

## Impact of implementation of Nursing Instructions and Exercises Training on Quality of life for Patients undergoing Pelvic Fixation Surgery

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### Abstract

**Background:** Pelvic fracture is disruptions to the bony structure of the pelvis, it account for 10% of all blunt trauma admissions. **The purpose of this study was** to evaluate the impact of implementation of nursing instructions and exercises training on quality of life for patients undergoing pelvic fixation surgery. **Research design:** A quasi-experimental research design was utilized. **Setting:** The study was conducted at the trauma unit and outpatient clinic at Assiut University Hospitals, Egypt. **Subjects:** A total of eighty patients (80) Male and female suffering from pelvic fracture and treated with pelvic fixation surgery, 40 patients being randomly allocated to both the study and control group. Those patients were recruited based on the inclusion and exclusion criteria. **Tools:** (I) Patient assessment and (II) Rand short form (SF) 36 items questionnaire **Results:** there was a statistically significant difference in total quality of life between the study and control groups at three months postoperative  $p = 0,023^*$ . there was a highly statistically significant difference in total quality of life between the study and control groups 6 months and one year postoperative  $p = 0.001^{**}$  and  $0,001^{**}$  respectively. **Conclusion:** Application of nursing instructions and exercises training following pelvic fixation surgery achieved statistically significant improvement in patients' quality of life  $p = 0.001^{**}$ . **Recommendations:** All patients undergoing pelvic fixation surgery should have access to a discharge planning and education booklet, which can be provided in the trauma unit.

**Keywords:** Exercises Training, Nursing Instructions, Pelvic Fixation Surgery & Quality of Life.

### Introduction

Pelvic fracture (PF) is disruptions to the bony structure of the pelvis, including pelvic ring fractures, acetabular fractures, and avulsion fractures. PF often occur in polytrauma patients and are considered a significant health concern and one of the most common causes of hospitalization and disability. Mortality rate for PF is generally high; this high mortality rate is primarily due to hemodynamic instability caused by blood loss in younger patients and multiorgan failure in older patients (Abdelrahman et al., 2020).

Generally, PF occur due to high-energy trauma as fall from height, sports, road traffic collision or low-energy trauma as falls. According to the stability of the pelvic ring, Pelvic fractures are classified as stable and unstable fractures. Stable fractures can heal without complications, while unstable fractures lead to severe complications. The complications are usually a result of nerve or organ damage that was caused by the PF. The most common associated injuries with PF is bleeding and retroperitoneal hematoma, intra-abdominal and urogenital injuries, Other complication include Chronic pain, impaired mobility, Sexual dysfunction, wound infection,

pneumonia and deep vein thrombosis (Carson et al., 2018).

Pelvic fracture has long-term effects on health-related quality of life (HRQOL). Majority of the patients do not return to their pre injury activities. Many researchers reported that pelvic injuries do not only have significant short-term effects, they can also create long-term permanent limitations that interfere with daily functioning include gait disturbance, chronic pelvic and back pain, and late effects of lumbosacral plexus injury, all of which can affect the patient's quality of life (Banierink et al., 2022).

Pelvic fracture with rotational or vertical instability is usually caused by high-energy trauma and is often associated with other injuries. There is significant morbidity not only from the pelvic injury itself, but also from associated vascular, neurological, and urinary tract injuries. Various surgical treatments, reduction techniques, and fixation methods are employed based on the specific type of fracture. Depending on the particular type of fracture; multiple approaches can be applied to treat PF. These may include open or closed reduction, followed by percutaneous and/or internal fixation (Abou-khalil et al., 2020).

Nurses have a fundamental role in the assessment and observation of the patient following PF and in identifying any changes or deterioration in the patient's condition that require prompt intervention. Also the patient with PF is at risk for complications due to immobility during the time of prolonged bed rest, which is potentiated by poor tissue perfusion during the emergent phase of injury. During this period the nurse has important role in providing instruction about the use of therapeutic beds, and pneumatic-compression devices to prevent skin breakdown and deep-vein thrombosis, respectively. And have crucial role in providing instruction about breathing and coughing exercises, appropriate leg exercises, pain management, and nutrition (Abozead et al., 2024).

