

Spectacle compliance among adolescents in Southern India: Perspectives of service providers

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Purpose: Compliance to spectacle wear is vital to elimination of avoidable blindness among schoolchildren. This study aims to understand the barriers to compliance and strategies to overcome the barriers from the perspectives of the service providers of the school vision-screening model. **Methods:** A snapshot qualitative study using focus group discussions (FGDs) was conducted among the service providers including eye care professionals (ECPs) and social workers that are part of the school screening program. Sessions were audio recorded and transcribed. Themes were formed following inductive coding using a conceptual framework. **Results:** Out of the three FGDs, two were with ECPs and one with social workers. Four subthemes identified under the barriers were poor awareness, spectacle-related, psychosocial, and financial barriers. Unique barriers according to the service providers included nonuse of spectacles by asymptomatic children, children with unilateral refractive errors and those with emmetropic parents. Service providers also brought out parent's feelings of guilt, doubts about their children's impaired vision, the negative self-image among children, and difficulties in obtaining funding to support the costs of screening. Solutions that emerged included the personal visit of professionals for spectacle distribution and counseling parents, demonstration of improvement in vision for activities that were difficult for the children without spectacles and rewarding, and role modeling of compliant children. **Conclusion:** This study had identified unique barriers and solutions from the perspectives of the service providers. The suggested strategies would aid in an effective schoolchildren vision screening practice to enhance compliance to spectacle wear.

Key words: Barriers, children, compliance, school eye screening, spectacle

An important goal of the schoolchildren vision screening program is to eliminate uncorrected refractive errors and improve spectacle compliance. To this effect, our first paper^[1] described the perceptions of adolescents and parents about spectacle compliance, providing insights into barriers that hinder and suggesting strategies that could promote the more effective use of spectacles. While literature has reported children and their parents' perspectives on barriers for spectacle compliance,^[1-3] perceptions of eye care providers are very sparse. Eye care professionals (ECPs) play a crucial role in school eye screening not only in terms of identification and management of refractive errors but also in terms of planning the protocols, implementing the services, and enhancing compliance.^[4] Social workers constitute the liaison between the beneficiaries and the service providers' right from their initial contact with the school authorities until follow-up of services in the school eye-screening practice. An understanding of their perceptions could provide critical inputs not only toward enhancing compliance in their clients but also toward strategizing solutions to improving spectacle compliance. This paper, the second in our series on spectacle compliance,

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explores the above issues from the perspectives of ECPs and social workers using qualitative methods.

Methods

The focus group discussions (FGDs) were conducted as part of a mixed methods study that aimed to improve the spectacle and referral compliance in the school eye-screening program. FGDs were carried out with ECPs and social workers who were involved in the school vision screening program as a snapshot study. A list of practicing optometrists and social workers who are part of schoolchildren screening programs in Chennai and adjacent districts were created and were invited for discussion. FGDs were conducted in our institution by investigators KK and AN in English or the local language, Tamil. The FGD guides sought to understand what ECPs and social workers believed were barriers that hindered spectacle compliance and strategies that could improve it. FGDs were continued till the information became redundant. All FGDs were audio recorded, transcribed verbatim, and translated into English with written informed consent from all the

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participants. We used a framework analytical approach for data analysis^[5] which entailed becoming familiar with each of our interview transcripts through multiple readings of the text. The transcripts were coded inductively by AN. As a next step, a master chart was developed, wherein we listed all the key categories that emerged following the coding of the transcripts that were related to our research question. Supporting quotes from the transcript were added which best exemplified the category and provided both the context and cultural flavor. This process was carried out with each FGD transcript and was done separately for ECPs and social workers. AN and KK reviewed the categories to identify the subthemes under the broad themes of analysis. Relevant quotes were selected for each theme. The study was approved by the Institutional Review Board and Ethics Committee of Vision Research Foundation, Chennai.

Results

Of the three FGDs conducted, two were with ECPs and one was with social workers. Each FGD had about 7–8 participants adding up to a total of 15 ECPs and 7 social workers. The mean age was 39.3 ± 10.1 years and the ratio of male: female was 13:9. ECPs included optometrists whose qualification was Diploma to Masters in Optometry, and all the social workers had Master’s degree in social work. Number of years of experience of the ECPs and social workers were (mean ± standard deviation)

14.9 years ± 10.7 years and 10 ± 4.9 years, respectively. Eight of the ECPs had their practice in institutional setups and seven had independent practice. All the social workers worked in institutional setups. The two major themes were barriers to spectacle compliance and solutions for improving spectacle wear. Fig. 1 depicts an example of the conceptual framework of the barriers. Four subthemes that emerged under this theme included poor awareness, spectacle-related barriers, psychosocial, and financial barriers. Table 1 shows excerpts of the discussions from the participants for each of the subthemes. Differences between the perceptions of the caregivers and beneficiaries are outlined in Appendix 1.

