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Knowledge about Cataract and its Risk Factors among an Adult Population in the Cape Coast Metropolis, Ghana

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Abstract

Objective: The aim of the study was to assess the level of knowledge about cataract and its risk factors among an adult population in the Cape Coast metropolis, Ghana.

Method: A descriptive cross-sectional study involving 250 participants. Interview of participants was conducted using a structured questionnaire. The questionnaire was developed following the World Health Organization (WHO) guide on developing knowledge, attitude and practices (KAP) survey.

Results: Majority 52.80% of the participants was males; 54.00% of the participants were unemployed and 59.60% of the participants were either junior high or senior high school educated. Ages of participants ranged from 23 years to 75 years with a mean age of 49.57years. 85.60% of the participants were familiar with the term 'cataract'. Over half of the participants defined cataract correctly and were able to identify the most common symptom of cataract. Less than half (44.86%) of the participants correctly identified surgery as the standard treatment for cataract. Less than half of the participants were aware of sunlight (UV) exposure, diabetes, trauma, steroid use, smoking and heredity to each be a risk factor for cataract development. A statistically significant association was found between level of education and knowledge of cataract (OR=4.31, p=0.03332). Participants who had previously undergone cataract surgery were found to be more likely to know about cataract (OR=11.42, p=0.0908).

Conclusion: Overall, over 70% of participants had low knowledge of cataract. There is a dire need for public health educational programs to improve the level of knowledge and awareness in the study population.

Keywords: Knowledge; Cataract; Diabetes; Sunlight; Surgery; Risk factors; Age; Trauma

Introduction

Cataract is defined as the opacification of the crystalline lens. Symptoms of cataract include blurred/reduced vision, cloudy vision, glare, seeing haloes around light and inability to see in dim light [1]. Several risk factors have been identified to influence cataract development. The most common factors include increasing age, sunlight (UV) exposure, trauma, smoking, steroid use and genetics [2]. Most often interplay of two or of these risk factors influence the development of cataract in an individual.

The visual significance of cataract cannot be underemphasized. Left untreated, cataract can lead to blindness [3,4]. According to a World Health Organization (WHO) report, un-operated cataract accounts for 25% of the global visual impairment burden, second only to refractive errors which accounts for 53% of visual impairments. Un-operated cataract is the leading cause of blindness, accounting for 35% of the global blindness burden (WHO 2016).

Currently, the standard treatment for cataract is surgical extraction of the opacified lens with an implantation of an artificial lens [5-7]. Studies have shown that like other eye care services, even when cataract surgery options are available, they are generally underutilized [8,9]. One of the factors reported to contribute to underutilization of cataract surgical services is the lack of awareness of cataract and the surgical treatment option [10,11]. A study by Battle et al. reported lack of awareness of cataract and its treatment option and the cost of surgery to be the two main barriers to the uptake of cataract surgical services in Latin America [11].

The aim of the study was to assess the level of knowledge about cataract and its risk factors among an adult population in the Cape Coast metropolis, Ghana. The findings from this study would help improve on areas and ways of public awareness campaigns for cataract and its risk factors.

Methods and Materials

A descriptive cross-sectional study conducted in the Cape Coast metropolis, Ghana. According to the 2010 Population and Housing Census, population of the Cape Coast metropolis is 169,894 constituting 7.7% of the population of the Central region. Majority (77%) of the metropolis is urban, with about 23% being rural [12].

Using a lottery method of sampling, five (5) localities (Kwaprow, Akotokyir, Amamoma, Kakumdo and Nkanfoa) were selected out of the twenty (20) towns and settlements in the metropolis. Using simple random sampling, 50 participants were sampled from each locality, giving a total sample size of 250 participants.

Verbal consent was obtained from participants after the details of the study were thoroughly explained to them. Interview of participants was conducted using a structured questionnaire. The questionnaire was developed following the World Health Organization (WHO) guide on developing knowledge; attitude and practices (KAP) survey [13]. Data collected included demographics of the respondents, general knowledge about cataract, its presentation, effects, the risk factors associated with its development and treatment options available. For participants who could not read and understand English, the content of the questionnaire was read out to them in a dialect they understood (mostly Fante) and their responses were recorded accordingly.

The questionnaire was divided into two sections. The first sections measured mainly the demographics of participants and whether or not participants were familiar with the term 'cataract' before. Participants who answered YES to being familiar with the term 'cataract' before were asked to answer the second section of the questionnaire. The second section of the questionnaire assessed the knowledge about cataract, its risk factor and available treatment option. This section consisted of 13 questions. A participant was graded as having a high knowledge about cataract when he or she answered 10-13 of the questions correctly, moderate knowledge when he or she answered 5-9 questions correctly and low knowledge when he or she answered <5 questions correctly.

