

# Barriers to compliance with the use of free-of-cost spectacles prescribed through door-to-door screening of children in urban slums of Delhi

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**Purpose:** Compliance with spectacles provided during school eye-screening programs has been low. The aim of this study was to assess compliance to free-spectacles provided to children via a door-to-door screening model and to ascertain the reasons for non-compliance. **Methods:** A cross-sectional study was conducted, including children aged 5–18 years, 3–6 months after spectacle prescription; vision screeners assessed compliance during unannounced visits via direct observation and parental enquiry. Full compliance was defined when a child was wearing spectacle at the time of visit, taking spectacles to school, and using them for  $\geq 4$  hours/day at home. Qualified compliance was considered if two of the above criteria were met, and non-compliance as one or no criteria met. Parents' and children's reasons for non-compliance were recorded using a mixed-type questionnaire, and spectacle quality was assessed. The association of compliance with age, gender, spectacle quality, parental education and occupation, parents' or siblings' use of spectacles, uncorrected visual acuity (UCVA), best corrected visual acuity, improvement of VA, and magnitude and type of refractive error was analyzed. **Results:** A total of 436 children, including 189 (43.3%) males, were included in the study. Full compliance, qualified compliance, and non-compliance were observed in 297 (68.1%), 34 (7.8%), and 105 (24.1%) children, respectively. Common reasons for non-compliance were unsatisfactory vision with the spectacles, dislike for the frames, watering eyes, and headache. Factors affecting compliance included spectacle quality, distance UCVA in the worse eye, father's education, and mothers' occupation. **Conclusion:** Compliance to spectacles in a door-to-door screening model was 76%. Quality of the spectacles was the most important determinant of compliance.

**Key words:** Community eye health, pediatric eye screening, refractive error, spectacle compliance

Uncorrected refractive error is an important cause of vision impairment globally, affecting 157 million people in 2020.<sup>[1]</sup> In India, uncorrected refractive error accounts for 19.7% of the blindness.<sup>[2]</sup> The prevalence of refractive error among children in India is estimated to be 8%.<sup>[3]</sup> The unmet need of refractive error correction was found to be ranging from 3.6% to 10.8% in different geographical regions of India.<sup>[4,5]</sup>

Appropriate spectacle prescription is an inexpensive and feasible method to bridge this gap of uncorrected refractive error. Several government schemes and non-profit organizations' pediatric eye care projects aim to prevent visual impairment from uncorrected refractive errors by providing free-spectacles to children.<sup>[6–8]</sup> However, poor compliance to the prescribed spectacles defeats the entire purpose. The compliance to spectacle use in children with refractive errors varies from 29.5% to 80.1% in studies from India and elsewhere when the beneficiaries had to pay for the spectacles.<sup>[9–12]</sup> Removing the financial barrier by provision of spectacles at no cost led to a better yet suboptimal compliance.<sup>[6–8]</sup>

Most of the previous studies assessing spectacle compliance were school-based, wherein both spectacle provision and

assessment of compliance were done in the schools, in the absence of parents/guardians. The COVID pandemic provided us with an opportunity to design a program of pediatric eye screening based on home-based evaluation.<sup>[13]</sup> We aimed to evaluate the compliance to spectacles provided free-of-cost to children via this door-to-door model of eye screening and understand the influence of parental involvement. The factors affecting the compliance with spectacles and the reasons for non-compliance stated by both the parents and the children were analyzed.

## Methods

The study was a cross-sectional questionnaire-based study. It was incorporated in the program – “comprehensive child eye health program in urban slums of Delhi during COVID”, funded by the United States Agency for International Development (USAID). It was approved by the Institutional Review Board (IRB/2023/FEB/140) and adhered to the tenets of Helsinki. It comprised of door-to-door screening of all children in the catchment area of a vision center of Dr Shroff's Charity

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Eye Hospital, located in Bhajanpura, New Delhi. Teams of vision screeners and counselors performed vision assessment using the PEEK acuity application at the doorsteps of the beneficiaries. They advised the parents of screening-positive children regarding the importance of a detailed ophthalmological evaluation. Children having vision  $\leq 6/9$  (0.2LogMAR) were referred to the vision center. Retinoscopy and subjective refraction were performed by a vision technician at the vision center. Cycloplegic retinoscopy was performed in complex refractions (myopia  $>4D$ , hyperopia  $>2.5D$ , cylinder  $>3D$ ), fluctuating retinoscopic reflexes, and in children where a subjective refraction failed to improve the vision beyond 6/9.<sup>[14]</sup> Such children were called during the pediatric ophthalmologist's visit at the vision center, and a written consent was taken for cycloplegic examination. The pediatric ophthalmologist performed complete ophthalmological examination, including fundoscopy in these children.

All children requiring spectacles were provided with them free-of-cost (supported by USAID). The prescription was guided by the International Agency for Prevention of Blindness (IAPB) recommendations (3.2: Refractive error management – The International Agency for the Prevention of Blindness [iapb.org]). According to these IAPB guidelines, spectacles were prescribed in all types of refractive errors, when an improvement of two or more LogMAR lines was noted in either eye. In the presence of amblyopia, the amblyogenic nature of the refractive error and the age was considered while prescribing spectacles. Additionally, noticeably improved eye comfort especially in the presence of asthenopic symptoms was also considered in some children. The vision technician and the pediatric ophthalmologist counseled the parents regarding the benefits of spectacles in their child and the need for compliant use. The parents selected the frame in the presence of the child from the limited range of choices provided in the program.

#### Sample size calculation and sampling plan

Sample size was calculated based on the compliance found in previous school-based studies and expecting a compliance of 50% in our study. To estimate a population proportion with a 95% confidence interval of  $\pm 5\%$ , the minimum required sample size was 385, rounded off to 400. It was assumed that the sample is drawn using simple random sampling without replacement. Considering a 20% attrition rate, the sample size for the study was kept as 480. Children between the age group of 5–18 years who had been prescribed spectacles 3–6 months prior to initiation of the study were identified from the electronic medical records of the vision center. Five hundred such records were randomly selected using a random number generator tool of Microsoft excel.

#### Assessment of compliance

One vision screener and one counselor were trained for home visits, data collection, and questionnaire administration. The visit to the patients' houses was conducted unannounced during non-school hours. The questionnaire was administered after informed consent. The questionnaire consisted of closed-ended questions, except one open-ended question [Appendix 1]. The key elements of the questionnaire aimed to assess the compliance to spectacle usage by the child, the reasons for non-compliance considering both the child's and the parent's perspective and the factors affecting compliance.

