

Utilization of eye care services among primary school children in urban Kerala

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Background: Visual impairment, a major health concern has three main reasons for high prevalence - non-availability, non-accessibility and non-affordability of eye care services. The poor utilization was highlighted as a concern because time interval between eye examinations was high enough for certain avoidable or curable ocular diseases to cause irreversible visual loss. Statistics relating to utilization of eye care services from Kerala and among the primary school children are few in literature. This study was conducted to estimate the pattern of utilization of eye care services for realizing the goal to reduce avoidable blindness by the year 2020. **Objective:** To assess utilization pattern of eye care services among primary school children. **Methods:** Cross sectional study in primary school children. **Results:** Only 35.15% of the students studying in the government and government aided schools had eye care services, their utilization was 94%. Utilization of the eye care service was 63% in the locality. Out of 1100 participants, 222 were not aware of the availability of ophthalmologist. In 523 students with symptoms, 196 (37%) had not consulted a doctor. The predictors for utilizing eye care services in locality were older students, children in private schools. **Conclusion:** Determining barriers to the use of eye care services is critical for planning strategies to prevent blindness, Health education and counselling can help overcome this problem.

Keywords: Primary school children, Utilization, Visual impairment, Eye care

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Introduction

Visual impairment (low vision and blindness) is a major health concern all over the world. Three main reasons for the high prevalence of visual impairment are non-availability, non-accessibility and non-affordability of eye care services. However, there are several factors that may act as barriers to the use of available, accessible and affordable eye care services. These include the lack of knowledge of the services, of the possible impact of an eye disease, and of whom to consult for management of eye diseases. Also, demographic, personal, social and cultural factors may influence or act as barriers to eye care utilization.

The poor utilization was highlighted as a concern because the time interval between eye examinations was high enough for certain avoidable or curable ocular diseases to cause irreversible visual loss. Early detection and management of eye diseases would reduce the burden of visual impairment and disability. Therefore, eye care providers and health care managers must have good knowledge of the various factors that would negatively influence utilization of eye care services and be responsive to them [1].

Health seeking behaviour as defined by Kasi and Cobb is any activity undertaken by individuals who perceive themselves to have problem or to be ill for the purpose of finding an appropriate remedy [2]. Therefore early detection and management of eye diseases would reduce the burden of visual impairment and disability. The interdependence of availability, accessibility and affordability needs to be recognized in providing eye care services. Besides improving eye care infrastructure and manpower, a major challenge to eye care will be to address the barriers preventing a large proportion of the population from utilizing existing services.

The ability to identify the factors affecting utilization of eye care services is important for policy makers, given the relationship between blindness and the postponement of timely eye examination. Fotouhi *et al* are of the opinion that the key factors in achieving the goals of Vision 2020 are eye care services and utilization. These imply that apart from manpower and infrastructure development, community programmes are needed to ensure utilization of eye care services [3]. According to Andersen health care services use is determined by societal, health service system and individual factors.

Individual factors include the need, enabling factors, and predisposing factors. These various factors interact to influence the likelihood of an individual's utilizing health care services [4-11]. These factors can also apply to the use of eye care services. According to Keeffe *et al* utilization of eye care services can be explained by a combination of predisposing, enabling, and need characteristics. Enabling factors encompass family and community resources and accessibility to those resources. The predisposing factors are those that exist before an illness and describe the propensity of an individual to use health care services, and they include age, gender, occupation, beliefs (such as attitudes towards health services), and knowledge about disease [12].

Considering good health indicators in Kerala state, one would expect higher detection & treatment rates, but this is not so [13]. Large proportion of subjects with visual impairment in the urban population in India did not seek treatment even after noticing decrease in vision. Data suggest that efforts have to be made to better understand the reasons for this phenomenon so that optimal utilisation of the available eye-care services in urban India can be planned [14]. Barriers to seeking treatment among those who had not sought treatment despite noticing a decrease in vision over the past five years were personal, economic, and social [15]. It is also found that a large proportion of people in the rural population of southern India who required eye-care are not utilising existing eye care services. Improved strategies to improve uptake of services is required to reduce the huge burden of vision impairment in India [16].

