Original Research

Utilization of eye care services among Ghanaian elderly population: Evidence from a peri-urban community in Ghana

Abstract

Introduction: Despite being more affected by visual impairment and blindness than any other population group, the elderly are least likely to seek help when faced with eye problems. Eye care utilization among the aged is influenced by a number of predisposing, enabling and need factors.

Aim: To determine the need for, pattern of eye care utilization and explore self-reported factors influencing the up-take of eye care services among Ghanaian elderly population.

Methods: A cross sectional survey of 170 elderly persons (52.0% of those eligible) aged 60+ years and above in peri-urban community in the Central region of Ghana were interviewed using a semi-structured questionnaire to collect information regarding demographics, eye care use, barriers and eye care seeking behavior . They also underwent ophthalmic examination.

Results: The mean age of the respondents was 70 years with 58.2% of them being females. Nearly three out of four (75%) were registered with the national health insurance scheme (NHIS). Conditions identified were cataract 117 (29.2%), uncorrected refractive error 75 (18.8%), pterygium/pinguiculi 55 (13.8%), presbyopia 40 (10.0 %), and retinal disorders in 23(5.8%) eyes. About one third 61(35.8%) have never had eye examination. Among 137 (80.5%) with eye problems, 76.9% self-reported eye problems before examination but only 51.2% utilized eye services in the previous five years. By proportion, more males (59%) than females, increasing age and those with higher level of education were able to utilize care. The study showed that sex, education but not age were statistically related to the utilization of eye care services ($P = 0.05$).

Conclusion:

A large proportion of the elderly who require eye care are currently not utilizing eye care services. The barriers that lead to the low utilization of eye care services among the elderly should to be explored to reduce the burden of visual impairment

Keywords: Utilization, elderly, population, eyecare, Ghana

Introduction

Population ageing is a global phenomenon associated with a range of health care challenges[1]. Ageing results in a number of health conditions including eye diseases and visual impairments that increases the number of elderly persons needing care[2, 3]. Age-related eye diseases and resultant visual impairment causes functional impairment among the elderly undermining independence and quality of life[4, 5]. Early detection and prompt treatment of many age-related eye diseases can forestall or prevent disability from these conditions.

Ophthalmic and optometric best practices recommends that older adults visit an eye care professional regularly to have a comprehensive eye examination but some elderly persons are not able to utilize eye care services due to some factors seen as barriers[4,6]. Healthcare utilization is influence by a number of predisposing, enabling and need factors[7]. Predisposing factors exist before an illness and describe the propensity of an individual to use healthcare. Enabling factors influence a person's ability to use healthcare services and need factors that those expressed in the presence of eye disease or a perceived need for eye care. Barriers to the utilization of eye care among the elderly result in delays in treatment, which causes dissatisfaction and may lead to worsening clinical and patient outcomes[8-10].

To some extent, utilization of eye care services reflects the effective coverage of eye health services and is a marker of existing eye health system performance[4, 6,11]. Eye care services in Ghana are provided mainly by ophthalmologists, optometrists and ophthalmic nurses with general practitioners providing some primary care and referring when necessary. There are about

50 Ophthalmologist, 200 Optometrist and 300 ophthalmic nurses in Ghana, serving the over 24 million population[12]. Most rural areas are well underserved as most ophthalmologists and optometrists practice in larger towns and cities only.

The elderly who live in rural and remote areas of developing countries have limited access and worse eye care outcomes relative to urban and more modernized towns[6, 9, 13-14]. The World Health Organization estimated that though the number of people visually impaired from infectious diseases has greatly reduced in developing countries within the last 20 years, the lack of access to cataract surgeries in developing countries poses a major challenge to eradicating needless and avoidable blindness by the year 2020[15]. Despite being more affected by visual impairment and blindness than any other population group, the elderly people are also least likely to seek help when faced with eye problems or a deterioration of their vision[5, 14]. It is estimated that only one in three older people with cataract actually receives surgery in least developed countries[3, 16]. In addition to eye problems, older people usually have other age-related health problems, such as hearing impairment, arthritis, cardiovascular disorders, and diabetes[1]. The disabilities caused by such disorders could make some older people reluctant to visit health facilities. The study assesses the need for and the pattern of eye care service utilization among the elderly at a peri-urban community and has implications for health planning considering the emerging aging population in Ghana.

