

# AWARENESS AND KNOWLEDGE OF GLAUCOMA AND OTHER DISEASES ASSOCIATED WITH BLINDNESS IN A GHANAIAN COMMUNITY

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## ABSTRACT

**Purpose:** To determine awareness and knowledge of glaucoma and diseases associated with blindness in a Ghanaian community.

**Methods:** Data was collected by questionnaire and in-depth interviews.

**Result:** Familiar causes of blindness were cataract (77.2%), eye injuries (71.9%), 'koko' – local name for haemorrhoids (55.7%), and old age (54.7%). About 3.6% (64/1785) were aware of glaucoma but only 0.8% (15/1785) understood it. People in higher occupational levels were 9 times more likely to understand glaucoma than those in the lower levels (OR 0.11, 95% CI 0.04-0.3, Pvalue 0.0001). Only 1% (23/1785) knew that it could be hereditary.

**Conclusion:** Awareness and knowledge of glaucoma was extremely low and related to occupational level. Cataract, 'koko', eye injuries and ageing were the more familiar causes of blindness.

**Key words:** glaucoma, Ghana, 'koko', haemorrhoids

## INTRODUCTION

The major determinants of people's reaction toward a particular disease is mediated by awareness and knowledge of the disease, socio-cultural factors, and availability of health facilities. These factors may be positively or negatively affect the uptake of appropriate eye care and may promote or retard efforts at reducing blindness. Health-seeking behaviour differs among

different populations. In the developing world where there is often inadequacy of healthcare facilities, the population tends to seek alternate facilities or providers to take care of their needs. Even when the services are available, some people may not use them and will prefer to use alternative systems.

There has been progress in Ghana in controlling blindness caused by cataract, onchocerciasis, and vitamin A deficiency, but we have not made as much progress with glaucoma which is now the most important cause of irreversible blindness.<sup>1</sup> As there are often no early symptoms for the commonest type of glaucoma, community awareness of this disease is often lacking. Even in developed countries, patients' awareness of glaucoma is low and this awareness may be related to education and a family history of glaucoma.<sup>2,4</sup> The screening of people at risk will allow timely diagnosis and more effective therapy before advanced visual loss has occurred. Individuals who understand glaucoma are more likely to present earlier with visual symptoms and be better able to comply with recommended therapy before irreversible visual loss has occurred.

In Ghana, the mass media is often used for dissemination of public information including matters on health. However, exposure to the mass media varies in different parts of the country. Exposure in the urban areas is 3-4 times as likely as in the rural areas. Men, especially those with secondary education, are more likely to be exposed than women and persons with less than secondary school education.<sup>5</sup> The Glaucoma Association of Ghana, formed in 1995, has made efforts to increase public awareness of glaucoma through the

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national newspapers and also by celebrating a 'Glaucoma Awareness Week' annually.

While several studies have examined the level of knowledge and beliefs about glaucoma in developed countries, a comparable study in developing countries does not exist. This study was conducted alongside a population survey to determine the level of awareness and knowledge of glaucoma and associated factors, and other eye diseases in the Akwapim-South district of Ghana.<sup>6</sup> The population of that district is about 120,500 and is made up of several ethnic groups from a variety of socio-cultural backgrounds. About 70% of the population are farmers and traders.

**MATERIAL AND METHODS**

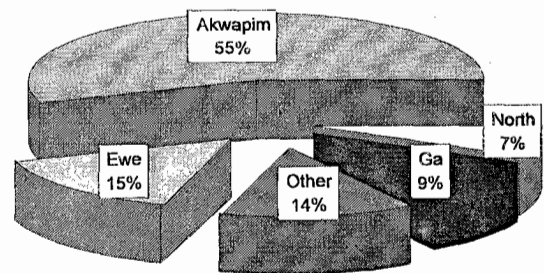
A cluster random sample was used with individuals aged 30 years and above. The methods have been extensively detailed in the Glaucoma Prevalence Study conducted from August 2000 to March 2001.<sup>6</sup> Information was collected through a structured questionnaire and in-depth interviews.

