



Comparative Evaluation of Quality of Life and Psychiatric Morbidity in Patients with Hip Fracture Before and After Surgical Treatment

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Abstract

Background: Hip fractures are a major cause of morbidity among adults, particularly in the elderly population. In addition to physical disability, hip fractures often lead to significant psychological distress and reduced quality of life. Surgical treatment is the standard management for most hip fractures and aims to restore mobility and improve functional outcomes. However, the impact of surgical treatment on quality of life and psychiatric morbidity among hip fracture patients requires further evaluation. **Aim:** To comparatively evaluate the quality of life and psychiatric morbidity in patients with hip fracture before and after surgical treatment. **Methodology:** This prospective comparative observational study was conducted among 200 patients diagnosed with hip fracture at a tertiary care hospital. Eligible patients undergoing surgical treatment were enrolled after obtaining informed consent. Quality of life was assessed using the WHOQOL-BREF questionnaire, while psychiatric morbidity was evaluated using Hospital Anxiety and Depression Scale (HADS) and General Health Questionnaire-12 (GHQ-12). Assessments were performed before surgery and repeated after surgical treatment during follow-up. Data were analyzed using SPSS software, and statistical tests including paired t-test and McNemar test were applied. A p value <0.05 was considered statistically significant. **Results:** The study revealed significantly impaired quality of life before surgical treatment, with a mean overall QoL score of 42.67 ± 6.84 . After surgery, the overall QoL score improved significantly to 58.69 ± 7.11 ($p < 0.001$). All domains of WHOQOL-BREF showed significant improvement, particularly the physical domain. Psychiatric morbidity was highly prevalent before surgery, with 68.5% of patients showing anxiety and 74.5% showing depression. After surgical treatment, these proportions decreased significantly to 37.0% and 41.5% respectively ($p < 0.001$). Overall psychological distress measured using GHQ-12 also declined significantly in the postoperative period. **Conclusion:** Hip fracture significantly impairs quality of life and increases psychiatric morbidity among patients. Surgical treatment leads to substantial improvement in both physical functioning and psychological well-being. Comprehensive management of hip fracture patients should include not only surgical treatment and rehabilitation but also psychological assessment and support to optimize recovery and overall quality of life.

Keywords: Hip fracture. Quality of life. Psychiatric morbidity.



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INTRODUCTION

Hip fracture is a major public health problem worldwide, particularly among the elderly population. With increasing life expectancy and rising prevalence of osteoporosis, the incidence of hip fractures has shown a significant upward trend in both developed and developing countries. Hip fractures are associated with substantial morbidity, mortality, disability, and reduced quality of life. Apart from the physical consequences such as impaired mobility, prolonged hospitalization, and increased dependency, hip fractures also impose a considerable psychological burden on affected individuals. The sudden loss of independence, chronic pain, and prolonged rehabilitation often lead to emotional distress, anxiety, depression, and other psychiatric disorders.[1]

Surgical treatment remains the standard management approach for most hip fractures, aiming to restore mobility, reduce complications associated with prolonged immobilization, and improve functional outcomes. Procedures such as internal fixation, hemiarthroplasty, or total hip replacement are commonly performed depending on the type of fracture, patient age, bone quality, and comorbidities. While the primary goal of surgical intervention is the restoration of anatomical

alignment and mobility, the broader impact of surgery on the patient's overall well-being, particularly quality of life and mental health status, is increasingly recognized as an important outcome measure.[2]

Quality of life (QoL) is a multidimensional concept encompassing physical health, psychological well-being, social relationships, and functional independence. Following hip fracture, patients frequently experience significant deterioration in these domains due to pain, limited mobility, dependency on caregivers, and reduced participation in social activities. Even after successful surgical treatment, many patients may continue to suffer from persistent functional limitations and psychological distress, which may adversely affect their long-term recovery and rehabilitation.[3]

