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Early Intervention Measures for Refractive Error

KEYWORDS: Early intervention,Refractive error,Visual impairment, Screening

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ABSTRACT • *WHO estimates that globally 285 people are visually impaired of whom 39 million are blind. 80 percent of visual impairment is avoidable and the two main causes of visual impairment in the world are uncorrected refractive error and cataract. 153 million people worldwide live with visual impairment due to uncorrected refractive errors. Refractive error is a very common eye condition. It cannot be prevented, but diagnosed by an eye examination and treated with corrective glasses or spectacles, contact lenses or refractive surgery. Early intervention can either remedy the existing problem or prevent the occurrence of the problem. Early interventional programmes during the early school years are of great importance for a disabled child.The aim of this study is to emphasize the importance and need for early intervention programmes in every school. Strategies such as vision screening programmes need to be implemented on a large scale to detect individuals suffering from refractive error blindness.*

Introduction:
Refractive error is a very common eye disorder which occurs when the eye cannot clearly focus the images from the outside world. It results in blurred vision, which is sometimes so severe that it causes visual impairment. According to 2010 data, WHO estimates that globally 285 people are visually impaired of whom 39 million are blind. 80 percent of visual impairment is avoidable and the two main causes of visual impairment in the world are uncorrected refractive error and cataract. 153 million people worldwide live with visual impairment due to uncorrected refractive errors. This data does not include the people living with uncorrected presbyopia, which is the loss of eye's ability to change its focus to see objects that are near. The prevalence of presbyopia is also likely to be quite significant.

Refractive error is a very common eye condition. It cannot be prevented, but diagnosed by an eye examination and treated with corrective glasses or spectacles, contact lenses or refractive surgery. If corrected in time by eye-care professionals and corrective measures are taken, it does not impede the development of good visual functioning. Corrective measures vary depending on the severity of the defect, age of the person and requirements in the area of work of activity performed. Cost-effective interventions such as spectacles to reduce the burden of the conditions exist in all countries.

The four most common refractive errors are myopia, hyperopia, astigmatism and presbyopia. Myopia or nearsightedness is difficulty in seeing distant objects clearly since the light comes to focus in front of retina. Hyperopia or farsightedness is difficulty in seeing close objects clearly. Astigmatism is distorted vision resulting from an irregularly curved cornea and does not focus light evenly onto the retina. Presbyopia leads to difficulty in reading or seeing at arm's length and it is linked to ageing.

School environment is recognized as the appropriate environment to conduct screening programmes for refractive error and to implement intervention measures to prevent visual impairment. Early intervention measures are of great significance to restore disability due to refractive error and intervention measures could be in the form of screening, awareness, education and therapeutic interventions. Screening programmes can be conducted by eye care professionals who could guide them for proper referral and treatment.

Early intervention can either remedy the existing problem or prevent the occurrence of the problem. Early interventional programmes during the early school years are of great importance for a disabled child. In the case of refractive error, it is also economical because it could be conducted in the community itself without much sophisticated machines. It is very essential because it promotes learning and functioning in their natural environment.

KEY WORDS:
Early intervention
Refractive error
Visual impairment
Screening

OBJECTIVES:
- To emphasize the importance and need for early intervention programmes in every school.
- To study the prevalence of refractive error in school children
- To create awareness among the school authorities and parents about the treatable visual disability.
- To prevent impairments or visual loss due to refractive error in school children
- To enhance the abilities of the child by providing assistive devices to the child.
- To highlight the significance of periodic vision check up and screening programmers in every school.

REVIEW OF LITERATURE
To assess the magnitude of the problem a study was undertaken among the school children aged 5 to 10 years in Kolkata. Detailed ophthalmological examination was carried out in the schools as well as in the Regional Institute of Ophthalmology, Kolkata. Among 2317 students examined, 582 (25.11%) were suffering from refractive errors,

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myopia being the commonest (n = 325; 14.02%). Astigmatism affected 91 children (3.93%). There is an increase of prevalence of refractive errors with increase of age.

In a study REFRACTIVE ERROR BLINDNESS IN YENAGOA, BAYELSA STATE, NIGERIA: A HOSPITAL BASED STUDY by I.R Azonobi, Department of Ophthalmology, Niger Delta University, Okolobiri Yenagoa, Bayelsa State, Nigeria it was found that in most societies, ignorance is a major obstacle to the correction of refractive error especially myopia, as most common objects is within their range of vision. There is therefore in such societies a large number of people that are blind due to refractive error. Uncorrected blindness and low vision due to refractive error may pose a risk to society as some may find themselves in occupation such as driving. Health education on the availability of accessible and affordable refractive error services is needed to stem the tide of needless blindness due to refractive error and avoid its potential danger.

