

Perspectives on Child Eye Health among Junior High School Teachers in Ledzokuku Krowor Municipality, Ghana

Abstract

Aim: More than 80% of the information children receive about the world comes from vision. This underscores the truth that good vision is important for a child's educational, physical and social development. The purpose of the study was to investigate the perspectives held by Junior High School teachers regarding child eye health.

Materials and Methods: In this descriptive cross-sectional study, a semi-structured questionnaire was administered to 346 teachers (mean age = 32.85 ± 9.72 years) in the Ledzokuku Krowor Municipality. Descriptive statistics was computed and Chi-squared tests were done at a 5% significance level to assess statistical significance of associations.

Results: The outcome of this study showed that out of a total of 346 respondents, 90% of them was knowledgeable in red eye, 82% were knowledgeable in refractive errors and 80% showed knowledge in eye injury. Ninety-three percent of respondents identified blur vision as the commonest symptom of an eye problem whilst 91% reported red eye to be the most obvious sign of an eye problem among children. There was statistically significant difference between academic qualification and respondents' knowledge on ocular conditions ($p=0.01$). Ninety-four percent of respondents were of the view that children with vision impairment can go to school and 94% of respondents agreed that poor vision can negatively impact a child's educational performance. With respect to preventive eye health practices, 84% of the respondents suggested regular eye examination at least once a year, 40% recommended vitamin A intake and 23% suggested facial hygiene.

Conclusion: Overall, teachers in this study had adequate knowledge on ocular diseases and healthy practices that promote good visual health. It is recommended that teachers, eye care professionals, the media and other stakeholders collaborate to intensify eye health education in educational institutions in order to achieve VISION 2020 goals.

Keywords: Perspective; Childhood blindness; Junior high school; Visual impairment; Ghana

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Abbreviations: HND: Higher National Diploma; LEKMA: Ledzoku Krowor Municipal Assembly; SSSCE: Senior Secondary School Certificate Examination; WASSCE: West African Senior Secondary Certificate Examination

Introduction

Although often trivialized, disorders of the eye affect a majority of the global population of all ages. There are an estimated 1.26 million blind children worldwide, of which approximately 33% live in Africa [1-3]. Each year, an estimated half a million children become blind, of whom 60% die in childhood. Notable among the causes of blindness and visual impairment among children are vitamin A deficiency, congenital cataract, corneal scarring from measles, use of harmful traditional eye remedies and microbial

infections from bacteria and viruses [4,5], most of which are easily preventable or treatable. Sub-Saharan Africa carries the greatest prevalence globally of childhood blindness at a rate of 1.24 blind children per 1,000 compared to 0.8 in India and 0.3 in Europe [4].

In Africa and by extension Ghana, there are inadequate eye care professionals which were described by Lewallen and Courtright [6] as "legendary". Also, societal myths and lack of information [7], limited resources [8], as well as recourse to harmful traditional healing methods [9] further aggravate the problem. Literature [10] indicates parents' negative perceptions, societal/cultural misconceptions, inadequate resources, absence of collaboration and coordination among low vision service providers and weak national support as barriers to service access and/or delivery. Child blindness has enormous socio-economic

impact at individual, family and societal levels with this impact being very high in impoverished families [11]. Since child eye health programs would yield significant economic and social returns [12], a number of scholarly papers and reports emphasize the need for such programs [13-15]. The purpose of the study is to investigate the perspectives of Junior High School teachers on child eye health in the Ledzokuku Krowor Municipal Assembly (LEKMA), Ghana.

Materials and Methods

Recruitment of study participants

The research site for this descriptive cross-sectional study was LEKMA. LEKMA can boast of a total of 123 Junior High Schools, with approximately 5,000 teachers and 20,000 Junior High School students. Sample size for this study was determined using Cochran's sample size formula for categorical data. Using a proportional variable ($p=0.5$) and an alpha level set at 95% confidence interval ($t=1.96$) with a precision (d) of 5%:

$$\text{Sample size (n)} = \frac{t^2(p)(1-p)}{d^2} = 384$$

However, since this sample size exceeds 5% of the teaching population ($5000 \times 0.05=250$), Cochran's [16] correction formula is applied to the sample size.

$$n_1 = \frac{n_0}{1 + \frac{n_0}{\text{population}}} = 357$$

A multistage clustered sampling was employed in this study to select the required sample size in January, 2016.

Data collection procedures

The tool used for the collection of data in this research was a self-administered semi-structured questionnaire. This questionnaire was used together demographic characteristics, information on the attitudes and knowledge of teachers on common eye diseases and conditions, signs and symptoms used by teachers to identify eye problems among children, source of information on ocular conditions and preventive eye health practices that teachers recommend to children. In order to ensure reliability and validity of this tool, a pilot study was conducted among 50 teachers in a different municipality. Inconsistencies in the design and content of the questionnaire were identified and rectified accordingly. Institutional approval was obtained from Department of Optometry and Visual Science, Kwame Nkrumah University of Science and Technology. After approval was sought from the District Education Officers and administrative heads of the participating schools, informed verbal consent was obtained from the study subjects. The study conformed to the principles of the Declaration of Helsinki.