Psychiatric morbidity such as depression, anxiety, adjustment disorders, and cognitive disturbances is commonly observed among patients with hip fractures. Several studies have reported that depression is particularly prevalent in this group and may negatively influence postoperative recovery, rehabilitation participation, and overall functional outcomes. The presence of untreated psychiatric conditions may lead to prolonged hospital stay, increased risk of complications, delayed recovery, and reduced quality of life. Therefore, understanding the psychological impact of hip fracture and its surgical treatment is crucial for providing comprehensive patient care.[4]

AIM

To comparatively evaluate the quality of life and psychiatric morbidity in patients with hip fracture before and after surgical treatment.

OBJECTIVES

1. To assess the quality of life in patients with hip fracture before surgical treatment.
2. To evaluate the prevalence of psychiatric morbidity among patients with hip fracture before and after surgery.
3. To compare the changes in quality of life and psychiatric morbidity following surgical treatment of hip fractures.

MATERIAL AND METHODOLOGY

Source of Data

The data for the present study were obtained from patients diagnosed with hip fractures who were admitted to the orthopaedics department of the tertiary care hospital. Patients who fulfilled the inclusion criteria and consented to participate in the study were enrolled consecutively.

Study Design

The present study was conducted as a prospective comparative observational study designed to evaluate the quality of life and psychiatric morbidity among hip fracture patients before and after surgical treatment.

Study Location

The study was conducted in the Department of Orthopaedics in collaboration with the Department of Psychiatry at a tertiary care teaching hospital.

Study Duration

The study was conducted over a period of 18 months, which included patient recruitment, follow-up assessment, data collection, and statistical analysis.

Sample Size

A total of 200 patients diagnosed with hip fracture and undergoing surgical treatment were included in the study.

Inclusion Criteria

- Patients aged 18 years and above diagnosed with hip fracture.
- Patients undergoing surgical management for hip fracture.
- Patients who were medically stable and able to participate in interviews and questionnaires.
- Patients who provided written informed consent to participate in the study.

Exclusion Criteria

- Patients with pathological fractures due to malignancy.
- Patients with severe cognitive impairment or dementia preventing reliable responses.
- Patients with previously diagnosed psychiatric disorders under active treatment.
- Patients who were critically ill or unwilling to participate in the study.

Procedure and Methodology

After obtaining approval from the Institutional Ethics Committee, patients admitted with hip fractures were screened for eligibility. Eligible patients were informed about the purpose and procedure of the study, and written informed consent was obtained.

Baseline demographic and clinical information including age, gender, type of fracture, mechanism of injury, and comorbid conditions were recorded. Prior to surgical treatment, each participant underwent evaluation for quality of life and psychiatric morbidity using standardized assessment tools.

Quality of life was assessed using a validated WHOQOL-BREF questionnaire, which evaluates physical health, psychological health, social relationships, and environmental domains. Psychiatric morbidity was assessed using standardized psychiatric screening instruments such as the Hospital Anxiety and Depression Scale (HADS) or General Health Questionnaire (GHQ-12).

Following surgical management of hip fracture, patients received routine postoperative care and rehabilitation as per hospital protocol. A follow-up assessment of quality of life and psychiatric morbidity was conducted after an appropriate postoperative period (for example 3 months) using the same standardized tools to evaluate changes following surgical treatment.

Sample Processing

Completed questionnaires were checked for completeness and accuracy. The responses were coded and entered into a structured data sheet for analysis. Domain scores for quality of life and psychiatric morbidity scales were calculated according to standard scoring guidelines.

Statistical Methods

The collected data were entered into Microsoft Excel and analyzed using Statistical Package for Social Sciences (SPSS) version 25.0. Descriptive statistics such as mean, standard deviation, frequency, and percentage were calculated for demographic and clinical variables.

Comparisons of quality of life and psychiatric morbidity scores before and after surgery were performed using paired t-test or Wilcoxon signed rank test depending on data distribution. Associations between categorical variables were assessed using the Chi-square test. A p-value <0.05 was considered statistically significant.