Yousef Aldebasi in his study Young Public's Awareness to Refractive Error Deficiency found that there is an overall tendency to show that the general public is not aware of the problems concerning their visual health. This is even more so in those with basic intellectual levels. In order to reduce the impact of visual problems related to ignorance in society, certain steps directed towards the general public should be undertaken, such as information through media and publicity, public education, screenings for ametropia in schools and at work, government subsidies of optical equipments etc.

A population-based survey of the prevalence of major causes of blindness and visual impairment was conducted in Bisha region, Saudi Arabia by Al Faran MF, Al-Rajhi AA, Al-Omar OM, Al-Ghamdi SA, Jabak M. showed no less than 11% of visual impairment cases, of which 68% were of refractive origin. This is high in many ways, and the need to do something about it is urgent, especially when these conditions are preventable to a large extent. Awareness about refractive error and other eye problems and their treatment can play an important role in the prevention of blindness from common eye disorders. An informed public is also more likely to be sensitive to focused prevention programs and to comply with recommended treatment plans.

UNIVERSE AND SAMPLING

Thiruvananthapuram District was selected to conduct the research as it has a number of schools both in rural and urban area. One primary school in the urban area was randomly selected and all the students in the particular school were tested for refractive error.

TOOLS

The students were assessed by ophthalmic technicians and Ophthalmologists using snellen chart, Trial set and retinoscope.

METHOD OF DATA COLLECTION:

A diagnostic methodology was adopted in order to identify the prevalence of refractive error in school children and suggest remedial programmes.

Children from a Government primary school in Thiruvananthapuram district were screened by ophthalmic technicians and Ophthalmologists using snellen chart, Trial set and retinoscope. Children with refractive error were identified and the need for remedial programmes for these children was recommended.

RESULT AND DISCUSSION:

1. This study investigated the prevalence of children with refractive error in schools and found a correlation between uncorrected refractive error and age of the child. The prevalence rate was found to be 6%.
2. There is also no significant difference of refractive errors between boys and girls. Childhood visual impairment due to refractive errors is a significant problem in school children and has a considerable impact on public health.
3. In the age group 5–15 years, non-correction of refractive errors is due to several factors: lack of screening, ignorance of parents and teachers and the availability and affordability of refractive corrections and use of Television, computer and mobile phones at a very young age.
4. One of the most remarkable findings in this study is that refractive errors can go undetected or uncorrected in children and therefore early intervention programmes are significant for identification and treatment.
5. Providing services to individuals who need them after being identified with refractive error through vision screening is as important as the vision screening itself. Providing affordable and reasonable quality spectacles is crucial for the effective delivery of eye care services. The emphasis should not only be on the number of people screened, but on the number of people after screening who experience substantial improvement of vision with spectacles in such vision screening programmes.
6. The presence of refractive error implies that there is inadequate eye care services in the population concerned since treatment of refractive error is probably the simplest and most effective form of eye care interventions.
7. The barriers to refractive correction includes adequate number of trained personnel to carry out this reasonable and quality refraction, effective screening programmes to detect refractive error blindness in the population; provision of affordable reasonable-quality spectacles through development of permanent infrastructure for eye care in the underserved areas and in developing countries.
8. Ignorance of parents and teachers in identifying refractive error is the major cause for high prevalence of refractive error. Educating them through media or awareness programmes is the need of the hour and should be carried out by government and non governmental organizations.

Conclusion:

This research contributes to the literature by providing current knowledge about the need for early intervention of disability and will help educators, researchers, and policy makers establish measures for early identification of disability and its prevention. Strategies such as vision screening programmes need to be implemented on a large scale to detect individuals suffering from refractive error blindness. Correction measures such as use of spectacles and special education approaches will require attention in the context of comprehensive approaches to reduce all causes of avoidable blindness. As the cost of refractive corrections is still high compared with the personal and family resources in many regions, corrections must be accessible and affordable for people of all ages. When attention being paid to these issues with a comprehensive approach to reduce

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all causes of avoidable blindness long term success in reducing refractive error blindness would be achieved.

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