

# Comparative Study on Quality of Life of Strabismic and Non-Strabismic Visually Normal Adults

Sabina Shrestha<sup>1</sup>, Aparajita Manoranjan<sup>1</sup>, Sushan Man Shrestha<sup>2</sup>

<sup>1</sup>Nepal Eye Hospital, <sup>2</sup>Patan Academy of Health Sciences

## ABSTRACT

**Introduction:** Strabismus is known to affect health related quality of life in adults. This study was conducted to compare the quality of life among strabismic and non strabismic visually normal adults.

**Methods:** A prospective cross sectional study was conducted at Nepal Eye Hospital for two years. Fifty three adults with strabismus and fifty three adults without strabismus and normal vision were enrolled. Twenty open ended adult strabismus questionnaire (AS-20) developed by Hatt et al were used to assess the impact of strabismus on patient's health related quality of life. All the participants reviewed AS-20 instructions for patients prior to completing the questionnaire. The overall AS-20 score was calculated as a mean of all 20 item scores. The psychosocial subscale was calculated as a mean of items 1-10 (inclusive). Function subscale was calculated as a mean of items 11-20 (inclusive). The mean overall and subscale scores were compared between strabismic patients and non-strabismic visually normal adults using Mann Whitney U test.

**Results:** Mean overall scores decreased for patients with strabismus as compared to non strabismic visually normal adults. Mean psychosocial scale among strabismic patients and non strabismic patients was  $47.53 \pm 24.840$  and  $95.42 \pm 9.631$  respectively and mean function subscale among the two groups were  $63.57 \pm 22.652$  and  $83.91 \pm 13.592$  respectively. There was statistical difference in the overall score, psychosocial as well as function subscale between the strabismic and non strabismic visually normal adults (p value 0.00).

**Conclusion:** The overall quality of life appears to be adversely affected in people with strabismus in comparison to the ones without strabismus. Strabismus, being a treatable condition, should not be ignored and corrective measures should be undertaken.

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

## Introduction

Strabismus and amblyopia affect 5% of the population<sup>1</sup>. Binocular single vision is of importance for performing various vision related activities requiring depth perception. Adults with strabismus with suppression of one of the eyes lack stereo acuity affecting functional and even psychosocial quality of life. Different psychosocial variables are found to be affected by strabismus like poor self-esteem, lack of confidence, altered interpersonal relationship and even difficulty in employment procurement<sup>2</sup>. Adults with

strabismus have been found to be aware of the negative effects of strabismus on their lives<sup>3</sup>. Adult strabismus patients have many of the sensory adaptation seen in children with strabismus, including suppression<sup>4</sup>.

Strabismus is known to affect health related quality of life of (HRQOL) in adults<sup>3,5-11</sup>. AS-20 is a patient derived 20 item health related quality of life questionnaire specifically for adults with strabismus with subscales for assessment of psychosocial and functional concerns<sup>12</sup>.

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**Correspondence:**

Sabina Shrestha

Nepal Eye Hospital

Email: sabina\_drs@hotmail.com

## Methods

It was a prospective cross sectional study conducted in Nepal Eye Hospital for over a period of two years. Patients with strabismus undergoing strabismus surgery were enrolled. Similarly, patients without strabismus and normal vision visiting Nepal Eye Hospital were enrolled as control.

Fifty three adults with strabismus and fifty three adults without strabismus and normal vision were enrolled. Twenty open ended adult strabismus questionnaire (AS-20) were used to assess the impact of strabismus on patient's health related quality of life. All the participants reviewed AS-20 instructions for patients prior to completing the questionnaire. The overall AS-20 score was calculated as a mean of all 20 item scores. The psychosocial subscale was calculated as a mean of items 1-10 (inclusive). Function subscale was calculated as a mean of items 11-20 (inclusive). The mean overall and subscale scores were compared between strabismic patients and non-strabismic, visually normal adults.

A 5-point Likert - scale developed by Hatt et al was used for each questionnaire for the responses:

never (score 100), rarely (score 75), sometimes (score 50), often (score 25) and always (score 0). Mean overall and subscale scores compared using Mann - Whitney U test.