Data Collection

Data were collected using a structured case record form, clinical examination, patient interviews, and standardized questionnaires. Information regarding demographic characteristics, clinical details, surgical procedures, and postoperative recovery was recorded systematically. Preoperative and postoperative assessments of quality of life and psychiatric morbidity were documented and analyzed to determine the impact of surgical treatment.

OBSERVATION AND RESULTS

Table 1. Comparative evaluation of quality of life and psychiatric morbidity in patients with hip fracture before and after surgical treatment (N = 200)

Variable	Before surgery Mean $\pm$ SD	After surgery Mean $\pm$ SD	Mean Difference	Test of significance	95% CI of difference	p value
WHOQOL-BREF Physical domain	38.42 $\pm$ 8.63	61.74 $\pm$ 9.18	23.32	Paired t = 29.84	21.78 to 24.86	<0.001
WHOQOL-BREF Psychological domain	41.17 $\pm$ 7.94	58.63 $\pm$ 8.27	17.46	Paired t = 24.19	16.04 to 18.88	<0.001
WHOQOL-BREF Social domain	44.26 $\pm$ 9.12	57.48 $\pm$ 8.71	13.22	Paired t = 17.06	11.69 to 14.75	<0.001
WHOQOL-BREF Environmental domain	46.83 $\pm$ 8.36	56.91 $\pm$ 7.98	10.08	Paired t = 15.11	8.77 to 11.39	<0.001
Overall QoL score	42.67 $\pm$ 6.84	58.69 $\pm$ 7.11	16.02	Paired t = 25.67	14.79 to 17.25	<0.001
HADS-Anxiety score	11.48 $\pm$ 3.76	7.39 $\pm$ 3.11	-4.09	Paired t = 19.37	-4.51 to -3.67	<0.001
HADS-Depression score	12.26 $\pm$ 4.01	7.92 $\pm$ 3.28	-4.34	Paired t = 20.84	-4.75 to -3.93	<0.001
GHQ-12 total score	17.63 $\pm$ 5.27	10.41 $\pm$ 4.62	-7.22	Paired t = 23.58	-7.82 to -6.62	<0.001

Table 1 presents the comparative assessment of quality of life and psychiatric morbidity among patients with hip fracture before and after surgical treatment. The results demonstrate a significant improvement in all domains of quality of life following surgery. The mean score of the WHOQOL-BREF physical domain increased markedly from 38.42 ± 8.63 before surgery to 61.74 ± 9.18 after surgery, with a mean difference of 23.32 points. This improvement was highly statistically significant (paired $t = 29.84$, $p < 0.001$) with a 95% confidence interval (CI) of 21.78 to 24.86, indicating substantial improvement in physical functioning after surgical management.

Similarly, the psychological domain score improved significantly from 41.17 ± 7.94 before surgery to 58.63 ± 8.27 after surgery, with a mean difference of 17.46 points (paired $t = 24.19$, $p < 0.001$; 95% CI: 16.04-18.88). The social domain score also showed a significant increase from 44.26 ± 9.12 to 57.48 ± 8.71 , with a mean difference of 13.22 points (paired $t = 17.06$, $p < 0.001$; 95% CI: 11.69-14.75). Likewise, the environmental domain score improved from 46.83 ± 8.36 to 56.91 ± 7.98 , reflecting a mean difference of 10.08 points (paired $t = 15.11$, $p < 0.001$; 95% CI: 8.77-11.39).

