

The Prevalence of Primary School Students Eye Problems in Kut Province, Iraq

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Abstract

Blindness overall the world plus the impact of eye problems on the school performance represent a trouble of public health. More than 200 million individuals in the world present with a visual deficiency due to not corrected defects of refraction. The study aimed to estimate the prevalence of primary school students eye problems in Kut province, Iraq. It is a cross-sectional study in the primary education schools of the Kut province at a period of 6 months. The vision among some patients is so bad that they cannot even read the first line (6/60). A child who reads all the opto-types without hesitation in a vision of 6/6, without functional lesion nor organic noted (normal eye, i.e., Emmetropia). A child who does not manage to read the opto-types, this one will be subjected to the test with hole stenopeic so only the child improve his vision up to 6/6, the diagnosis of positive eye trouble (ametropia). Female was frequent than male (71% vs 29%). About 51% of patients aged between 6 - 9 years. and 49% of patients aged between 10 - 12 yrs. Of 500, 305 (61%) lived urban regions and 39% of child lived in rural areas. Positive past medical history found in 10%. Positive family history documented in 16%. Cases of the pupils who did not pause of eye trouble (emmetropia) 65% while those with eye trouble (ametropies) 35%. Ametropic student with poor results recorded in (107, 61.1%), while medium result presented in 29.1% of patients. High results reported in 9.8%. There are a significant difference between the pupils with eye trouble (ametropies) and those with normal vision (emmetropia).

Keywords: Eye trouble, Ametropies, Normal vision, Emmetropies, Primary school students

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Introduction

Blindness overall the world plus the impact of eye problems on the school performance represent a trouble of public health. Because large number of this eye troubles are not diagnosed in the time because of latency of appearance of disorders and the discretion of symptomatology; the techniques lacking tracking and medical (human staff, experiences and professional) [1-4]. More than 200 million individuals in the world present with a visual deficiency due to not corrected defects of refraction [3, 4].

A school-based cross-sectional study was conducted among school children of 6 to 18 years of age in Bahir Dar city from October to November 2019. A pretested interviewer-administered structured questionnaire was used to collect data among 634 participants using a multi-stage sampling technique from primary and secondary schools. Cycloplegic refraction was performed by optometrists for each student with 1% cyclopentolate eye drop, and subjective refraction was carried out to determine the final prescription of the students. Myopia was defined as spherical equivalent refractive error of ≥ 0.5 dioptre in either eye. Data were entered into Epi Info version 7 and exported to statistical package for social sciences version 23 for analysis. Tables, frequency, and mean were used for descriptive statistics. Bivariable and multivariable logistic regression analyses were done to identify risk factors of myopia. Among a total of 601 study participants, 51 (8.49%) were myopic. Age group of 10-13 years (AOR = 6.54; 95% CI = 5.56-10.86), 14-18 years (AOR = 6.32; 95% CI = 5.32-9.69), 2 - 4 h per day mobile exposure (AOR = 3.69; 95% CI = 1.63-8.38), > 4 h per day mobile exposure (AOR = 11.6; 95% CI = 4.41-30.42), near working distance of < 33 centimetre (AOR = 6.89; 95% CI = 2.71-17.56) and outdoor activity (AOR = 3.94;

95% CI = 1.87 - 8.31) were significantly associated with myopia. The prevalence of myopia was high among school children in Bahir Dar city. Older age, longer duration of mobile exposure, shorter near working distance were the risk factors for the development of myopia whereas having outdoor activity was the protective factor [3].

A cross-sectional school-based study design using stratified simple random sampling technique was used to select 349 high school students from 21 high schools in Hawassa city. A total of 349 participants having a response rate of 97% were involved with the mean age of 16.90 ± 1.32 years. Prevalence of myopia was 16.05% (95% CI = 12.6-20.1). Early age of schooling (adjusted odds ratio, AOR = 3.14; 95% CI = 1.16-10.06), parents being myopic (AOR = 8.46; 95% CI = 7.11-12.08), prolonged near work (AOR = 11.65; 95% CI = 2.11-64.5), short working distance (AOR = 10.90; 95% CI = 0.57-20.55), lack of outdoor sport activities (AOR = 7.37; 95% CI = 2.71-20.03) and visual display unit (VDU) usage (AOR = 8.36; 95% CI = 2.39-29.33) were variables significantly associated with myopia. The prevalence of myopia was high in the study area. Early age of schooling, parents being myopic, prolonged near work, short working distance, lack of outdoor sport activities, and visual display unit usage were variables significantly associated with myopia. There should be strategies to prevent visual impairments secondary to myopia with affordable optical corrections and appropriate use of visual display units [2].

Agarwal et al. [5] concluded that the myopia is an emerging public health problem in both urban and rural school going adolescents in India requiring urgent efforts.