The examiners observed whether the child was wearing the spectacles at the time of the visit. They assessed the quality of the spectacles with respect to scratches on the optics (using reference photographs, Fig. 1), alignment of the frame, integrity of the frame, and fitting of the frame on the child's face. Moderate and severe grades of scratches were considered poor quality and visually significant.

Thereafter, the examiners assessed vision with the spectacles using PEEK acuity application.

Compliance to spectacles was defined based on the following factors.

- The child was wearing the spectacle at the time of home visit.
- The child was using spectacles  $\geq 4$  hrs/day, while at home.
- The child was wearing the spectacle while going to school.

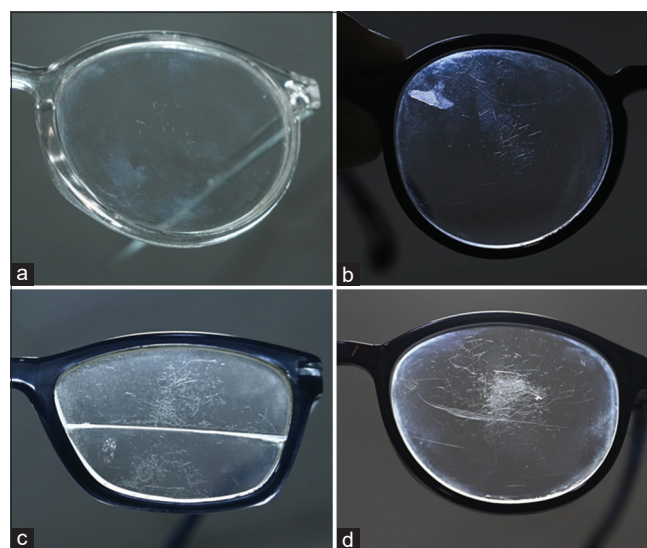
A child was considered compliant to spectacles if at least two of the above-mentioned criteria were satisfied. When all three criteria were met, the child was considered fully compliant. Qualified compliance was considered when two of the three criteria were satisfied. When one or no criteria were satisfied, the child was considered non-compliant.

#### Statistical analysis

The compliance rate of spectacle use was reported by a percentage. We assessed the factors affecting spectacle compliance in children, including age, gender, father's education, mother's education, parents' occupation, parental and sibling's use of spectacles, type and magnitude of refractive error, change in visual acuity (number of LogMAR lines) with spectacles, uncorrected distance visual acuity (UDVA) in the better and the worse eye, best corrected visual acuity (BCVA) in the better and the worse eye, and the quality of the spectacles. Univariate and multivariate analysis were used to assess the factors affecting compliance.

## Results

A total of 436 children were included in the study, comprising



**Figure 1:** Reference photos showing the different grades of scratches on optics of the spectacles. (a) represents no or minimal scratches, (b-d) represent mild, moderate, and severe scratches, respectively

of 247 (57%) females and 189 (43%) males. Sixty-seven children out of the 500 visited were unavailable at the time of the home visit, resulting in a response rate of 87.2%. Overall, 331 (75.9%) children were compliant to spectacle use. This included 297 children (68.1%) with full compliance and 34 children (7.8%) with qualified compliance. Non-compliance was observed in 105 (24.1%) children.

Three hundred and one (69.4%) children were found to be wearing spectacles upon direct inspection at the time of the home visit. Two hundred and forty-one children (55.5%) wore spectacles at home for  $\geq 6$  hours/day, 87 (20%) wore it for 4 to  $< 6$  hours/day, 39 (9%) wore it for 2 to  $< 4$  hours/day, and 40 (9.2%) wore it for  $< 2$  hours/day. Twenty-seven children (6.2%) did not wear their spectacles at home. The activities during which the children wore spectacles were reading (82.5%), watching television (76.5%), and playing outdoors (63.5%). Additionally, 81.3% of children wore the spectacles while going to school.

Fig. 2 shows the reasons for non-compliance reported by children and parents. The most common reasons provided by the children and parents were unsatisfactory design or color of the frame, unsatisfactory vision with the spectacles, headache with the spectacles, or watering after wearing the spectacles. Additionally, 10.4% of parents wanted to take a second opinion regarding the need for spectacles.

Overall, 80% of non-compliant children stated more than one reason for non-compliance. Two, three, four, and five reasons were stated by 19, 39, 19, and five children, respectively. No reason was provided by one child. Among the compliant children, 35% ( $n = 116$ ) also had some complaints pertaining to spectacles. The most common complaints among the compliant children were also pertaining to the spectacle frame color or design (18.73%). Other complaints were watering (9.6%), headache (7.9%), not happy with vision (6.7%), discomfort (3%), teasing by other people (2%), itching (1.8%), redness (1.5%), broken spectacles (1.2%), broken frame (1%),

irritation (0.3%), headache due to tight frame (0.3%), and parental restriction (0.3%).

The reasons for non-compliance by the 105 children were analyzed in subgroups of age and gender. The age groups considered were  $< 6$  years (Group A), 6–12 years (Group B), and  $> 12$  years (Group C). The complaint of broken spectacles showed a linear relationship with age, being most common in the youngest age group ( $P = 0.017$ ). However, the broken frame as a reason for non-compliance was not found to be statistically different between the three groups ( $P = 0.134$ ). Group B (6–12 years) was most affected by the teasing by peers ( $P = 0.002$ ). The reasons for non-compliance did not differ between the female and male children.

Tables 1-3 compare the various factors among compliant and non-compliant children. Children who had UDVA of 6/9 (0.2 logMAR) or worse in the better eye showed better compliance to spectacles ( $P = 0.001$ ). Similarly, children with UDVA of  $\leq 6/12$  in the worse eye were more likely to be compliant with the spectacles ( $P < 0.001$ ). The children who had more lines of improvement in vision with the spectacles had better compliance. It was observed that an average improvement of logMAR 0.4 lines in the BCVA increased the odds of compliance by 4.19 times. This was not statistically significant ( $P = 0.152$ ) in the multivariate analysis. The compliance was not affected by the type of refractive error.