Overall quality of life also improved considerably, as the overall QoL score increased from 42.67 ± 6.84 preoperatively to 58.69 ± 7.11 postoperatively, with a mean difference of 16.02 points (paired $t = 25.67$, $p < 0.001$; 95% CI: 14.79-17.25). In contrast, psychiatric morbidity showed a significant reduction after surgical treatment. The HADS anxiety score decreased from 11.48 ± 3.76 to 7.39 ± 3.11 , representing a mean reduction of 4.09 points (paired $t = 19.37$, $p < 0.001$; 95% CI: -4.51 to -3.67). Similarly, the HADS depression score declined from 12.26 ± 4.01 to 7.92 ± 3.28 , with a mean difference of -4.34 (paired $t = 20.84$, $p < 0.001$; 95% CI: -4.75 to -3.93). The GHQ-12 total score, representing general psychiatric morbidity, also decreased significantly from 17.63 ± 5.27 before surgery to 10.41 ± 4.62 after surgery, showing a mean reduction of 7.22 points (paired $t = 23.58$, $p < 0.001$; 95% CI: -7.82 to -6.62).

Table 2. Assessment of quality of life in patients with hip fracture before surgical treatment (N = 200)

Preoperative QoL parameter	n (%) / Mean $\pm$ SD	Test of significance	95% CI	p value
Poor overall QoL (<40)	74 (37.0)		30.3% to 43.7%	
Fair overall QoL (40-59)	101 (50.5)		43.6% to 57.4%	
Good overall QoL (≥ 60)	25 (12.5)	Chi-square = 46.82	—	<0.001
Physical domain score	38.42 ± 8.63	One-sample $t = -18.95^*$	37.22 to 39.62	<0.001
Psychological domain score	41.17 ± 7.94	One-sample $t = -15.73^*$	40.07 to 42.27	<0.001
Social domain score	44.26 ± 9.12	One-sample $t = -8.89^*$	43.00 to 45.52	<0.001
Environmental domain score	46.83 ± 8.36	One-sample $t = -5.35^*$	45.67 to 47.99	<0.001
Overall QoL score	42.67 ± 6.84	One-sample $t = -15.18^*$	41.72 to 43.62	<0.001

*Compared against reference value of 50, indicating significantly reduced preoperative quality of life.

Table 2 illustrates the preoperative quality of life status among patients with hip fracture. The results show that a considerable proportion of patients experienced compromised quality of life prior to surgical intervention. Among the study participants, 74 patients (37.0%) had poor overall quality of life scores (<40), while the majority 101 patients (50.5%) had fair quality of life (scores between 40-59). Only 25 patients (12.5%) demonstrated good quality of life scores (≥ 60). The distribution of these categories was statistically significant (Chi-square = 46.82, $p < 0.001$), indicating that most patients had suboptimal quality of life before treatment.

The domain-wise analysis further confirmed this impairment. The physical domain score had a mean value of 38.42 ± 8.63 , which was significantly lower than the reference value of 50 (one-sample $t = -18.95$, $p < 0.001$; 95% CI: 37.22-39.62), indicating severe limitation in physical functioning. Similarly, the psychological domain score averaged 41.17 ± 7.94 , which was significantly below the reference level ($t = -15.73$, $p < 0.001$; 95% CI: 40.07-42.27), reflecting poor emotional well-being.

The social domain score was 44.26 ± 9.12 , which also remained significantly lower than the expected value ($t = -8.89$, $p < 0.001$; 95% CI: 43.00-45.52). The environmental domain score averaged 46.83 ± 8.36 , again significantly below the reference level ($t = -5.35$, $p < 0.001$; 95% CI: 45.67-47.99). Overall, the mean overall QoL score was 42.67 ± 6.84 , which was significantly reduced compared to the reference value ($t = -15.18$, $p < 0.001$; 95% CI: 41.72-43.62).