Poor awareness

The ECPs felt that awareness among parents about the reasons for spectacle prescription was less and hence acceptance of spectacle was considerably less. They added that lesser acceptance was evident when the difference in vision with and without spectacles was not significant in conditions such as unilateral refractive errors, in case of asymptomatic children, and when parents were emmetropic.

Added to this, beliefs of parents that use of spectacles at a young age made the children overdependent on them, beliefs that eating nutritious food could help get rid of spectacles, and beliefs that children of emmetropic parents would not need to

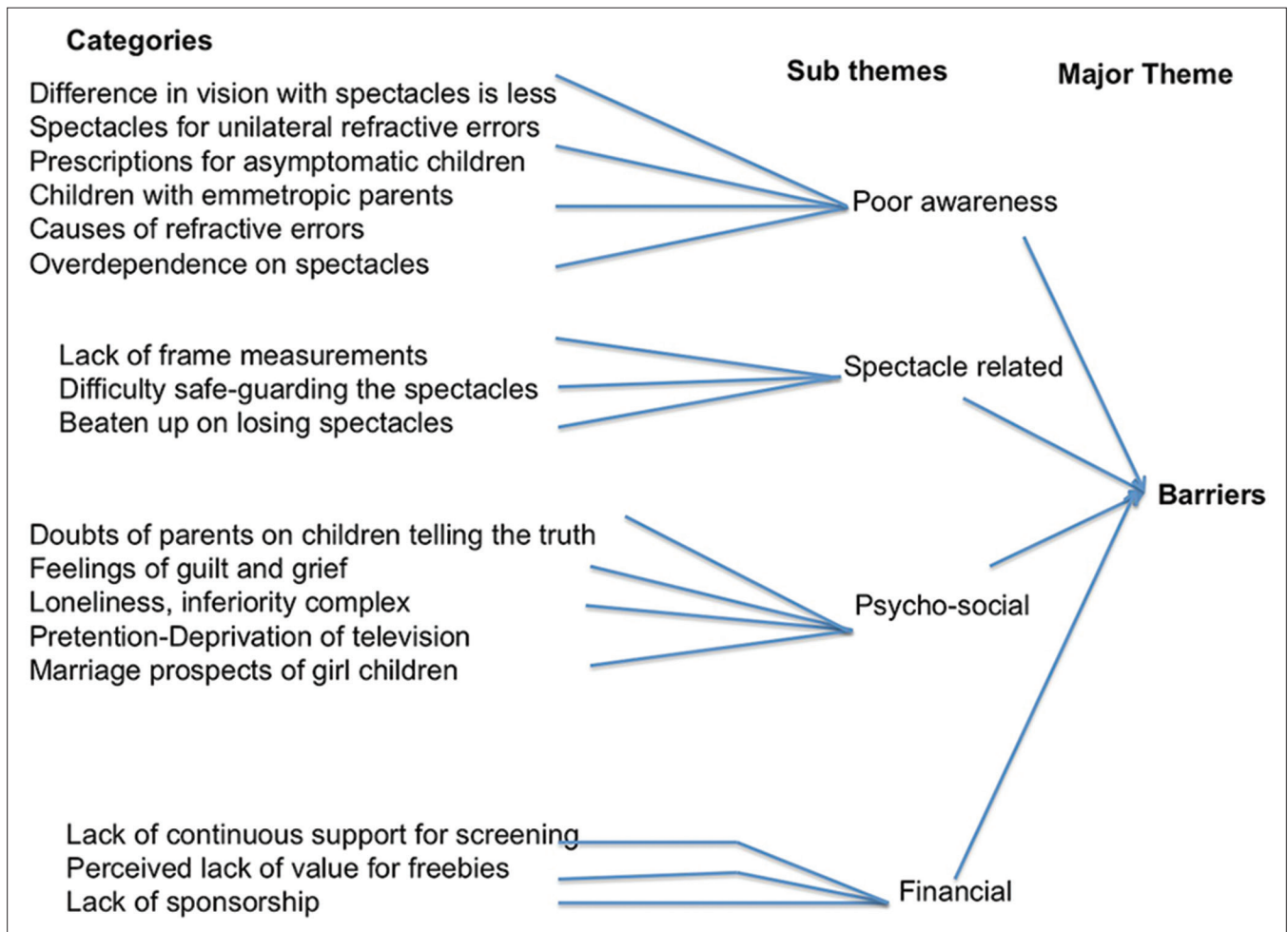


Figure 1: Conceptual framework depicting the barriers for spectacle compliance

wear spectacles were some issues that according to the service providers, deterred compliance. Both social workers and ECPs felt that parents and children did not realize the importance of using spectacles and pointed out a distinct lack of motivation on the part of many parents as one of the main reasons behind poor spectacle compliance among children.

