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Original Article

Perceptions regarding Strabismus among School Children of 11-16 Years of Age Living in District Abbottabad

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Abstract

Background: Ocular misalignment (Strabismus) is one of the major reasons of refractive error in children. Growing children of school age perceive this important condition differently.
Objective: To assess perceptions of strabismus among school children of 11 to 16 years of age.
Study type settings & duration: This a qualitative study was conducted at 5 schools (03 public sector and 02 private sector) of district Abbotabad, Khyber Pakhtunkhwa, Pakistan from 1st August 2012 to 31st August 2012.
Methodology: After taking the permission from provincial education department, data collection was started from four schools in August 2012 with equal representation of boys and girls. Inclusion criteria was students aged 11 to 16 years. For data collection, semi structured interviews and focus group discussions were conducted. From each school half of the study participants were wearing spectacles for refractive errors of vision.
Results: There were 16 students from 5 schools with focus group discussion. A summary of the sub themes given describing the squint as seen by the school children. Majority of the participants say that in squint of the eyes the direction of gaze is different from the one where the eyes are looking, describing it in their own words. A proportion of the subjects say that squint occurs by birth and is present in childhood. Few of them say that apart from other, trauma is also one of the causes of squint. Few say that vision in squint is weak while few of them say that in squint vision is normal. Almost all of the students were of the opinion that doctor should be consulted in case one has weakness of vision.
Conclusion: The knowledge about squint, its occurrence, and vision in eyes with squint was quite good. This awareness is very important for timely detection and treatment of squint.
Key words: Perceptions, strabismus, school children, focus group discussion.

Introduction

Education is one of the key factors that are prerequisite for good heath of not only an individual but also to that of a nation. However, education cannot achieve its potential if young people do not attend school because of poor health and related conditions. Therefore, if a child is ill, malnourished, or suffer from undue stress, he or she cannot learn effectively in school. Therefore, the extent to which schools can become instruments of health promotion for children is fundamental in determining whether they will be both educated and healthy, and hence contribute to building a better world.[1] Vision has an essential role in a child's development. Early detection provides the best opportunity for effective treatment of eye and vision problems in school children. Therefore, timely screening plays a vital role to avoid lifelong visual impairment.[2] School children contribute to a significant number of the patients.Net primary school enrollment ratio is 84% for male and 60% for female. Only 50% of primary school entrant reaches grade 5, while gross secondary school enrollment ratio is 33 and 28 percent for male and female respectively.[3] The secondary school children thus

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MI conceptualized the project. KU & NMD did the data collection. KU*, HU & MAK performed the literature search. The statistical analysis was also done by NMD. The drafting, revision & writing of manuscript was done by MI & KU.

roughly represent 1/3rd of that age group in the community. The World Health Organization (WHO) considers Pakistan as a leading country for taking steps for prevention and treatment of blindness. A National Blindness Survey conducted in 1987 indicated a blindness prevalence of 1.78%, whilst more recent data indicate there is a decline in prevalence to 1%.[4] Refractive error of vision is an important public health problem today and in the future. Globally refractive error has been identified as one of the five immediate priorities within the framework of vision 2020.[3]

Ocular misalignment (Strabismus) is one of the major reasons of refractive error in children. It is a pathological state due to an underlying disease process, which results in abnormal binocular vision leading to an objective cosmetically disturbing deviation from the normal appearance and thus affects the quality of life of a child besides psychosocial issue.

It is always easier to influence the attitudes and behavior of children than adolescents or adults because young children are considered an important target group for eye health education. Different age groups require different and appropriate level of information in language appropriate to them. It is important to find out from children how they perceive health in general and eye health and strabismus in this specific context. Visible strabismus has been shown to have adverse psychosocial consequences upon the life of children as well as adults[4] Squint is an important ocular problem which affects growing children in many ways and better level of awareness will help in timely management. Studies has proved that surgery to improve ocular alignment appears to herald major improvements in the quality of psychosocial functioning for most adults.[5] This study focuses to know how our school children perceive squint. Keeping in view the importance of the topic this study was planned with an objective to know about the perceptions of our school going children of aged 11 to 16 years about strabismus.

Methodology

After taking the permission from district education department this qualitative study of one month duration was conducted at 5 schools (03 public sector and 02 private sector) of district Abbot Abad, Khyber Pakhtunkhwa, Pakistan. From each school total 10 students were enrolled, four students for semi-structured interviews and six students for focus group discussion. However only those students were enrolled whose parents consented and signed the written informed consent form. It was also ensured that half of the study participants were wearing spectacles for refractive errors. This small sample size could not be a representative of the study population, however we tried to include both public private schools and both genders.