Materials and Methods

The study was cross-sectional survey conducted at Yamoransa, a peri-urban community in the Mfantsiman West District of the Central Region of Ghana. The district has a district hospital which provides primary eye care. The Central Region however, has three major eye clinics

which provide full scope eye care services[12]. The total population of the town was 5,413comprising 45.8% males and 54.2% females and persons aged 60 years and above were 5.7% in 2010[17]. A total of 308 persons (5.7% of 5413) aged 60 years were initially enumerated to take part in the study but 170 (55.2%) individuals respondent and were involved in the study. The district bears demographic characteristics similar to that of the Central Region and other peri-urban communities in Ghana making it ideal for the study[17]. Semi-structured questionnaires were administered by three trained social workers and five experienced Doctors of Optometrist to collect information on respondents' demographic background, current and previous use of eye care services in the previous five years, barriers to uptake of eye care services, satisfaction with previous eye care and eye care seeking behaviour.

They were also screened for abnormal ocular conditions and visual impairment. Ophthalmic examinations performed included detailed ocular history, presented visual acuity (PVA) measured with or without glasses according to what the patient was wearing at the time of the examination with a tumbling "E" at six meters, external eye examination using a magnifying loupe under penlight, dilated internal eye examination using direct ophthalmoscopy to evaluate retinal status, including vessels, macula and optic disc features and hand held applanation tonometry to measure intraocular pressure (IOP) when indicated. Ocular conditions identified were verified on subsample at the regional hospital where referrals were sent for treatment with consultant Ophthalmologist. All the team members also had previously been involved in community eye screening and so were conversant with their roles. Each questionnaire and eye examination took about 45 minutes to complete. All elderly persons that met the age criteria for the study had an equal chance of participating in the research. National Health Insurance (NHIS) and voter identification cards were used to verify participants' ages.

The research was done according to the Helsinki Declaration on Research regarding Human Subjects. This study was reviewed by Institutional Review Board of University of Cape Coast (UCCIRB). Participants were made to sign informed consent forms attached to the questionnaires after the processes had been explained to them

Data analysis

Visual impairment was determined using PVA less than 6/18 to 6/60 in the better eye and blindness using visual acuity of less than 3/60 in the better eye based on the guidelines drafted by the World Health Organization (ICD-10)[18.] Criteria for identification of abnormal ocular conditions have been described in other studies[11]. Data obtained was analyzed using the Statistical Package for Service Solutions (SPSS v 16) application to carry out descriptive statistics and chi-square to test the hypothesis that utilization of care services has an independent relationship on selected socio-demographic variables. Independent variables included age, sex, and education level whiles dependent variable utilization was defined as the ability to see an eye care professional or a qualified health professional when in need of eye care service or had an episode of eye condition that requirement treatment in a 5-year period. Statistical significance was defined at an alpha level of 0.05. We categorized people requiring eye care/treatment in our study population as people with PVA worse than 6/18 in the better eye and/or identified ocular pathology/disease after examination**.**

Results

A total of 170 elderly persons who were interviewed, 41.8% were males and 58.2% were females (Table 1). The distribution shows that half of the respondents were aged between 60-69 years

(young old), and those aged 80+ (oldest old) accounted for 17.1%. The mean age of the respondents was 70 years (SD = +/-8.7, Range = 60 - 101).

The data (Table 2) showed that respondents who had had primary education were 58.3% for both sexes (78.8% among females and 31% among males) and 31.7% had had middle or secondary education. Over half of males, (66.2%) had had more than primary education compared to only 20.2% females. Only 8.2% had had post-secondary education.

Using their PVA twenty five (14.7%) exhibited unilateral visual impairment, 113 (66.5%) bilateral impairment, 39 (22.9%) unilateral blindness, and 15 (8.8%) had bilateral blindness (Table 3). Visual acuity in the better eye indicated in, 58.7% had visual impairment and 5.9% were found to be blind. Respondents were asked to grade their perception about well they can see and this is matched to the PVA in Table 4. Overall, only 6.5% said the eye sight was excellent, whilst a third of them (34.1%) said the health was fair and about the same number (32.3%) graded the vision as worse poor or worse.

