



roles in persons not seeking eye care [9]. On an average, it been reported that Ghanaians live about 16 km from a healthcare facility where they can consult a doctor, and about half of the population lives within a 5 km radius [11].

The public health system also faces a variety of obstacles including shortages of qualified personnel and funding, as well as an unequal distribution of health workers in the country's regions [8]. The depleting number of healthcare personnel has led to the closure of many clinics and hospitals in remote areas of the country [7].

Many citizens are therefore unable to obtain the most basic eye care services, as a direct consequence of the scarcity of healthcare personnel in the country and high healthcare costs [7].

Studies have raised the issue of people having knowledge of their eye diseases yet remain sceptical in seeking appropriate care services [4]. In order to improve the delivery of eye care services, a comprehensive understanding of the barriers is required [4]. Overcoming the barriers that hinder people's access to eye care is essential to avert the burden of avoidable blindness [4]. This study sought to assess the challenges, the attitudes toward eye care, and commonly reported episodes of ocular disorders for which care is sought among people in the Cape Coast Metropolis. This is important in providing information about the attitudes of persons toward eye health and the challenges faced, and would help draw suggestions for designing ocular health policy that could reduce visual impairment and avoidable blindness among persons in the metropolis as the restrictive barriers preventing individuals from seeking health care differ by country as well as region [12].

## METHODS

### Study Area

This study was a population-based survey, which was conducted in the Cape Coast metropolis of Ghana, between February and May 2013. Cape Coast is the only district among the 17 districts of the Central Region of Ghana to attain a metropolitan status, and has an estimated population of 169,894 of which males account for 48.74% and females 51.26% [13]. About 6% of settlements in the metropolis comprising the localities of Cape Coast (101,102), Efutu (2720), Ekon (4230), Kakumdo (3229), and Nkanfoa (3680) account for almost 85% of the of the entire metropolitan population [13].

### Sampling Technique

The minimum sample size for the survey was determined by the formula  $N_0 = Z^2pq/e^2$  [14].

where

- $N_0$  is the sample size
- $Z^2$  is the abscissa of the normal curve that cuts-off an area  $\alpha$  at the tails ( $1 - \alpha$  equals the desired confidence level, e.g. 95%)
- $e$  is the desired level of precision

- $p$  is the estimated proportion of an attribute that is present in the population
- $q$  is  $1 - p$ .

Therefore, assuming that 50% of the population will be available for the survey, taking a confidence level of 95% and a sampling error of 5% the minimum sample size computed was 482. However, the sample size was adjusted to 700 respondents. A proportion of the sample size was assigned to each settlement based on the population size of the settlement.

Systematic random sampling was used to recruit participants by households. First, in each of the five settlements, households were systematically selected by first randomly selecting the first house from the center of the community (based on the number of houses counted to the edge of the community). From the center of the community, each subsequent household was selected by counting the next 5 or 10 houses in a random direction until the number needed for that community was obtained [15]. Again, the number of households counted and assigned to each community was based on their population size.

Within each household, only one person was selected for an interview with a semi-structured questionnaire. Each household was considered as a study unit [16]. Selection was based upon the presence of the eldest adult (18 years and above or head of the household; this was to ensure that individuals with autonomy were recruited) in the household.

### Data Collection Procedure

Recruited respondents were interviewed using the semi-structured questionnaire, which had been developed to contain issues respondents had earlier identified as influencing eye care services in a pilot study. Questionnaire had closed and open ended questions and was developed in English language, pretested, appropriately modified, before the final field administration. The questions were interpreted in the local dialect to allow for those who could not understand English. The first section contained questions regarding demographic information such as gender, age, marital status, religion, occupation, and the highest level of education, socioeconomic status as well as enrolment in the National Health Insurance Scheme (NHIS). Socioeconomic status was graded based on previous studies [17]. However, persons engaged in large scale farming and businesses were assigned either high or medium socioeconomic status. The second section of the questionnaire consisted of questions related to the attitudes toward eye care services, access, perception about their eye problems, common disorder for which care was sought and previous exam. In relation to attitudes, respondents were asked about their views on the cost of chosen treatment for their eye problems, and their views on the various eye care services they consulted.

### Statistical Analysis

The responses of the semi questionnaire were used for the analysis. All the variables were coded, entered, and analyzed using

the Statistical Package for Social Sciences (SPSS) version 16 (SPSS Inc, Chicago, IL, USA). Descriptive results were expressed as frequency, percentage, and mean  $\pm$  SD. Chi-square statistical analysis was used to test for significant associations between independent variables (age, gender, socioeconomic status, marital status, etc.) and dependent variables (access to eye care services, attitude toward eye care, and barriers to eye care).