For conducting individual interviews and focus group discussions, an interview guide was prepared by the investigators. After doing a small pilot study, the questions in the guide were reformatted and rephrased several times so as to become more clear and relevant. After finalization, Urdu translation was done for the convenience to conduct interviews and focus group discussions. All the individual interviews and group discussions were conducted in the Urdu language. The researcher can read, write, speak and understand the interviewing language well. Four school children were interviewed separately apart from a focus group discussion involving six school children. All the individual interviews and focus group discussions were recorded with a tape recorder. The interviews lasted for about 25-30 minutes and the focus group discussions for more than an hour. The interviews and discussions were conducted by asking the regular questions and probing questions where needed. In the end of the interviews, the researcher thanked all participants for their cooperation. At the end the tapes were reviewed, transcribed and written down into a textual readable form.

All the data from the individual interviews and group discussions were organized and compiled in to a single unit. All the related records were summarized under each main questions of the interview guide. A copy of the data was reviewed, and important recurrent themes, ideas and concepts were marked up (coding). All the results are presented in the form of tables.

The ethical clearance was taken from Institutional Research and Ethics Board of Postgraduate Medical Institute, Peshawar.

Results

Coded themes and ideas were verified, confirmed and qualified by searching and researching through the data. Grouping of the data according to the recurrent emerging themes and ideas was done from the combined data (indexing). Recurrence of themes in a single focus group discussion were not considered important because most of them were looking to be a repetitions of the statements given one after another by the participants of the group discussions. However combined emerging themes were sorted out. All the important phrases from the data were selected which were found in line with the study objectives

Table 1: Demographic variables and history of use of Spectacles among study participants.

Id. No.	*Class*	*Age (Years)*	*Sex*	*Spectacles Users*	*Duration of Spectacles use (Years)*
1.	10	16	Male	Yes	4
2.	6	12	Male	Yes	1
3.	8	12	Male	No	NA
4.	9	14	Male	No	NA
5.	9	13	Female	Yes	2
6.	7	11	Female	No	NA
7.	6	13	Female	Yes	4
8.	10	15	Female	No	NA
9.	8	13.5	Male	Yes	4
10.	9	14.5	Male	Yes	2
11.	7	13	Male	No	NA
12.	6	12	Male	No	NA
13.	10	15	Female	Yes	1
14.	9	14	Female	No	NA
15.	6	12	Female	No	NA
16.	7	12	Female	No	NA
Focus Group Discussion-1	7	13	Male	No	NA
	8	16	Male	Yes	7
	7	13	Male	Yes	1
	10	15	Male	No	NA
	6	12	Male	No	NA
	9	15	Male	Yes	5
Focus Group Discussion-2	8	13	Female	Yes	3
	8	13	Female	No	NA
	7	12	Female	Yes	8 months
	9	14	Female	No	NA
	10	15	Female	Yes	4
	6	11	Female	No	NA
Focus Group Discussion-3	10	15	Male	No	NA
	7	14	Male	Yes	1 month
	10	15	Male	Yes	1
	6	12	Male	No	NA
	9	14	Male	No	NA
	8	14	Male	No	NA
Focus Group Discussion-4	8	13	Female	No	NA
	8	13	Female	Yes	2
	9	15	Female	Yes	3
	10	15	Female	No	NA
	6	11	Female	No	NA
	7	14	Female	Yes	4

Table 2: Relative strengths of sub themes.

No	*Sub themes*	*Individual interviews respondents*	*Focus Group Discussion (FGD)*	*Total*
A.	Seems to look to side other than he is looking at	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16	1,2,3,4	20
B.	Occurs by birth/ childhood/ familial	1,2,6,9,10,11,12,13,14, 15,16	2,3,4	14
C.	Occurs later on/ disease caused	1,2,9,10,11,12,13,14,15,16	2,3	12
D.	Vision in squint is weak	1,4,5,6,7,13,14,15,16	2,3,4	12
E.	Vision in squint is normal	3,8,9,10,11	1,3	7
F	The doctor should be consulted	1,2,4,6,7,8,9,12,13	1,2,3,4	13

and were quoted under the headings of the themes and sub themes (Table-1).

A summary of the sub themes describing the squint as seen by the school children is given in the Table-2. This table serves to indicate the relative strengths of the different sub themes discussed.