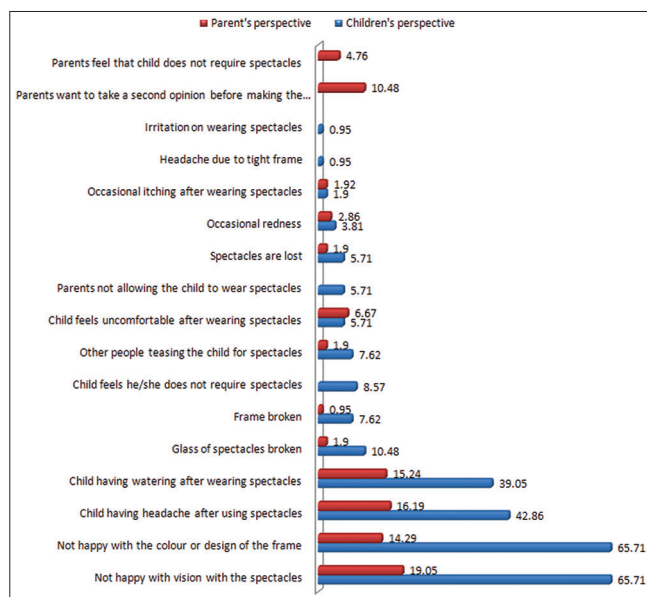
The quality of the spectacles was good at the time of the home visit in 53.2% of children. The spectacle quality issues noted in the rest of the children were extensive scratches hampering vision (32.8%), ill-fitting/misaligned frame (17.7%), too large frame (11.9%), broken frame (4.6%), and too small frame (4.1%).

Multivariate analysis showed that the quality of the spectacles was the most important factor affecting spectacle compliance. Among the spectacle quality parameters, an ill-fitting or misaligned frame was the most important factor (OR = 0.004,  $P < 0.001$ ), followed by too small frame (OR = 0.019,  $P < 0.001$ ), too large frame (OR = 0.022,  $P < 0.001$ ), and broken frame (OR = 0.113,  $P = 0.029$ ). Another factor affecting compliance was UDVA in the worse eye, which when worse than 0.2 logMAR, the odds of a child wearing spectacles were 8.55 ( $P = 0.032$ ). Children of working mothers were better compliant with spectacles compared to those with home-staying mothers (OR = 7.05,  $P = 0.051$ ).

## Discussion

We studied the compliance with free-of-cost spectacles provided via a door-to-door screening program to understand whether the direct involvement of the parents during the eye-screening process influenced the compliance. We conducted the compliance questionnaire at home and took feedback from both the parents and the children, to understand the spectrum of reasons for non-compliance from both these types of respondents.

In most of the prior school-based studies, a child was considered compliant to spectacles if he/she was wearing spectacles at the time of an unannounced visit by investigators or had the spectacles in the bag.<sup>[6,7,9,11,12,15]</sup> In a few others, compliance was ascertained by asking children regarding their patterns of spectacle use.<sup>[6,11]</sup> We defined compliance based on three criteria: the number of hours of spectacle usage at home,



**Figure 2:** Reasons for non-compliance with spectacles as reported by the 105 non-compliant children and their parents. The numbers represent percentages. Multiple reasons were also stated by one respondent



**Table 1: Sociodemographic and parental factors among the compliant and non-compliant groups**

Variables	Compliant (n=331)		Non-compliant (n=105)		P <sup>§</sup>
Age (years, mean±SD)	13.7 (±3.7)		11.6 (±4.0)		<0.001
Female:Male ratio	188:135		51:53		0.113
	n	%	n	%	
Father's education					
Not literate	18	5.5	6	5.7	0.008
Primary	82	24.9	14	13.3	
Secondary	71	21.5	31	29.5	
Higher secondary	111	33.6	45	42.8	
Graduate	48	14.6	8	7.6	
Postgraduate	0	0	1	1	
Mother's education					
Not literate	72	21.8	18	17.1	0.323
Primary	121	36.6	32	30.5	
Secondary	74	22.4	33	31.4	
Higher secondary	59	17.8	20	19.1	
Graduate	5	1.5	2	1.9	
Postgraduate	0	0	0	0	
Parents wear spectacle	70	21.2	22	21	1
Siblings wear spectacles	78	23.6	23	21.9	0.514
Father's occupation					
Daily wage laborer	249	75.5	80	76.2	0.436
Own business	78	23.6	24	22.9	
Private job	3	0.91	0	0	
Government job	1	0	1	1	
Mother's occupation					
Daily wage laborer	66	19.9	15	14.3	0.278
Own business	3	19.9	2	1.9	
Private job	0	0	0	0	
Government job	0	0	0	0	
Housewife	262	79.2	88	83.8	

SD – Standard deviation, <sup>§</sup>Fischer exact test/Univariate analysis

direct inspection of a child wearing spectacle at the time of the home visit, and the child wearing the spectacles while going to the school. Choosing a composite criterion provided a more comprehensive assessment of the actual use of spectacle by the children.

The compliance rate observed in the current study was higher than most of the published school-based studies from India.<sup>[6-11]</sup> Gajiwala *et al.* found 29.8% of the 971 children to be compliant after two years of spectacle dispensing.<sup>[6]</sup> Similar compliance rates were observed by Gogate *et al.*<sup>[7]</sup> (29.5%), after follow-up of 6 months to 1 year, Rustagi *et al.*<sup>[10]</sup> (37% boys and 45% girls), and Bhatt *et al.*<sup>[9]</sup> (39%) at the end of 3 months. While the former two studies<sup>[6,7]</sup> provided free-of-cost spectacles to the students, the latter two<sup>[9,10]</sup> required the students to buy the spectacles on their own. Another approach of subsidized spectacles was adopted by Gupta *et al.*,<sup>[16]</sup> where compliance of 65.5% was noted at the end of 1 year. Despite the differences in monetary requirements, duration of follow-up after spectacle

prescription, and the age range of the patients, the compliance rate was found to be similar in these studies.

In all prior studies, both the spectacle prescription and compliance assessment were conducted in schools in the absence of parents/guardians unlike the current study. The presence of the parent/guardian in the current model provided us with an opportunity to counsel them regarding the benefits of spectacles for child's overall performance. They could directly observe the improvement of the child's vision on the vision chart during the testing process. Another advantage of the door-to-door model was that all the refractions were performed in a vision center under standard clinic-like conditions and included a cycloplegic retinoscopy whenever in doubt. This could have improved the accuracy of the refraction and hence the compliance with the spectacles. Few previous studies had a provision of cycloplegic refraction prior to spectacle prescription.<sup>[11,15-17]</sup>

Pawar *et al.*<sup>[8]</sup> showed a high rate of compliance (74%) in their school-based study, which is comparable to our study. In their study, children with high myopia, strabismus, and high astigmatism were referred to the base hospital. It is possible that the parents were involved during the process of spectacle prescription in the patients referred to the base hospital, influencing compliance.<sup>[8]</sup> The compliance to spectacles in school-based studies conducted in other countries ranges from 13.9% to 68.3%.<sup>[17,18]</sup> Appendix 2 provides a summary of prior literature of spectacle compliance among children and compares it with the current study.

