

**Original article:**

## **Prospective Analysis of Post-Operative Health Related Quality of Life in Orthopaedic Trauma Patients: An Institutional Based Study**

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### **ABSTRACT**

**Background:** Insight into the change from pre- to post-injury health status of trauma patients is important in order to derive population estimates of the impact of injuries on health-related quality of life (HRQL). Therefore, the present prospective study was conducted to evaluate post-operative health related quality of life in orthopaedic trauma patients.

**Materials and Methods:** This prospective study was conducted among 150 trauma patients who had different levels of injury. Clinical evaluation was done using SF-36 Health Survey. The data was collected and analysed. Statistical analysis was performed using the Statistical Package for the Social Sciences software (SPSS Inc., Chicago, IL, USA).

**Results:** In the present study total males were 63.33% and females were 36.66%. The participants in the age group 18-40 yrs were 15.33%, in the age group 41-60 yrs were 36.66%, in the age group above 60yrs were 48%. The mean SF36 preoperative score was 20.65, the mean SF36 post-operative 1-month score was 38.56, the mean SF36 post-operative 3-month score was 60.53, the mean SF36 post-operative 6-month score was 85.78.

**Conclusion:** The study was conducted to evaluate post-operative health related quality of life in orthopaedic trauma patients. The SF36 scores showed a regular upward improvement from preoperative to postoperative levels.

**Key words:** Health-Related Quality of Life, Orthopaedic Trauma, SF-36 Health Survey.

### **INTRODUCTION**

Trauma is one of the leading public health problems and the most common avoidable cause of death among children and adults up to age 45 years.<sup>1</sup> Traditionally a marker for healthcare performance and certainly a tool of previous decades, survival has been the primary outcome when assessing providers of care for orthopaedic trauma. Compared to the number of fatalities, the number of survivors of major trauma with serious or permanent injury is doubled. Hence, in recent years, there has been a shift toward a more comprehensive assessment of delivery of trauma care to encompass the overall quality of life of trauma patients rather than just their survival. Individuals with traumas have to adapt to several losses and changes to their lifestyle, social interactions, and identity.<sup>2</sup> The World Health Organization reports that more than 5 million people die from injury every year, accounting for 9% of global mortality. Over 100 million people visit annually emergency departments in the India, with about 36% of the visits to trauma centers.<sup>1</sup> Health Related Quality of Life is defined as the level of well-being and satisfaction

associated with person's life and how it is affected by disease, accident and treatment. It is a multidimensional concept including aspects of life that are not generally considered as Health, such as income, freedom and quality of environment.<sup>3</sup> The alternative methods to assess the contrast between pre-injury and post-injury HRQL, such as use of patient recall or retrospective baseline scores (in other words, pre-injury HRQL that is assessed after sustaining the injury). However, retrospective baseline scores of pre-injury health status are potentially subject to bias.<sup>4</sup> A number of questionnaires have been developed to evaluate HRQOL and the 36-item Short Form Health Survey (SF- 36) is the most commonly used one.<sup>5</sup> The present prospective study was conducted to evaluate post-operative health related quality of life in orthopaedic trauma patients.

## **MATERIALS AND METHODS**

This prospective study was conducted among 150 trauma patients who had different levels of injury. Before commencement of study, permission was taken from the ethical committee of the institute and written informed consent was obtained from the patients. After screening, the patients were assessed and enrolled for the study. Adult patients from 18 to 65 year with upper & lower limb fractures, Adult of both the sexes, Patients fit for surgery, Patients who were admitted for minimum 2 days in Hospital, Patients who were operated with Closed or Open reduction at the institute, Patients with follow up of minimum 6 months were included in the study. Patients less than 18 years of age and more than 65 years of age, Patients with fracture involving more than one limb, Patients who were operated for replacement surgeries, Patients not willing for surgery, Patients medically unfit or denying for surgery, Patients with fractures involving small bones & Vertebrae, Patients with severe psychiatric disorders, Patients with severe head injury causing cognitive impairment influencing the ability to answer the questionnaire were excluded from the study. Preoperative evaluation of HRQOL was done with 36 Item Short Form Health Survey (SF36) questionnaires. SF-36 is a generic 36 item questionnaire which measures following 8 dimensions: - 1) Physical functioning 2) Social functioning 3) Role limitations because of physical problems 4) Role limitation because of emotional problems 5) Bodily pain 6) General health perceptions 7) Vitality 8) General mental health. At baseline i.e. on the day before surgery, the first SF36 questionnaire was given to the patient at the ward. Before discharging the patient from the hospital, the eligible patients were given with the information regarding the study & were requested to participate in the study. Same questionnaire was filled up from the patients at the time of follow up after 1 month, 3 months and 6 months of surgery. Clinical evaluation was done using SF-36 Health Survey. The data was collected and analysed. Statistical analysis was performed using the Statistical Package for the Social Sciences software version 21.0 (SPSS Inc., Chicago, IL, USA). Descriptive statistics were obtained for mean, standard deviation and other relevant parameters.

