

Impact of Delayed Strabismus Surgery on Psychosocial and Functional Aspect of Strabismus Patients in Bangladeshi Population by Using of Strabismus Specific Questionnaires -a Hospital Based Study

Sidratul Muntaha Naznin¹, Mohammad Mostafa Hossain², Md Rashedul Haque³, Bipul Kumer De sarker⁴

Abstract

Purpose: To determine the reasons behind delayed surgical correction in patients with strabismus, to reveal motivations for seeking treatment and to study the psychosocial and functional impacts of strabismus on patients.

Method: It was prospective study included 52 patients with strabismus since Januarys' 2023 to October '2023 at Ispahani Islamia Eye Institute & Hospital. Patients aged >12 years with strabismus for at least one year before surgical correction were included and excluded patients below 12 years age, strabismus less than one-year duration, mental disabilities ,patients with facial abnormality and paralytic squints. A validated questionnaire was used to collect data on age, gender, social class, level of education, family history and presence of diplopia. All patients were underwent comprehensive ophthalmic examination during preoperative and postoperative visit. Total SS-20 (and its subscales: psychosocial and function) scores were calculated and analyzed.

Result: Study population was 52. Mean age was 25.29(range: 12-46) (SD=9.89). Female was (42.3%, n= 22) where's male was (57.7%, n=30).Commonest cause of delayed surgical correction was fear from surgical complications (42.3%) followed by financial crisis 12(23%) and cause of undergo surgery after this delay were to improve cosmesis (30.7%). Mean psycho social score was 58.15; SD=7.68 where's mean functional score was 55.75; SD=7.63. P Value is >0.05 which show no significant difference between male and female.

Conclusion: Public education, increased awareness among health professionals and health insurance policies can change this delayed surgery trend in Bangladeshi population and keep positive impact on psychosocial and functional aspect on affected individuals.

Key Words: Strabismus surgery, binocular vision, Strabismus Specific Questionnaires, Psychosocial impact, Functional impact

Introduction

Strabismus derived from Greek word strabismus; it means "to squint" or look obliquely. Strabismus develops with the eyes which not aligned properly and point in different directions. Common causes of strabismus include abnormalities in binocular vision or anomalies of neuromuscular control of ocular motility. In addition to altering physical

appearance, strabismus has the potential to disrupt visual development and function, negatively impact overall health and result in psychological distress. [1]

Strabismus is a public health concern for numerous reasons. Children with strabismus are at increased risk for irreversible vision loss, ultimately limiting future opportunities. Mature

1. Associate Professor cum consultant, Pediatric department, Ispahani Islamia Eye Institute& Hospital

2. Professor cum senior consultant, Pediatric department, Ispahani Islamia Eye Institute & hospital

3. Long term fellow, Oculoplasty Department, Ispahani Islamia Eye Institute & Hospital

4. Associate Professor cum consultant, Glaucoma department, Ispahani Islamia Eye Institute& Hospital

Address of Correspondence: Dr. Sidratul Muntaha Naznin, Associate professor cum Consultant, Pediatric ophthalmology department, Ispahani Islamia Eye Institute& Hospital, E-mail: nsidratulmuntaha@gmail.com

adults with strabismus have an increased risk of injury. Many affected individuals find it difficult to receive appropriate care. Educating healthcare providers about strabismus will increase access to timely and effective treatment, addressing the medical, social, and psychological complexities of the disorder. This study addresses the impact of strabismus on psychosocial health and quality of life in children and adults. And Value of Squint surgery over psychosocial aspect of strabismus patients in Bangladeshi population. [1]

The overall prevalence of all forms strabismus in adults ranges from 2.5% to 4% in German [2] and the USA, respectively [2, 3] While somatic factors are of great importance for patients suffering from strabismus, psychological factors are often ignored and treated as less important, although strabismus can have a negative impact on the social life of those affected as early as in childhood. As adults, patients with strabismus suffer more often from social phobia, are at a disadvantage when looking for a romantic partner [6] and are judged to be less attentive by the people they talk to. This indicates that early and adequate therapy for strabismus and the associated somatic and psychosocial effects are necessary. [2]