The common reasons for non-compliance stated by the children in the current study were unsatisfactory vision with the spectacles or unsatisfactory color and frame of the spectacles. We evaluated the reasons provided by the parents also, which had not been done in the school-based studies before. Parents perceived similar reasons to those of the children, with an additional 10% of parents wanting to defer spectacles until a second opinion. The reasons for non-compliance stated in the previous studies include unsatisfactory design of frame,<sup>[6,19]</sup> lack of awareness regarding benefits of constant use of the spectacles,<sup>[11,20]</sup> and teasing or bullying by peers.<sup>[6,7,9-11,18,21]</sup>

In the current study and few other prior studies, older children have been found to be more compliant with spectacles.<sup>[7,22]</sup> The reason could be frequent breakage of spectacles or poor understanding of the utility of spectacles in younger children. On the contrary, one study has found better compliance in the younger children, wherein the older children had concerns regarding teasing from peers.<sup>[18]</sup> Similar conflicting observations have been found related to gender.<sup>[7,11]</sup> We did not find any gender predilection to spectacle except that teenage girls were more likely to wear the spectacles. These differences in the various studies could be influenced by the social structure and beliefs of the population studied.

Previously, studies have shown that children with higher refractive error were more likely to be compliant with the spectacles.<sup>[6,7,12]</sup> It has been suggested that the cut-off for refractive errors to be prescribed in schools should be spherical equivalent of 1D to ensure good compliance.<sup>[16,19-21]</sup> In our study, we did not find an association between spherical equivalent and compliance. Type of refractive error did not correlate with compliance in the current study, similar to study by von-Bischhoffshausen *et al.*<sup>[23]</sup>

**Table 2: Visual acuity and refraction by level of compliance with spectacle use**

Variables	Compliant group (n=331)	Non-compliant (n=105)	P <sup>#</sup>
Uncorrected visual acuity (logMAR, mean±SD)			
Worse eye	0.35±0.05	0.36±0.37	<0.001
Better eye	0.28±0.06	0.26±0.08	<0.001
Best corrected visual acuity (logMAR, mean±SD)			
Worse eye	0.05±0.16	0.03±0.12	0.184
Better eye	0.03±0.12	0.02±0.08	0.315
Uncorrected visual acuity in the better eye (percentage, n)			
6/6	0.0 (0)	100.0 (4)	0.001
6/7.5	50.0 (7)	50.0 (7)	
6/9	73.0 (65)	27.0 (24)	
6/12	77.9 (232)	22.1 (66)	
Worse than 6/12	87.1 (27)	12.9 (4)	
Average improvement in visual acuity with spectacles (logMAR, mean±SD)	0.26±0.07	0.17±0.2	<0.001
Absolute value of spherical equivalent (diopter, mean±SD)			
Better eye	1.84±2.33	1.68±1.94	0.499
Worse eye	2.25±2.64	2.14±2.29	0.680

SD – Standard deviation, <sup>#</sup>Mann Whitney U test, univariate analysis**Table 3: Spectacle quality by level of compliance with spectacle use**

	Compliant (n=331)		Non-compliant (n=105)		Total		P
	n	%	n	%	n	%	
≥ 1 quality parameter affected	115	34.1	92	86.7	207	46.8	<0.001
Quality parameter							
Spectacle lens badly scratched <sup>#</sup>	91	30.5	5	40.0	96	32.80	0.075
Ill-fitting/misaligned frame <sup>*</sup>	8	2.7	23	64.7	31	17.7	<0.001
Too large	10	3.0	39	40.0	49	11.9	<0.001
Too small	3	0.9	15	14.3	18	4.1	<0.001
Frame broken	3	0.9	10	16.2	13	4.6	<0.001

<sup>#</sup>Moderate and severe grade scratches affecting vision, <sup>\*</sup>Frame of adequate size, but poorly fitting on nose, or misaligned

However, we found that the compliant group had a worse UDVA in both the better eye and worse eye and a larger magnitude of improvement in vision with the spectacles as compared to the non-compliant group. It was observed that spectacle compliance was better when UDVA in the better eye was ≤6/9. This is because children with >6/9 UDVA in the better eye would not appreciate the visual benefit of spectacles in the worse eye and were less likely to wear their spectacles. Similar observations were made for UDVA in the worse eye, wherein 6/12 or worse vision was associated with better compliance. Gogate *et al.*<sup>[7]</sup> and Gupta *et al.*<sup>[16]</sup> also found that uncorrected visual acuity (UCVA) positively correlated with spectacle compliance.<sup>[7]</sup> To optimize the utilization of resources, the WHO suggests that the minimum visual acuity threshold for screening should be 6/12 in the worse eye. It also suggests that the threshold can be modified depending on the regulations and capacity of the setting; for example, some countries may use the 6/9 line as the distance threshold which we followed in the current study.<sup>[24]</sup>

The quality of the spectacles was the most important determinant of compliance in the multifactorial analysis in the

current study. It means that a child is unlikely to wear a poorly fitting, badly scratched, or broken spectacle irrespective of the improvement in vision with it. Spectacle-related parameters like broken frame or lost spectacles have been found to affect compliance in prior studies as well.<sup>[6-8,12,17,19]</sup> Timely repair and replacement of spectacles were found to improve compliance among children in the study by Thapa *et al.*<sup>[20]</sup> Concurrently, frame-related complaints were also observed in 68% of the non-compliant children in the current study. Aghaji *et al.*<sup>[25]</sup> found that school children tended to prefer the spectacle color and design as per their liking. Morjaria *et al.*<sup>[26]</sup> hypothesized that allowing children to choose their own frame from a cosmetically acceptable range may improve compliance through a greater sense of ownership and satisfaction with their appearance.

Although the academic performance of the children and the education level of the parents have been associated with better compliance in prior studies,<sup>[7,9,10]</sup> we did not find them as significant factors in our study. We also did not find an association with parental or sibling's use of spectacles as seen in a prior study.<sup>[11]</sup> Friends wearing spectacles showed

positive influence on compliance in one study.<sup>[21]</sup> We did not evaluate this reason in the current study. When the mother was a daily wage laborer, her child tended to be seven times more compliant ( $P = 0.051$ ), which translates into the inference that working mothers, even though engaged in blue-collar jobs, had a positive effect on the compliance.

