The Professional Medical Journal
www.theprofesional.com

DOI: 10.29309/TPMJ/18.4416

ORIGINAL PROF-4416

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

Rashid Riaz[1], Mohammad Sher Zaman[2], Rao Rashad Qamar[3]

1. FCPS, DOMS
Senior Registrar
Department of Ophthalmology
Nishtar Medical University, Multan.
2. Bs (Optometry and Orthoptic)
Department of Optometrist
DHQ Hospital Layyah.
3. MCPS, FCPS, FRCS,
Fellow Vitreoretina
HOD
Department of Ophthalmology
Nishtar Medical University, Multan.

Correspondence Address:
Dr. Rashid Riaz
Department of Ophthalmology,
Nishtar Medical University, Multan.
eyecareclinic@yahoo.com

Article received on:
05/04/2018
Accepted for publication:
15/10/2018
Received after proof reading:
03/12/2018

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.

Article Citation: Riaz R, Zaman MS, Qamar RR. Spectacle-wear; compliance of spectacle-wear in school going children of Multan. Professional Med J 2018; 25(12):1852-1856. **DOI:** 10.29309/TPMJ/18.4416

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.[8-10] 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.[1-7,16]

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 refracted. 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 identified in this vision screening program. Among them 362 had refractive errors, of which 187 (51.65%) boys and 175 (48.34%) girls were given refractive correction. We revisited the schools after 6 months to collect the pro forma from teachers regarding compliance, noncompliance and factors of noncompliance. From this information we assessed whether children were wearing their glasses or not. Then we accessed the data and highlighted the reasons of noncompliance on this pro forma. Compliance rate was reported in terms of frequencies and percentages.

The ophthalmologist and optometrist listed all students who were advised the use of spectales and was observed if the child was using spectacles in the class or not; if child had spectacles but not wearing it was defined as “non-compliant”. The data was analyzed using Microsoft Excel and SPSS version 20 and crude percentage values were calculated. Verbal consent of the school authorities was obtained on behalf of the children, to undertake this study. Non-compliant students were again advised to wear the spectacles regularly.

Local administration of these schools was also counselled for their discussion of such issues with the parents of these non-compliant students to make sure that all these students start wearing their spectacles regularly.

RESULTS

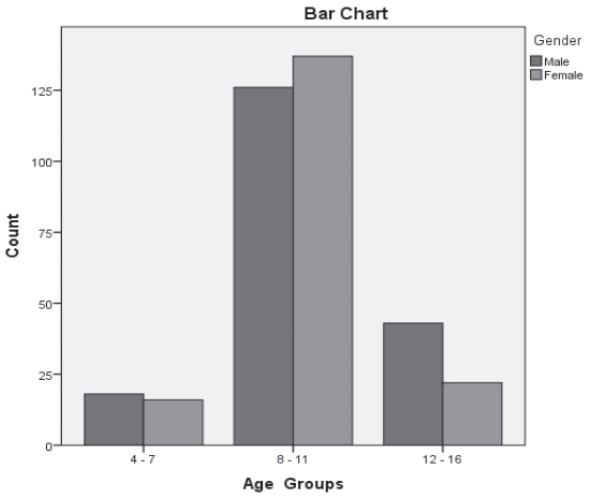
A total of 631 primary school children from 20 different primary schools of Multan were included in this vision screening program. Of these 631 primary school children, 362 were found to have refractive errors and were given glasses for refractive correction. Of these 362 study cases, 187 (51.7%) were 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).

Gender	Compliance		P-value
	Yes (n =157)	No (n =205)	
Male (n =187)	80	107	0.833
Female (n =175)	77	98	
Total	362		

Table-I. Stratification of compliance with regards to gender. (n = 362)

Age Groups (In Years)	Compliance		P-value
	Yes (n =157)	No (n =205)	
4–7 (n =34)	19	15	0.180
8–11 (n =263)	107	156	
More than 11 (n =65)	31	34	
Total	362		

Table-II. Stratification of compliance with regards to age. (n = 362)



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 Aldebasi 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

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.

REFERENCES

1. Malvankar-Mehta MS[1,2], Wilson R[3], Leci E[3], Hatch K[4], Sharan S[1]. **Cost and quality of life of overlooked eye care needs of children. Risk Manag Healthc Policy.** 2018 Feb 23; 11:25-33. doi: 10.2147/RMHP.S141659. eCollection 2018.

2. Jonas DE[1,2,3], Amick HR[4], Wallace IF[1,5], Feltner C[1,2,3], Vander Schaaf EB[6], Brown CL[7], et al. **Vision screening in children aged 6 months to 5 years: Evidence report and systematic review for the us preventive services task force.** JAMA. 2017 Sep 5; 318(9):845-858. doi: 10.1001/jama.2017.9900.

3. Morjaria P[1], Evans J[1], Murali K[2], Gilbert C[1]. **Spectacle wear among children in a school-based program for ready-made vs custom-made spectacles in India: A randomized clinical trial.** JAMA Ophthalmol. 2017 Jun 1; 135(6):527-533. doi: 10.1001/jamaophthalmol.2017.0641.