Spectacle-related barriers

Lack of frame measurements and consequential discomfort was a major reason attributed by ECPs for poor spectacle compliance. The social workers felt that the frames provided to children through the vision-screening program were thick and heavy and caused scars on the nose. Social workers further said that children got beaten up if they lost or misplaced their spectacles and hence tended not to use them. Besides, they

Table 1: Quotes from the participants on the barriers and solutions to spectacle compliance

<p>"When child is not symptomatic and when we prescribe based on certain amblyogenic factors or high errors, but the child is asymptomatic because of close environment, especially smaller children in close environment, parents are not willing to take it. 'My child does not have symptoms, why do you give spectacles?' FGDECP2 optometrist with 3 years of experience</p> <p>"Sometimes the emmetropic parents, they don't accept the fact that their child has to wear glasses"- FGDECP1 optometrist with 4 years of experience</p> <p>"Children did not wear spectacles, which were given. When asked they say that they will eat enough vegetables instead"- FGDSW12-Social worker with 7 years of experience</p> <p>"Children who live in huts, they do not have a place to keep the spectacles safe and so do not remember to take it and wear and they also misplace and lose spectacles. Parents beat them if they lose spectacles"-FGDSW12-Social worker with 10 years of experience</p> <p>"Parents they themselves demotivate children not to wear spectacles, but when they come to clinic and I counsel them about spectacles, they ask, 'Is it ok if worn only for reading?' They are like 'No (to spectacles)' and many parents after coming to clinic, they cry there, parents cry"- FGDECP5 optometrist with 5 years of experience</p> <p>"Children think that, 'If we start wearing spectacles, we will be asked to avoid seeing TV, will tell us to sit at a distance to watch,' whereas they like to sit closer and watch. So they create an image that they can see clearly, 'I do not have difficulty in vision'- FGDSW12 Social workers with 20 years of experience</p> <p>"Children who are already using glasses, they (parents) say children are naughty they will break. Parents what they will say 'See even if I get them glasses they will break' I have seen parents who have not got glasses for the past two years"-FGDECP1 optometrist with 4 years of experience</p> <p>"People think about girl children only in the angle of marriage, they will not get grooms if she wears spectacles, relatives think that this girl wears spectacles, its only in the angle of marriage. For boys sports plays a major role"-FGDSW12 SW with 20 years of experience</p> <p>"We can make those children who are regular spectacle wearers as role-models, and show, 'See, he was finding it difficult without spectacles before, now he is feeling better, see how much of change in academics, their personality is good with spectacles, so, you can also wear, it will not change your look' -like this can advice making them role-models"-FGDSW12 SW with 20 years of experience</p>

added that the children did not have a proper place to keep their spectacles when not in use.

Psychosocial barriers

According to the ECPs, parents did not quite believe that their children were telling the truth about their vision and feared that they would become overdependent on spectacles if they were to continue using them. They described mothers feeling both guilty and upset at their children having to wear spectacles, as they felt responsible for the transmission of refractive error to their offspring. The social workers, in turn, highlighted feelings of loneliness and inferiority experienced by children who felt embarrassed to wear spectacles in front of others. They added that often children would pretend that their vision was fine as they feared being deprived of television viewing by their parents.

Financial barriers

Service providers added that recurring costs of replacing broken or damaged spectacles was burdensome to many parents on account of their poor socioeconomic status. There were in fact families who had not provided spectacles for their children for the past several years and depend only on free spectacles through school vision screening programs. However, ECPs added that sponsorship for the conduct of camps and for the provision of free spectacles was not available every time it was required. They spoke of difficulties in obtaining sponsorship support when broken spectacles had to be replaced. The social workers went on to describe concerns of parents about marriage prospects for young girls who wore spectacles. Boys, in turn, were worried about not being allowed to play on account of wearing spectacles.

Solutions

The ECPs emphasized that the need for the presence of parents when the school eye-screening programs was underway. This would make it easier for them to educate parents about their child's vision status and to demonstrate improved performance in their day-to-day activities including sports after wearing spectacles. A survey form to understand the activities that the children found difficult to perform was recommended and demonstrations of those activities in front of parents was suggested. This according to them would further help parents understand their child's vision status. Engaging parents to serve as volunteers in follow-up activities were also suggested, which they believed would not only enhance better understanding of spectacle usage but also would result in parents serving as a bridge between service providers and the children, thereby proactively involving them as partners in encouraging spectacle compliance.