Of the 340 eyes of the 170 participants examined, 400 conditions were observed (Table 5). Cataract was the most occurring condition, affecting 117 (29.2%) eyes, followed by uncorrected refractive error in 75 (18.8%), pterygium/pinguiculi 55 (13.8%), presbyopia 40 (10.0 %), and retinal disorders in 23(5.8%) eyes. Among 137 (80.5%) individuals who were identified as either having an impairment or condition that required seeing an eye care provider, 76.9% affirmed that they had an eye problem before ophthalmic examination whilst only 4.2% perceived that they did not have any condition or the condition was minor or normal to warrant seeing an eye care provider. There was no statistically significant difference between respondents with perceived they had eye problems and those identified as requiring treatment after eye examination (p, 0.127) (Table 6).

Among them, (61) 35.8% had never had an eye examination in their lifetime. Within the previous five years however, as many of them (51.2%) have visited an eye care professional compared to those who had not (48.8%). By proportion, more males than females, increasing age and increase in level of education was associated use of eye care service. The characteristics of eye care utilization in the 5-year period are shown in Table 7. Self-perceived eye problem, sex and education showed statistical significance at an alpha level of 0.05

Among those who had ever had their eyes checked, 36.7% visited eye clinics when they had a problem with their eyes and 27.5% visited a general hospital or health centre to consult general physician or general health for eye care services. The rest resorted to self-medication, herbalist treatment (traditional healer) or pharmacy or chemical shops to treat their eye problems. Others depended on 'friends' or 'family relations' advice (Figure 1). One person who was reportedly aged 101 had never had an eye examination, indicating the lack of regular eye check up among the study population.

The study also sought to find out the reasons or barriers to the up-take of regular eye care services among the respondents. Table 8 shows first and second reasons for not seeking eye care service when they had eye problems. The most reported obstacle to the uptake eye care services was lack of money (35.4%), followed by those who 'did not think it was important' (22%), 'advised by others to do something else' (13.4%) and time constraints (12.2%).

Overall 75% were registered under the national health insurance scheme (NHIS). Though the health scheme is free for persons 70 years and above, (49.4% of study population), just over 42% of this age group were registered with the scheme and therefore could access eye care services under it.

The study also sought to find out how the lack of utilization to eye care services due to the varied reasons, in the face of manifest or perceived eye problems and visual impairment affected the general disposition and patients satisfaction with eye care services and programmes available to them in the community. Overall, Sixty three percent indicated that they had spent some time worrying about their eye sight. Fifteen percent spent 'no time' worrying about the eye sight, 12.4% spent 'all the time' worrying' about their eyes, while about 30.0% of them either spent 'sometimes' or 'most of the time' worrying about the eye sight (Fig. 2).

Respondents, who had ever had an examination during their lifetime, were asked to grade the impression of eye care services available to the elderly in the community. About 12.4% of those who were 'very satisfied' with care that they had received and twice that number were 'satisfied'. Another 11.8% were dissatisfied and 10.0% were neither satisfied nor dissatisfied.

Discussion and conclusion

The study examined the need for, reported use of care services, eye care seeking behavior and barriers to the uptake of eye care services among an elderly population in a peri-urban community in Ghana for a 5-year period.

In the present study, a history of eye care visit in previous five years was considered a determinant of eye care service utilization. Some studies have examined the rate of eye care utilization among the elderly in other countries[3 -5]**.** We found that elderly persons in peri-urban communities do not utilize eye care services to a large extent despite the presence of eye condition needing treatment. Over one third (35.8%) have never used eye care yet 80.5% of respondents who were identified with eye conditions that needed eye care attention. The rate of

eye cares utilization (51.2%) in the study population was higher than the average of 18% found in developing countries[6], 35.5 % found in Cameroon[14], 45.5% found in India[11] but lower than 64% among older America[4] and over 90% found in older Australians[5]. Some other studies in other countries among the elderly have also focused on utilization and ageing[5, 19], elderly diabetics[20] and elderly glaucoma patients[21]. Depending on the geographical variation, the target population and period used to define utilization different rates of eye care utilization have been reported. Extrapolation of these results should therefore be carefully applied.

Sight is essential in everyday activities therefore it is clear that any disturbance in vision or symptom associated with the use of the eyes will easily be noticed and lead to eye care visits, yet we found only half (50.4%) of those with visual impairment had not sought for eye care in the previous five years. Although majority of respondents (76.9%) identified as having conditions that needed treatments were much aware of their visual status, more than one third had never had an eye examination in their lifetime for persons 60 years and above.