Almost all of the participants say that in squint the direction of gaze is different from the one where the eyes are looking, describing it in their own words as: ‘About squint I don’t know clearly…I have seen, one of their eye is deviated and the other straight, the one who sees understands that (he is looking to some other side), he understands that he is looking towards me’. [Case.1], they are looking here but seem to be looking there. [FGD.2], ‘In squint if he is looking straight, we feel that he is looking to some other side’. [Case.14], ‘When somebody is seeing straight, the other feels that he

is looking to right or left'. [Case.3], 'Those people who have squint, when they see something, their eyes can be deviated'. [Case.8], and: 'When they see something with concentration, give attention to that, then their eyes turn…he is looking to one side and his eyes are turned to some other side'. [Case 11], two of them described squint relative to the black portion of the eyes. They say: 'In squint the black portion of the eye goes slightly towards right or left and if he is looking straight, he sees things on the right or left'. [FGD.1], and: 'In squint the black portion of the eyes is deviated towards the nose'. [Case 2], one of participant mentioned that in squint the direction of gaze can't be decided, he says: '…in squint we can't decide about a person to which side he is looking, his eyes are deviated'. [FGD 4], one of them said that the one who have squint feel ashamed: 'in squint his eye sight, he is seeing straight but the direction of his sight is on the left side or on the right side. Those who have squint that man feels ashamed and what the other who is looking at him will be thinking about him' [FGD.3].

A proportion of the subjects were of the opinion that squint occurs by birth and is present in childhood: 'Mostly I have seen it as by birth. It is from God that the eyes have squint, it can occur later on in life'. [Case.10], '…squint can also be by birth'. [Case.1], '… the vessels of eyesight are weak by birth because of which his eyes starts deviating in the childhood and squint occurs'. [FGD.3], and: 'The eyes squint used to be present from childhood, are deviated'. [Case.6], few of them said that squint has a familial element that it occurs in families: 'some are by birth and some familial effect is also found in the eyes'. [Case.13], [FGD.4].

Few of them say that apart from genetics, trauma is also one of the causes of squint: 'and apart from this I have seen that it often occurs after when you hit by something'. [Case.1], 'Squint occurs by birth and it also occurs with some disease and it is also caused by some trauma to the head'. [Case.16].

Few of them were of the opinion that diseases cause squint later on: 'Squint is due to disease…and sometime it is from childhood'. [Case.9], and: 'Apart from it, many diseases are its causes for example polio or paralysis (Falij: any condition having paralysis)'. [FGD.3]: 'Some people, especially girls keep hair in front of their eyes, which causes quite a lot of squints'. [Case.13]

'The squinting eyes can't see properly'. [Case.7], and: 'Vision is less in the squinting eye'. [Case 12], one participant said that in squint there is diplopia: 'with squint one can't see clearly, their image is not formed on the retina…sometimes they see double'. [FGD 2], another one says that although the vision is weak, but they can see properly: 'In squint the eyesight is weak but he can see things properly'. [Case 5], one student said that in squint, vision can even be lost or can be less or can be totally affected'. [Case 1]

Vision in squint is normal: Few of the study participants said that in squint vision is normal giving their comments: 'one who has squint sees well but only the eyes are deviated'. [Case.3], 'in squint the vision is normal…but its cause can be an eye defect'. [Case.8], 'vision used to be quite normal'. [Case.10], and: 'vision is normal in squint'. [Case 9], one commented that the vision in squint is normal but the area (field) of vision is reduced: 'in squint one can see only one thing, can't see more, sees less'. [FGD.1]

Almost all the students believed that doctor should be consulted in case of weakness in vision. They said 'Doctor should be consulted early, so that treatment can be done from the beginning to avoid later on further loss of vision. As eye is such a complicated thing that its treatment is not possible unless some expert doctor gives the treatment and at home its treatment is not possible'. [Case.1], this student also said 'We should take him to the hospital'. [Case 2], and another one said : 'A child with weak vision should check his eyes with the doctor and should wear glasses'. [Case 7], according to another student: 'We should take him to the doctor in the initial stages. The doctor will check him up; only then he will tell that whether he is suffering from far sightedness or shortsightedness. Then he will prescribe glasses for that'. [Case 8], they also said that the instructions of the doctor should be complied with e.g. 'A child with weak vision should immediately consult eye specialist and according to doctor he should either use drops or make glasses'. [FGD.2], 'He should immediately contact doctor…and should follow as the doctor instructs'. [FGD.3], another one says: 'In the beginning when the child can't see properly he should immediately tell his parents, his elders that they should take them to the doctor. And give him the glasses of prescribed number by checking him up in a good hospital'. [Case.13], and: 'The parents of the child with weak vision should take him to the doctor and act on doctor's advice and take treatment seriously'. [FGD 4] One of them said that only doctor can treat cases of weak vision: 'He should take treatment from doctor; it is better to go to the as he is the only one who can treat weak vision'. [Case.9], while some had the idea that: 'some go to traditional healers and take treatment from them. 'FGD.3]: '…and there are many traditional medicines as well'. [Case.8]