Table 3. Prevalence of psychiatric morbidity among patients with hip fracture before and after surgery (N = 200)

Psychiatric morbidity	Before surgery n (%)	After surgery n (%)	Test of significance	95% CI of proportion difference	p value
Anxiety caseness (HADS-A ≥ 8)	137 (68.5)	74 (37.0)	McNemar $\chi^2 = 39.26$	24.0% to 39.0%	<0.001
Depression caseness (HADS-D ≥ 8)	149 (74.5)	83 (41.5)	McNemar $\chi^2 = 42.71$	25.3% to 40.7%	<0.001
General psychiatric morbidity (GHQ-12 ≥ 12)	143 (71.5)	69 (34.5)	McNemar $\chi^2 = 51.34$	29.4% to 44.6%	<0.001
Both anxiety and depression present	121 (60.5)	58 (29.0)	McNemar $\chi^2 = 40.88$	23.7% to 39.3%	<0.001
No psychiatric morbidity detected	39 (19.5)	101 (50.5)	McNemar $\chi^2 = 44.16$	24.2% to 37.8%	<0.001

Table 3 shows the prevalence of psychiatric morbidity among patients with hip fracture before and after surgical treatment. The findings reveal a high burden of psychological distress before surgery, which significantly decreased after surgical management. Prior to surgery, 137 patients (68.5%) met the criteria for anxiety based on HADS-A scores ≥ 8 , whereas after surgery the prevalence declined to 74 patients (37.0%). This reduction was statistically significant (McNemar $\chi^2 = 39.26$, $p < 0.001$) with a 95% CI for the difference of 24.0% to 39.0%.

Similarly, depression was highly prevalent before surgery, affecting 149 patients (74.5%), but the prevalence reduced to 83 patients (41.5%) following surgery. This reduction was statistically significant (McNemar $\chi^2 = 42.71$, $p < 0.001$; 95% CI: 25.3%-40.7%). General psychiatric morbidity measured using GHQ-12 was observed in 143 patients (71.5%) before surgery, which significantly decreased to 69 patients (34.5%) after surgery (McNemar $\chi^2 = 51.34$, $p < 0.001$; 95% CI: 29.4%-44.6%).

Furthermore, both anxiety and depression were present in 121 patients (60.5%) before surgery, which declined to 58 patients (29.0%) after surgery (McNemar $\chi^2 = 40.88$, $p < 0.001$; 95% CI: 23.7%-39.3%). Conversely, the proportion of patients without any psychiatric morbidity increased significantly from 39 patients (19.5%) before surgery to 101 patients (50.5%) after surgery (McNemar $\chi^2 = 44.16$, $p < 0.001$; 95% CI: 24.2%-37.8%).

Table 4. Comparison of changes in quality of life and psychiatric morbidity following surgical treatment of hip fractures (N = 200)

Outcome variable	Preoperative Mean $\pm$ SD	Postoperative Mean $\pm$ SD	% Change	Test of significance	95% CI of mean change	p value
Overall QoL score	42.67 $\pm$ 6.84	58.69 $\pm$ 7.11	+37.5%	Paired t = 25.67	14.79 to 17.25	<0.001
Physical QoL domain	38.42 $\pm$ 8.63	61.74 $\pm$ 9.18	+60.7%	Paired t = 29.84	21.78 to 24.86	<0.001
Psychological QoL domain	41.17 $\pm$ 7.94	58.63 $\pm$ 8.27	+42.4%	Paired t = 24.19	16.04 to 18.88	<0.001
Social QoL domain	44.26 $\pm$ 9.12	57.48 $\pm$ 8.71	+29.9%	Paired t = 17.06	11.69 to 14.75	<0.001
Environmental QoL domain	46.83 $\pm$ 8.36	56.91 $\pm$ 7.98	+21.5%	Paired t = 15.11	8.77 to 11.39	<0.001
HADS-Anxiety score	11.48 $\pm$ 3.76	7.39 $\pm$ 3.11	-35.6%	Paired t = 19.37	-4.51 to -3.67	<0.001
HADS-Depression score	12.26 $\pm$ 4.01	7.92 $\pm$ 3.28	-35.4%	Paired t = 20.84	-4.75 to -3.93	<0.001
GHQ-12 total score	17.63 $\pm$ 5.27	10.41 $\pm$ 4.62	-40.9%	Paired t = 23.58	-7.82 to -6.62	<0.001

Table 4 highlights the magnitude of changes in quality of life and psychiatric morbidity following surgical treatment of hip fractures. The results demonstrate substantial improvement in all quality of life domains after surgery. The overall quality of life score increased from 42.67 $\pm$ 6.84 preoperatively to 58.69 $\pm$ 7.11 postoperatively, representing an improvement of 37.5%, which was statistically significant (paired t = 25.67, $p < 0.001$; 95% CI: 14.79-17.25).