Data analysis

A template of the questionnaire was designed on Microsoft Excel (2016; Microsoft, Redmond, WA) and the responses were entered into the template and imported into IBM SPSS statistics (version 23.0; IBM Corp, Armonk, NY) for analysis. Descriptive

statistics was computed and Chi-squared (χ^2) tests were done at a 5% significance level to assess statistical significance of associations obtained.

Results

Participants' demographics

A total of 346 participants out of an expected 357 took part in this study (96.92% response rate). The gender distribution was 55.49% (192) males and 44.51% (154) females. The mean age (\pm SD) of participants was 32.85 years (\pm 9.72). The demographics of respondents have been summarized in (Table 1) below.

Table 1: Demographic characteristics of respondents.

Demographics		Number (%)
Gender	Male	192 (55.49)
	Female	154 (45.51)
Age Group [YRS]	Below 20	22 (6.36)
	20-29	124 (35.84)
	30-39	124 (35.84)
	40-50	42 (12.14)
	50+	34 (9.83)
Marital Status	Married	164 (47.40)
	Single	182 (52.60)
Academic Qualification	Degree	104 (30.06)
	HND*	64 (18.50)
	Training College	78 (22.54)
	SSSCE†/WASSCE‡	100 (28.90)
Number of Years in Teaching	Under 1	28 (8.09)
	1-5	124 (35.84)
	5-10	102 (29.48)
	10+	92 (26.59)

Knowledge on common eye problems

Respondents were presented with a list of some common eye problems and were asked to indicate whether or not they had heard of or read on them. Most of the participants (89.88%) reported having knowledge on 'red eye' whiles pterygium was the condition least known by the respondents (7.51%). Respondents' knowledge on other ocular conditions is shown in Table 2. There was statistically significant difference between the age of respondents and knowledge on an ocular condition ($p=0.01$), with older respondents being more knowledgeable of eye problems. With respect to knowledge of ocular conditions by academic qualifications, a statistically significant difference ($p=0.03$) was detected in all ocular conditions; the higher the academic qualification, the more knowledgeable the respondent was. Respondents also identified the 'media' (60%), 'educational materials' (52%), 'health centers' (39%) and 'Relatives and Family members' (32%) as their source of information on eye conditions.

Table 2: Respondents' knowledge on common eye problems.

Eye Condition	Number of Knowledgeable Respondents (%)
Eye injury	277 (80.06)
Crossed Eye	114 (32.95)
Cataract	152 (43.93)
Corneal Ulcer	50 (14.45)
Refractive Error	284 (82.08)
Red Eye	311 (89.88)
Pterygium	26 (7.51)
Glaucoma	214 (61.85)
Low Vision	186 (53.76)

Teachers' identification of the signs and symptoms of eye problems in children

Respondents were asked to write in their responses on how they will identify a child with an eye problem (obvious signs) and/or some symptoms of eye problems (as reported by the children). Results are summarized into (Figure 1).

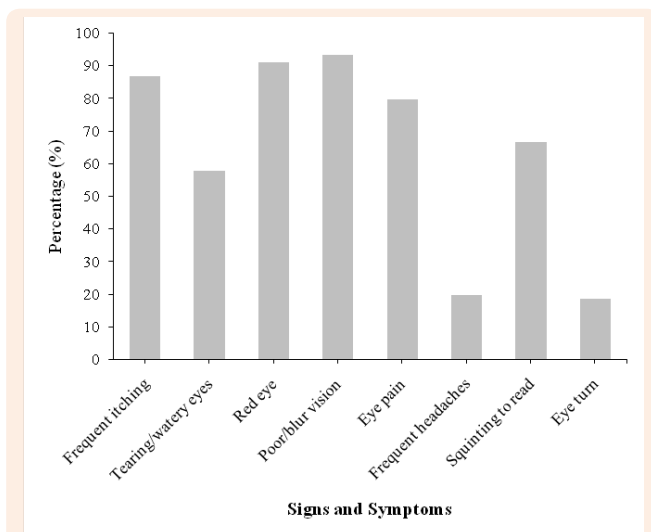


Figure 1: Respondents' knowledge on common signs and symptoms of eye problems in children.