One of the limitations of the current study was that we could not assess whether the child was wearing spectacles at school as the survey was conducted at home. There is a possibility that some children wear spectacles at home due to fear of parents while omitting it in schools. The door-to-door pediatric eye-screening model requires a vision center or eye-clinic in the vicinity of the catchment area of the screening. It is not a feasible option in sparsely populated regions, and its cost effectiveness is yet to be studied. Nonetheless, it was observed that the compliance to spectacles provided free-of-cost via this model of pediatric eye screening was 76% which was higher than the compliance recorded in most of the school-based programs.

## Conclusions

To conclude, children were unlikely to wear the spectacles if they were not satisfied with their quality or the vision with them. Parental involvement in pediatric eye-screening programs, child's involvement in selection of the frames, and better quality of spectacles may lead to better compliance to spectacles in children.

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## References

- Holden B. Uncorrected refractive error. International Agency for the Prevention of Blindness. 55. Available from: <https://www.iapb.org/learn/knowledge-hub/eye-conditions/uncorrected-refractive-error/>.
- National Programme for Control of Blindness and Visual Impairment (NPCB&VI). (n.d.). Available from: [https://dghs.gov.in/content/1354\\_3\\_NationalProgrammeForControlOfBlindnessVisual.aspx](https://dghs.gov.in/content/1354_3_NationalProgrammeForControlOfBlindnessVisual.aspx).
- Sheeladevi S, Seelam B, Nukella PB, Modi A, Ali R, Keay L. Prevalence of refractive errors in children in India: A systematic review. *Clin Exp Optom* 2018;101:495-503.
- Marmamula S, Keeffe JE, Narsaiah S, Khanna RC, Rao GN. Changing trends in the prevalence of visual impairment, uncorrected refractive errors and use of spectacles in Mahbubnagar district in South India. *Indian J Ophthalmol* 2013;61:755-8.
- Malhotra S, Kalaivani M, Rath R, Prasad M, Vashist P, Gupta N, *et al.* Use of spectacles for distance vision: Coverage, unmet needs and barriers in a rural area of North India. *BMC Ophthalmol* 2019;19:252.
- Gajiwala UR, Patel RU, Sudhan A, Sil A, Jain E, Jhala L, *et al.* Compliance of spectacle wear among school children. *Indian J Ophthalmol* 2021;69:1376-80.
- Gogate P, Mukhopadhyaya D, Mahadik A, Naduvilath TJ, Sane S, Shinde A, *et al.* Spectacle compliance amongst rural secondary school children in Pune district, India. *Indian J Ophthalmol* 2013;61:8-12.
- Pawar N, Ravindran M, Renagappa R, Ravilla T, Raman R, Uduman MS. Non-compliance for wearing spectacles: Prevalence and determinants in school-going children in South India. *Indian J Ophthalmol* 2023;71:608-13.
- Bhatt NK, Rathi M, Dhull CS, Sachdeva S, Phogat J. Spectacle compliance amongst school children of Rohtak, Haryana, India. *Int J Community Med Public Health* 2017;4:734-7.
- Rustagi N, Uppal Y, Taneja DK. Screening for visual impairment: Outcome among schoolchildren in a rural area of Delhi. *Indian J Ophthalmol* 2012;60:203-6.
- Kumar MR, Mallika OU. Study of refractive errors, amblyopia and compliance of spectacles in school children. *J Med Sci Clin Res* 2017;5:1-8.
- 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.
- Sabherwal S, Sood I, Siddiqui Z, Majumdar A, Singh BP, DasGupta S, *et al.* Door-to-door screening as a new model augmenting school eye screening: Reaching out to school age children in the midst of a pandemic. *Ophthalmic Epidemiol* 2023;30:358-66.
- Khurana R, Tibrewal S, Ganesh S, Tarkar R, Nguyen PTT, Siddiqui Z, *et al.* Accuracy of noncycloplegic refraction performed at school screening camps. *Indian J Ophthalmol* 2018;66:806-11.
- Wedner S, Masanja H, Bowman R, Todd J, Bowman R, 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.
- Gupta V, Saxena R, Vashist P, Bhardwaj A, Pandey RM, Tandon R, *et al.* Spectacle coverage among urban schoolchildren with refractive error provided subsidized spectacles in North India. *Optom Vis Sci* 2019;96:301-8.
- Yi H, Zhang H, Ma X, Zhang L, Wang X, Jin L, *et al.* Impact of free glasses and a teacher incentive on children's use of eyeglasses: A Cluster-randomized controlled trial. *Am J Ophthalmol* 2015;160:889-96.e1.
- Castanon Holguin AM, Congdon N, Patel N, Ratcliffe A, Estes P, Toledo Flores S, *et al.* Factors associated with spectacle-wear compliance in school-aged Mexican children. *Invest Ophthalmol Vis Sci* 2006;47:925-8.
- Narayanan A, Kumar S, Ramani KK. Spectacle compliance among adolescents in Southern India: Perspectives of service providers. *Indian J Ophthalmol* 2018;66:945-9.
- Thapa HB, Rai SK, Thapa SK, Khatri A, Bassett K. Eye-glasses wear compliance following school-based visual acuity screening in Nepal: A comparative study. *Nepal J Ophthalmol* 2020;12:91-8.
- Morjaria P, Evans J, Gilbert C. Predictors of spectacle wear and reasons for nonwear in students randomized to ready-made or custom-made spectacles: Results of secondary objectives from a randomized noninferiority trial. *JAMA Ophthalmol* 2019;137:408-14.
- Du K, Zhu J, Guan H, Zhang Y, Wang H, Wang D, *et al.* Factors associated with the spectacle wear compliance among primary school students with refractive error in Rural China. *Ophthalmic Epidemiol* 2023;30:17-26.
- von-Bischhoffshausen FB, Muñoz B, Riquelme A, Ormeño MJ, Silva JC. Spectacle-wear compliance in school children in Concepción Chile. *Ophthalmic Epidemiol* 2014;21:362-9.
- World Health Organization. Vision and Eye Screening Implementation Handbook. World Health Organization; 2024.
- Aghaji AE, Udeh NN, Okoye OI, Oguego NC, Okoye O, Maduka-Okafor FC, *et al.* Spectacle design preferences among school children in Enugu State, Nigeria. *Niger J Clin Pract* 2021;24:1828-34.
- Morjaria P, McCormick I, Gilbert C. Compliance and predictors of spectacle wear in schoolchildren and reasons for non-wear: A review of the literature. *Ophthalmic Epidemiol* 2019;26:367-77.

