SPECTACLE-WEAR;
COMPLIANCE OF SPECTACLE-WEAR IN SCHOOL GOING CHILDREN OF MULTAN

Rashid Riaz¹, Mohammad Sher Zaman², Rao Rashad Qamar³

ABSTRACT… Background: Refractive errors are the most common cause of avoidable visual impairment in children worldwide. Importance of school screening of refractive errors is one of the most important initiatives outlined in WHO Vision 2025 targets. Corrected refractive errors visually rehabilitate the school going children. But the benefit depends on the compliance of the spectacle wear by children. Purpose: To study the compliance of spectacle wear and to highlight the reasons of non compliance in school going children of Multan. Study Design: Cross-sectional descriptive study. Setting: Ophthalmology Department, Nishtar Medical University Multan, Pakistan. Period: Jan 2009 to Oct 2012. Materials and Methods: 631 students. Among them 187 males and 175 female students were prescribed spectacles for constant wear during school screening program. Each student was given a pro forma indicating name, age, gender, prescription and column of reasons of non compliance. After six months, we conducted a follow-up visit where these students were accessed about spectacle compliance and reasons of non compliance on the given feedback pro forma from teachers. The data was collected and analyzed by SPSS version 20. Results: The overall non-compliance rate of spectacle wear in primary school children was 35.91%. A significantly higher proportion of boys 119 (57.14%) were not wearing their spectacles compared to girls 175 (54.86%). The main reasons for non compliance in primary school boys and girls were casual in wearing their spectacles, does not like to wear spectacles, break their spectacles frequently and some children feel spectacles are not needed or cause headache. Conclusions: Poor compliance of using spectacles was noted in our study among children with refractive errors with main reason for not using these spectacles was that they did not like to wear them. So there is need to adopt aggressive awareness campaign among teachers and parents to enhance their knowledge for better outcomes and visual improvement of the children. Screening of primary school children with refractive error was difficult task in Multan. Limited information was available on the magnitude of the compliance for spectacle wear and their reasons of noncompliance. This information is crucial for establishing a program and will strengthen the efforts for a better eye care in school children.

Key words: Spectacle Compliance, School Children, Multan, Pakistan.

INTRODUCTION
Visual survey in school going children is very helpful in detecting early refractive error.1-3 We can visually rehabilitate the children in early age and prevent their visual loss. Among top priorities of World Health Organization “Vision 2025 is the Right to Sight” for the correction of refractive error in children in low and middle income countries.4,5 About 13 million children worldwide have uncorrected refractive error.6,7 Therefore we need a comprehensive visual screening program for correcting their refractive error.5-10 Many efforts have been made to correct these in school going children.11,12 But we are unable to implement a compressive school screening program to correct the refractive error and see the compliance of spectacle wear in school going children.5,13-15 Therefore we need a comprehensive awareness program about importance of refractive error among school children, teachers and parents. Various programs have been adopted in attempts to resolve the issue of uncorrected refractive errors which is based upon vision testing in their schools and spectacle distribution programs.16-18
However, majority of these efforts have gone in vain due to lack of interest by implementing authorities and poor feedback systems.\textsuperscript{1-7,16}

\textbf{MATERIAL AND METHODS}

Ophthalmology department of Nishtar Medical University, Multan provides refractive services on annual basis for the students of junior grades in primary scales. This was a multicentre descriptive study. This study was carried during Jan 2009 to Oct 2012. A team of Ophthalmologist and Optometrist visited the various primary schools and screened the students for decreased vision. We followed WHO recommendations for prescribing spectacles. Vision was checked on Snellens chart for distance. Students with decreased vision were tested with pinhole during screening. In those students whose visual acuity improved with pinhole where refraeted. The cycloplegic refraction was performed with cyclopen in less than 6 years of age. The refraction was done without cycloplegia in students more than 6 years. Children with strabismus and/or amblyopia were referred to Ophthalmology Department Nishtar Medical University Multan for further evaluation and management. The children with myopic errors were given slight under correction. Children with esophoria and esotropia were given full cycloplegic correction. Sociodemographic variables of the students including; age, gender, level of class, types of refractive error and causes of non-compliance were noted on the pro forma.

A total of 631 primary school children from 20 different primary schools of Multan were included in this vision screening program. Of these 631 primary school children, 362 were found to have refractive errors and were given glasses for refractive correction. Of these 362 study cases, 187 (51.7\%) were boys while 175 (48.3\%) were girls. Mean age of these children with refractive errors was 8.52 ± 3.16 years, 34 (9.4\%) belonged to the age group of 4 – 7 years, 263 (72.7\%) belonged to 8 – 11 years of age group and 65 (18.0\%) were aged more than 11 years. Compliance was noted in 157 (43.3\%) while remaining 205 (56.6\%) were non-compliant. Main reasons for non-compliance was the children did not like to wear to glasses in 67.80 (139/205).