Statistics relating to utilization of eye care services from Kerala and among the primary school children are few in the literature. Hence the present study was conducted with the objective of estimating the utilization of eye care services and the factors associated with utilization among primary school children in urban Kerala, so as to plan and implement effective eye care services for realizing the goal to reduce avoidable blindness by the year 2020.

Materials and Methods

A cross sectional study was conducted to know the utilization of eye care services among the primary school children in November 2015. The study was carried out in North Paravur, a municipal area in Ernakulam District of Kerala.

The municipality has 29 wards with a population of 30,506 and 14 primary schools. Stratified Random Sampling Technique was used, to select four schools from the, total fourteen primary Schools in the Municipality. The schools were stratified into three; namely government, government aided and private. There were five governments, three government aided school and six private schools, from which two private, one government and one government aided School were selected using simple random sampling technique from each strata.

All children studying in classes 1-4 in the selected primary schools who were present on the day of survey formed the study population. Children whose parents were absent at time of survey were excluded from the study. The sample size for this cross sectional study was calculated to be 1100, using the formula z^2pq/d^2 and finding the prevalence of ocular morbidity to be 10% in a study done in neighbouring state Karnataka [17].

Pretested semi structured questionnaire was used to collect information on socio demographic variables and utilization pattern. Consent of the Principals of the selected schools was obtained personally and through them the consent of parents of the students was obtained. One of the parents was asked to be present at the time of examination of the students to get the required data and to obtain their written consent. The children were interviewed in the presence of the parents in the respective school premises.

Queries to the children were asked in the local language Malayalam, while information was filled in English language by the principal investigator. The data was tabulated using MS Excel and analyzed using SPSS version 11. Qualitative variables were summarized using percentage and proportion and association of the various factors were assessed by using Chi square test.

Results

Our study showed that various factors affect the utilization of eye care services. The availability of eye care services in the schools being an important one. School health services were available only in government and government aided schools.

Out of 1100 participants, 222 were not aware of the eye care services available in the locality. Out of 386 students who had eye care services 363 (94%) had utilized the services.

Only children who were absent on the day of eye examination 24(6%) had missed the yearly eye care visit by the doctor. We were informed that the School Health Examination is being held irregularly and some years, due to lack of availability of Junior Public Health Nurse (JPHN), it is not done at all. Table 1 shows the utilization pattern of health care by the children who are living in the area when they are inflicted with an eye disease.

Table 1: Utilization pattern of children with morbidity in locality (n=523 students)

Variables	Utilization of services		
	Ophthalmologist (%)	Paediatrician (%)	Not Consulted (%)
Boys =261	96 (36.8)	64 (24.5)	101 (38.7)
Girls =262	103 (39.3)	64 (24.4)	95 (36.3)
Socio-economic Status			
Upper	2 (33.3)	1 (16.7)	3 (50)
Upper middle	27 (44.3)	13 (21.3)	21 (34.4)
Lower middle	75 (26.9)	56 (27.6)	72 (35.5)
Upper lower	95 (37.5)	58 (22.9)	100 (39.5)
Fathers Education			
High School or above 318	174(54.7)	117(36.8)	27 (8.5)
Up to middle school 205	25 (12.2)	11 (5.4)	169 (82.4)
Mothers Education			
High School or above 436	180 (41.3)	85(19.5)	171(39.2)
Up to Middle School 87	19 (46)	43(49.4)	25(28.7)
School			
Private310	190(61.3)	20 (6.5)	99(32)
Government& government aided 213	9 (4.2)	108 (50.7)	97(45.5)

Out of 196 students who had not consulted any doctor, majority 169 (86%) of the study participants did not feel any reasons for consulting the doctor, in spite of having symptoms of eye diseases. Only 27 (14%) of study participants gave the following reasons for not consulting- not-affordable, not easily accessible, time consuming, doctors do not have enough facility.