4. Morjaria P[1], Murali K[2], Evans J[3], Gilbert C[4]. **Spectacle wearing in children randomized to ready-made or custom spectacles, and potential cost savings to programmes: Study protocol for a randomized controlled trial.** Trials. 2016 Jan 19; 17:36. doi: 10.1186/s13063-016-1167-x.

5. Evans JR[1], Morjaria P, Powell C. **Vision screening for correctable visual acuity deficits in school-age children and adolescents.** Cochrane Database Syst Rev. 2018 Feb 15; 2:CD005023. doi: 10.1002/14651858.CD005023.pub3.

6. Liping Li, Yue Song, Xiaojian Liu, Bei Lu, Kai Choi ,Dennis S. C. Lam, Mingzhi Zhang, Mingwei Zheng, Yunfei Wang, **Abhishek Sharma and Nathan Congdon, Spectacle Acceptance among Secondary School Students in Rural China: The Xichang Pediatric Refractive Error Study (X-PRES)—Report 5 Invest Ophthalmol & Vis Sci July** 2008; 49:2895-2902.

7. Gogate P, Mukhopadhyaya D, Mahadik A, Naduvilath T J, Sane S, Shinde A, et al. **Spectacle compliance amongst rural secondary school children in pune,** Indian J Ophthalmol 2013: 61:8-12.

8. Keay L, Zeng Y, Munoz B, He M, Friedman DS. **Predictors of early acceptance of free spectacles provided to junior high school students in China.** Arch Ophthalmol 2010; 128:1328–34.

9. World Health Organization. **Elimination of avoidable visual disability due to refractive errors,** Report on informal planning Meeting WHO/PBL/00.79 pp2, 2000, 4, 46.

10. **Vision 2020 The right to sight: Global initiative for the elimination of avoidable blindness action plan 2006–2011.** Geneva, Switzerland: World Health Organization; 2007.

11. Resnikoff S, Pascolini D, Mariotti SP, Pokharel GP. **Global magnitude of visual impairment caused by uncorrected refractive errors in 2004.** Bull World Health Organ 2008; 86:63–70.

12. Horwood AM. **Compliance with first time spectacle wear in children under eight years of age.** Eye, 1998, 2, 173–178.

13. Ethan D, Basch CE, Platt R, Bogen E, Zybert P. **Implementing and evaluating a school-based program to improve childhood vision.** J Sch Health 2010; 80:340–5.

14. Yabumoto C, Hopker LM, Daguano CR, Basilio FM, Robl R, Rodrigues DB, Jimenez A, Moreira AT, Sakata LM, Sakata K. **Factors associated with spectacles-use compliance in a visual screening program for children from Southern Brazil.** Invest Ophthalmol Vis Sci 2009; 50:E-abstract 2439.

15. Odedra N, Wedner SH, Shigongo ZS, Nyalali K, Gilbert C. **Barriers to spectacle use in Tanzanian secondary school students.** Ophthalmic Epidemiol 2008; 15:410–7.

16. Khandekar R, Sudhan A, Jain BK, Tripathy R, Singh V. **Compliance with spectacle wear and its determinants in school students in Central India.** Asian J Ophthalmol 2008; 10:174–7.

17. Horwood J, waylen A, Herrik D, Williams C, Wolke D, **Common visual defects and peer victimization in children,** Invest Ophthalmol Vis Sci 2005; 46; 1177-1181.

18. Robaei D, Kifley A, Rose KA, et al **Refractive errors and pattern of spectacle use in 12 year old Australian children Ophthalmology** 2006; 113; 1567-73.

19. Coleman AL, Yu F, Keeler E, Mangione CM. **Treatment of uncorrected refractive error improves vision and specific quality of life.** J am Geriatric Soc 2006:54; 883-890.

20. Congdon N, Zheng M, Sharma A, Choi K,Song Y, Zhang M, Wang M, Zhou Z, Li L, Liu X, Lam DS. **Prevalence and determinants of spectacle non-wear among rural Chinese secondary schoolchildren: The Xichang Pediatric Refractive Error Study Report 3.** Arch Ophthalmol 2008; 126:1717–23.

21. Wedner S, Masanja H, Bowman R, Todd J, Gilbert C. **Two strategies for correcting refractive errors in school students in Tanzania: randomised comparison, with implications for screening programmes.** Br J Ophthalmol 2008; 92:19–24.

22. Aldebasi YH. **Public awareness to refractive error deficiency,** International journal of health sciences 5; 1, 2011:9-15299.

Possibilities don't add up, they multiply.

– Paul Romer –

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Rashid Riaz	Study planning, designing, paper writing and editing.	
2	Mohammad Sher Zaman	Study planning, designing, paper writing and editing.	
3	Rao Rashad Qamar	Data analysis, manuscript proof reading and editing.	