The data was analyzed using the Statistical Package for Social Scientists (SPSS) software version 20.0 and Microsoft Excel (2010). Proportional data were compared using Chi – Square test as well as odd ratios. At 95% confidence interval, p-values<0.05 were considered to be significant.

Results

Demographics		Participants [N (%)]
Gender	Male	132 (52.80)
	Female	118 (47.20)
Age (years)	21 – 30	73 (29.20)
	31 – 40	49 (19.60)
	41 – 50	41 (16.40)
	>50	87 (34.80)
Highest level of education	Non-school leaver	51 (20.40)
	Junior High	61 (24.40)
	Senior High	88 (35.20)
	Tertiary	50 (20.00)
Employment status	Employed	115 (46.00)
	Unemployed	135 (54.00)
State of lens	Normal	188 (75.20)
	Cataract	35 (14.00)
	Pseudophakes	27 (10.80)

Table 1: Participant Characteristic

Majority (52.80%) of the participants were males. Ages of participants ranged from 23 years to 75 years with a mean age of 49.57years. Majority (54.00%) of the participants was unemployed and the highest level of education of majority (59.60%) of the participants was either junior high or senior high school (Table 1). One hundred and eighty-eight (188, 75.20%) of the participants had normal, clear crystalline lens and 35 (14.00%) had lens opacities.

Two hundred and fourteen (85.60%) participants were familiar with the term 'cataract'. Of these 214 participants, 67 (26.80%) heard of cataract from health care professionals, 47 (18.80%) heard of it on the media, 29 (11.60%) heard of it from personal readings and 107 (42.80%) heard of it from friends and relatives.

What cataract is, the commonest symptom of cataract and the possibility of cataract leading to blindness were each correctly answered by 62.15%, 50.93% and 74.77% of the 214 participants respectively. The treatment option for cataract, coverage of cataract treatment by the National Health Insurance Scheme (NHIS) and the use of concoctions as alternative treatment for cataract were each wrongly answered by 55.14%, 69.63% and 65.42% of the 214 participants respectively (Table 2).

General Knowledge about Cataract		Participants [N (%)]
What is cataract?	Crystalline lens opacities	133 (62.15)
	Raised IOP	61 (28.50)
	Growth on the eye	20 (9.35)
Commonest symptom of cataract	Blurred/reduced/cloudy vision	109 (50.93)
	Ocular pain	82 (38.32)
	Itchiness	23 (10.75)
Can cataract lead to blindness?	Yes	160 (74.77%)
	No	54 (25.23)
What is/are the treatment option(s) for matured cataract?	Surgery	96 (44.86)
	Medication/ spectacles	118 (55.14)
Are you aware treatment for cataract covered under the NHIS?	Yes	65 (30.37)
	No	149 (69.63)
Are concoctions alternate treatments for cataract?	Yes	74 (34.58)

Table 2: General Knowledge about Cataract and Treatment Options

The risk factor for cataract development most known by the participants was increasing age. Majority (78.97%) of the participants reported knowledge of increasing as a risk factor for cataract development. Less than half of the participants knew diabetes, sunlight (UV) exposure, trauma, smoking and heredity to be a risk factor for cataract development (Table 3).

Overall, over 70% of participants had low knowledge of cataract and 4.40% had high knowledge of cataract (Table 4).

Although not statistically significant, participants older than 40 years were found to know more about cataract. There was a statistically significant relationship between highest level of education and

knowledge about cataract, with tertiary level educated more likely to know about cataract and its risk factors (p=0.0332). The relationship between participant's demographics and their previous knowledge of cataract is presented in Table 5.

Risk factors		Participants [N (%)]
Sunlight (UV) exposure	Yes	104 (48.60)
	No	110 (51.40)
Increasing age	Yes	169 (78.97)
	No	45 (21.03)
Diabetes	Yes	62 (28.97)
	No	152 (71.03)
Trauma	Yes	103 (48.13)
	No	111 (51.87)
Steroid use	Yes	50 (23.23)
	No	164 (76.77)
Smoking	Yes	54 (25.23)
	No	160 (74.77)
Heredity	Yes	73 (34.11)
	No	141 (65.89)

Table 3: Knowledge of common risk factors for cataract development

Grading	Participants [N (%)]
Low (<5 correct answers)	193 (77.20%)
Moderate (6-9 correct answers)	46 (18.40%)
High (10-13 correct answers)	11 (4.40%)

Table 4: Grading of Participants Knowledge about Cataract

Discussion

Majority (85.60%) of the participants were familiar with the term cataract. This is similar to the study of Lau et al. [14] and Katibeh et al. [15] in which over 90.00% of the participants were reported to be familiar with cataract. This is probably due to majority of the participants having some form of education. 79.60% of the participants had either high school or tertiary level education. Studies have established the relationship between educational status and level of knowledge about ocular conditions. Lau et al reported a statistically significant association between level of education and knowledge about both cataract and glaucoma [14].