## Appendix 1

### I. Questionnaire in English

#### Spectacle compliance

- Email
- Do you provide verbal consent to participate in the survey?
- I agree to provide information regarding spectacle usage of my child to the volunteers of Dr. Shroff's Charity Eye Hospital (SCEH). I understand that the information will remain confidential and only de-identified data shall be shared outside the team conducting the survey. I understand that a denial to participate in the survey shall not affect the treatment of my child at SCEH. I am allowed to leave the survey at any point in time and my participation is completely voluntary."
- Vision center
  - Bhajanpura
  - Jahangirpuri
  - Other:
- VCMR last 4 digits
- Name
- Gender
  - Male
  - Female
- Date of Spectacle prescription ---MM/DD/YYYY
- Is child wearing the glasses at the time of inspection?
  - yes
  - no
- Does the child take spectacle to school
  - Yes
  - No
- Overall Compliance with spectacles as per parents
  - child wears glasses >6 hrs/day at home
  - child wears glasses 4-6 hrs/day at home
  - child wears glasses 2-4 hrs/day at home
  - child wears glasses <2 hrs/day at home
  - child does not wear glasses at all at home
- Does the child wear glasses during reading and writing?
  - yes
  - no
- Does the child wear glasses during watching TV and phone?
  - yes
  - no
- Does the child wear glasses during playing?
  - yes
  - no
- RE Vision with glasses (PEEK acuity)
- LE Vision with glasses (PEEK acuity)
- RE Vision without glasses (PEEK acuity)
- LE Vision without glasses (PEEK acuity)
- How many months did child use glasses after prescription
  - Till date
  - 1-2 months
  - 2-4 months
  - 4-6 months
- Source of current spectacles
  - Prescribed at SCEH VC
  - Prescribed at some other optical shop
- Child's reason for non-compliance (multiple answers can be marked)
  - Not applicable
  - Not happy with vision with glasses and feels wrong prescription
  - Not happy with the colour or design of the frame
  - Glasses broken
  - Frame broken
  - Spectacles are lost
  - Other people teasing the child for glasses
  - Child having watering after wearing glasses
  - Child having headache after using glasses
  - Child feels uncomfortable after wearing glasses
  - Parents not allowing the child to wear glasses
  - Child feels he/she does not require glasses
  - Other
- Parents reason for non-compliance (multiple answers can be marked)
  - Not applicable
  - Not happy with child's vision with the glasses and feels wrong prescription has been given
  - Not happy with the colour or design of the frame
  - Glasses broken
  - frame broken
  - spectacles are lost
  - child does not wear glasses as other people teasing him/her
  - Child having watering after wearing glasses
  - Child having headache after using glasses
  - child feels uncomfortable after wearing glasses
  - parents feel that child does not require glasses
  - parents want to take a second opinion before making the child wear glasses
  - Other
- Outcome of compliance follow up
  - child referred for change of glasses for vision
  - child referred for new glasses as old one broken
  - continue same glasses
  - counselled for compliance use
- Fathers education
  - Post-graduate
  - Graduate
  - Higher secondary
  - Secondary
  - Primary
  - Illiterate
  - Unknown
- Mothers education
  - Post-graduate
  - Graduate
  - Higher secondary
  - Secondary
  - Primary
  - Illiterate
  - Unknown



- **Father's occupation**
  - Own business
  - Daily wage labour
  - Others
- **Mother's occupation**
  - House wife
  - Own business
  - Daily wage labour
  - Others
- **Do parents wear spectacles**
  - Yes
  - No
- **Do any sibling wear spectacle**
  - Yes
  - No
- **Quality of spectacles**
  - Too small in size
  - Too large in size
  - Frame broken
  - Ill fitting rame/ misaligned frame
  - Scratches on glasses

## II. Questionnaire in Hindi

### चश्मे का अनुपालन

#### सामुदायिक परियोजनाओं के बीच. चश्मे का अनुपालन

- Email
- क्या आप सर्वेक्षण में भाग लेने के लिए मौखिक सहमति प्रदान करते हैं?  
मैं डॉ. श्रॉफ चैरिटी आई हॉस्पिटल (एससीईएच) के स्वयंसेवकों को अपने बच्चे के चश्मे के उपयोग के बारे में जानकारी प्रदान करने के लिए सहमत हूँ। मैं समझता हूँ कि जानकारी गोपनीय रहेगी और सर्वेक्षण करने वाली टीम के बाहर केवल अज्ञात डेटा साझा किया जाएगा। मैं समझता/समझती हूँ कि सर्वेक्षण में भाग लेने से इनकार करने से एससीईएच में मेरे बच्चे के इलाज पर कोई असर नहीं पड़ेगा। मुझे किसी भी समय सर्वेक्षण छोड़ने की अनुमति है और मेरी भागीदारी पूरी तरह से स्वैच्छिक है।
- **विजन सेंटर**
  - भजनपुरा
  - जहांगीरपुरी
  - अन्य:
- VCMR last 4 digits\*
- **नाम**
- **लिंग - पुरुष / महिला**
- **चश्मे के नुस्खे की तारीख- DD/MM/YY**
- **क्या विसिट के समय बच्चा चश्मा पहने हुए है?**
  - हाँ
  - नहीं
- **क्या बच्चा चश्मा लेकर स्कूल जाता है?**
  - हाँ
  - नहीं
- **माता-पिता के अनुसार घर में चश्मा लगाने के घंटे\***
  - बच्चा घर पर >6 घंटे प्रतिदिन चश्मा पहनता है
  - बच्चा घर पर 4-6 घंटे प्रतिदिन चश्मा पहनता है
  - बच्चा घर पर 2-4 घंटे प्रतिदिन चश्मा पहनता है
  - बच्चा घर पर <2 प्रतिदिन दिन घर पर
  - बच्चा घर में बिल्कुल भी चश्मा नहीं लगाता है