A regular exercise regimen is crucial to the recovery process for both high- and low-energy patient. The exercise should provide the patient with an optimal return of function by improving functional skills, self-care skills; improve the pain level, strength, flexibility, and the motion of the hip, spine and leg. In people with surgical treatment, physical therapy starts after 1 or 2 days of bed rest with passive motions of leg and hip then progress to active exercises (Piccione et al., 2021).

### Significance of the study

The incidence of pelvic fixation surgery (open reduction and internal fixation (ORIF)) in the trauma unit at Assiut University Hospital is 35% during the period from January 2021 to December 2021 as documented in the records of Assiut University Hospital for the specified period. According to various study (Brouwers et al., 2020) and (Banierink et al., 2022), it has been revealed that those Patients often encounter a decrease in their HRQoL. As a result of lack of awareness regarding the nursing instructions needed to reduce complication and improve quality of life. So this study was conducted to evaluate the impact of implementation of nursing instructions and exercises training on quality of life for patients undergoing pelvic fixation surgery.

### Aims of the study:

The aims of this study were:-

- Providing nursing instructions and exercises training for patients undergoing pelvic fixation surgery.
- Evaluate the impact of implementation of nursing instructions and exercises training on quality of life for patients undergoing pelvic fixation surgery.

### Hypothesis:

The aim of the research led to the development of the following hypothesis.

- Patients receiving nursing instructions and exercises training will experience greater improvement in the quality of life than those in the control group.

### Operational definitions:

**Nursing instructions:** The term "nursing instruction" describes the use of nursing staff teaching abilities to provide patients structured learning strategies, which in turn increases patients' understanding of health issues and shapes their behavior regarding self-care (Mobed et al., 2019).

**Quality of life:** an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns (Jiwattanasuk et al., 2022).

**Pelvic fixation surgery:** This is a surgical procedure that can be used with open reduction and internal fixation or external fixation to stabilize a broken hip or pelvic bone (Devancey et al., 2020).

### Patients and Methods:

**Research design:** For this study, a quasi-experimental research design was utilized.

**Study variables:** The independent variable was nursing instructions and exercises training, while the dependent variables were the quality of life of patients following pelvic fixation surgery.

**Setting:** The research was conducted at the trauma unit and outpatient clinic at Assiut University Hospital.

### Sample:

A total of eighty patients (80) Male and female suffering from pelvic fracture and treated with pelvic fixation surgery and willingness to participate in the study, with 40 patients being randomly allocated to both the study and control group. Those patients were recruited based on the following criteria

### Inclusion criteria

- Male and female
- Age range of 18-65 years
- Patients underwent open reduction an internal fixation surgery.

### Exclusion criteria

- Patients who refused to participate.
- Patients underwent external fixation surgery.
- Patients with mental disorder.

### Sample size:

Upon reviewing a previous study, a power analysis was conducted to determine the required sample size for comparing two means with a 95% confidence level and 80% power. The estimated sample size was based on a 0.05 difference between the means, a 2.8 standard deviation in the study group, and a 3.2 standard deviation in the control group, with a minimum of 33 cases in each group.

**Tools:**

Two specific tools were utilized for data collection:

**Tool (I): Patient assessment:**

This assessment tool developed by the researchers through a literature review and aims to assess the patient's condition. It comprises two main sections:

**Part (1): Demographic data:** such as (age, gender, marital status, level of education, occupation, and residence).

**Part (2): Medical data:** (Medical diagnosis, comorbidities, affected side, mechanism of injury, associated orthopedic injury, and length of hospital stay).

**Tool (II): Rand short form (SF) 36 items questionnaire (Lins-Kusterer et al., 2022):**

**RAND** is a widely used HRQoL survey instrument. It is comprised of 36 items. It uses multi-item scales (35 items) to evaluate eight health concepts: physical functioning (10 items), role limitations based on physical health issues (4 items) and role limitations based on emotional issues (3 items), social functioning (2 items), emotional wellbeing (5 items), energy/fatigue (4 items), pain (2 items) and general health perceptions (5 items). An additional single item assesses change in perceived health during the last 12 months.