Strabismus surgery aims to restore binocular vision, increase binocular fields, correct diplopia, or establish the normal alignment of the eyes. If the patient is not diplopic or lacks the potential for binocular vision, strabismus surgery has considered as purely cosmetic; Strabismus surgery is not only performed to correct an abnormality caused by a congenital or acquired defect in binocular vision but also reduce the serious social consequences of strabismus like the loss of normal eye contact, which may affect employment opportunities and interpersonal relationships. [3]

Benefits of earlier surgical correction have been reported in many literatures, it is common in our practice to take late decision to have the surgery. Delay between the onset of strabismus and surgical correction is attributed to many factors, like common misconception about the complications and success rates of surgical intervention, non-affordability and lack of

awareness among patients and some health care providers. [3]

Aim of current study is to find out the reasons of delayed surgical correction and to study the psychosocial and functional impacts of strabismus on Bangladeshi population using the SS-20 questionnaire. This is the first study conducted to address this issue in Bangladesh

Method

It was a prospective cohort study included 52 patients with strabismus who had attended the outpatient pediatric department at Ispahani Islamia Eye Institute & Hospital since January' 2023 to October '2023. The patients aged 12 years with strabismus for at least one year before surgical correction were included in the study. Our exclusion criteria for this study were patients below the age of 12, patients with strabismus of less than one-year duration, those not willing to participate in the study, lack of capacity to get verbal informed consent and patients who had other ocular or facial abnormalities; such as facial nerve palsy or Graves' disease, patients with mental disabilities, patients with paralytic squints. In patients with physical limitation, we offered help in filling out the questionnaires.

All patients underwent a comprehensive ophthalmic examination during their preoperative and postoperative visit. A validated strabismus specific questionnaire SS-10 was used to collect data on age, gender, social class, level of education, family history of strabismus in first degree relatives, onset and duration of strabismus and the presence of diplopia. Social classes were determined based on average annual expenditure per household and divided into poverty, lower-middle, middle, upper-middle, and affluent classes [4]. Level of education was determined based on the highest educational qualification granted, and patients were classified accordingly into undergraduate (high school or below) or graduate (college or higher studies).

Patients were asked to select the most crucial reason behind the delay of surgical correction, and the following options were given:

- (1) The ophthalmologist did not offer surgery.
- (2) Surgery was offered but declined due to fear of surgical complications.
- (3) Surgery was offered but declined because the patient thought he/she was too old for surgery or the patient was not bothered by the appearance.
- (4) Surgery was offered but declined due to non-affordability.
- (5) The patient never sought care.

Moreover, the patients were asked to specify the reason to have surgical correction now. The following options were given: pressure/advice from family or friends, for cosmesis, to enhance chances of getting a job, for marriage/relationship prospects, having a better understanding of strabismus surgery and its potential complications, and improved economic status/medical insurance granted.

The questionnaire consists of two subscales to measure strabismus's psychosocial (P) and functional (F) aspects. Each subscale consists of 10 questions and each question uses a 5-point Likert scoring system: "always" (score 0); "often" (score 25); "sometimes" (score 50); "rarely" (score 75); and "never" (score 100). For each subject, we calculated a mean overall score (i.e., the mean of the 20 items) and the mean scores for psychosocial and functional subscales (the mean of 10 items for each subscale). [3] In the current study, the questionnaire was translated from English to Bengali according to the World Health Organization (WHO) translation protocol.



Fig: Strabismus (Esotropia) Patients before surgery

Results

Participants' Characteristics

A total of 52 patients with strabismus were included in this study. The mean age was 25.29(range: 12-46) (SD=9.89). Frequency of the female was (n=22; 42.3%) where's male was (n=30; 57.7%). The socio demographic characteristics of the patients are shown in Table 1.

Table 1 : Socio demographic and clinical characteristics of the patients (n =52).