Research assistants administered the structured questionnaire developed by residents of the School of Public Health, University of Ghana, and piloted by the principal investigator and the research assistants. Both the closed and open-ended approaches were used. Communication was through the main local language, Akwapim Twi. The details of the questionnaire included personal data (age, sex, occupation, reported tribe), open-ended questions on the respondent's definition/understanding of blindness, causes of blindness known to the individual, what glaucoma is, course of action taken at the time of having an eye disease. Closed ended included presence or absence of past history of eye disease, awareness or unawareness of familial tendency of glaucoma, and the source of the subject's information on glaucoma (before this study). The principal investigator's clinical experience from working in the district for 3 years, local peers' views, and the experiences of the research assistants who were permanent residents in the area of study were made use of during the interviews. The subject was first asked who he/she considers blind, then further prompted to find out whether a blind person may be able to see a hand movement or at least tell the difference between light and darkness, if this did not come out clearly in the response. Subjects were asked what they thought caused blindness and whether this could cause blindness in one or both eyes, before being prompted for specific causes in that district. Cataract has a local name (*er-ter*) but glaucoma does not. The term glaucoma was, therefore, explained as an eye disease associated with abnormal pressure within the eyeball that destroys the nerve for

vision. Other less frequent causes prompted were diabetes (*a-si-kyire yare*) and onchocerciasis (*oncho*). The study protocol, including ethics, was approved by the University of Ghana Graduate Studies Board.

**RESULTS**

There were 1,785 respondents; 893 females and 892 males with mean age of 50 (median 48 and SD 14.43). The main occupation of the respondents was farming and trading. The self reported tribes were Akwapim 55%, Ewe 15%, Ga and Adangbe, 9%, Northern and Upper region tribes 7%.



**Figure 1. Self-reported tribes**

Nearly all respondents (99%) conceived a blind person as one who had no perception of light. The causes of blindness that respondents were aware of in descending order were cataract, eye injuries (usually related to agricultural activities), 'kooko',\*\* ageing, and glaucoma (table 1). Only a few of the respondents (3.6%) were aware of the target disease (glaucoma). Of these, 15 respondents (0.8%) knew that glaucoma was related to intraocular pressure and or optic nerve damage. Other known causes of blindness were onchocerciasis, smoking, malnutrition, and diabetes.

Radio and television were the usual sources of information on glaucoma. Radios were the most popular for entertainment programmes which were not directly related to health, but intermittent advertisements during these programmes may include health issues. Other sources were newspapers, hospital staff, and relatives with glaucoma. Only a few people read the newspapers and many people did not have access to them.

Univariate analysis of age, sex, and occupational group against knowledge of glaucoma by logistic regression model (table 2) showed that knowledge was significantly associated with socio-economic group determined by occupational group (OR 0.11, 95% CI

\*\* Kooko is the local name for haemorrhoids.

0.04-0.3; P value < 0.0001). Persons in the higher levels of occupational groups (skilled non-manual, managerial, professional) were about 9 times more likely to know about glaucoma than those in the lower occupational levels (skilled manual, semi-skilled, unskilled).

**Table 1. Known Causes of blindness**

Causes of blindness	% of Respondents
Cataract	77.2
Injuries	71.9
"Kooko"	55.7
Old age	54.7
Glaucoma	3.6
Onchocerciasis	2.7
Diabetes	0.1
Others	0.5

Glaucoma was considered an adult disease usually occurring over the age of 35 years, but may occur in children. Only 1.3% (23/1785) of the population were aware that glaucoma may be hereditary.

'Kooko' was perceived as a growth originating from the anal canal, however, people believed it could extend to any part of the body and in this way involve the eye, causing growths on the eye, itchy eyes, blurred vision, and eventually blindness.

Visual acuity assessment with the Snellen chart showed that 18.6% of participants had vision less than 20/70. The 7.1% whose visual acuity was worse than 20/200 thought their vision was only blurred. Only

0.85% of the study population with PL (poor light perception) and NPL (no perception of light) considered themselves as having poor vision and blind respectively.

**DISCUSSION**

Though many respondents were aware of cataracts, eye injuries, 'kooko', and blindness associated with old age, very few were aware of glaucoma, the target disease of this study.

Cataract is often obvious and has local names among the different tribes of Ghana. It is so common that one would expect a higher percentage of awareness than the 77.2% recorded. One Australian study recorded 98% awareness for cataract as a cause of blindness and knowledge or awareness increased with a higher level of education and occupational prestige (7).