The Arabic version of this scale (**El-Kalla et al., 2016**) was adopted in this study to assess quality of life for patient with pelvic fixation surgery.

Scoring system for Rand short form 36 items questionnaire. All questions are scored on a scale from 0 to 100, high scores is an indicative of improved outcome.

**Procedure:****Phase I: Assessment and planning phase:**

Development of the study tools: Tools (I and II) and the nursing instruction and exercises training booklet was made up using baseline measurements, identified needs, and relevant literature in Arabic. To aid in retention, patients experiencing learning difficulties were given additional simple words and precise illustrations. Simple images and diagrams, handout booklets, and mobile videos are some of the teaching strategies.

**Validity testing:**

Five academic experts revised and confirmed the validity of the tools three from the medical surgical nursing department and two from the orthopedic surgery department at Assiut University. They reviewed the tool to ensure that they were understandable, applicable, comprehensive, and clear.

**Reliability:**

The consistency of the tool II was confirmed by the Cronbach's alpha coefficient ( $\alpha=0.829$ ), which indicates their reliability.

**Pilot study:**

A pilot study was carried out on 10% of patients (8 patients) to assess the feasibility, applicability, clarity, and relevancy of the study tools, to pinpoint potential application-related challenges, and to calculate the time required to complete them. These patients were excluded from the main trial when the necessary adjustments were made.

Data was gathered between January of 2023 and June of 2024.

**Ethical considerations:**

Before conducting the study, ethical approval from the ethical committee in the Faculty of Nursing at Assiut University was obtained with approval number (1120240497) on 27 November 2022 and ethical code number. The chief of the orthopedic surgery department and the outpatient clinic formally granted approval. Informed consent was obtained from patients or their families who chose to participate in the study after they were informed about its purpose and nature. Privacy and confidentiality were guaranteed. Patients had the freedom to withdraw from the trial at any time for any reason or to refuse to participate in it.

**Phase II: Implementation phase:**

On admission, the researchers met with each patient one-on-one to establish therapeutic communication, explained the goal of the study to each patient, and gain consent for voluntary participation in the study. Prior to the beginning of the nursing instructions and exercise training on the first day of the interview, all patients (control group and study group) were assessed using tool I to gather demographic and medical data and tool II to assess quality of life.

**Nursing instructions and exercises training booklet:** It was created by the researchers for patients with pelvic fixation surgery using a review of both national and international literature. (**Journal of the American Academy of Orthopaedic Surgeons, 2020**) and (**European Journal of Translational Myology, 2021**) It was written in an Arabic language and included pictures to provide information about:

- Nursing instructions about the definition of internal fixation, preoperative preparation, body position, pain management, nutrition, wound care, use of assistive devices, time of weight bearing, prevention of pressure ulcer, deep venous thrombosis, bowel and bladder care.
- Exercises training about coughing and breathing exercises, range of motion exercise, and muscle strengthening exercises.
- Nursing instructions and exercises training delivered to the study group were organized into four educational and practical sessions.

- Each session lasted approximately thirty to forty minutes and was conducted preoperatively after all necessary tools were prepared.
- Data collection sessions took place in the trauma unit at Assiut University Hospital. Additionally, researchers maintained communication with the patients through smartphones to serve as reminders, thereby enhancing adherence.

**First session:**

- The researcher provided the patient with a straightforward written explanation regarding the definition of a pelvic fracture, along with pertinent information about pelvic fixation surgery, including its significance, pre-operative guidelines, instructions for the day of surgery, post-operative care, and follow-up procedures.
- A family member attended the session to offer support to the patient and to enhance their sense of accountability. Patients were encouraged to ask questions if they encountered any confusion while actively listening and showing interest.
- The subsequent two practical sessions focused on training in fundamental exercises. A teaching booklet has been created to assist patients over the coming months with a series of simple exercises. The goal of exercises training program is to provide the patient with an optimal return of function by improving functional skills, self-care skills, improve the pain level, strength, flexibility, and the motion of the hip, spine and leg.

