

# Quality of Life of Adults Before and After Strabismus Surgery at a Tertiary Care Eye Centre of Kathmandu, Nepal.

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## ABSTRACT

**Introduction:** Strabismus affects the quality of life of adults both in functional and psychosocial aspect of life. This study was conducted to compare the health related quality of life in adults before and after strabismus surgery.

**Methods:** It was a prospective quantitative study conducted in Nepal Eye Hospital from Sep 2015 to July 2016. Thirty one adult participants with strabismus undergoing strabismus surgery completed the study. Twenty open ended adult strabismus questionnaire (AS-20) were used to assess the health related quality of life of adults before and one month after strabismus surgery.

**Results:** The overall median score of adult strabismus questionnaire for quality of life improved from 68.75 (Interquartile range (IQR 25) to 91.25 (IQR 17.5) after strabismus surgery ( $p$  value  $< 0.00$ ). Similarly, the median function subscale and median psychosocial subscale also improved from 72 (IQR 25) to 95 (10) and from 55 (IQR 37.5) to 90 (IQR 15) respectively after surgery.

**Conclusion:** The quality of life of adult strabismic patients improved significantly after strabismus surgery.

**Keywords:** adults; quality of life; strabismus surgery

## INTRODUCTION

Strabismus and amblyopia affects 2 to 5% of the pre-school population and is an important cause of visual and psychological disability.<sup>1-4</sup> Strabismus affects the quality of life including the functional and psychosocial aspects of life of adults. Binocular single vision is required for fine tasks involving stereopsis which is impaired in most of the people with strabismus. Normally eyes should be aligned both in distant and near fixation. Any latent deviation is controlled by the fusional ability of the person. Exophoria more than 9 prism diopters, esophoria more than 7 prism diopters and any amount of hyperphoria are considered abnormal.<sup>5</sup> However, phoria more than 5 prism diopters horizontally is considered abnormal by others.<sup>6</sup>

Strabismus surgery may be functional that aims to establish or restore binocular single vision or may be indicated to improve ocular alignment in the absence of any potential binocular function.<sup>7</sup> Surgical correction in strabismus is recommended when the amount of deviation exceeds 20 prism diopters. Deterioration in distant stereo-acuity suggests that surgery may be performed in intermittent exotropia.<sup>8</sup>

This study was conducted to compare the health related quality of life of strabismic adults before and after strabismus surgery.

## METHODS

It was a prospective study conducted in Nepal Eye Hospital from September 2015 to July 2016. Strabismic adults undergoing surgery for the correction of ocular deviation in Nepal Eye Hospital and consenting for the study were

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enrolled. After reviewing the instructions for patients prior to completing the questionnaire, the participants completed adult strabismus questionnaire (AS-20) before surgery and one month after surgery.

Comparison of health related quality of life was done among strabismic adults before and one month after strabismus surgery. Twenty items, patient derived health related quality of life questionnaire developed by Hyatt SR et al was used. The median overall questionnaire score and psychosocial subscale and function subscale score were compared between the participants before and one month after strabismus surgery using Wilcoxon signed-rank test. Similarly, the median difference in the overall, psychosocial and function subscale among male and female and among exotropes and esotropes were compared using Mann-Whitney U test.

## RESULTS

Thirty one adults with strabismus undergoing strabismus surgery completed the study. Among the participants, 18 were females and 13 were males. Age ranged from sixteen to thirty eight years with mean of 23.32 +/- 6.64 years.

Twenty four participants had exotropia, six had esotropia and one had hypotropia. One of the participants with exodeviation had third nerve palsy. Associated amblyopia was present in six participants and nystagmus in one participant. Among the exotropes, 21 were manifest and three were intermittent.

The median overall score was 68.75 (IQR 25) among strabismic adults before surgery and was 91.25 (IQR 17.5) after surgery. Median psychosocial scale was 55 (IQR 37.5) before surgery and 90 (IQR 15) after surgery. Similarly, the median function subscale was 75 (IQR 25) before surgery and 95 (IQR 10) after surgery using Wilcoxon signed-rank test. The overall health related quality of life score improved significantly after surgery in strabismic adults ( $p$  value < 0.00). The psychosocial subscale score after surgery improved significantly as compared to before surgery ( $p$  value < 0.00). Similarly, function subscale score also improved significantly after strabismus surgery ( $p$  value < 0.00).