The high awareness of eye injuries associated with blindness in this population is related to farming, the most common occupation. Various types of injuries are associated with agricultural activities and visual prognosis is often poor as these ocular wounds do not receive appropriate care.<sup>8</sup> However, the blindness referred to was commonly unilateral.

More than half of the respondents associated 'kooko' with blindness. 'Kooko', appears to be a ubiquitous disease with myriads of symptoms. The dusty environment and frequently associated eye irritation often causes itching and conjunctival degenerative growths (pterygium and pingueculum) which are attributed to 'kooko'. The quantification of the magnitude of blindness attributed to 'kooko' in this study is important as it reflects the people's perception of causes of blindness and should be useful background information for individuals working in health education.

**Table 2. Univariate analysis of age, sex, and occupation against knowledge by logistic regression model**

Variable	Knowledge	No-knowledge	Odds Ratio	95% CI	P-value
<b>Age</b>					
30 - 50	87	1025	1.00		
> = 51		745	1.20	0.43, 3.33	0.7211
<b>Sex</b>					
Female	87	885	1.00		
Male		885	0.88	0.32, 2.42	0.7972
<b>Occupation</b>					
Managerial					
Professional					
Skilled Non Manual	9	253	1		
Skilled Manual					
Semi-skilled					
Unskilled	6	1532	0.11	0.04, 0.30	<0.0001

As glaucoma was not an identified eye disease, it did not have a local name. Also, it is not an easily recognizable condition. However, the level of awareness of glaucoma (3.6%) is considerably lower than reported in populations in developed countries.<sup>9</sup> An Australian population study found 93%<sup>7</sup> and a general eye clinic study in the United States found 72% overall.<sup>10</sup> Educated individuals (university level) were more likely to be familiar with the disease.<sup>10-12</sup> Occupational level and socio-economic status in general are related to education in this district. Thus, by inference, the majority of our study population have low levels of education, occupational prestige, and low socio-economic status. In the Glaucoma Prevalence survey<sup>6</sup> which was run concurrently with this study as many as 93% of newly-diagnosed cases were not aware that they had glaucoma. The Rotterdam study found less 52.9%,<sup>13</sup> and the Blue Mountains Eye Study 51%.<sup>14</sup> In Quigley's (1996) review, he reported that in developed countries, fewer than 50% of those with glaucoma are aware of the disease, and that in the developing world, the rate is even lower.<sup>9</sup> Glaucoma is a difficult disease to explain to patients in the local Ghanaian languages. There are no precise words for 'pressure' and 'nerve' in Twi. It is possible that some of the apparent 93% newly diagnosed cases may have been previously diagnosed, but they did not understand their condition or had forgotten. This hypothesis is supported by other studies which reported that 6 to 26% of patients under treatment for glaucoma were unfamiliar with the disease.<sup>10, 13, 15, 16</sup>

The low level of awareness of glaucoma in this district also makes it difficult to obtain a reliable family history of glaucoma. It appears that people would know medical conditions in their parents or children but not in other members of the extended family. Therefore, though glaucoma awareness is generally low, it is not surprising that less than 1% of the total population knew that primary open-angle glaucoma (POAG) runs in families. Previous studies have found a lack of family history of glaucoma to be associated with poor knowledge of glaucoma.<sup>3,7,10,17</sup> It is important that in addition to increasing awareness of glaucoma as the commonest cause of irreversible blindness in the population, its familial incidence is emphasized so that glaucoma patients can encourage other family members to be examined for early diagnosis.

A study to assess the prevalence and aetiology of blindness in Nigerian communities found that attributable causes of blindness were not representative in the perceived visual status (PVD) except for cataract. Indeed, glaucoma was not a reported cause of perceived blindness, but when the right eyes were examined 5% of the visually disabled and 43% of the whole community were blind from glaucoma.<sup>19</sup> There was also significant lack of appreciation of early functional visual impairment. Another study in Nigeria reported that

visual disability is left untreated for a long time before help is sought.<sup>20</sup>

## CONCLUSIONS

The awareness and knowledge of the target disease, glaucoma, was extremely low in the study population and was strongly associated with low occupational level due to low levels of education. The population was more familiar with cataracts, eye injuries and age-related blindness. Many other eye diseases and blindness are also related to 'kooko' the local name for haemorrhoids.

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