



Psychosocial impacts of amblyopia therapy

A uthor's Affiliation

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Objective: The aims and objectives of the study were to evaluate the effects of amblyopia therapy on psychological well being and emotions of children and to find out the causes of non compliance of amblyopia therapy.

Method: The study was conducted in the month of October, November and December 2012. A total of 50 children were checked who were undergoing amblyopia therapy.

Result: Among those 66% children reported that they face educational difficulties, 52% had recreational difficulties. 88% families were aware of importance of patching that's why 88% families were supportive, 54% friends were supportive and among teachers, 62% were supportive 20% were not school going 18% were discouraging. Child's own psychology plays a significant role, 76% children were hesitant and 22% were confident. It is because of two factors, one is poor cosmetic appearance and other is poor vision in uncovered eye. 60% had best corrected vision in range of 6/18-6/36, 32% had best corrected vision in range of 6/6-6/12 while 8% were in range of 6/60-3/60.

Conclusion: Social well being was not that much affected because of proper guidance of practitioners. But 76% children were hesitant in applying patch because of poor cosmetic appearance and poor vision in uncovered eye so compliance was poor.

Introduction:

Amblyopia is a unilateral or bilateral reduction in visual acuity as a result of inadequate visual inputs or following some disorder of binocular interaction during early years of life.¹ According to Taylor amblyopia is a condition where examiner sees nothing and the patient very little.²

Amblyopia can be generally classified into Strabismic amblyopia, Stimulus deprivation amblyopia, and refractive amblyopia. In refractive amblyopia, the retinal image is degraded because of optical blur. There are three main categories of refractive amblyopia: (1) Meridional, (2) Isometropic, and (3) Anisometropic.

In meridional amblyopia, lines are seen less clearly at some orientations than others even after full correction. It is a bilateral condition in which the refractive error in each eye is so great that a clear retinal image cannot be obtained anywhere in space. The result is bilaterally decreased visual acuity. Most often this is seen in patients with very high hyperopia. However, these patients often do not have the experience of clarity and, therefore, their visual systems do not recognize the need to accommodate. Consequently, these patients frequently do not demonstrate a strabismus. Anisometropic amblyopia occurs, as the name indicates in cases of anisometropia i.e. conditions when there is a difference of refractive errors in both the eyes particularly during childhood. With the passage of time the brain ignores the hazy image of the eye having a greater refractive error which ultimately is "turned off" or becomes "lazy". Since the eyes remain straight, this condition may be noticed very late both by parents as well as by the pediatrician.³

Amblyopia resulting from hyperopic anisometropia is probably the most common refractive amblyopia. As little as +1.00 OS of hyperopic anisometropia can cause amblyopia of the more hyperopic eye. Mild to moderate amounts of myopic anisometropia (i.e. up to 5.00 D) usually do not result in amblyopia, the less myopic eye is often used for distance vision, and the more myopic eye is used for near vision. Thus, amblyopia is avoided.⁴ Amblyopia in unilateral high myopia is typically very dense. Similar density of amblyopia may also be associated with myelinated nerve fibers.⁵ The amblyopia that results from blurring of the retinal image caused by opacities in the cornea, anterior chamber, lens, vitreous chamber, or retinal surface (e.g., macular hemorrhage) is called deprivation amblyopia. Deprivation can also occur due to severe ptosis or iatrogenic amblyopia from patching therapy.⁶ Treatment of amblyopia has two main components:

1. Refractive correction by glasses
2. Occlusion (by "patching") or "penalization" (by pharmacological or optical means) of the other eye.⁷

The determination of the optical error of the eye is the first step in developing a total treatment plan for patients with amblyopia. Patients with anisometropic amblyopia frequently respond to refractive correction alone without the need to institute occlusion or penalization therapy.⁸ However for those not improving by this treatment, the next step involves the active use of the amblyopic eye by occluding the good eye. Occlusion therapy is not a new concept; in fact it has been used since the 18th century. Opinions vary on number of hours per day that should be prescribed, ranging from few hours to all waking hours. Patching is considered as a gold standard for amblyopia treatment.⁹ Patching may be full-time or part-time but children undergoing full-time occlusion must be re-assessed after intervals of one week per year of age, in order to avoid iatrogenic amblyopia in the sound eye.