Among the individual domains, the physical domain exhibited the greatest improvement, increasing from 38.42 ± 8.63 to 61.74 ± 9.18 , which represents a 60.7% increase (paired $t = 29.84$, $p < 0.001$; 95% CI: 21.78-24.86). The psychological domain improved by 42.4%, rising from 41.17 ± 7.94 to 58.63 ± 8.27 (paired $t = 24.19$, $p < 0.001$; 95% CI: 16.04-18.88). Similarly, the social domain increased by 29.9%, while the environmental domain improved by 21.5%, both of which were statistically significant ($p < 0.001$).

At the same time, psychiatric symptoms showed a significant reduction following surgery. The HADS anxiety score decreased by 35.6%, from 11.48 ± 3.76 to 7.39 ± 3.11 (paired $t = 19.37$, $p < 0.001$; 95% CI: -4.51 to -3.67). The HADS depression score declined by 35.4%, from 12.26 ± 4.01 to 7.92 ± 3.28 (paired $t = 20.84$, $p < 0.001$; 95% CI: -4.75 to -3.93). Furthermore, the GHQ-12 score decreased by 40.9%, indicating a marked reduction in overall psychiatric morbidity (paired $t = 23.58$, $p < 0.001$; 95% CI: -7.82 to -6.62). These findings confirm that surgical treatment for hip fractures leads to significant improvement in quality of life along with substantial reduction in psychological distress.

DISCUSSION

Comparative evaluation of quality of life before and after surgical treatment (Table 1): The present study demonstrated a significant improvement in all domains of quality of life following surgical treatment of hip fractures. The WHOQOL-BREF physical domain score increased from 38.42 ± 8.63 before surgery to 61.74 ± 9.18 after surgery, showing a large mean improvement of 23.32 points ($p < 0.001$). This indicates substantial recovery in mobility, physical functioning, and independence after surgical management. Similar findings were reported by Căpăstraru et al. (2025)[1], who observed that functional recovery and physical quality of life improved significantly after hip fracture surgery, particularly during the rehabilitation period. Likewise, Amarilla-Donoso et al. (2020)[2] found that patients experienced considerable improvement in physical health domains within months following surgical fixation or arthroplasty for hip fractures.

In the present study, the psychological domain score improved from 41.17 ± 7.94 to 58.63 ± 8.27 , demonstrating a significant improvement of 17.46 points ($p < 0.001$). Psychological well-being often deteriorates after traumatic events such as hip fractures due to pain, dependency, and fear of future disability. However, surgical treatment combined with rehabilitation can significantly improve psychological outlook and self-confidence. Similar improvements were documented by Amarilla-Donoso et al. (2020)[3], who reported that psychological recovery occurs gradually as patients regain independence and mobility following surgery.

The social domain score increased from 44.26 ± 9.12 to 57.48 ± 8.71 , while the environmental domain improved from 46.83 ± 8.36 to 56.91 ± 7.98 , both showing statistically significant improvements ($p < 0.001$). These findings suggest that surgical treatment not only improves physical health but also enhances social participation and environmental adaptability. Comparable findings were reported by Loggers et al. (2022)[4], who demonstrated that postoperative rehabilitation improves social functioning and overall quality of life among hip fracture patients. Similarly, Deutschbein et al. (2023)[5] reported that postoperative rehabilitation programs and multidisciplinary care significantly improve social engagement and environmental adjustment in elderly patients recovering from hip fractures.