Figure 1: Utilization pattern of eye care services in the locality

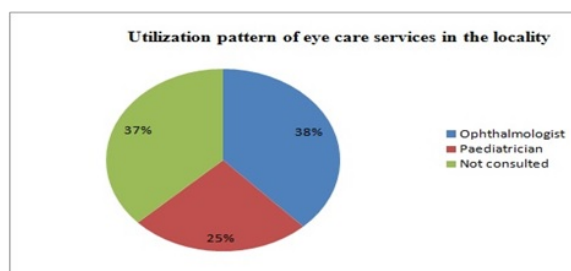
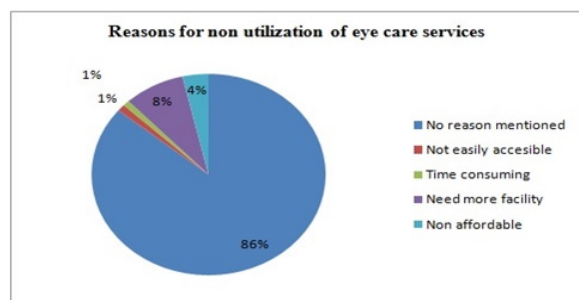


Figure 1 shows among the 523 participants who had symptoms in the past, only 199 (38%) utilized the services of an ophthalmologist, 128 (25%) consulted paediatricians and 196 children (37%) had not consulted either one.

Figure 2: Reasons for Non utilization of Eye care services



Out of the 327 participants who utilized the eye care services, 223 (68%) of parents were satisfied of the eye care services in the locality.

Table 2: Association of utilization pattern with the back ground characteristics

Characteristics	Utilization n= 327 (%)	Non Utilization n=196(%)	Chi square	p value
Sex				
Male (n= 261)	160 (61.3)	101(38.7)	0.332	0.565
Female (n=262)	167 (63.7)	95(36.26)		
Age groups				
8-12 years (n=262)	220(83.96)	42(16.03)	100.58	<0.001
4-7 years (n=258)	107(41.47)	151(58.5)		
Socioeconomic status*				
Upper (n=67)	43 (64.2)	24(35.8)	0.090	0.764
Lower (n=456)	284 (62.28)	172(37.7)		
Fathers education*				
High School or above (n=470)	291(61.9)	179(38.1)	0.734	0.392
Up to Middle School (n=53)	36(67.9)	17(32.1)		
Mothers education*				
High School or above (n= 436)	265(60.8)	171(39.2)	3.403	0.065
Up to Middle School (n=87)	62(71.3)	25(28.8)		
School				
Private (n=310)	211 (68.1)	99(31.9)	9.972	0.002
Government(n=213)	116 (54.5)	97(45.5)		
Father using glasses				
Father using glasses (n=191)	127(66.49)	64(33.5)	2.022	0.155
Father not using glass (n=332)	200(60.2)	132(39.8)		

Mother using glasses (n=126)	82(65.1)	44(34.9)	0.463	0.496
Mother not using glasses(n=397)	245(61.7)	152(38.3)		

*Kuppuswamy's classification (upper = upper & upper middle) (lower = lower middle & upper lower).

Discussion

In our study the utilization of eye care services in the school was 94 % but outside the school health, in the locality, only 63% utilized the eye care services in the past one year. Children of higher age groups and children studying in private schools were more likely to use eye care services. Among the 523 students who had symptoms of eye disease in the past one year, 63 % utilized the services of an ophthalmologist or a paediatrician in the locality.

One ninety six (37 %) children did not utilize the facility. Out of 196 who did not utilize, 169 (86%) of the parents of study participants had no reasons for not consulting a doctor in spite of having symptoms of eye diseases. Only 27 (14%) of study participants gave various reasons. The most common reason stated being lack of modern facility. No data is available on the utilization rate in children, due to lack of comparative study in India.

But studies among adult urban population of South India aged >15 years showed a non-utilization rate of 59%, compared to 37% in our study. The reasons for not seeking treatment were predominantly personal, followed by economic and social causes. Data shows that about 4.9 million in an urban area of south India did not seek treatment for visual impairment even after noticing decrease in vision [14].