- Compliance may be quite difficult to monitor but is instrumental in determining the success of this therapy. In fact, in case the visual acuity is not improving always consider the possibility of lack of compliance.¹⁰
- In addition to patching, other methods such as glasses with opaque adhesive tape, opaque contact lenses and spectacles with occluder on one eye are also in use.¹¹

Sometimes the stronger (good) eye can be blurred or "penalized" to help the weaker eye get stronger. This can be achieved with cycloplegic drugs¹² and/or plus lenses.¹³ This renders the good eye blurred more than the weaker eye forcing the child to use the latter. This treatment can be used in place of occlusion when the amblyopia is not that dense or in cases where the child does not wear the patch as recommended.

Another alternate is fogging. This method is ideal for mild visual deficits and long-term maintenance therapy, and in school age children in which compliance with wearing glasses is possible.¹³

Active treatment has long been suggested as an important supplement to occlusion therapy. Duke-Elder emphasized the importance of interesting play activity during occlusion.¹⁴

The most common reason for failure of occlusion therapy is non-compliance because a considerable number of children refuse to wear eye patch while the parents cannot make them wear it. The most common reasons for this is social stigma (especially in school going children) or because the children do not like a foreign body on their face. However, every effort should be made to improve the level of compliance with occlusion therapy; otherwise, other options should be used to get better results.

In a study, in-depth interviews with children with amblyopia and their parents were undertaken. The researchers concluded that amblyopia therapy had adverse

consequences for some children's identity and psychosocial well-being.¹⁵

Similarly, it was found that self-perception of children being treated for amblyopia about their social acceptance was found to be lower as compared to controls. This self-perceived lower level of social acceptance was associated with patching treatment but not with the presence of strabismus or spectacle wear.¹⁶

Parents of children have described experiencing dilemmas and tensions particularly in the initial part of amblyopia therapy with patching. Many parents revealed that children felt distress in early stages of treatment.^{17, 18} This compliance has been found to be worse than those penalized with atropine. ($p < .001$).¹⁹

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Amblyopia may have a marked effect on different aspects of psychosocial functioning of an individual that may be related to self-image, friends, work, or school. Proper screening, treatment and prevention of amblyopia especially during the critical period is therefore strongly advocated.²⁰ Subjective visual and psychological functions are altered when compared with normal subjects due to amblyopia, strabismus, and a previous unpleasant patching experience. In a study, penalization with atropine has been shown to be as effective as occlusion therapy in the treatment of amblyopia. In fact, patient acceptance of atropine penalization was superior to that for occlusion therapy.²¹

Psychological implications of amblyopia are tremendous. Significant psychological stress related to amblyopia therapy has been reported by amblyopic children and the families of amblyopic children during treatment period.²²

Children often remove or peel back their patches to allow peeking.²³ Compliance is key factor in success of amblyopia therapy: it varies widely, from 30% to more than 90%.²⁴⁻²⁶ In one study of patching from the UK, failure to comply with prescribed regimen at least 80% of the time occurred in 54% of patients.²⁷ It would appear that compliance can be improved with better education of parents and some explanatory material to take home.²⁸

Objectives Of The Study:

1. To determine the effects of amblyopia therapy on psychological well being and emotional impacts of amblyopia treatment.
2. To find out the cause of non-compliance with amblyopia therapy.

Material And Methods:

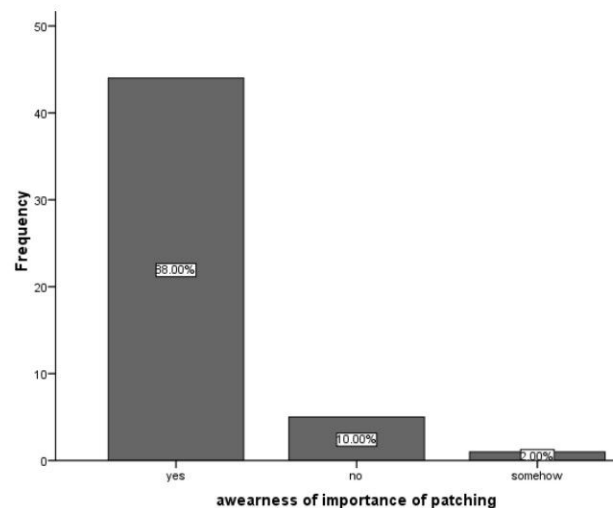
Inclusion criteria:

- Patients with all types of amblyopia
- Patients with age 0 -8 years

- All amblyopic patients with any type of refractive error
- Patients with ocular misalignment Exclusion criteria:
- Mentally retarded patients
- Uncooperative patients
- Patients with media opacity
- Patient with underlying active pathology

Results:

Figure. No. 1: Awareness of Importance of Patching



Above results show that most of the people were fully aware of importance of patching, while some people reported that they were unaware of importance of patching

Figure No. 2: Educational Difficulties

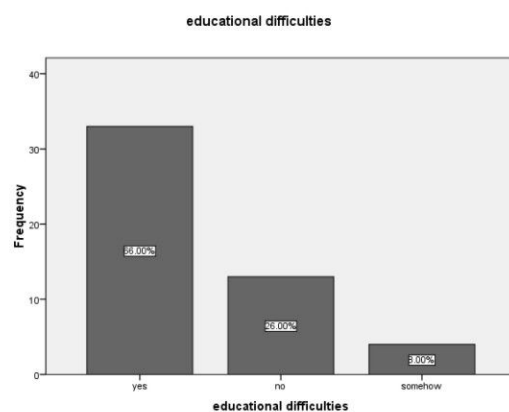


Figure 2 depicts that more than half of the children had educational difficulties

Figure No. 3: Difficulties in Recreation

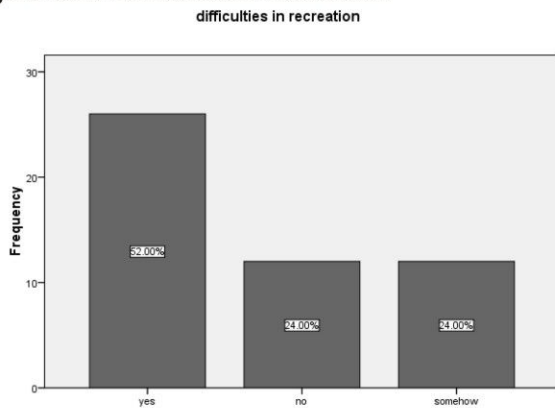


Figure 3 shows that more than half of the children reported difficulties in recreational activities as well.

Figure No.4: Attitude of Family

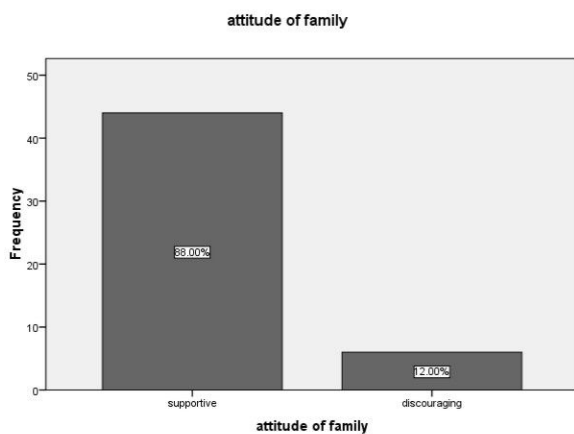
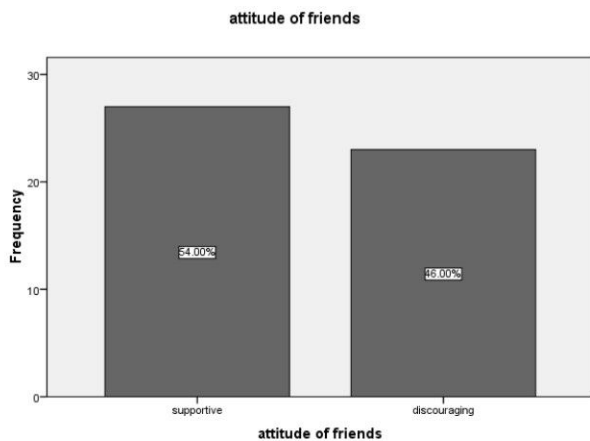


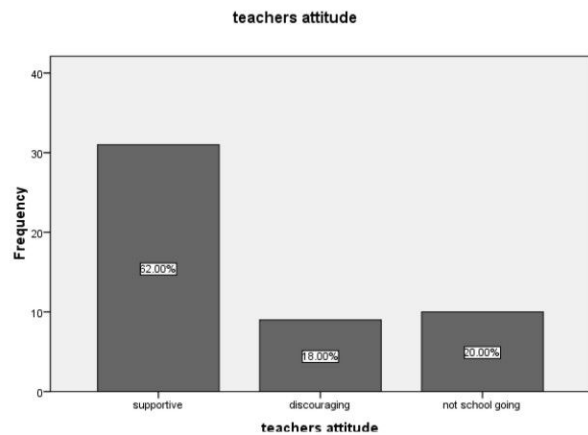
Figure 4 shows that most of the families were supportive.

