolis.

Hypothesis 2

There is no significant relationship between knowledge and attitude to glaucoma and eye service utilization by medical enrollees in Uyo metropolis.

The result presented in Table 7 reveals that the calculated F-value of 91.944 is greater than the Table value of 3.84. The relationship is significant. Therefore, the null hypothesis which stated that there is no significant relationship between knowledge and attitude to glaucoma and eye service utilization by medical enrollees in Uyo metropolis is rejected and the alternate hypothesis is retained. This shows that there is a significant relationship between knowledge and attitude to glaucoma and eye service utilization by medical enrollees in Uyo metropolis. This means that knowledge and attitude to glaucoma are important determinants in the utilization of eye services among medical enrollees in Uyo metropolis.

Hypothesis 3

There is no significant relationship between knowledge and attitude to apolo and eye service utilization by medical enrollees in Uyo metropolis.

The result presented in Table 8 reveals that the calculated F-value of 623.125 is greater than the Table value of 3.84. The relationship is significant. Therefore, the null hypothesis which stated that there is no significant relationship between knowledge and attitude to apolo and eye service utilization by medical enrollees in Uyo metropolis is rejected and the alternate hypothesis is retained. This shows that there is a significant relationship between knowledge and attitude to apolo and eye service utilization by medical enrollees in Uyo metropolis. This means that knowledge and attitude to apolo are important determinants in the utilization of eye services among medical enrollees in Uyo metropolis.
Table 6. Regression analysis of the relationship between knowledge and attitude to cataract and eye service utilization by medical enrollees in Uyo metropolis

<table>
<thead>
<tr>
<th>Model</th>
<th>Some of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Regression</td>
<td>6266.403</td>
<td>1</td>
<td>6266.403</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>7994.050</td>
<td>539</td>
<td>14.831</td>
<td>148.938</td>
<td>Reject H₀</td>
</tr>
<tr>
<td>Total</td>
<td>14260.453</td>
<td>540</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7. Regression analysis of the relationship between knowledge and attitude to glaucoma and eye service utilization by medical enrollees in Uyo metropolis

<table>
<thead>
<tr>
<th>Model</th>
<th>Some of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Regression</td>
<td>4650.438</td>
<td>1</td>
<td>4650.438</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>9610.015</td>
<td>539</td>
<td>17.829</td>
<td>91.944</td>
<td>Reject H₀</td>
</tr>
<tr>
<td>Total</td>
<td>14260.453</td>
<td>540</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8. Regression analysis of the relationship between knowledge and attitude to age-related macular degeneration and eye service utilization by medical enrollees in Uyo metropolis

<table>
<thead>
<tr>
<th>Model</th>
<th>Some of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Regression</td>
<td>10928.266</td>
<td>1</td>
<td>10928.266</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>3332.187</td>
<td>539</td>
<td>6.182</td>
<td>623.125</td>
<td>Reject H₀</td>
</tr>
<tr>
<td>Total</td>
<td>14260.453</td>
<td>540</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hypothesis 4

There is no significant relationship between knowledge and attitude to age-related macular degeneration and eye service utilization by medical enrollees in Uyo metropolis.

The result presented in Table 9 reveals that the calculated F-value of 89.062 is greater than the Table value of 3.84. The relationship is significant. Therefore, the null hypothesis which stated that there is no significant relationship between knowledge and attitude to age-related macular degeneration and eye service utilization by medical enrollees in Uyo metropolis is rejected and the alternate hypothesis is retained. This shows that there is a significant relationship between knowledge and attitude to age-related macular degeneration and eye service utilization by medical enrollees in Uyo metropolis. This means that knowledge and attitude to age-related macular degeneration are important determinants in the utilization of eye services among medical enrollees in Uyo metropolis.

Hypothesis 5

There is no significant relationship between knowledge and attitude to refractive errors and eye service utilization by medical enrollees in Uyo metropolis.

The result presented in Table 10 reveals that the calculated F-value of 68.169 is greater than the Table value of 3.84. The relationship is significant. Therefore, the null hypothesis which stated that there is no significant relationship between knowledge and attitude to refractive errors and eye service utilization by medical enrollees in Uyo metropolis is rejected and the alternate hypothesis is retained. This shows that there is a significant relationship between knowledge and attitude to refractive errors and eye service utilization by medical enrollees in Uyo metropolis. This means that knowledge and attitude to refractive errors are important determinants in the utilization of eye services among medical enrollees in Uyo metropolis.