- **क्या बच्चा घर पर पढ़ने-लिखने के दौरान चश्मा पहनता है?**
  - हाँ
  - नहीं
- **क्या बच्चा घर में टीवी और फोन देखते समय चश्मा पहनता है?**
  - हाँ
  - नहीं
- **क्या बच्चा घर पर या बाहर खेलते समय चश्मा पहनता है?**
  - हाँ
  - नहीं
- RE Vision with glasses (PEEK acuity)
- LE Vision with glasses (PEEK acuity)
- RE Vision without glasses (PEEK acuity)
- LE Vision without glasses (PEEK acuity)
- **बच्चे ने कितने महीने चश्मे का इस्तेमाल किया?**
  - आज तक
  - 1-2 महीने
  - 2-4 महीने
  - 4-6 महीने
- **अभी का चश्मा कहा से मिला**
  - एससीईएच वीसी
  - किसी अन्य ऑप्टिकल दुकान
- **चश्मे की गुणवत्ता (कई उत्तरों को चिह्नित किया जा सकता है)**
  - आकार में बहुत छोटा
  - आकार में बहुत बड़ा
  - फ्रेम टूटा हुआ
  - खराब फिटिंग फ्रेम
  - चश्मे पर बहुत अधिक खरोंच से स्पष्टता कम हो जाती है
  - चश्मे की गुणवत्ता ठीक है
  - Other:
- **बच्चे के चश्मे का ठीक से उपयोग न करने का कारण (कई उत्तरों को चिह्नित किया जा सकता है)**
  - लागू नहीं
  - चश्मे से दृष्टि से खुश नहीं है
  - फ्रेम के रंग या डिजाइन से खुश नहीं है
  - चश्मे का शीशा टूट गया
  - फ्रेम टूट गया
  - चश्मा खो गया है
  - अन्य लोग चश्मे के लिए बच्चे को चिढ़ाते हैं
  - चश्मा पहनने के बाद आँखों से पानी आना
  - चश्मा लगाने के बाद बच्चे को सिरदर्द होना
  - चश्मा पहनने के बाद बच्चा अच्छा नहीं महसूस करता है
  - माता-पिता बच्चे को चश्मा पहनने की अनुमति नहीं दे रहे हैं
  - बच्चे को लगता है कि उसे चश्मे की जरूरत नहीं है
  - कोई जवाब नहीं
  - Other:
- **माता-पिता के अनुसार बच्चे के चश्मे का ठीक से उपयोग न करने के कारण (कई उत्तरों को चिह्नित किया जा सकता है)**
  - लागू नहीं
  - चश्मे से बच्चे की दृष्टि से खुश नहीं है
  - लगता है कि गलत सुझाव दिया गया है
  - फ्रेम के रंग या डिजाइन से खुश नहीं है
  - चश्मा टूट गया
  - फ्रेम टूट गया
  - चश्मा खो गया है
  - बच्चा चश्मा नहीं पहनता क्योंकि अन्य लोग उसे चिढ़ाते हैं
  - चश्मा पहनने के बाद आँखों से पानी आना
  - चश्मा लगाने के बाद बच्चे को सिरदर्द होना
  - चश्मा पहनने के बाद बच्चा असहज महसूस करता है



- माता-पिता को लगता है कि बच्चे को चश्मे की जरूरत नहीं है
- बच्चे को चश्मा पहनाने से पहले माता-पिता दूसरी जगहा से राय लेना चाहते हैं
- कोई जवाब नहीं
- Other:
- **पिता की शिक्षा**
  - पोस्ट ग्रेजुएशन
  - ग्रेजुएशन
  - प्लस 2
  - दसवां
  - प्राथमिक शिक्षा
  - निरक्षर
  - अनजान
  - कोई जवाब नहीं
- **माता की शिक्षा**
  - पोस्ट ग्रेजुएशन
  - ग्रेजुएशन
  - प्लस 2
  - दसवां
  - प्राथमिक शिक्षा
  - निरक्षर
  - अनजान
  - कोई जवाब नहीं
- **पिता का काम**
  - अपना व्यापार
- मजदूर
- कोई जवाब नहीं
- Other:
- **मां का काम**
  - गृहिणी
  - अपना व्यापार
  - मजदूर
  - कोई जवाब नहीं
  - Other:
- **क्या माता-पिता में से कोई खुद चश्मा पहनता है?**
  - हाँ
  - नहीं
  - कोई जवाब नहीं
- **क्या कोई भाई-बहन चश्मा पहनता है?**
  - हाँ
  - भाई-बहन में चश्मा दिया है, लेकिन वह पहनती नहीं है
  - लागू नहीं (बच्चे का कोई सहोदर नहीं, केवल बच्चा, सहोदर को चश्मा दिया नहीं है)
  - कोई जवाब नहीं
- **सर्वे के परिणाम**
  - दृष्टि के लिए चश्मा बदलने के लिए बच्चे को रेफर किया गया
  - बच्चे को नए चश्मे के लिए रेफर किया गया क्योंकि पुराना टूटा हुआ है
  - वही चश्मा जारी रखें
  - अनुपालन उपयोग के बारे में समझाया गया

**Appendix 2: Table showing comparison between previous studies regarding spectacle compliance in children and the current study**

Author/ Country	Study setting	Sample size	Only prescription/ Free-of-cost	Criteria for spectacles prescription	Age group	Definition of compliance
Gajiwala <i>et al.</i> <sup>[6]</sup> /India	School	971	Free-of-cost	Not mentioned about cycloplegic refraction/criteria for spectacle prescription	10-16 years	Wearing spectacles [direct observation/questionnaire]
Gogate <i>et al.</i> <sup>[7]</sup> / India	School	1018	Free-of-cost	myopia $\leq -0.50$ D or hyperopia $\geq +1.00$ D	8-16 years	Wearing spectacles
Bhatt <i>et al.</i> <sup>[9]</sup> / India	School	200	Prescription	Not mentioned	6-15 years	Wearing spectacles
Rustagi <i>et al.</i> <sup>[10]</sup> /India	School	1075	Prescription	myopia $\geq -0.50$ D or hyperopia $\geq +1.00$ D, No mention about cycloplegic refraction	Class VII/VIII/ IX around 12-15 years	Child requiring spectacles and willing for refraction anspectacles
Pawar <i>et al.</i> <sup>[8]</sup> / India	School	3333	Free-of-cost	The general guidelines for prescribing spectacles were as follows: prescribe full correction for myopia $>0.75$ D, astigmatism 1.00 DC, and anisometropia 1 D, and prescribe spectacles for hyperopia 2.50 D.The children with high myopia and those not willing for cycloplegic refraction, strabismus, and high astigmatism were referred to the base hospital	5-15 years	Children wearing spectacles
Khandekar <i>et al.</i> <sup>[12]</sup> /India	School	77	Prescription	Not mentioned	Not defined	Wearing/carrying spectacles
Kumar <i>et al.</i> <sup>[11]</sup> / India	School	82	Prescription	Children with vision worse or equal to 6/9 underwent cycloplegic refraction with homatropine	6-17 years	History of using spectacles
Wedner <i>et al.</i> <sup>[15]</sup> / Tanzania	School based study/RCT/ Masked study	125	2 arms (A- free-of-cost/B- only prescription)	Children with refractive error were referred toCentre for Community Based Rehabilitation and Treatment (CCBRT). Cycloplegic refraction was done for hypermetropes. Spectacles were provided if, refractive errors causing visual impairment of 6/12 or worse and when visual acuity improved with spectacles by at least one line, and students with significant hyperopia ( $>2$ D).	Median age14 years; (Range 11–25 years)	Wearing/having spectacles at school
Du <i>et al.</i> <sup>[22]</sup> / China	School	1826	2 arms (prescription only and Free-of-cost)	Not mentioned	10.46 $\pm$ 1.08	Wearing spectacle
Thapa <i>et al.</i> <sup>[20]</sup> / Nepal	School	297	Free-of-cost	Not mentioned	5-17 years	Wearing spectacles
Holguin <i>et al.</i> <sup>[18]</sup> /Mexico	School	493	Free-of-cost	Children with vision $\leq 6/12$ underwent refraction and were givenspectacles. Not mentioned about cycloplegic refraction	5-18 years	Wearing/carrying spectacles
Yi <i>et al.</i> <sup>[17]</sup> / China	School		Free-of-cost/ Prescription only	Children with uncorrected visual acuity worse than or equal to 6/12 underwent cycloplegic refraction. Cut-off for prescription of spectacles were, myopia $\geq 0.75$ , hypermetropia $\geq 2.00$ D, or astigmatism $\geq 1.00$ D		Wearing