Figure No. 5: Attitude of Friends



This figure represent that attitude of more than half of the friends was supportive whereas a considerable proportion was discouraging as well.

Figure No. 6: Teachers' Attitude



Most of the teachers were supportive, but 18% were not supportive while rest of the children were not school going.

Figure No. 7: Attitude of Child

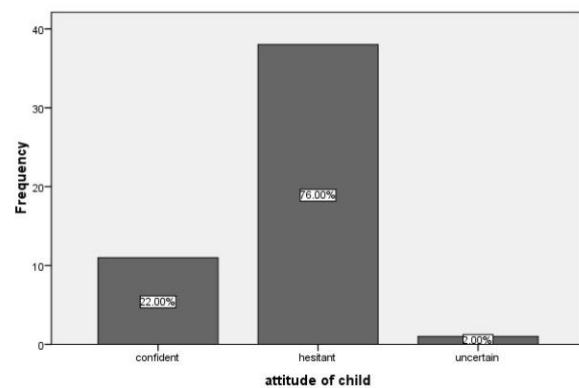


Figure 7 represents that two thirds of the children were hesitant

Table No.1: Best-Corrected VA in Uncovered Eye and Educational Difficulties

Best corrected VA in uncovered eye	Educational difficulties			Total
	Yes	No	Somewhat	
6/6 -6/12	8	7	1	16
6/18 -6/36	22	6	2	30
6/60 -3/60	3	0	1	4

Fisher exact test value is 5.881. p value is .208. Therefore, it is implied that there is no association between

density of amblyopia and educational difficulties faced by the student.

Discussion:

Amblyopia is non-optical and non-pathological reduction in visual acuity. It is also a treatable disease. Prevalence of amblyopia is 3-5%. Its onset is in 1st decade of life but its effects can last a life time.²⁹ It is most common cause of unilateral visual loss under the age of 70 years.³⁰ The main reason behind all is that unilateral amblyopia remain neglected until and unless it got detected eventually. In Pakistan, routine examination is not in trend. So bilateral amblyopic patients get benefit in this aspect. Neglected amblyopia can lead to permanent visual loss. So greater care must be taken to treat it as early as possible because visually plastic period is limited, and after that, nothing can be done with it. Patching is a gold standard to treat amblyopia. But its compliance is poor, that is because of poor cosmetic appearance and poor vision in uncovered eye. So children peel back their patch and goal is not achieved. I conducted my study to assess the psychosocial impacts of amblyopia therapy. I assessed 50 patients with amblyopia, who were already taking treatment. Among those 66% children reported educational difficulties. More than half reported recreational difficulties.

In social circle, 88% families were supportive that was because of proper guidance regarding importance of patch, that's why 88% parents reported that they are fully aware of importance of patching. 54% friends were supportive and among teachers 62% were encouraging that was because of the fact that the parents of those children had meeting with their teachers and made them aware of treatment methodology, its benefits and adverse outcomes of poor compliance, 18% were discouraging and 20% were not school going.

Table No.2: Best-Corrected VA in Uncovered Eye and Attitude of Child .

Best corrected VA in uncovered eye	Attitude of child			Total
	Confident	Hesitant	Uncertain	
6/6 -6/12	5	11	0	16
6/18 -6/36	5	24	1	30
6/60 -3/60	1	3	0	4

This shows that poor vision in uncovered eye has insignificant role in non-compliance. Fisher exact test is

applied to compare the attitude of child with best-corrected visual acuity in uncovered eye. The result is insignificant depicting that poor compliance is not because of poor vision.

A comparison between attitude of child and cosmetic appearance shows that cosmetic appearance has major affect on attitude of child. The psychological well being of children was badly affected as 76% children were hesitant in applying patch while 22% were confident. That was because of poor vision in uncovered eye and poor cosmetic appearance when applying patch. Sixty percent of children had vision of uncovered eye in range of 6/18-6/36, 32% in category of 6/6-6/12 and 8% in range of 6/60-3/60.

Table No.3: Attitude of Child and Cosmetic Appearance of Child

Cosmetic appearance of child	Attitude Of Child			Total
	Confident	Hesitant	Uncertain	
Good	9	0	0	9
Bad	2	38	0	40
Uncertain	0	0	1	1

Fisher exact test value is 88.864 and P value 0.00. This shows that the role of poor cosmetic appearance in level of compliance cannot be neglected. Therefore, steps must be taken to treat it actively to reduce to burden of unilateral blindness as amblyopes are at greater risk to get blind completely.

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