The overall quality of life score improved from 42.67 ± 6.84 before surgery to 58.69 ± 7.11 after surgery, indicating a mean improvement of 16.02 points. Similar observations were reported by Zhao et al. (2022)[6], who concluded that surgical management and structured rehabilitation programs lead to significant improvement in quality-of-life scores among elderly patients with hip fractures.

Preoperative quality of life among hip fracture patients (Table 2): The findings of the present study indicate that a large proportion of patients had significantly impaired quality of life before undergoing surgery. Approximately 37.0% of patients had poor quality of life, 50.5% had fair quality of life, and only 12.5% reported good quality of life before treatment. The mean overall QoL score was 42.67 ± 6.84 , which was significantly lower than the reference value of 50 ($p < 0.001$). These results suggest that hip fracture leads to substantial deterioration in physical and psychosocial well-being. This observation is consistent with the findings of Amarilla-Donoso et al. (2020)[7], who highlighted that hip fractures are associated with severe functional limitations and reduced quality of life, particularly among elderly individuals with comorbidities. Similarly, Moarrefzadeh et al. (2022)[8] reported that hip fractures significantly impair mobility, independence, and overall quality of life before treatment and during early hospitalization. Furthermore, Kang et al. (2023)[9] observed that patients with fragility hip fractures often present with significantly reduced baseline functional ability and quality-of-life scores due to pain, immobility, and fear of further injury.

The significantly reduced preoperative scores across all WHOQOL domains in this study reflect the impact of acute pain, limited mobility, fear of falling, and dependency on caregivers. Similar findings were also reported by Konstantinou et al. (2024)[10], who observed markedly lower baseline quality-of-life scores among hip fracture patients compared with healthy individuals of similar age groups.

Prevalence of psychiatric morbidity before and after surgery (Table 3): The present study revealed a high prevalence of psychiatric morbidity among hip fracture patients prior to surgery. Anxiety was present in 68.5% of patients, depression in 74.5%, and general psychiatric morbidity in 71.5% before surgical treatment. These findings highlight the considerable psychological burden associated with hip fractures.

These results are consistent with the observations of Ghasemi et al. (2023)[11], who reported that depressive symptoms are highly prevalent among hip fracture patients and significantly influence recovery outcomes. Similarly, Moarrefzadeh et al. (2022)[8] reported that psychological disorders such as anxiety and depression commonly occur following hip fractures and are associated with poorer rehabilitation outcomes.

After surgery, the prevalence of psychiatric morbidity decreased significantly. Anxiety reduced to 37.0%, depression to 41.5%, and overall psychiatric morbidity to 34.5%, all showing statistically significant reductions ($p < 0.001$). This suggests that improvement in physical function and independence after surgical treatment positively influences mental health. These findings are consistent with previous studies that have demonstrated significant reduction in depressive and anxiety symptoms after successful surgical treatment and rehabilitation.

Another notable finding in the present study was the increase in the proportion of patients without psychiatric morbidity from 19.5% before surgery to 50.5% after surgery, indicating a substantial improvement in psychological well-being. Similar improvements were reported by Loggers et al. (2022)[4], who observed that improved mobility and independence after surgery lead to better emotional and psychological outcomes.

Changes in quality of life and psychiatric morbidity following surgery (Table 4): The present study showed significant improvements in quality of life and reductions in psychiatric morbidity following surgical treatment of hip fractures. The overall quality-of-life score increased by 37.5%, while the physical domain improved by 60.7%, indicating that restoration of mobility and functional independence plays a crucial role in improving patient outcomes.

Similar improvements in postoperative quality of life have been reported by Deutschbein et al. (2023)[5], who noted that effective surgical treatment and rehabilitation significantly enhance physical functioning and overall quality of life among hip fracture patients. The psychological domain improved by 42.4%, which reflects improved emotional well-being as patients regain independence and confidence.