### Ethical Consideration

The research was done according to the Helsinki Declaration on Research regarding Human Subjects. The proposal for the study was approved by the departmental Ethics Committee (Department of Optometry, University of Cape Coast). Cape Coast Metropolitan Assembly and the Ghana Statistical Service, Central Regional Offices were informed about the research and contacted for all needed information on the metropolis, which were provided by these offices accordingly. To obtain consent of the respondents, a detailed explanation on the aim and objectives of the study was given, after which respondents signed a consent form. Confidentiality was ensured by random coding of the questionnaires.

## RESULTS

### Background Characteristics of Participants

A total of 700 participants were involved, 334 (47.71%) males and 366 (52.29%) females. The age range of the respondents was 18-100 years with a mean age of 38.18, SD;  $\pm$ 18.13. Majority of the respondents (55.1%) were in the age range of 18-35 years (youth). Those aged between 36 and 59 (adult) were 209 (29.9%) and those aged 60 and older were 105 (15%). Three hundred and nine (309, 44.1%) were married, 292 (41.7%) were single, 33 (4.7%) were divorced, 55 (7.9%), widowed, 9 (1.3%), co-habiting and 2 (0.3%) had separated. The respondents were of various religious backgrounds with the majority being Christians (585, 83.6%) and few atheists (10, 1.4%).

About two-third (63.8%) were either informal or self-employment while the remaining one-third (36.2%) were students or unemployed therefore dependents. Those who were in self-employment included sales and retail, fishing and fish mongering, civil and public services, other agricultural workers, and the rest were into other occupations such as artisanship, hairdressing, driving, and dressmaking.

Of the 700 respondents, 154 (22%) had no formal education, 132 (18.9%) had primary education, 175 (25%) had junior high education, 125 (17.9%) had secondary education (senior secondary school/senior high school and technical/vocational), and 114 (16.3%) higher education (teacher training college, nursing training college, polytechnic, and university).

Five hundred and twenty-five (75%) of the respondents were in the low socioeconomic class. One hundred and fifty-two (21.7%) were in the middle socioeconomic class and 23 (3.3%) were in the high socioeconomic class.

More than half of the respondents, 424 (60.6%) were registered with the NHIS. Amongst those who had enrolled on the NHIS, 16 (3.8%) were in the high socioeconomic class, 113 (26.7%) were in the middle socioeconomic class, and 295 (69.6%) were in the low socioeconomic class.

### Eye Health Seeking Behavior

On the eye health seeking behavior, 379 (54.1%) of the 700 respondents reported they had never checked their eyes or visited the health facility with an eye problem. Two hundred and sixteen (216, 57%) accounting for the majority of those who have never had an eye examination were youth (18-35 years) while 115 (30.3%) of them were adults (36-59 years), and some 12.7% (48) were aged (60 and older). However, no significant association was found between age groups and having had an eye examination ( $\chi^2 = 3.582$ ;  $df = 2$ ;  $P = 0.167$ ). Among those who reported ever visiting the health care facilities with ocular complaints 321 (45.9%), 172 (53.6%) were females and 149 (46.4%) were males. Of the 424 of the respondents who had health insurance, 197 (46.5%) of them have never had their eyes examined, while 227 (53.5%) visited the health facility with an eye problem. Among the 276 who had no health insurance, 182 (65.9%) had never had their eyes checked at a health facility while 94 (34.1%) of them reported having a visit the health facility with an eye problem. Having a health insurance was significantly associated with a visit to the health facility ( $\chi^2 = 25.550$ ;  $df = 1$ ;  $P < 0.001$ ).

Of 23 respondents who were in the high socioeconomic status, 17 (73.9%) of them have ever visited a health facility with an eye problem while 6 (26.1%) have never had their eyes checked at a health facility. Eighty-four (55.3%) of the 152 respondents in middle socioeconomic class reported ever having their eyes checked at a health facility while 68 (44.7%) of them have never had their eyes examined. Three hundred and five (58.1%) of the 525 respondents in the low socioeconomic class have never had their eyes checked while 220 (41.9%) reported having visited the health facility with an eye problem. The association between socioeconomic status and visit to the health facility for an eye examination was statistically significant ( $\chi^2 = 16.011$ ;  $df = 2$ ;  $P < 0.001$ ) as people of high socioeconomic class are more likely to have their eyes examined.