Contd...

## Appendix 2: Contd...

Author/ Country	Study setting	Sample size	Only prescription/ Free-of-cost	Criteria for spectacles prescription	Age group	Definition of compliance
Gupta <i>et al</i> / India <sup>[16]</sup>	School	10114	Spectacles at subsidized price	Children with unaided visual acuity worse than 6/9.5 in either eye underwent cycloplegic refraction using a streak retinoscope (cycloplegia attained using 1% homatropine), followed by Post-mydratic subjective refraction after of 5 to 7 days. Prescription was based on subjective refraction.	7-17 yrs	Child wearing spectacles at the time of follow up
Current study	Door-to-door screening	436	Free-of-cost	IAPB guidelines were followed Cycloplegic retinoscopy was performed in complex refractions (myopia >4D, hyperopia >2.5D, cylinder >3D), fluctuating retinoscopic reflexes and children in whom a subjective refraction failed to improve the vision beyond 6/9.	5-18 years	Atleast 2 of the following criteria • The child was wearing the spectacle at the time of home visit. • The child was using spectacles ≥ 4 hours/day while at home. • The child was wearing the spectacle while going to school.
Author/ Country	Follow up	Compliance	Reasons for non- compliance	Factors positively affecting non- compliance	Factors negatively affecting compliance	
Gajiwala <i>et al</i> <sup>[6]</sup> /india	2 years	29.8%	Broken/lost spectacles Uncomfortable Not feeling necessity of wearing Teasing by friends	Magnitude of refractive error		
Gogate <i>et al</i> <sup>[7]</sup> / India	6months to 1 years	29.5%	Teased about spectacles Lost/broken spectacles Forgot spectacles at home Do not like spectacles	Higher age Female gender Literate father Magnitude of refractive error Worse uncorrected visual acuity		
Bhatt <i>et al</i> <sup>[9]</sup> / India	3 months	39%	Fear of being teased Forgot spectacles	Educated mother If father or mother is a teacher by profession Parents wearing spectacles		
Rustagi <i>et al</i> <sup>[10]</sup> /India	Not mentioned	37.3% boys and 45.3% girls	Cosmetic reasons Monetary constraint Teasing from other students Difficulty in getting married	Father's education (not affected by mother's education/ father's occupation)		
Pawar <i>et al</i> <sup>[8]</sup> / India	3-6months	74%	Headache and watering Broken spectacles Peer pressure		No family member wearing spectacle Child feeling that spectacles not needed Parents not willing	
Khandekar <i>et al</i> <sup>[12]</sup> /India	3-4months	75%	Not liking wearing spectacles Broken spectacles Headache	Higher refractive error (Improvement in vision had no effect on compliance)	Unilateral refractive error Astigmatism <1D	

Contd...

## Appendix 2: Contd...

Author/ Country	Follow up	Compliance	Reasons for non- compliance	Factors positively affecting non- compliance	Factors negatively affecting compliance
Kumar <i>et al</i> <sup>[11]</sup> / India	6 months	64.5%- constant wearers and 26.6%- intermittent wearers	Not aware about need or constant use Concerned about appearance Fear of being teased Discomfort due to frame	Female gender	
Wedner <i>et al</i> <sup>[15]</sup> / Tanzania	3-6 months	47% in arm A 26% in arm B	Not mentioned	No factors correlating	
Du <i>et al</i> <sup>[21]</sup> / China	7 months	41.7%	Belief that spectacle will weaken eye Inconvenience during activities	Old age Magnitude of refractive error Previously wearing spectacles Friends wearing spectacles	
Thapa <i>et al</i> <sup>[20]</sup> / Nepal	6months	Group A-57% (replacement and repair of spectacle) Group B- 41%	Unaware of need or constant wear Fear that spectacle will weaken eye Not liking spectacle	Higher education level	
Holguin <i>et al</i> <sup>[18]</sup> /Mexico	18 months	13.90%	Concerned about being teased forgot spectacles Uses occasionally Lost spectacles	Younger age Myopia <1.25 D Hyperopia >+0.5 D Rural residence	
Yi <i>et al</i> <sup>[17]</sup> / China	6months	68.3%( free-of-cost) 23.9% (prescription only)	Not mentioned	Already wearing spectacles Free of cost spectacle	
Gupta <i>et al</i> / India <sup>[16]</sup>	1 yr	65.9%	Not mentioned	Child already wearing spectacles Mother's education Worse UDVA in better eye as well as worse eye at baseline More improvement in vision in worse eye with glasses	
Current study	3-6months	75.91%	Both parents and children: Unsatisfactory design or colour of the frame, unsatisfactory vision with the spectacles, headache with the spectacles, watering after wearing the spectacles were the major reasons. Someparents wanted to take a second opinion regarding the need of spectacles.	Quality of spectacles Decreased UDVA in the worse eye Working mother	