## **RESULTS**

In the present study total males were 63.33% and females were 36.66%. The participants in the age group 18-40 yrs were 15.33%, in the age group 41-60 yrs were 36.66%, in the age group above 60yrs were 48%. The mean SF36 preoperative score was 20.65, the mean SF36 post-operative 1-month score was 38.56, the mean SF36 post-operative 3-month score was 60.53, the mean SF36 post-operative 6-month score was 85.78.

**Table 1: Distribution according to gender**

Gender	N(%)
Males	95(63.33%)
Females	55(36.66%)
Total	150(100%)

**Table 2: Distribution according to age**

Age groups	N(%)
18-40yrs	23(15.33%)
41-60yrs	55(36.66%)
Above 60 yrs	72(48%)
Total	150(100%)

**Table 3: Serial Mean Average SF36 Scores**

SF36 Scores	N	Mean $\pm$ SD
SF36 Pre-operative	150	20.65 $\pm$ 3.56
SF36 post-operative 1 month	150	38.56 $\pm$ 3.65
SF36 post-operative 3 months	150	60.53 $\pm$ 3.41
SF36 post-operative 6 months	150	85.78 $\pm$ 7.01

## DISCUSSION

The SF-36 scoring scale has 36 items. The item 2 is self-reported health changes and does not participate in scoring. The remaining 35 entries constitute 8 dimensions, physiological function (physical functioning, PF), physical function (role-physical, RP), bodily pain (bodily pain, BP), general health (general health, GH), energy (vitality, VT), social function (social functioning, SF), emotional function (role-emotional, RE) and mental health (mental health, MH). The higher the total score of all these 8 dimensions, the better the quality of life. If respondents answered less than half of the number of entries then their questionnaires were considered invalid. SF-36 has shown good reliability, consolidation validity, discrimination validity and criterion-related validity.<sup>5</sup>

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In a study by Michaels et al., they showed that patients with orthopaedic injuries scored worse than patients without orthopaedic injuries in six of eight SF-36 domains. They concluded that patients with orthopaedic injuries experience prolonged disability, which by one year encompassed physical, psychological, social, occupational and financial components measured with the Sickness Impact Profile work and interviews.<sup>6</sup>

In the study by Oliver et al., a case series consisting of pelvic fracture patients were followed for 16–28 months.

Using the SF-36 administered as a postal questionnaire, they showed that in 35 responders out of 55 eligible patients, there was 14% impairment in physical outcome and 5.5% impairment in mental outcome score when compared with the normal US population.<sup>7</sup>

Holbrook et al (2001) in a study of 1048 trauma patients suggested that women are at risk for markedly worse functional and psychological outcomes after major trauma than men, independent of injury severity and mechanism.<sup>8</sup>

In a study by Van den Bosch et al. they retrospectively reviewed patients with unstable pelvic ring injuries operated with internal fixation during a seven-year period. SF36 responses were returned from 31 patients with average follow-up time 35.6 months. On the SF-36 scales in their study, physical and social functioning, role limitations due to physical problems and vitality were limited compared with the average reported for the Dutch population.<sup>9</sup>

## CONCLUSION

The study was conducted to evaluate post-operative health related quality of life in orthopaedic trauma patients. The SF36 scores showed a regular upward improvement from preoperative to postoperative levels.

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