## Results

Mean psychosocial scale among strabismic patient was  $47.53 \pm 24.840$  while it was  $95.42 \pm 9.631$  among non strabismic visually normal adults.

Similarly, mean function subscale was  $63.57 \pm 22.652$  among strabismic patients and  $83.91 \pm 13.592$  among non strabismic visually normal adults. The overall mean score was  $55.62 \pm 21.398$  among strabismic patients while it was  $89.66 \pm 9.705$  among non strabismic visually normal adults.

There was statistically significant decrease in the overall score and psychosocial as well as function subscale between the strabismic and non strabismic visually normal adults (p value 0.00).

Among the male and female strabismic patients, there was no statistically significant difference in mean overall and subscale scales (p value > 0.05).

Among the exotropes, the mean psychosocial subscale was  $45.64 \pm 26.365$  while it was  $54.73 \pm 16.930$  among esotropes. Similarly, mean function subscale was  $59.83 \pm 23.291$  among esotropes while it was  $77.82 \pm 12.726$  among esotropes.

Mean psychosocial and functional subscale (both) was  $52.79 \pm 22.385$  among exotropes while it was  $66.45 \pm 12.786$  among esotropes.

Among strabismic patients, there was significant difference in function subscale between exotropes and esotropes (p value 0.018) while there was no significant difference in psychosocial subscale among exotropes and esotropes.

## Discussion

Many people do not consider strabismus as an abnormality. Nepalese society has a myth saying that a child born with strabismus is a lucky child and parents do not want surgical correction. Young children with strabismus are bullied at school for having a deviating eye. As the child grows, he/she becomes introvert and does not like to mix with classmates. As these children reach teenage years and become adults, they have difficulty talking with other person keeping the eye contact. Some even think that they do not get proper opportunities because of their eyes. However, once their eyes are aligned, they become more confident and can be better in dealing.

An impairment in visual function and psychosocial problems have been identified among subjects with strabismus, tools like Amblyopia and Strabismus Questionnaire (A & SQ)<sup>5</sup> and 20-item Adult Strabismus Quality of life Questionnaire (AS-20)<sup>12,13</sup> have been developed.

Following medical care and treatment, patient-oriented outcome is characterized by quantification of changes in health related quality of life<sup>14</sup>.

In a study by Fumiko Kishimoto and Hiroshi Ohtsuki in comitant strabismus, VF-14 score prior to surgery was 8 while it was 93 after surgery. Similarly, binocular vision score was 82 before surgery while it was 92 after surgery<sup>15</sup>. In a study by Coats et al, large angle horizontal strabismic female applicant's ability to obtain employment while it had no influence on hiring male applicants<sup>6</sup>.

Apart from cosmetic value, three major reasons to correct adult strabismus are restoration of binocular

fusion and elimination of diplopia, expansion of binocular visual field in patients with esotropia<sup>7</sup> and improvement in psychosocial functioning<sup>16</sup>.

At the same time, strabismus surgery for restoring ocular alignment has a significant effect in patients self-esteem and self-confidence in teenagers and adults in a study by Nelsion et al<sup>17</sup>.

In a study by Glasman et al, females had a lower preoperative AS-20 score (P=0.01) but showed greater improvement in scores following surgery compared with males<sup>18</sup>. In our study, there is no difference in scores among females as compared with males having strabismus. Similarly, there was no significant difference in AS-20 scores between the type of deviation in the study by Glassman et al<sup>18</sup>. However, in our study, there was significant difference in scores between exotropes and esotropes in function subscale with p value 0.018.

In a study by Mckenzie et al, manifest strabismus has a direct relationship with mental health issues occurring more commonly when compared with controls<sup>19</sup>. However, in our study, mental health status and issues were not looked upon.

## Conclusion

Strabismus is a common visual problem which affects significant proportion of our population. The quality of life is adversely affected in people with strabismus when compared with those without strabismus. Strabismus thus, being a common problem, should not be ignored and corrective measures should be undertaken it for the improvement of quality of life.

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