DISCUSSION

The result presented in Table 1 provided answer to research question one. The finding revealed that knowledge and attitude to cataract have high positive relationship with eye service utilization among medical enrollees in Uyo metropolis. This finding agreed with the finding of Lewallen and Courtright (2000) who found that...
Table 9. Regression analysis of the relationship between knowledge and attitude to age-related macular degeneration and eye service utilization by medical enrollees in Uyo metropolis

\[ n = 541 \]

<table>
<thead>
<tr>
<th>Model</th>
<th>Some of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
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<td>4551.175</td>
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<tr>
<td>Residential</td>
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<td>18.013</td>
<td>89.062</td>
<td>Reject H₀</td>
</tr>
<tr>
<td>Total</td>
<td>14260.453</td>
<td>540</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 10. Regression analysis of the relationship between knowledge and attitude to refractive errors and eye service utilization by medical enrollees in Uyo metropolis

\[ n = 541 \]

<table>
<thead>
<tr>
<th>Model</th>
<th>Some of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Decision</th>
</tr>
</thead>
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<td>1 Regression</td>
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<td>3765.432</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential</td>
<td>10495.621</td>
<td>539</td>
<td>19.471</td>
<td>68.169</td>
<td>Reject H₀</td>
</tr>
<tr>
<td>Total</td>
<td>14260.453</td>
<td>540</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

having the right knowledge and attitude to cataract is positively related to eye care service utilization. This is the case when people are given the right sensitization and enlightenment about available cataract services in hospitals and clinics. The right eye health education has the likelihood to enhance knowledge and engender right attitude toward a healthy decision in times of need. With the right information made available for the individuals in the society concerning where and when to get medical services for cataract, the number of people who will make use of available services will increase significantly. However, where ignorance and wrong attitude pervade the judgment of medical enrollees, they may not utilize eye services even when they are available.

The result presented in Table 6 showed that there is a significant relationship between knowledge and attitude to cataract and eye service utilization among medical enrollees in Uyo metropolis. This finding is similar to the finding of Dandona et al. (2007) who found that awareness of eye diseases facilitate the use of available eye services. Such awareness could lead to better understanding and acceptance of routine eye examination for early detection and treatment of cataract, thereby reducing the rate of cataract blindness among medical enrollees in Uyo metropolis.

The result presented in Table 2 indicated that knowledge and attitude to glaucoma have high positive relationship with eye service utilization by medical enrollees in Uyo metropolis. This finding was corroborated by the finding of Mitchell et al. (1996) who found that eye service uptake is strongly linked with knowledge of glaucoma as a cause of irreversible blindness and that developing the right attitude in relation to compliance to drugs, adherence to prescriptions and hospital appointments help avoid blindness from glaucoma. With the right knowledge, glaucoma as one of the causes of blindness will not be attributed to supernatural or mystical factors. More often than not, glaucoma cases are linked to witches, sorcerers, neglect of ancestors, and violation of taboos or taking of false oaths. And as such, individuals tend to seek traditional and spiritual cure for glaucoma rather than time-tested evidence-based orthodox eye care services.

The analysis of Hypothesis 2 on Table 7 shows that there is a significant relationship between knowledge and attitude to glaucoma and eye service utilization by medical enrollees in Uyo metropolis. This finding corroborates the finding of a previous study by Lau et al. (2002) who found that knowledge have positive and significant relationship with glaucoma service utilization. With the right knowledge and attitude to glaucoma, individuals will be motivated to seek medical help from eye care professionals whenever they have glaucoma thereby reducing the burden of glaucoma blindness in the society. However, where ignorance and wrong attitude prevail, glaucoma patients would seek substandard care from quacks. In such instances, glaucoma will invariably lead to avoidable permanent blindness.

The result presented in Table 3 indicated that knowledge and attitude to apollo have high positive relationship with eye service utilization among medical enrollees in Uyo metropolis. This was the finding of a similar study by Tissa and Gilbert (2005) where it was found that knowledge have positive and significant relationship with treatment was sought when the respondents had apollo. Where apollo patients lack knowledge of orthodox medical remedies, they often resort to the use of sugar water, onions, kerosene, herbs, milk from lactating
mothers, urine and others for the treatment of their apollo at the expense of available eye service. Apollo is not a common cause of blindness but people go blind from apollo because of use of dangerous items which have damaging effects on the eyes.