**Second session:**

Post-operative exercises commenced 1 to 2 weeks following surgery. These exercises included foot and ankle movements, leg extensions with knee pressure, raising the leg while in a supine position, pulling the heel towards the body, and knee flexion exercises assisted by the healthy foot. Each position should be held for 5 to 10 seconds, with the exercises repeated 3 to 5 times daily.

**Third session:**

This session addresses muscle strengthen exercise (quadriceps stretching exercise) and coughing and breathing exercise. Patients were taught recognize and feel the contractions of their pelvic floor and thigh muscles during exercise in order to help them strengthen their muscles. Tighten the pelvic floor and thigh muscles for 5 to 10 seconds. Ten repetitions of the contraction and relaxation cycle are recommended. Increase the duration of contraction and relaxation gradually. Instruct patients to try to perform each exercise at least 3 to 5 times every day by spreading them throughout the day.

**Fourth session:**

The fourth session comprised of repeating the exercise to make sure they understand how to do it

correctly as well as prepared educational materials to take home and review the material in Arabic.

- During each session, the researcher used simple, concise, and clear words and images. At the conclusion of every session, the researcher provided a succinct summary, highlighting the significance of follow-up visits and coordinating the time and location for these appointments.
- Additionally, each patient in the study group received a colorful booklet designed to capture their interest, encourage motivation, facilitate review, and assist with home learning.
- Following the completion of each session, a discussion and feedback period of approximately 5 to 10 minutes was allocated.
- The researchers conducted visits to the study group patient in the hospital to provide encouragement and observe the application of rehabilitation exercises. The duration of the patient's hospital stay following surgery varied between 7 and 37 days depending on the patient's condition.

**Phase II: Evaluation phase**

In order to evaluate the program's efficacy, the quality of life post-test follow-up using tool II (Rand short form (SF) 36 item questionnaire were carried out 3 months, 6 months and one year from implementation of nursing instructions and exercises training. Phone follow-ups were conducted with patients to monitor their conditions. After three months, six months, and one year following surgery, the patients were scheduled for follow-up visits in the outpatient clinic of the trauma unit by the researchers.

**Statistical analysis:**

After being coded, the collected data were formatted especially to be entered into an IBM-compatible computer. All entered data were verified for accuracy using the Statistical Package for Social Sciences (SPSS) version (26) for Windows. Frequencies and percentages were used for qualitative variables, and means and standard deviations were used for quantitative variables. The statistical tests that were employed were the ANOVA, chi square test, and  $\chi^2$  test. A P value of less than 0.05 and equal to 0.001 was considered to indicate statistical significance. No statistically significant difference was taken into account when the P value was greater than 0.05.

**Results:****Table (1): Comparison between the study and control groups regarding demographic data (n=80)**

Demographic data	Study		Control		X2	p-value
	n	%	n	%		
<b>Age</b>						
18:<30	12	30.0	17	42.5	3.35	0.500 <sup>NS</sup>
30:<40	11	27.5	8	20.0		
40:<50	10	25.0	6	15.0		
50:<60	4	10.0	7	17.5		
60:65	3	7.5	2	5.0		
<b>Mean±SD</b>	36.01 ± 14.03					
<b>Sex</b>						
Male	30	75.0	27	67.5	0.55	0.459 <sup>NS</sup>
Female	10	25.0	13	32.5		
<b>Marital status</b>						
Single	10	25.0	12	30.0	0.26	0.880 <sup>NS</sup>
Married	28	70.0	26	65.0		
Widowed	2	5.0	2	5.0		
<b>Educational level</b>						
Illiterate	6	15.0	3	7.5	2.71	0.439 <sup>NS</sup>
Read and write	7	17.5	12	30.0		
Secondary school	25	62.5	22	55.0		
University	2	5.0	3	7.5		
<b>Occupation</b>						
Working	19	47.5	14	35.0	1.29	0.256 <sup>NS</sup>
Not working	21	52.5	26	65.0		
<b>Residence</b>						
Urban	18	45.0	16	40.0	0.21	0.651 <sup>NS</sup>
Rural	22	55.0	24	60.0		