Prominently, displaying posters showing young people wearing spectacles in schools were recommended as a means to popularize its use. It was also suggested that printed cards containing the class timetable along with pictures of spectacles would serve as a nice reminder to children about using spectacles. Showcasing compliant children as role models and rewarding them was another useful strategy suggested to motivate children to be spectacle compliant.

Finally, the importance of ECPs being present at the time of spectacle distribution was emphasized as they could provide counseling on how to handle and maintain spectacles apart

from providing guidance on the need for periodic replacement of spectacles. The need to conduct school vision screening activities at the commencement of the academic year was strongly suggested as this would enable continued follow-up throughout the academic year. The importance of proper frame measurements essential for comfort was highlighted, as also, the need to ensure that all lenses given to children were of plastic material, which would be light and thereby less likely to break and cause injury to the child. The ECPs discussed the need for streamlining the process of school screening including measurement of compliance, engaging professionals to prescribe spectacles, and standardizing the setting for the screening.

Discussion

To the best of our knowledge, this is the first time, perspectives of ECPs and social workers have been explored with regard to issues concerning barriers and solutions for spectacle compliance. Several aspects ranging from nonuse of spectacles among asymptomatic children with unilateral refractive errors and children with emmetropic parents, parent's feelings of guilt about being responsible for their child's impaired vision as well as doubts about whether their children were really speaking the truth about their impaired vision to negative self-image among such children were reported. Difficulties in obtaining continuous funding to support the costs of running screening camps and the cost of spectacles were also reiterated by the ECP.

Both ECPs and SWs reported that the level of visual clarity achieved after wearing spectacles influenced decisions on the use of spectacles by children. This appeared to be a big motivator and had also been endorsed by parents and children alike in the earlier study.^[1] However, when prescriptions for spectacle use were for unilateral refractive errors, or when emmetropic parents did not believe that their child's refractive error was affecting vision, compliance was poor. In fact, parents tended to believe that wearing spectacles did not make an impact on their child's vision. Counseling of parents was therefore needed to encourage spectacle use. This valid concern was reported by the ECPs and was also emphasized in the guidelines for school eye-health programs.^[6] A study by Göransson *et al.* also showed improved compliance in an experimental group of parents who received special education to improve compliance in Amblyopia.^[7] Both ECPs and social workers emphasized that on account of these specific aspects, it was essential that parents be counseled, as this would enhance spectacle acceptance among them. Personal visits of professionals to the school not only during screening but also subsequently at the time of counseling and distribution of spectacles to meet the parents are hence an essential strategy in the school eye screening to ensure compliance.

The guilt and grief that parents felt with regard to their child having to wear spectacles and which in turn affected spectacle compliance were brought out by the ECPs and social workers for the first time. Although literature has reported on beliefs of parents about the harmful effects of spectacle use,^[8] such feelings of guilt and grief experienced by parents need to be specifically addressed. These worries were aggravated by societal views concerning the use of spectacles, like poor marriage prospects for young girls who wear spectacles. This

was also reported in a study from Central India, wherein the authors described the belief of girls and their parents that wearing spectacles can negatively influence marriage prospects where the authors recommended counseling as a solution to overcome this barrier.^[2]

The social workers also described the loneliness and negative self-image of children who used spectacles. Although the use of spectacles is a simple solution toward eliminating uncorrected refractive errors, the presence of a physical corrective device visible to others contributed to both discomfort and a sense of isolation among its users as also reported by Horwood.^[9] Literature has also reported that feelings of inferiority, anxiety, and self-degradation though not always directly associated with spectacle usage, may still contribute to some degree of discomfort among its wearers.^[10] Boosting the confidence of children by motivating them could be a solution to help children overcome these negative feelings. Studies have reported an improvement in compliance with an incentive for motivating teachers to ensure spectacle wear among children.^[11] While teacher motivation is crucial, our study participants emphasized rewarding the compliant children and role modeling them for motivating other noncompliant children. Displaying posters of children wearing spectacles could further alleviate feelings of isolation among children making them feel that they are not set apart. Children's self-motivation has also been emphasized in other healthcare-related studies as a crucial strategy.^[12]

Spectacle corrections are generally prescribed based on line improvement in vision charts. However, "lack of felt need"^[3] and "satisfaction with current vision"^[8] are some of the barriers toward spectacle compliance cited in the literature. A study by Narayanasamy *et al.* in Australian primary schools had reported that the predominant academic tasks involved near work followed by the distance, distance to near, and computer based.^[13] Considering another study on the visual demands of classrooms, it was seen that children would be able to perform the classroom activities with a visual acuity of 6/12.^[14] ECPs in our study suggested spectacle correction to meet the visual demands of children specific to their activities, especially in the classrooms. Deciding the prescription and demonstrating the change in performance to parents and children by those tasks that are relevant to them was put forth by the social workers. Such prescriptions and demonstration would add value to the spectacle prescription leading to the enhanced use of spectacles.