The analysis of Hypothesis 3 on Table 8 showed that knowledge and attitude to apollo have significant relationship with eye service utilization. This finding is in agreement with the finding of Livingstone et al. (1998) who found that attitude to apollo is positively related to eye care practices. Apollo is often taken for granted perhaps because it is common and self limiting. Consequently, it is neglected as an eye disease which has no potential to cause blindness. This often results in the use of harmful home remedies like herbs, kerosene and others already mentioned above. These home remedies are suggested by family members, religious leaders, friends and close associates who are not medical experts. Because of the pervasive believe that eye diseases have spiritual undertone, anointing oil can be directly applied into the eyes by patients or religious leaders with attendant negative consequences on the eyes.

The result presented in Table 4 indicated that knowledge and attitude to age-related macular degeneration (AMD) have high positive relationship with eye service utilization by medical enrollees in Uyo metropolis. This finding is supported by the finding of Livingstone et al. (1998) who found that knowledge of AMD and right attitude can serve to ameliorate visual disability posed by AMD. High knowledge of AMD will facilitate effective utilization of available eye services from eye care professionals such as ophthalmologists. Individuals’ knowledge and attitude can be improved upon through the creation of awareness by medical personnel.

The analysis of Hypothesis 4 in Table 9 revealed that knowledge and attitude to AMD have significant relationship with eye service utilization among medical enrollees in Uyo metropolis. This finding is in line with the finding of Lau et al. (2002) who found that awareness of AMD is directly related to the use of eye care services. AMD is becoming a significant cause of visual impairment of increasing ageing population in most countries of the world and as such, awareness through mass media such as radio, prints, television can improve knowledge and instill the right attitude in the populace.

The result presented in Table 5 indicated that knowledge and attitude to refractive errors have positive relationship with eye service utilization by medical enrollees in Uyo metropolis. Khalaj et al. (2009) reported the same finding where knowledge and attitude were closely related to eye service utilization. The right knowledge and attitude will help individuals to get suitable glasses. It is often observed that people often buy glasses from road-side illiterate or semi-literate vendors without medical prescription by eyes experts after proper eye tests. Eye examination ensures that the most suitable glasses for the eyes are dispensed to the individual. While the wrong spectacle prescription poses no immediate direct danger to eye or vision, the associated ocular discomfort and headaches can be substantial. Additionally, the eyes are not examined by glass vendors, not being equipped or with expertise to do so, the associated delay in diagnosing on-going chronic eye problems can have devastating permanent consequences on vision.

The analysis of Hypothesis 5 displayed in Table 10 showed that knowledge and attitude to refractive errors have significant relationship with eye services utilization among medical enrollees in Uyo metropolis. This finding is in consonance with the finding of Owsley et al. (2015) who found that knowledge and attitude are positively and significantly related to eye care service use.

**CONCLUSION**

It is concluded that with right knowledge and attitude to common eye diseases available eye services will be utilized. Educating the medical enrollees on these eye diseases will be an important first component in the promotion of preventative ophthalmic care towards a reduction of visual impairment.

**LIMITATIONS**

There are limitations to this study that need to be considered when interpreting the results. First, self reported measures can result in recall bias; however, in any study, inaccuracies are unavoidable when self report measures form part of the study design. Second, it was a hospital-based study which has inherent selection biases. This was minimized in the current study by enrolling all consenting patients until the calculated sample size was attained. Third, the subjects were of different ages, literacy levels, life experiences and so on; these are confounding variables that could have inadvertently affected the outcome of this study. Finally, utmost caution is needed in the application of the outcome of this study to a different population because of the limited sample frame and sample size.

**RECOMMENDATIONS**

As recommendations, managers of Nigerian Health Insurance such as Hygeia, Mansard, Liberty Blue and
Total Health Trust (THT) should create awareness campaigns about common eye diseases among their enrollees so that they can access available eye services. This can be done by educative materials in the hospitals were services are received. Seminars, radio jingles, television and so on are addition avenues of creating awareness. Nigerian Health Insurance Policy should be broadened to accommodate these common eye diseases so that patients with any of the diseases can receive treatment.

Declaration of Interest

The authors declare no interest

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REFERENCES


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