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|}
\hline
\textbf{Gender} & \textbf{Compliance} & \textbf{P-value} \\
\hline
 & Yes (n =157) & No (n =205) & \\
\hline
Male (n =187) & 80 & 107 & 0.833 \\
Female (n =175) & 77 & 98 & \\
\hline
Total & 362 & & \\
\hline
\end{tabular}
\caption{Stratification of compliance with regards to gender. (n = 362)}
\end{table}

\section*{RESULTS}

A total of 631 primary school children from 20 different primary schools of Multan were included in this vision screening program. Of these 631 primary school children, 362 were found to have refractive errors and were given glasses for refractive correction. Of these 362 study cases, 187 (51.7\%) were boys while 175 (48.3\%) were girls. Mean age of these children with refractive errors was 8.52 ± 3.16 years, 34 (9.4\%) belonged to the age group of 4 – 7 years, 263 (72.7\%) belonged to 8 – 11 years of age group and 65 (18.0\%) were aged more than 11 years. Compliance was noted in 157 (43.3\%) while remaining 205 (56.6\%) were non-compliant. Main reasons for non-compliance was the children did not like to wear to glasses in 67.80 (139/205).
DISCUSSION

Various studies have reported different reasons for spectacle non-compliance indicating variation from population to population among school children from different parts of the world. In most of these studies, commonly encountered reasons were casual behavior in wearing spectacles, lost or broken glasses or these were left at their homes, cosmetically unacceptable and are employed only for certain occasions. Spectacles provide good corrective option for visual impairment and may provide a new life the suffering children with these impairments.\(^{18-20}\)

It has already been established in different reports that such corrective measures taken for the management of these refractive error may improve significantly their ability to work, physical activity, productivity and respond. However, it is also established truth that some kids in school going ages don’t like to wear their spectacles due to many different reasons. Dictionary meanings of the word compliance refers to as “Obedience to a request or command”.

In our study which included 362 school children with visual impairment, we prescribed spectacles to these 362 primary school children with proper instructions regarding their use and possible benefits while hazards of not wearing those spectacles were also elaborated. However such activities are only useful when these school children having visual impairment were using them properly, hence showing proper compliance otherwise such efforts are ineffective.

Visual impairment has been reported to be associated with geographical distribution, social deprivation, gender, age and parental literacy as reported in many different studies.\(^{1-7}\) Mild to Moderate hypermetropia can be overcome by accommodation. The majority of the children were having poor far vision. Such conditions may have significant effect on socio-economic, academic efficacy which includes poor educational outputs, decreased physical activities like sports as well as social activities in these children having refractive errors.\(^{21}\) Similar to our results, showing poor compliance of spectacles use among primary school children, different authors have described similar trends from different parts of the world such as; “Mexico, U.K., China, U.S.A, India, Oman, South Africa and Brazil”\(^{1-7}\) showing compliance rates were only 50 – 60 % among school going children, in compliant with our findings. This means that, all such activities directed towards the entire programs leadings towards refraction and provision of spectacles to them was in vain. A study conducted by Aldebsi et al\(^{22}\) from Kingdom of Saudi Arabia has documented that compliance for spectacle use was more common in older students compared with younger ones while overall compliance rate was 60 %, our study results have also reported similar trends however this was not statistically significant association with regards to compliance with increasing age in these school children. Moreover all of our students were from primary school children where there was not much difference of age among

<table>
<thead>
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<th>Age Groups (In Years)</th>
<th>Compliance</th>
<th>P-value</th>
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<tbody>
<tr>
<td></td>
<td>Yes (n =157)</td>
<td>No (n =205)</td>
</tr>
<tr>
<td>4–7 (n =34)</td>
<td>19</td>
<td>15</td>
</tr>
<tr>
<td>8–11 (n =263)</td>
<td>107</td>
<td>156</td>
</tr>
<tr>
<td>More than 11 (n =65)</td>
<td>31</td>
<td>34</td>
</tr>
<tr>
<td>Total</td>
<td>362</td>
<td></td>
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Table-II. Stratification of compliance with regards to age. (n = 362)
these participants. In our study, compliance with spectacle use was not associated with gender as both boys and girls were not using them with comparable proportions (p = 0.833), which is contradictory to the findings of other studies who have associated compliance with gender. These findings point towards well directed awareness campaigns among parents and these young students to obtain desired outcomes in our population. Our study was conducted to find the compliance of spectacle wear among primary school children.

CONCLUSIONS
Poor compliance of using spectacles was noted in our study among children with refractive errors with main reason for not using these spectacles was that they did not like to wear them. So there is need to adopt aggressive awareness campaign among teachers and parents to enhance their knowledge for better outcomes and visual improvement of the children. Screening of primary school children with refractive error was difficult task in Multan. Limited information was available on the magnitude of the compliance for spectacle wear and their reasons of noncompliance. This information is crucial for establishing a program and will strengthen the efforts for a better eye care in school children.

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REFERENCES


“Possibilities don't add up, they multiply.”

– Paul Romer –

### AUTHORSHIP AND CONTRIBUTION DECLARATION

<table>
<thead>
<tr>
<th>Sr. #</th>
<th>Author-s Full Name</th>
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<th>Author=s Signature</th>
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