An increase utilization of eye care with increasing age is consistent with an increased burden of blindness and vision impairment as one age. In the study, though there was increase in utilization with increasing age by proportion we did not find statistically significant relationship between age and utilization. More men than females utilized eye care services. In general, women have substantially worse eye care outcomes than men to the lower rate of eye care utilisation[22, 23.] Two- thirds of the world's blind and vision impaired people are women[22]. The differences in the occurrence of eye disorders and treatment outcomes in women have been attributed to the lack of access and utilization of eye care due lower economic status and early change in the physiology of women[24]. The relationship between gender and utilization of eye care in this study is at

variance to other studies that showed women are more likely to seek eye care[7, 9] but comparable to a study where men sought eye care more than women in Cameroon[14]. Other studies have reported no significant difference found between the gender in Ireland[8] and in India[11].

Some studies have shown an inverse relation between both education and income and ability to utilize eye care services and visual impairment. Utilization among persons with low education and income have been found to be almost twice as that of those with higher income[3, 24-26].This study showed significant differences in eye care utilization and level of education. Educational is an important factor of visits to eye care professionals. Those with lower educational levels may be unaware of the need for regular eye examinations with increasing age. The finding suggests that even in the presence of perceived eye problems, close to half of them had not sought care. Socio-economic background was not included in this study because of the homogeneity of subjects used as respondents were elderly persons who had similar economic background.

Consistent with other studies, the main barriers preventing uptake of eye care service identified in the study were related to medical costs of the services, time constraints, transportation and escort and poor knowledge about eye disease[4, 11, 14]. Respondents expressed that they thought the episodes of eye conditions they previous experienced were not serious or mild be to merit an eye care visit. This could inherently explained by the low level of education among the study population.

A study of the health profile and emerging aging issues in Ghana confirms that access to medical care remains problematic for the elderly in Ghana, especially for those without medical insurance and particularly those considered vulnerable[27]. In Ghana, eye care services are available in public hospitals and private clinics where medical insurance cover part of the fees incurred. However,

unequal distribution of Ophthalmologists, Optometrists and Ophthalmic nurses in Ghana deprive eye care access to people in remote and rural areas. About a quarter of the study population were not registered with the national health insurance scheme. The elderly, due to their lower socio-economic status find the cost of health care especially eye care high in comparison with their mean income and it seems some can't afford them, when even available.

Despite the acceptable response rate of 55.2%, utilization of eye care services may be over or underestimated assuming that those that did not participate in the study are less or more likely to have access to eye care services than those who did not participate. Utilization was also self-reported and not verified by crosschecking from the places respondents claimed to have the visited. The study also covered 5-year retrospective periods and may be subject to recall errors by respondents. However, results of this study are very informative and indicate that a considerable proportion of the studied population had never utilized eye care services, even among those who had eye problems. Efforts have to be made to better understand the barriers to up-take of eye care services and educate the elderly about their eye health to increase the utilization of the available eye care services among the elderly population in Ghana.

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Competing Interests

Author(s) disclose no potential conflicts of interest.

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Table 1: Respondents by age and by sex in percentages

	Sex		
Age range	Male	Female	Total
60-69	54.9	47.5	50.6
70-79	26.7	36.3	31.8
80+	18.3	16.1	17.6
Total	100	100	100
Total number	71	99	170

Table 2: Respondents by highest level of education and sex in percentages

	Male				Female				Grand
Education	60-69*	70-79	80+	Total	60-69	70-79	80+	Total	Total
No education	5.0	-	-	2.8	2.1	-	-	1.0	1.8
Primary	12.5	35.3	78.6	31.0	63.0	89.2	100	78.8	58.3
Middle Sch./JSS	17.5	11.8	-	12.7	8.7	2.7	-	5.1	8.2
Secondary/Tech/Vocational	45.0	47.1	14.3	39.4	21.7	2.7	-	11.1	23.5
Post secondary	20.0	5.9	7.3	14.1	4.3	5.4	-	4.0	8.2
Total	100	100	100	100	100	100	100	100	100
Total number	40	17	14	71	46	37	16	99	170

**Age group*

Table 3: Presence of unilateral and bilateral visual impairment and blindness using PVA among respondents

Eye (s)	Visual impairment	Blindness
Unilateral	25(14.7)*	39(22.9)
Bilateral	113(66.5)	15(8.8)
Both	138(81.2)	54(31.8)