### Attitude to Eye Care

The major reason for which participant would not have their eyes examined at the health facility was as follows: Of the 409 positive responses the most prevalent reason was the perception that their disease was simple (minor) (45.2%), with the least being lack of trust in medical services (7, 1.7%) [Table 1].

Of the 700 respondents, 421 (60.1%) of them reported having had an episode of an eye disorder within a year prior to the study, 279 (39.9%) of them reported no eye disorder for the same period. Of the 878 multiple responses for the ocular symptoms, which the 421 respondents reported, itchy eye, red eye, painful eye, and poor vision were the most common. Other symptoms

**Table 1: Reasons for never having eyes checked at the health facility**

Reasons	Frequency			
	Yes	%	No	Total
Cost	126	30.8	253	379
Lack of trust in med services	7	1.7	372	379
Simple disease	185	45.2	194	379
Distance from health facility	13	3.2	366	379
Longer waiting time	17	4.2	362	379
Others	61	14.9	318	379
Total	409	100	1865	2274

such as a burning sensation, photophobia, blur vision, lid mass, and rainbow around lights were also reported [Table 2].

Of the 421 respondents who reported having had an episode of an eye disorder within a year prior to this study, 137 (32.5%) reported visiting a health facility, 98 (23.3%) did self-medication, 23 (5.5%) visited the traditional healer, 44 (10.5%) visited the local pharmacy, and 119 (28.3%) did nothing about their condition.

The symptoms reported generally did not influenced whether respondent sought for care or not and did not determine where care was sought from.

### Barriers to Seeking Eye Care

The major reason reported by those who practiced self-medication, 45 (32.1%), was the perception that their conditions were minor and not vision threatening. The major reason for which respondents visited the traditional healer was financial constraint 10 (37.0%). None of the respondents who reported visiting the traditional healer reported “travel distance” as a reason. The perception that their ocular disorder was a minor (simple) disease, 26 (40.0%) was the main reason for which respondents visited the local pharmacy with the least reasons being lack of trust in medical services 2 (3.1%), and distance to the health facility 2 (3.1%). Simple disease 73 (52.9%) was also the main reason for which respondents did not seek any treatment, with the least reason being advice from neighbors 2 (1.4%) [Tables 3 and 4].

The association between reasons such as simple disease, lack of trust in medical services, experience from previous illness, quick relief, and advice from neighbors were significantly associated with the action taken ( $P < 0.05$ ), whereas that between financial constraint, distance, and longer waiting time were not significant ( $P > 0.05$ ).

Of the 135 respondents who visited the health facility the majority 76 (56.3%) said the rate of treatment was inexpensive, and the rest 59 (43.7%) said it was expensive. All those who visited the traditional healer said the rate of treatment was inexpensive while 93 (94.9%) out of the 98 respondents of those who practiced self-medication and 37 (94.9%) out of the 39 who visited the local pharmacy said the treatment was inexpensive. The association between cost and treatment option

**Table 2: Ocular symptoms and their frequencies as reported by respondents**

Symptoms	Yes	%	No	Total
Painful eye	115	13.1	306	421
Red eye	155	17.7	266	421
Teary eye	96	10.9	325	421
Discharge	55	6.3	366	421
Itchy eye	231	26.3	190	421
Poor vision	126	14.4	295	421
Eye injury	16	1.8	405	421
Swollen eye	18	2.1	403	421
Headache	42	4.8	379	421
Other symptoms	24	2.7	397	421
Total	878	100	3332	4210

was statistically significant ( $\chi^2 = 65.506$ ;  $df = 3$ ;  $P < 0.001$ ). Of the 700 respondents, 508 (72.6%) reported they would visit the health facility in case of an eye disorder, 129 (18.4%) said they would visit the local pharmacy, 49 (7.0%) said they would practice self-medication, 12 (1.7%) said they would visit the traditional healer, and 2 (0.3%) said they would not do anything about their condition.

### DISCUSSION

The study was a population-based, which utilized a systematic random sampling to select participants. It has the strength of population-based study; however, care should be taken in applying results as barriers preventing individuals from seeking health care, attitude toward care and eye care seeking behavior differ by country as well as region.