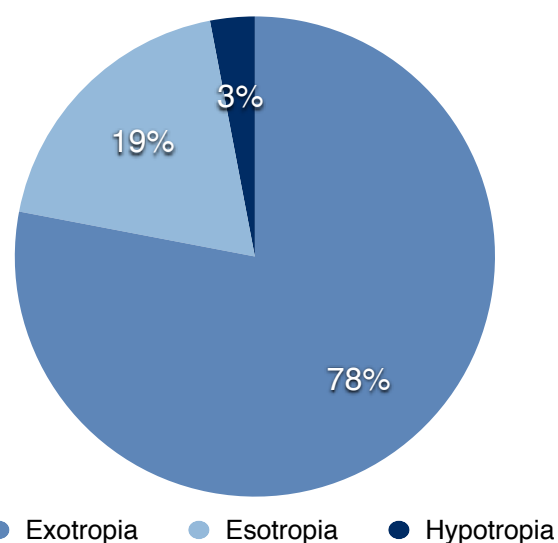
The median difference in psychosocial subscale

before and one month after strabismus surgery was 32.5 (IQR 30) in males and 38.75 (IQR 33.75) in females. Similarly, the median difference in function subscale before and after surgery was ten (IQR 20) in males and 17.5 (IQR 30.63) in females. The difference in median overall score before and one month after surgery was 18.75 (IQR 20) in males whereas it was 26.25 (IQR 23.44) in females by the Mann-Whitney U test.

Among exotropes (IQR n=24), preoperative and one month postoperative difference in median psychosocial score was 36.25 (IQR 33.75), in median function subscale was 17.5 (IQR 21.25) and in overall score was 26.25 (IQR 21.25). Similarly, among esotropes (n=6), preoperative and one month postoperative difference in median psychosocial score was 40 (IQR 35.13), in median function score was 10 (IQR 38.13) and in overall score was 25 (IQR 50) by the Mann-Whitney U test.

## DISCUSSION

Strabismus is known to affect the quality of life in adults.<sup>9,10,11,12,13,14,15,16</sup> In a comparative study on quality of life of strabismic and non-strabismic visually normal adults, there was statistically significant difference in the overall score, psychosocial score as well as function score ( $p$  value 0.00).<sup>17</sup> Improvement in ocular alignment and restoration of sensory status occurs after surgical treatment of adult strabismus. Ocular alignment is successfully normalized in about 80% of cases.<sup>18, 19, 20</sup>



**Figure 1:** Distribution of types of Strabismus

However, strabismus surgery in adults can be more challenging than in children and has been quantified by Intensity /Complexity index for strabismus surgery which is higher in cases of adult strabismus.<sup>21,22</sup> Even dynamic visual field correlated to activities of daily living is improved by strabismus surgery.<sup>23</sup>

The adverse psychosocial sequel of adult strabismus is improved by surgical correction. Measures of psychosocial functioning and comfort with interpersonal communication are enhanced after strabismus surgery.<sup>24</sup> Apart from that, adult strabismus surgery is highly cost effective, and cost-utility analysis suggest that it has a better value than cataract surgery.<sup>25</sup>

Binocular visual function is improved in adults with strabismus after surgery both in patients with potential for high-grade fusion and those with long standing childhood strabismus. 66%-86% of patients developed at least some degree of binocular fusion after strabismus surgery in several studies.<sup>26, 27, 28, 29, 30</sup> Up to 75% of patients who had strabismus from childhood also demonstrated some degree of fusion after realignment.<sup>31, 32</sup>

Patient oriented outcome in medical care is characterized by the quantification of changes in the health related quality of life following treatment.<sup>32</sup>

Strabismus with impairment in visual function and psychosocial function has been identified in recent years and tools like Amblyopia and Strabismus Questionnaire<sup>33</sup> and 20 item Adult Strabismus Quality of life questionnaire<sup>34</sup> have been developed.

In the present study also, the overall score of quality of life of strabismic patients improved significantly after surgery. Apart from that, the function subscale and psychosocial subscale also improved significantly after strabismus surgery in adults (p value < 0.00). Strabismus surgery in adults, apart from cosmetic value improves the psychosocial and functional aspects of quality of life.

The median difference in quality of life before and after surgery among the males and females and among exotropes and esotropes is not statistically significant in this study. In a study by Shrestha S et al there was a significant difference in functions of scale between exotropes and esotropes (p value 0.018) while there was no significant difference in

psychosocial subscale among exotropes and esotropes.<sup>17</sup>

## CONCLUSION

As health related quality of life significantly improves after strabismus surgery in adults, strabismus surgery needs to be advocated. Psychosocial and functional subscale are improved after strabismus surgery in adult patients whether they are male or female, exotropes or esotropes.

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