* *percent of 170 respondents*

Table 4: Matching PVA against self-evaluation by respondents

Self-Evaluation	Presenting better eye VA								Total
	>=6/6	6/9	6/12	6/18	6/24	6/36	6/60	<=3/60	
Excellent	3(17.6)	3(10.0)	2(15.4)	0(0.0)	0(0.0)	2(5.0)	1(4.3)	00(0.0)	11(6.5)
Good	3(17.6)	10(33.3)	4(30.8)	9(37.5)	7(53.8)	10(25.0)	3(13.0)	00(0.0)	46(27.1)
Fair	6(35.3)	11(36.7)	4(30.8)	8(33.3)	4(30.8)	18(45.0)	7(30.4)	00(0.0)	58(34.1)
Poor	3(17.6)	5(16.7)	2(15.4)	6(24.0)	2(15.4)	6(15.0)	9(39.1)	00(0.0)	33(19.4)
Very poor	2(11.8)	1(3.3)	1(7.7)	1(4.2)	0(0.0)	4(10.0)	3(13.0)	2(20.0)	14(8.2)
Completely blind	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	8(80.0)	8(4.7)
Total	100	100	100	100	100	100	100	100	100
Total number	17	30	13	24	13	40	23	10	170

** Percentages are in parenthesis*

Table 5: Prevalence of Ocular conditions in 340 eyes of the 170 respondents

Condition	Frequency	Percentage
No abnormalities	2	0.5
Refractive error	75	18.8
Cornea opacity/scar	7	1.8
Cataract	117	29.2
Suspected glaucoma	16	4.0
Chronic/Acute conjunctivitis	34	8.5
Pseudophakia	18	4.5
Pterygium/ Pingueculae	55	13.8
Strabismus/Squint	1	0.2
Trauma	3	0.8
Presbyopia**	40	10.0
Retinal disorders (RT)*	23	5.8
Blind eye***	9	2.2
Total	400****	100.0

**RT = Hypertensive retinopathy (2.5%), chorio-retinal degeneration (1.0%), Macular scar (0.5%) and Diabetic retinopathy (0.2%).* * *Presbyopia = *Among those with reading ability (those with near impairment were 33.5%).* ***Blindness due to loss of eye.*

****Multiple diagnosis among 170 persons

Table 6: Difference between self evaluation and identified eye problems that needed treatment

	Eye examination			
Personal evaluation	Eye problem	No eye problem	Total	Number
Eye problem	76.9	16.6	93.5	158
No eye problem	4.2	2.3	6.5	12
Total	81.1	18.9	100	
Total number	137	32		170

$X^2 = 2.328$; df = 1; p-value = 0.127

Table 7: **Characteristics of those who sought eye care compared to those did not seek eye care**

Demographic characteristics	Eye care utilization			Chi-square (p-value)
	Sought care (N= 87)	Did not seek care (N= 83)	Total (N= 170)	
Sex*				
Male	37 (42.5)	34 (41.0)	71 (42.0)	4.721
Female	50 (57.5)	49 (59.0)	99 (58.0)	(0.013)
Age group				
60-69	43 (49.4)	43 (52.4)	86 (50.6)	
70-79	27(31.0)	27(31.7)	54 (31.8)	1.405
80+	17(19.5)	13(15.9)	30 (17.6)	(0.317)
Educational level*				
No formal education	1(1.1)	2(2.4)	3(1.8)	
Primary	54(62.1)	45(54.2)	99 (58.3)	
Middle school/JHS	9(10.3)	5(6.1)	14 (8.2)	3.441
Secondary/Tech/ Vocational	18(20.7)	22(26.5)	40 (23.5)	(0.021)
Post-secondary	5(5.7)	9(10.8)	14(8.2)	
Self-perception of eye problem *				
Yes	81(93.1)	77(92.8)	158(92.9)	5.309
No	6(6.9)	6(7.2)	12(7.1)	(0.012)
Presence of VI				
Yes	57(65.5)	58(69.9)	115(67.6)	1.528
No	30(34.5)	25(30.1)	55(32.4)	(0.376)

Table 8: Reasons for not visiting eye clinics

Reasons	First reason	Second reason
Cost	35.4	-
Time constraints	12.2	-
Transportation/No escort	6.1	5.9
Thinks problem was minor	22.0	35.3
Fear	6.1	5.9
Advised by others to do something else	13.4	52.9
Do not know where to go	3.7	-
No improvement from previous visit	1.2	-
Total	83	17