Despite the fact that more than half of the respondents had suffered episodes of ocular disorders; had never had previous eyes examination at a health center. The major reason for this behavior was that respondents felt their eye problem was simple and not sight threatening [15]. Cost of seeking care other than travel distance was an important barrier to the uptake of eye care services contrary to an earlier report by van den Boom *et al.* [8]. The tendency to seek eye care was related to the ocular symptoms experienced. For instance, the most reported symptom of those who sought eye care was-red eye, which was seen by respondents as sight threatening while itchy eyes was the most reported symptom by those who did not seek eye care. To them, the local pharmacies provided with a quick and safe way to seek alternative eye care amidst the challenges in seeking professional care [18,19]. This could also be due to the socioeconomic background of respondents [20]. This can be explained more from the observation that two-thirds of those who had never sought eye care had to pay for the health care because they did not have medical insurance, as opposed to those who were insured. Nevertheless, the significant proportion of those insured, but had not had their eyes examined, could be attributed to report that most of the potent ocular medication are not listed on the drug list of the insurance scheme; therefore, compelling buying of medications for the management of their ocular conditions [21]. Socioeconomic status was significantly associated with the kind of eye care service sought as most of the respondents with low socioeconomic status had never had their

**Table 3: Ocular symptoms, actions taken**

Symptoms	Health facility (%)	Self-medication	Traditional	Pharmacy	Nothing	Total
Action taken						
Painful eyes	31 (10.8)	39 (17.6)	5 (9.6)	10 (10.0)	30 (13.8)	115
Red eye	39 (13.6)	54 (24.4)	11 (21.2)	23 (23.0)	28 (12.8)	155
Tearful eye	34 (11.8)	22 (10.0)	4 (7.7)	11 (11.0)	25 (11.5)	96
Discharge	12 (4.2)	24 (10.9)	5 (9.6)	7 (7.0)	7 (3.2)	55
Itchy eye	65 (22.6)	57 (25.8)	15 (28.8)	28 (28.0)	66 (30.2)	231
Poor vision	67 (23.3)	5 (2.3)	9 (17.3)	8 (8.0)	37 (17.0)	126
Eye injury	8 (2.8)	5 (2.3)	0 (0)	2 (2.0)	1 (0.5)	16
Swollen eye	6 (2.1)	5 (2.3)	1 (1.9)	5 (5.0)	1 (0.5)	18
Headache	15 (5.2)	5 (2.3)	2 (3.8)	6 (6.0)	14 (6.4)	42
Others	10 (3.5)	5 (2.3)	0 (0)	0 (0)	9 (4.1)	24
Total	287	221	52	100	218	878

**Table 4: Reasons for action taken**

Reasons	Health facility (%)	Self-medication	Traditional	Pharmacy	Nothing
Simple disease	45 (32.1)	4 (14.8)	26 (40.0)	73 (52.9)	148
Lack of trust	4 (2.9)	7 (25.9)	2 (3.1)	2 (1.4)	15
Experience	18 (12.9)	1 (3.7)	3 (4.6)	5 (3.6)	27
Quick relief	18 (12.9)	1 (3.7)	7 (10.8)	0	26
Financial constraint	33 (23.6)	10 (37.0)	14 (21.5)	40 (29.0)	97
Advice	10 (7.1)	3 (11.1)	3 (4.6)	2 (1.4)	18
Distance	5 (3.6)	0	2 (3.1)	5 (3.6)	12
Longer waiting time	6 (4.3)	1 (3.7)	3 (4.6)	5 (3.6)	15
Others	1 (0.7)	0	5 (7.7)	6 (4.3)	12
Total	140	27	65	138	364

eyes examined at the health facility but resorted to alternative eye care services [22]. The alternatives eye care services sought were similar to those found among slum dwellers in another region of the country [22]. Reasons given for seeking alternative eye care services were predominantly due their self-perception of their eye condition or other impediments to the uptake of eye care services.

## CONCLUSION

From the study, it was found out that the majority of the people in the metropolis had poor eye health seeking behavior but resort to alternative eye care services. It is therefore, recommended that populace should be educated on the awareness of common ocular diseases thought of as simple, but not properly managed could result ocular morbidity.

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## AUTHOR'S CONTRIBUTION

Drs. Samuel Kyei and Stephen Ocansey conceived the idea but Drs. Stephen Ocansey, Samuel Kyei, Bismark Nyarko Gyedu, Agnes Awuah designed the study, The data was analyzed by Dr. Bismark Nyarko Gyedu, and was interpreted by Drs. Samuel Kyei, Stephen Ocansey and Agnes. Drs. Samuel Kyei and

Bismark Nyarko Gyedu prepared the first draft of the manuscript which was revised by Drs. Stephen Ocansey and Agnes Awuah. The final draft was reviewed and approved by all the authors.