Attitudes of respondents towards child eye health

In order to elicit teachers' attitude towards child eye health, a number of questions were directed to them. When respondents were asked whether or not children with visual impairments could go to school, 93% of respondents responded in the affirmative. Furthermore, 90% of the total respondents had no issues or objections to spectacle wearing among schoolchildren. Sixty-four percent of respondents answered 'Yes' to "Can

childhood blindness be prevented?". Out of the total respondents interviewed, 94% of the respondents indicated that poor vision can negatively impact a child's education.

Preventive eye health practices recommended by teachers to children

Finally, the most recommended eye health practice by respondents was "regular eye checkup by a professional" (84.39%) whilst the least advocated practice was "adequate room illumination for reading" (12.14%). Further findings are shown in Figure 2.

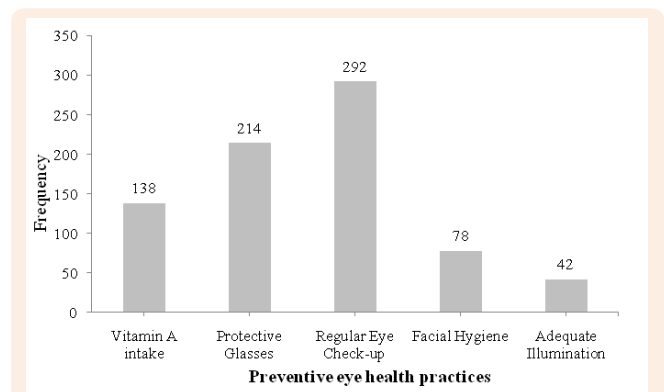


Figure 2: Preventive eye health practices recommended by teachers to children.

Discussion

In this study, we investigated the perspectives of LEKMA Junior High School teachers on child eye health. Previous studies by Ahmad et al. [17] and Mahmoud et al. [18] support the present study that school teachers had adequate knowledge on red eye, refractive error and eye injury. Knowledge on crossed eyes, cataract, corneal ulcer, pterygium, glaucoma and low vision were however relatively low. A comparison of this study with the Knowledge, Attitude and Practice survey [19] conducted in Cambodia in 2010 shows that the respondents in that study had far greater knowledge of pterygium (96% of respondents), cross eyed (94% of respondents) and cataract (85% of respondents) compared to this study. This disparity might have resulted from differences in the study population and study setting: majority of the respondents in the aging bracket (≥50 years) and about 90% of the respondents in rural areas. These subjects are more at risk of contracting anterior segment diseases than this study's subjects, thus explaining their increased knowledge/awareness [20]. Conversely, their study revealed poor knowledge of glaucoma (12%) as compared to this study (61.85%).

The trend of increasing knowledge on ocular conditions among respondents with increasing age in this study was also reported by Nirmalan et al. [13]. A plausible explanation could be that increasing age creates increased awareness of ophthalmic disease, as older people are more likely to have had an ocular condition. Again, in this study, there was a trend of increasing knowledge with increasing academic qualification. It can thus

be seen that education might inform the individuals of some eye conditions as Michielutte et al. [21] stated: “those with higher levels of educational attainment tend to be more knowledgeable about glaucoma”. Pfeiffer et al. [22] also found a similar trend among University graduates and groups with lower educational attainment. Similar sources of information on eye conditions are reported in the Ovenseri-Ogbomo et al. [23] study among slum in the Greater Accra Region of Ghana. This finding demonstrates the importance of the role the media has in eye health education.

Signs and symptoms identified by respondents indicated good awareness of ocular conditions. Similar signs and symptoms were reported by the Ghanaian populun in Raimai et al. [24]. However, greater awareness of signs and symptoms were reported in this study. This is not surprising as our study subjects are generally more educated than the general population. Most of the signs and symptoms identified in this study are due to the common ocular conditions (among school children) reported in the country: conjunctivitis and refractive error [25-28]. Results from the study were indicative of the fact that teachers had the right attitude towards child eye health. Evidence of correct attitude towards refractive error among teachers was reported in Armond et al. [14] even though these teachers had had no orientation on child eye health. Positive attitude towards spectacle wear reported in this study can help fight the negative perceptions and barriers against refractive error correction [26].

Again, the positive awareness of the association between vision and academic achievement among teachers in this study is backed by Hinkley et al. [29]. From the beginning, it can be inferred that these teachers had a fair knowledge of the determinants of optimum eye health and of the practices that would contribute to good visual health. The need for a regular eye checkup advocated for by teachers is a step in the right direction in the fight against childhood blindness as there is low utilization of regular eye examination by the children in the country [10,24,26].

Conclusion

Overall, teachers in this study had adequate knowledge on most ocular diseases and healthy practices that promote good visual health. Thus teachers have instrumental roles in the early detection of ocular diseases among school children, and referring them for appropriate management. It is recommended that the teachers, eye care professionals, the media and other stakeholders should collaborate to intensify eye health education in educational institutions in order to achieve VISION 2020 goals.

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