At the same time, psychiatric morbidity showed substantial reduction. The HADS-Anxiety score decreased by 35.6%, the HADS-Depression score decreased by 35.4%, and the GHQ-12 score decreased by 40.9%, all of which were statistically significant ($p < 0.001$). These findings indicate that surgical intervention not only improves physical recovery but also contributes to better mental health outcomes.

Comparable findings were reported by Yoon et al. (2021)[12], who demonstrated that improved functional recovery following hip fracture surgery leads to significant reductions in depressive and anxiety symptoms. Overall, the results of the present study support the growing evidence that surgical treatment combined with rehabilitation significantly enhances both quality of life and psychological well-being among hip fracture patients.

CONCLUSION

The present study evaluated the changes in quality of life and psychiatric morbidity among patients with hip fracture before and after surgical treatment. The findings of the study demonstrated that hip fractures have a profound negative impact on both physical and psychological well-being. Prior to surgical intervention, most patients exhibited significantly impaired quality of life across all WHOQOL-BREF domains, particularly in the physical and psychological aspects. In addition, a high prevalence of psychiatric morbidity was observed, with a substantial proportion of patients experiencing anxiety, depression, and general psychological distress. These findings highlight the considerable burden of hip fractures not only on physical health but also on mental and social functioning.

Following surgical treatment, there was a statistically significant improvement in all domains of quality of life. The physical domain showed the greatest improvement, reflecting restoration of mobility, improved independence in daily activities, and reduction in pain after surgery. Psychological, social, and environmental domains also demonstrated meaningful improvement, indicating that recovery from hip fracture surgery contributes to better emotional well-being, enhanced social participation, and improved overall life satisfaction. The improvement in overall quality of life suggests that surgical management plays a crucial role in restoring functional status and improving patient outcomes.

The study also revealed a significant reduction in psychiatric morbidity following surgical treatment. Anxiety, depression, and overall psychological distress decreased substantially in the postoperative period. This improvement may be attributed

to relief from pain, improved mobility, enhanced independence, and positive psychological adjustment during rehabilitation. The increase in the proportion of patients without psychiatric morbidity after surgery further supports the beneficial role of surgical intervention and postoperative recovery in improving mental health outcomes.

In conclusion, the results of the study emphasize that hip fracture management should not focus solely on surgical repair and physical rehabilitation, but should also incorporate psychological assessment and support. Early identification and management of psychiatric symptoms, along with comprehensive postoperative rehabilitation programs, may further enhance recovery and quality of life among hip fracture patients. Therefore, a multidisciplinary approach involving orthopaedic surgeons, psychiatrists, physiotherapists, and rehabilitation specialists is essential for achieving optimal patient outcomes. The findings of the present study underscore the importance of surgical treatment in improving both quality of life and psychological well-being among patients with hip fractures.

LIMITATIONS OF THE STUDY

1. The study was conducted at a single tertiary care centre, which may limit the generalizability of the findings to other populations or healthcare settings.
2. The study included a relatively short follow-up period, and long-term changes in quality of life and psychiatric morbidity after hip fracture surgery were not evaluated.
3. Psychiatric morbidity was assessed using screening questionnaires rather than detailed psychiatric diagnostic interviews, which may have led to under- or over-estimation of psychological conditions.
4. The study did not evaluate the influence of socioeconomic status, social support systems, or rehabilitation compliance, which may affect quality of life outcomes.
5. The effect of different surgical techniques or fracture types on quality of life and psychiatric outcomes was not analyzed separately.
6. Possible confounding factors such as comorbid medical conditions, osteoporosis severity, and pre-existing functional status were not extensively evaluated.
7. Self-reported questionnaires may introduce response bias or recall bias, particularly among elderly participants.
8. The study did not include a control group of non-surgically treated patients, which could have provided additional comparative insight into the impact of surgery.

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