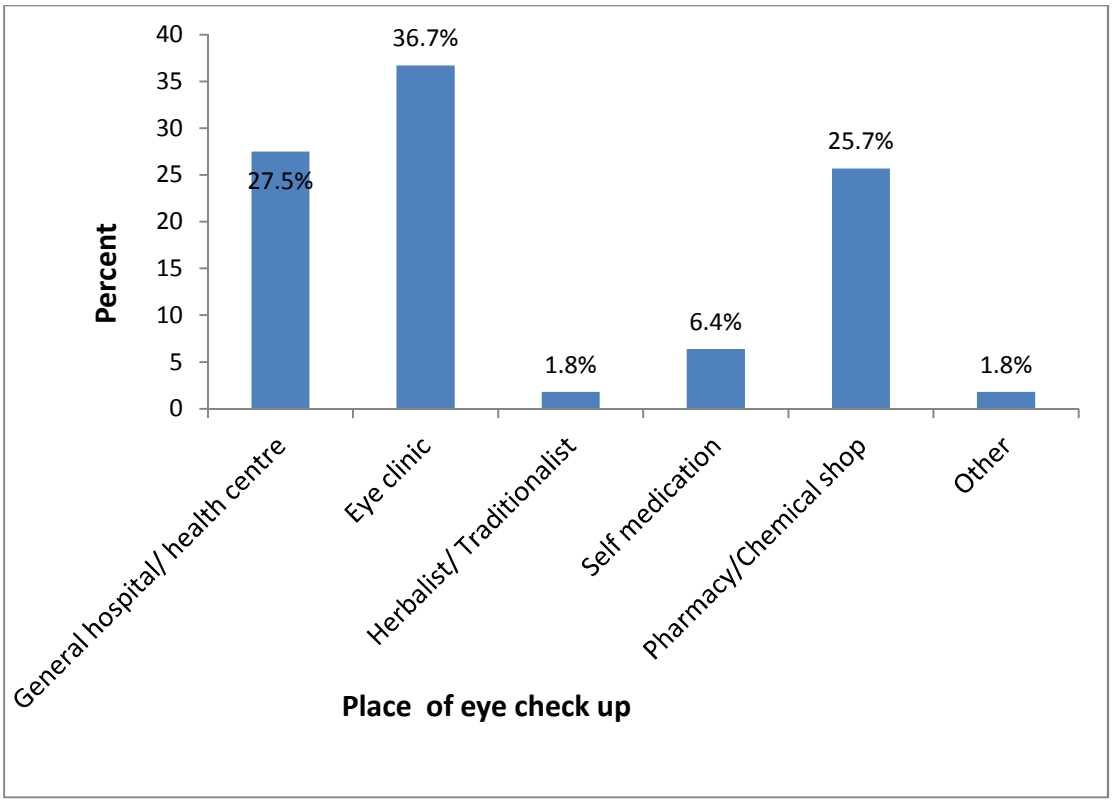

Figure 1: Places where respondents sought eye care services

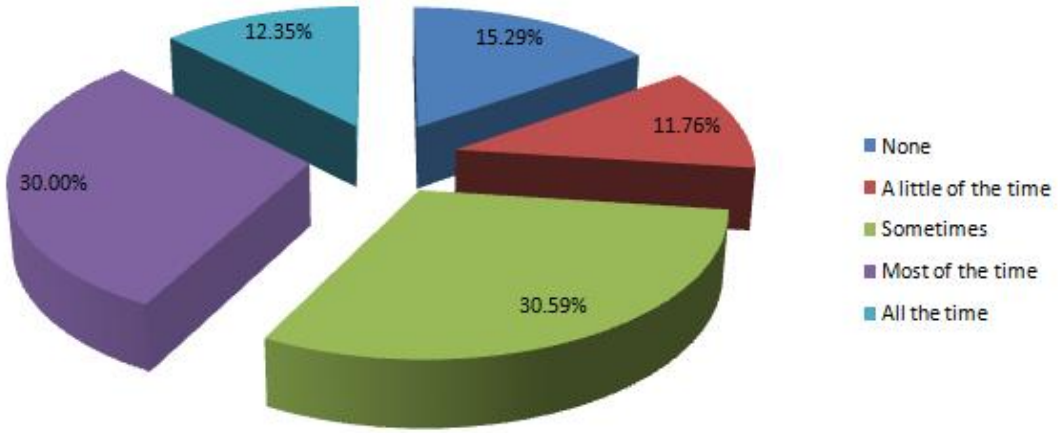

Figure 2: Time respondents spend worrying about their eyesight