In India, Das et al. [6] and Sood et al. [7] involved primary and secondary research conducted in five zones of MMR. The primary



research included interviews with the patients, eye care providers, and key opinion leaders. The secondary research included analysing data from the professional ophthalmology societies, public health domain, and health insurance providers. They divided people into three economic classes by annual income - low (< INR 0.3 m), middle (INR 0.31-1.8 m), and high (> 1.8 m). They analyzed the collected data to estimate the eye care demand-supply, quality of eye care, health-seeking behavior, gap in eye care delivery, and eye care expenditure. They examined 473 key eye care facilities and interviewed 513 people. The ophthalmologist density in MMR was 80/million, and it was the highest in North MMR. Most ophthalmologists visited several facilities. Cataract surgery and glaucoma care coverage were better than other specialties; it was poor for oncology and oculoplastic services. Annual eye examination practice was poor in the low- and middle-income groups than in the high-income group (48%-50% vs 85%). Most people preferred visiting eye care facilities within 5 km of their residence. Out-of-pocket spending was between 60% and 83%. Lower-income group people preferred public facilities. MMR eye care needs further improvement in affordable and accessible eye care, health literacy, public health surveillance, research into the application of newer technologies to provide less-expensive home care for the elderly and minimize their hospital visits, and collection and analysis of big data to address city-specific eye health issues.

A total of 3640 participants aged ≥ 60 years were recruited using cluster-random sampling. Demographic information, including presenting visual acuity, was measured using the standard rapid assessment of visual impairment (RAVI) protocol. Prevalence of avoidable VI was 30.2% (95% CI = 28.02-31.06; n = 1102). Among those who noticed decreased vision (n = 1074), only 392 participants (36.4%) reported that they felt the need for seeking eye care. The major barriers for not seeking eye care cannot afford the consultation fee and services (42.0%) and no escort (25.7%). Overall, the personal barriers (57.9%) were the major reason for not seeking care, followed by economic barriers (42.0%). No significant difference was reported in barriers between the participants with unilateral and bilateral VI (> 0.05). Overall, among the elderly people, personal and economic barriers were the major reason for not seeking eye care. Health care providers and policymakers should focus on newer models of eye care delivery to ensure better accessibility and uptake of care by the elderly people [8].

In Baghdad, 2540 diabetic cases selected from the specialized center for endocrinology and diabetes and the national center for treatment & research of diabetes in Al-Mustanseria College of Medicine from the 1st of January 2004 to the 31st of December 2005. It was found that the prevalence of eye complications in the study sample was 45.4%, 30.2%, 14.6 and 3%, for reduction in visual acuity, retinopathy, cataract and glaucoma respectively. These ocular manifestations are common and cause a significant deterioration in the vision. Age, family history, duration of diabetic disease, smoking, and presence of chronic diseases (hypertension&or ischemic heart disease), were found to be the main risk factors for the above complications which in turn lead to reduction in the visual acuity in diabetic patients. These ocular manifestations are common in diabetic patients and cause a significant deterioration in the vision. Regular ophthalmology, including slit-lamp examination, fundus examination and regular measurement of the intraocular pressure, are necessary for the early detection and management of potential complications [9].

Zakri et al. [10] concluded that retinal pathologies are the most common cause for blindness. The proportion of corneal scarring and congenital cataract is decreasing, and majority of cases had unavoidable or incurable blindness.

The eye troubles in the school children can influence their school performances negatively, these disorders if they are not diagnosed in time could also lead to blindness and become by there a problem of public health with like corollary the early loss of the youthful labour. So, the study aimed to estimate the prevalence of primary school students eye problems in Kut province, Iraq.

Methods

Studies design

It is a cross-sectional study in the primary education schools of the Kut province at a period of 6 months. The vision among some patients is so bad that they cannot even read the first line (6/60). That to make in this case: We can make bring the patient closer to the chart, one meter at the same time. If the patient can read the first line (6/60) but 5 meters only we write 5/60, if with 4 meters 4/60 and so on.

Sampling

$$\text{Sample size (n)} = p \times (1-p)Z^2 0.95/d^2$$

n: Sample size

p: Prevalence

Z: Z-score

d: Marginal error

Data collection

A child who reads all the opto-types without hesitation in a vision of 6/6, without functional lesion nor organic noted (normal eye, i.e. Emmetrope). A child who does not manage to read the opto-types, this one will be subjected to the test with hole stenopeic so only the child improve his vision up to 6/6, the diagnosis of positive eye trouble (amétropie). Surely examined must belong to a side. Enough often the astigmat has a problem of the axis horizontal which they confuse with the vertical axis.