## REFERENCES

- Ntim-Amponsah C, Amoaku W, Ofosu-Amaah S. Alternate eye care services in a Ghanaian district. *Ghana Med J* 2005;39:19-23.
- Holden BA. Blindness and poverty: A tragic combination. *Clin Exp Optom* 2007;90:401-3.
- Gyasi M, Amoaku W, Asamany D. Barriers to cataract surgical uptake in the upper East region of Ghana. *Ghana Med J* 2007;41:167-70.
- Ormsby GM, Arnold A, Busija L, Morchen M, Bonn TS, Keeffe JE. The impact of knowledge and attitudes on access to eye care services in Cambodia. *Asia-Pac J Ophthalmol* 2012;6:331-5.
- Omolase CO, Afolabi AO, Omolase BO. Ocular self-medication in Owo, Nigeria. *Niger J Postgrad Med* 2008;1:8-14.
- Ocansey S, Kumi-Kyereme A, Awusabo-Asare K, Illechie AA, Boadi-Kusi SB, Abraham CH. Utilization of eye care services among Ghanaian elderly population: Evidence from a peri-urban community. *Ophthalmol Res Int J* 2013;1:89-101.
- Baidoo R. Toward a comprehensive health care system in Ghana. *Int Dev Stud* 2009:13-81.
- van den Boom GJ, Nsowah-Nuamah NN, Overbosch GB. Curative health care utilization in Ghana: A multinomial analysis of equitable access opportunities, 2004.
- Ayanniyi AA, Olatunji FO, Mahmoud AO, Ayanniyi RO. Knowledge and attitude of guardians towards eye health of primary school pupils in Ilorin, Nigeria. *Niger Postgrad Med J* 2010;17:1-5.
- Ghana Eye Foundation: The Concept. Available from: <http://www.ghanaeyefoundation.org>. [Last accessed on 2013 Feb 24].
- Salisu A, Prinz V. Health Care in Ghana. Australian Centre for Country of Origin and Asylum Research Documentation, 2009. Available from: <http://www.ecoi.net>. [Last accessed on 2013 Feb 23].
- Russell S. Demand-side factors affecting health seeking behaviour in Ghana. *Georgetown Undergrad J Health Sci* 2008;5.
- Cape Coast Metropolitan Assembly. Strategic Environmental Assessment (SEA) of MTDP 2010-2013. Planning Unit of the Metropolitan Assembly, January 2010.

14. Glenn DI. Determining sample size. Sampling the evidence of extension program impact, PEOD-5, 1992. Available from: <http://www.edis.ifas.ufl.edu/pd006>. [Last accessed on 2013 Jun 28].
15. Bisika T, Courtright P, Geneau R, Kasote A, Chimombo L, Chirambo M. Self treatment of eye diseases in Malawi. *Afr J Tradit Complement Altern Med* 2008;6:23-9.
16. Gupta P, Bobhate PS, Shrivastava SR. Determinants of self medication practices in an urban slum community. *Asian J Pharm Clin Res* 2011;4:54-7.
17. Vyas S, Kumaranayake L. Constructing socio-economic status indices: How to use principal components analysis. *Health Policy Plan* 2006;21:459-68.
18. Adegbehingbe BO, Oladehinde MK, Majemgbasan TO, Onakpoya HO, Osagiede EO. Screening of adolescents for eye diseases in Nigerian high schools. *Ghana Med J* 2005;39:138-42.
19. Delolme MP, Law-Ki A, Belon JP, Creuzot-Garcher C, Bron A. Role of community pharmacist in the management of patients in ophthalmology. *J Fr Ophtalmol* 2011;34:168-74.
20. Nyonator FK, Awoonor-Williams JK, Phillips JF, Jones TC, Miller RA. The Ghana community-based health planning and services initiative for scaling up service delivery innovation. *Health Policy Plan* 2005;20:25-34.
21. Koffuor GA, Ababio-Danso B, Gyanfosu L, Amoateng P. The efficacy of NHIS-listed antiglaucoma drugs in the management of primary open angle glaucoma. *J Med Biomed Sci* 2012;1:50-8.
22. Oveneri-Ogbomo GO, Afful O, Kio FE. Eye care utilisation among slum dwellers in the greater Accra region, Ghana. *East African Med J* 2011;88(7):4.

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