	N	%
Gender		
Female	22	42.3
Male	30	57.7
Age (years)		
18-29	36	69.2
30-44	10	19.2
>45	6	11.53
Education		
Undergraduate	10	19.23
Graduate	42	80.7
Social class		
Poor	4	7.6
Lower-middle	10	19.2
Middle	28	53.8
Upper-middle	10	19.2
Affluent	0	0.0
Family history of strabismus		
No	32	61.53
Yes	20	38.4
Deviation type		
Esotropia	14	26.9
Exotropia	32	61.5
Vertical	6	11.5
Diplopia?		
No	46	88.4
Yes	06	11.6
Duration of strabismus (years)		
1-5	38	73
6-15	10	19.2
>16	4	7.7
Age at diagnosis (years)		
<10	42	80.7
10	10	19.3
Size of deviation (PD)		
<25	16	30.7
>25	36	69.3

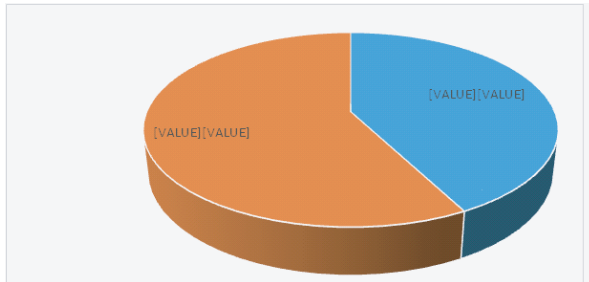


Table 2 : Reasons for strabismus surgery delay and seeking treatment now (n = 52).

The reasons for strabismus surgery delay and the motivations to undergo surgery as reported by the patients are shown in Table 2. Surgery was offered but declined due to fear from surgical complications was the most frequently reported reason (42.3%) for the delay in surgical correction followed by Surgery was offered but declined due to financial crisis 12(23%). The most common reasons to undergo surgery after this delay were to improve cosmetic appearance (30.7%) and Pressure/advice from family or friends (19.2%).

Reasons for surgery delay	N (%)
Surgery was not offered by an ophthalmologist	10 (19.2)
Surgery was offered but declined due to fear from surgical complications	22 (42.3)
Surgery was offered but declined due to financial crisis	12 (23.0)
Surgery was offered but declined because the patient was not conscious regarding appearance	6 (11.5)
The patient never sought care	2(38.46)
Reasons for deciding to undergo surgery now	
For cosmesis	16 (30.7)
A better understanding of strabismus surgery and its potential complications	08 (15.3)
Pressure/advice from family or friends	10 (19.2)
Improved economic status/medical insurance granted	6 (11.53)
For marriage/relationship prospects	8 (15.38)
To enhance chances of getting a job	4 (7.7)

Table 3 : The Psychosocial and Functional Impacts of Strabismus Using the S S-20 Questionnaire

In the multivariate analysis, in case of male; psycho social score (mean± SD) was 61.3±6.9 and functional score was (57.3±6.6).In case of female psycho social (mean± SD) score was (57.0±7.9) and functional score (mean± SD) was (55.8±8.3). P Value is >0.05 which showed no significant difference between male and female.

Subscale	Male	Female	P value
	Mean ±SD	Mean ±SD	
Psycho social	61.3 ± 6.9	57.0 ± 7.9	0.124
Functional	57.3±6.6	55.8±8.3	0.555

Table 4 : Multivariate analysis of factors associated with total SS-20, psychosocial and functional mean scores among all patients.