Discussion

In this study, we found that the children and parents suffer from significant negative psychosocial and emotional consequences of strabismus. Main findings were compared with recent published literature. The recurrent themes in the individual interviews and focus group were more or less the same but, in some areas, either the individual cases or the focus groups were coming out with some new ideas. The first question was included in the interview guide as an icebreaker to start the interviews and focus group discussions and to develop a rapport with the interviewee and the participant of discussions.

According to The World Health Organization estimate, approximately one in five young people under the age of 18 suffer from some form of developmental, emotional or behavioral problem, and one in eight experiences a mental disorder.[6] Because research shows that half of adult mental disorders begin before the age of 14 and that early intervention can prevent and reduce more serious consequences later in life, it is critical to expand the role of mental health professionals with schools worldwide.[7] Schools have the potential to affect the mental health of millions of young people, as well as those who work in schools. Research indicates that programs promoting mental health are among the most effective of health promoting school efforts.[8] Several studies highlighted the effects of strabismus on child health. According to a study visible strabismus shown to have adverse psychosocial consequences on individuals.[6]

According to our study, ocular misalignment has negative effect on life. It also has a negative effect on education and getting spouse for marriage. Most of the squint affected children feel ashamed of their health condition and this is even more severe among girls.

In present study, about the treatment of squint, almost all the school children were quite sure that doctor should be consulted as early as possible because it is a serious problem of the eye. According to a study, it has been proved that corrective surgery improves psychosocial function.[9] According to another study, school children and their teachers had a good knowledge of eye health, but many of them had serious misconceptions e.g., use of kohl, medicines and eye drops keeps eyes healthy. This study proves that health education in schools must consider children's existing knowledge and misconceptions about various aspects of eye health. Such steps if taken could improve the relevance of eye health education to schoolchildren[10] findings of the study indicate that early detection through early eye screening; health education and access to a quality eye care facility have reduced the burden of eye disease and blindness among rural Nigerian children.[2] Therefore it makes sense to study the quality of life of the strabismus patients and the beneficial effects of its correction.[11]

Contrary to our belief and a previous study on adult patients with squint where exodeviation and male gender were reported to have lesser negative impact of strabismus, further study also concluded that there was no significant difference in responses for an exodeviation compared to an esodeviation among squint affected male and female children.[12]

Although we could not evaluate the effect of surgical correction, a previous study by Archer et al. has demonstrated that statistically significant improvements can be seen in the social, emotional, and functional measures of the children's health status after surgical realignment. This indicates significant psychosocial benefits afforded by strabismus surgery to improve the quality of life of children with strabismus.[13]

In our study, most of the children repose was in favor of seeking early advice from an eye specialist which is encouraging as far as eye health particularly strabismus is concerned. Several studies highlighted the negative impact of squint on both child and adult psychology and found that children and adults with strabismus often suffer from several psychosocial and emotional consequences like poor self-image, negative social bias, ridicule at school, depression, anger and outrage, increased social anxiety, poor interpersonal relationship, inhibition and poor job opportunities in adults.[11,13] According to Reports from developmental psychologists, it was proved that a child develops mirror recognition of the self between two to four years of age.[14]

Hence, we believe that the right age for intervention to correct the strabismus should be as early as possible like before four years of age. Also, by this age, a child starts interacting with other children of the same age and has to work under peer pressures. In our study, almost all of school children were clear that how squint looks like. A significant number of them told that squint occurs by birth and in childhood and it also occur later due to diseases or trauma to the head or eyes. More than half of them told that vision is weak in eyes with squint but some of them were of the view that vision in squint is normal. So majority of the school children in our study have a concept of strabismus. In summary, there was significant negative psychosocial impact of strabismus on children with strabismus. Further studies to evaluate

improvement in the quality of life after a successful squint surgery is required. The findings of this study suggest that programs to increase awareness of the causative factors, spectacle wearing, and on the harmful effects of squint should be conducted with special focus on school children

Conflict of interest: None declared.

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