Parents did not allow children to watch television as they considered television viewing the reason for refractive errors in their children, a finding also reported by Senthilkumar *et al.*^[15] As watching television is a favorite pastime for many children,^[16] any restrictions in such an activity is bound to cause children to protest and to dislike wearing of spectacles. The ECPs and social workers also highlighted the fact that many teachers did not allow children wearing spectacles to participate in sports activities, which in turn acted as a deterrent to its use. The importance of educating teachers, such that they helped encourage spectacle compliance rather than contribute to its nonuse was stressed. A study by Ethan *et al.* have also reported a positive role of teachers in motivating children.^[17] Addressing the concern of teachers, lenses made of plastic materials were suggested by ECPs in all school vision screening programs.

A study in Tanzania reported that spectacles that were given free tended to be less used.^[18] Our earlier study despite reporting the negative outlook of parents about freebies also reported that parents wanted free spectacles but expected trendy, stylish frames and periodical replacement of spectacles.^[1] The fact raised by the social workers about the children getting beaten up by parents on losing or breaking the spectacles could probably arise due to the inability of parents spending money on spectacles. ECPs endorsed this fact and also emphasized the need for customized frame measurements for children to ensure comfort in spectacle wear. Cost involved in providing such solutions would be more than in the conventional models. Screening is generally done as an annual activity, but repeated visits are required within a year for ensuring replacement/repairs of spectacles when needed, measurement of compliance, and implementing interventions. Continuous support for screening, periodical replacement of spectacles, and follow-up could add value to the existing screening protocols that were emphasized by the ECPs.

The ECPs stressed the need for standardized setup for screening, availability of expertise during screening and pretraining of all members in the screening team as a means of providing greater credibility to the eye care screening programs and thereby enhancing spectacle compliance. Ethan *et al.* had emphasized professional optometric screening as a strategy to improve compliance.^[17]

Conclusion

The study brought out unique barriers and solutions from the perspectives of ECPs and social workers. It is important to note that their role in the school eye-screening programs was mostly limited to screening and generating a prescription for spectacles. But based on the range and variety of solutions proposed by the service providers, a much greater role is warranted which could further contribute to better awareness and compliance regarding spectacle use among children, thus making the school eye screening a robust model in ensuring elimination of avoidable blindness.

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Conflicts of interest

There are no conflicts of interest.

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Appendix 1: Differences in the barriers reported by the caregivers and beneficiaries. Barriers reported by the beneficiaries were reported in the earlier manuscript^[1]

	Barriers reported only by the caregivers	Barriers told commonly by the beneficiaries and caregivers	Barriers reported only by the children/parents
Poor awareness	Children did not use spectacles When difference in vision with and without spectacles is less When the refractive error is unilateral When there were no symptoms When the parents were emmetropic Because of beliefs that spectacle power would be the same lifelong and checking their eyes once and getting spectacles is enough Because parents believed that nutritious food can help avoid spectacles Because of lack of knowledge among parents about refractive errors and its consequences Because parents did not want their children to use spectacles always	Children did not use spectacles Because they did not realize its importance Because they believed that wearing spectacle at young age lead to lifelong wear	
Spectacle related	Lack of frame measurement and consequential discomfort Children did not maintain spectacles and got beaten up Children could not maintain spectacles	Because of Unappealing frames Thick heavy frames Scar on the nose caused by spectacles Discomfort Poor appearance	
Psychosocial	They were not allowed to see television Parents were worried of poor marriage prospects There was lack of motivation by parents Because parents doubted whether children were telling the truth Because parents believed that children became overdependent on spectacles Because parents had a feeling of guilt and grief Because children felt bad and inferior using spectacles There was lack of motivation by teachers	Felt shy Felt lonely Child careless Lack of information to parents Not selected for sports Difficulties in sports Teasing by peers Fear of eyes getting hurt Poor quality of free spectacles	Teasing by neighbors, family Neighbors asking embarrassing questions Parents' reluctance and refusal Negative self-image Social stigma
Financial	Sponsorship for screening Sponsor for spectacle replacement	Recurring cost on spectacles Delay in replacing broken spectacles	

Source: Narayanan *et al.*^[1]