In another study done in adult rural population of southern India, only 58.7% utilized eye care services. The rest felt the need to have eye examination but did not do so [18]. A finding which was similar to our study. Raliavhegwa found that only 39% of the respondents in a rural community survey in South Africa had their eyes examined within five years or more despite the accessible and affordable eye care services.

Factors such as cost, lack of awareness, cultural beliefs and personal factors were also identified as barriers to eye care utilization [8]. The reason for not utilizing eye care services were multiple, like non affordability, difficulty in accessibility, time consuming, lack of newer techniques and due to not getting relief from the symptoms.

Finding is similar to study done in urban population of south India [14]. Our study showed that majority of the parents preferred to go to the private hospitals because there were more facilities available. Access to eye care service can be measured by the travel time required by public transportation to reach the nearest eye care provider. Non-affordability and poor accessibility of the services have been identified as important causes of the high prevalence of blinding eye diseases [7].

In our study also these two factors of non-affordability and poor accessibility have been stated as reasons for non-utilization, but we have not done any follow up as a cohort to see if that led to blinding eye diseases. Robin et al states that, in both the developing and developed nations, finances can definitely influence the utilization of ophthalmic health care [19]. In our study also, non-affordability was one of the important factors in non-utilization of the eye care services.

The level of education of the parents did not influence the pattern of utilization of eye care services. This fact clearly shows that the concern of the parents towards their child's eye care is important for all the parents irrespective of the level of education. This is also shown in the study done among adults in a rural area [19]. There were studies done outside India to report factors associated with childhood eye-care utilization.

In Sydney, school children showed a utilization rate of only 29.2% and was not associated with gender, parental employment or home ownership or with ethnicities. It was also seen that parents who expressed concern about their child's vision was associated with a 10 fold increase in the utilization of eye care services, a finding similar to our study [20].

We found that the private school children utilized the eye care services in their locality more (68.1%) when compared to those children who studied in the government schools (54.5%). This could be due to the fact that there were no eye care services in the private schools, and the parents of children studying in the Private Schools could afford the private eye care for them.

It was also seen that children of higher age groups utilized eye care services more, a finding which is similar to the study done in the south Indian population Age had a positive correlation with utilization, showing that higher age groups utilized

The eye care facilities more compared to the lower age groups [19]. Studies have shown that the children of the developed countries, children of more educated mothers, and children living in higher income families were more likely to have utilized the eye care services [21]. In our study mother's education and income did not show any significant difference in eye care utilization. Consumer satisfaction is an important factor in sustaining utilization of health care and it has been reported that dissatisfaction is a barrier to eye care utilization [21]. The consumer satisfaction was 68% in our study population, and lack of satisfaction was one of the factors discovered for non-utilization.

Our study showed that in children whose parents were using glasses, the utilization rate was almost similar with those children whose parents were not using glasses. We could not find any other study where parents use of glasses status has been studied in context of utilization of eye care in their children.

In India the available resources cannot cope with the level of demand for eye care, and there are no widespread or national strategies for screening eye conditions as in western populations except for the testing of children's vision in government schools. This is usually to detect amblyopia and thereafter, at school to identify refractive errors [22].

Though in this study the utilization rate was 63% which is comparatively better than the findings in other studies, we have to keep in mind that this study was conducted in Central Kerala and may not reflect the scenario from all over the state. Ocular morbidity studies may provide us with data on illnesses, but to prevent those illnesses we need more utilization studies so the lacunae in health care can be exposed.

Screening of school children for ocular diseases is being done only in government schools studied by us. Private schools need to be directed and compelled to have a School Health Program as a part of their compulsory activity. Secondly, significant proportions of children are not going to the school in India, and are out of reach of our study. In future community based studies need to be designed to study the utilization rates and factors affecting it.

Recommendations: Regular annual eye screening, as a part of Annual School Health Check Up, should be done; not only in government schools but also in private schools.

Determining barriers to the use of eye care services is critical for planning strategies to prevent blindness, lack of faith and lack of concern on their child's symptoms influence the utilization of eye care services by the patients. These are the principal barriers that would have to be addressed if uptake of services is to be improved. Health education and individual counseling can help overcome this problem.

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