Data analysis

The treatment consisted of the distribution of the data being reproduced on the forms in various categorizations or classification, then in their coding. We used the frequency, the percentage and the test of Chi-square like statistical measurement.

Results

Table 1 showed that the female was frequent than male (71% vs 29%). About 51% of patients aged between 6-9 yrs and 49% of patients aged between 10-12 yrs. Of 500, 305 (61%) lived urban regions and 39% of child lived in rural areas. Positive past medical history found in 10%. Positive family history documented in 16% (Table 1).

Table 1: Basic characters.

Variables	No.	%	
Sex	Female	355	71
	Male	145	29
Age	6-9	255	51
	10-12	245	49
Residency	Urban	305	61
	Rural	195	39
Past medical history	Yes	50	10
	No	450	90
Family history	Yes	80	16
	No	420	84



After having evaluated vision we noted what follows: Cases of the pupils who did not pause of eye trouble (emmetropie) 65% while those with eye trouble (Ametropies) 35%. Amétropies in the girls was more than in the boys (Table 2).

Table 3 shown the distribution of pupil's trouble in relation to school examination results. Ametropie student with poor results recorded in (107, 61.1%), while medium result presented in 29.1% of patients. High results reported in 9.8%.

Table 2: Prevalence of eye problems.

Variables	No.	%	
Eye trouble	Emmetropie	325	65
	Ametropies	175	35

Table 3: The distribution of pupil's trouble in relation to school examination results.

Results	No.	%
Poor	107	61.1
Medium	51	29.1
High	17	9.8

Discussion

In this study, female was frequent than male. Of 500, 305 (61%) ived urban regions. Positive past medical history found in 10%. Positive family history documented in 16%. After having evaluated vision we noted what follows: Cases of the pupils who did not pause of eye trouble (emmetropie) 65% while those with eye trouble (Ametropies) 35%. Amétropies in the girls was more than in the boys. Ametropie student with poor results recorded in (107, 61.1%), while medium result presented in 29.1% of patients. High results reported in 9.8%. Abayo et al. [11] concluded that most of the ocular diseases observed were either preventable or treatable. Health education to the community and establishing regular school screening program is recommended.

A nation-wide survey among schoolchildren in 2006 in Ethiopia found the overall prevalence of trachoma to be 13% [12]. Trachoma and xerophthalmia were found in (5.56%) and 5.85% children, respectively, in rural Tanzania, while Vernal conjunctivitis was the commonest abnormality found in Southern Western and south-eastern Nigeria schools. Differences in the types and magnitude of ocular morbidities among different localities can be due to various geographic, socioeconomic factors and show the importance of doing such studies to have baseline information and intervention [11].

Myopia occupied the first place, then the hypermetropie, in end the astigmatism. This will be able to require another study finally to determine the epidemiologic profile. The majority of children with eye trouble (ametropies) had poor tales compared to the normal children with vision; this is explained by the fact that the pupil who has a fuzzy vision, an eye trouble will not see well the writings or table, consequently, influences his manner of writing, to answer and on its performance especially if the parents and the teacher do not have the information of this eye trouble (emmetropies). This enabled us to apply the test of chi square and to release the only one of differentiation. This differentiation impacts negatively on the school service and the future labour [13].

Ocular morbidities are prevalent among the school children with trachoma, allergic conjunctivitis and refractive errors being the most common ones. Most of these ocular diseases observed were either preventable or treatable. If some of the disorders were not treated at the right time they may affect the child's performance in the school or may lead to blindness. Proper health education to the community in

general and school staff and student families in particular on the burden of the disorders and ways of prevention and treatment is recommended. Establishing regular school screening program is recommended to make the early diagnosis and treatment of childhood blindness sustainable in the district [11].

Sood et al. [7] conducted a cross-sectional study assessing eye-care utilization in the first 2 months after resumption of services and comparing that across the same time period in 2019. Four TCs and 60 VCs were included. Overall, outpatient attendance dipped 51.2% at TCs and 27.5% at VCs, across the 2 years. At both levels of care delivery, the percentage drop in females was more than that in males; however, the overall drop at VCs was less than that at TCs, for both sexes. Eye-care utilization in pediatric populations dropped significantly more than in adult populations, across the overall sample. There was no significant change in referrals for RE as a proportion of total outpatients, although there was a significant decline in the same for cataract and specialty treatment.

The majority of the vision abnormalities and VI among schoolchildren are a result of refractive error and are treatable. Our results highlight the importance of regular eye examinations for schoolchildren to detect and prevent VI. Raising awareness among parents, school staff and children about eye health is vital [14].

Conclusion

There are a significant difference between the pupils with eye trouble (ametropies) and those with normal vision (emmetropies).

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None.

Conflict of Interest

None.

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