Majority (62.15%) of the participants defined cataract correctly as "crystalline lens opacities". This is contrary to the study of which reported that majority of the participants could not defined cataract correctly [16]. Contrary to the report of Lau et al. [14] over 50.00% of the participants in this study were able to identify the common symptom of cataract. An explanation for the difference in finding between our study and that of Lau et al. might be the method of data collection. In our study close ended questions with three possible answers were used in elucidating participant's knowledge of cataract symptoms while in that of Lau et al., open ended questions were used. With the close ended nature of the questions used in our study, participants could have guessed answers to questions and might be a reason for the high percentage of participants with good knowledge about the symptoms of cataract [14].

Participants characteristics		OR (CI)	P-value
Gender	Male	1	0.4731
	Female	1.30 (0.64-2.66)	
Age (years)	≤ 40	1	0.1134
	>40	1.79 (0.87-3.69)	
Highest level of Education	Non-school leavers	1	
	High school	1.59 (0.71-3.56)	0.2613
	Tertiary	4.31 (1.12-16.53)	0.0332
Employment status	Employed	1	0.4435
	Unemployed	0.75 (0.36-1.56)	
State of lens	Normal	1	
	Cataract	1.59 (0.52-4.82)	0.4124
	Pseudophakes	11.42 (0.68-192.07)	0.0908

Table 5: Relationship between Participant Characteristics and Cataract Awareness

Less than half (44.86%) of the participants correctly identified surgery as the standard treatment for cataract. This means less than half of the participants appreciate the role of surgery in reducing blindness due to cataract. This could be a problem to cataract surgical uptake as the felt need for cataract surgery might be low within the population. Studies by Khandekar and Al-Harby [17] and Katibeh et al. [15] reported the contrary. In their studies over 50.00% of the participants knew of surgery as the treatment for cataract. Majority (74.77%) of the participants knew cataract could lead to blindness. This is a relatively high percentage of participants having knowledge about cataract leading to blindness in comparison to other studies conducted in developing countries. In the study of Katibeh et al. less than half (47.6%) of the participants were aware cataract can lead to blindness. Also, in the study by [16] over 70% of the participants were not aware cataract can lead to blindness.

Increasing age was the commonest risk factor for cataract development identified by the participants in this study 78.97% of the participants reported being aware of increasing age as a risk factor for cataract development. Contrary to the findings in our study [16] reported that less 30.00% of the participants in their study were aware of increasing age as a risk factor for cataract development. Less than half of the participants were aware of sunlight (UV) exposure, diabetes, trauma, steroid use, smoking and heredity to be a risk factor for cataract development.

A statistically significant association was found between level of education and knowledge of cataract and its related risk factors, with tertiary level educated participants about 4 times likely to have knowledge about cataract and its related risk factors than those

without any form of formal education (p=0.0332). Several studies have reported the association between level of education and knowledge about ocular conditions [14,15,18]. Although not statistically significant, participants who had previously undergone cataract surgery were over 11 times likely to know about cataract and its related risk factors than those with normal crystalline lens. Having had the conditions and undergone treatment for it, there is a high possibility these participants had come into touch with eye care professionals who might have explained the condition in one way or the other to such individuals.

Overall, over 70% of participants had low knowledge of cataract and 4.40% had high knowledge of cataract. This low knowledge of cataract, its risk factors and treatment options could be a potential barrier to utilization of available eye care services. Mehari et al. [19] reported lack of awareness of the availability of effective treatment as one of the major reasons for delayed cataract surgery. A study in Nigeria identified unawareness of cataract as a cause of blindness and lacks of knowledge about cataract services as the combined most important barrier to cataract surgery [20].

Conclusion

With over 70.00% of the participants having low knowledge of cataract, there is a dire need for public health educational programs to improve the level of knowledge and awareness about cataract in the study population.

Conflict of Interest

The authors have no conflict of interest to declare.

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