Among all patients; Mean psycho social score was 58.15 and SD=7.68 where’s mean functional score was 55.75 and SD=7.63.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Age	52	12.00	46.00	25.2885	9.88827
Psycho social	52	45.00	80.00	58.1538	7.68978
Functional	52	37.50	77.50	55.7500	7.63602



Fig: Before and after surgical correction of strabismus

Discussion

Strabismus can hinder an affected individual's ability to perform daily functions and negatively affect their well-being. Numerous misconceptions exist regarding the strabismus impact on overall health. Individuals with strabismus are at increased risk for both visual system and psychiatric disorders. Misinformation regarding available treatment options with strabismus continues to exist, resulting in decreased access to care. Improved education of health care providers

can increase appropriate referrals and initiation of treatment. Treatment of strabismus is not merely cosmetic and has the potential to improve psychosocial health and quality of life for both children and adults.

The current study showed that surgery was offered to more than one-third of patients with strabismus but they deny doing surgery due to fear from surgical complications. It was the most frequently reported reason (42.3%) for the delay in surgical correction. The second common cause was reported that surgery was offered but declined due to financial crisis 12(23%). Some of these fears were exaggerated by a prior bad surgical experience of the patient or one of his/her relatives and friends or due to misconceptions about the complications of surgical intervention. Some other had not been offered an intervention by their health care provider; they were advised to adopt nonsurgical measures like prisms or patching of one eye for long period of time, or they were counseled regarding exaggerated the possible complications of surgical intervention. Many health care providers and some ophthalmologists had exaggerated the risk of having persistent diplopia after surgical correction of longstanding strabismus pushing many patients to avoid surgery despite the small risk of developing this complication as reported by Kushner et al. [5]. To address this issue, we have to counsel properly the patients and the guardian about the risk and benefit of the surgery so that the patients could overcome the unnecessary fear from surgery. It is also important to educate the health care providers about the importance of advising surgery in the appropriate time to save patients' unnecessary waiting times. It will consequently reduce the psychosocial and functional problems caused by their eye condition.

Financial crisis is an important issue due to socioeconomic status of our developing country. In our study most of the patients from middle class; they are not too solvent to invest a large amount of money at a time. Unfortunately, many patients did not have medical insurance; consequently suffering from a treatable eye condition. Government-offered and private health

insurance policies should be reviewed to address this, among other health care issues. For example, strabismus surgery should be included for reimbursement and considered as a disease treatment rather than an optional cosmetic procedure.

The present study also highlights the reasons of seeking surgical correction after delay. More than a quarter of patients reported cosmesis as their primary motivation. Improve chances of getting a job or developing successful relationships were another important reason of seeking surgical correction. These causes were found common in a study conducted by Paduca et al. on Moldovan population [6].

About one-fifth of the patients decided to have surgery after developing a better understanding of strabismus surgery and its potential complications which can be attributed to improve patient-physician relationship and increased public awareness. Additionally, about 14% of the patients reported improved economic status as their primary reason to have surgery stressing the need to expand health care coverage.

Strabismus has a profound effect on facial expressions and eye contact in men and women; females are more likely to be prejudged according to their appearance than males, especially in Bangladeshi communities, which may explain their psychosocial score. But other studies reported that people rated females with strabismus more negatively than their male counterparts [7, 8, 9, 10].

In current study showed, in case of male; psychosocial score (mean \pm SD) was 61.3 ± 6.9 and functional score was (57.3 ± 6.6) . In case of female psychosocial (mean \pm SD) score was (57.0 ± 7.9) and functional score (mean \pm SD) was (55.8 ± 8.3) . There is no significant difference of (mean \pm SD) of psychosocial and functional scoring in between male and female. Both psychosocial and functional score showed P Value is >0.05 which is not significant. It may be due to our social status. Due to Bangladeshi culture and socioeconomic condition; female get less importance than male in case of taking treatment

and taking them to the health care center for treatment.

One of the limitations of this study is selection bias. Although this hospital-based study can provide us with a good idea about strabismus surgery delay and the impacts of strabismus on affected patients, a population-based study may reveal more accurate result.

Conclusion

Strabismus has profound psychosocial and functional impact on affected individuals. Many patients with strabismus tend to delay surgical correction due to various reasons; most of these delays could be avoided by better public education, increased awareness among health care providers and changing health insurance policies to cover the costs of strabismus surgery.

Conflicts of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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