-SD- stander deviate

- Chi-Square test

NS: no statistically significant difference P value &gt;0.05

\*Significant level at P value &lt; 0.05,

\*\*Significant level at P value &lt; 0.05

**Table (2): Comparison between the study and control groups regarding medical data (n=80)**

Medical data	Study		Control		X2	p-value
	n	%	n	%		
<b>Medical diagnosis</b>						
#pelvisA	0	0.0	2	5.0	12.94	0.044*
#pelvisB	15	37.5	12	30.0		
#pelvisC	6	15.0	13	32.5		
#acetabulum	13	32.5	5	12.5		
#pelvisA+acetabulum	0	0.0	4	10.0		
#pelvisB+acetabulum	2	5.0	1	2.5		
#pelvisC+acetabulum	4	10.0	3	7.5		
<b>Length of hospital stay</b>						
Less than 15 days	20	50.0	23	57.5	0.48	0.785 <sup>NS</sup>
From 15-20 days	10	25.0	9	22.5		
More than 20 days	10	25.0	8	20.0		
<b>Mean±SD</b>	<b>15.92±6.91</b>		<b>16.97±6.04</b>			



Medical data	Study		Control		X2	p-value
	n	%	n	%		
<b>Comorbidities</b>						
Hypertension	3	7.5	3	7.5	6.53	0.258 <sup>NS</sup>
Diabetes mellitus	0	0.0	1	2.5		
Cardiovascular disease	0	0.0	1	2.5		
kidney disease	0	0.0	1	2.5		
Hypertension and diabetes mellitus	0	0.0	3	7.5		
Non	37	92.5	31	77.5		
<b>Affected side</b>						
Right	15	37.5	19	47.5	3.14	0.208 <sup>NS</sup>
Left	20	50.0	20	50.0		
Both	5	12.5	1	2.5		
<b>Mechanism of injury</b>						
MCA	20	50.0	14	35.0	2.06	0.560 <sup>NS</sup>
Motor cycle accident	3	7.5	3	7.5		
FFH	14	35.0	18	45.0		
FOG	3	7.5	5	12.5		
<b>Associated injury</b>						
Upper limb	1	2.5	3	7.5	1.33	0.513 <sup>NS</sup>
Lower limb	7	17.5	5	12.5		
Non	32	80.0	32	80.0		

Pearson Chi-Square

\*Significant level at P value < 0.05,

NS: no statistically significant difference P value > 0.05,

\*\*Significant level at P value < 0.05

**Table (3): Comparison between study and control group related to quality of life during four program phases (preoperative, 3 months postoperative, 6 months postoperative and one year postoperative (n=80))**

QoL domains		Preoperative			3months postoperative			6 months postoperative			one year postoperative		
		Mean±SD	T	P-value	Mean±SD	T	P-value	Mean±SD	T	P-value	Mean±SD	T	P-value
<b>Physical functioning</b>	Study	0±0	-1.00	0.320	1.33±1.87	2.35	0.021	4.6±3.43	3.40	0.001**	10.23±2.62	11.87	<0.001**
	Control	0.03±0.16			0.5±1.2			2.23±2.79			2.48±3.19		
<b>Role limitations due to physical health</b>	Study	0±0			0±0			0.63±1.39	2.84	0.006**	2.48±1.87	8.38	<0.001**
	Control	0±0			0±0			0±0					
<b>Role limitations due to emotional problems</b>	Study	0±0			0.03±0.16	1.00	0.320	0.53±1.15	2.88	0.005**	2.18±1.36	10.14	<0.001**
	Control	0±0			0±0			0±0					
<b>Energy/fatigue</b>	Study	0.95±0.75	-1.04	0.302	3.18±1.62	3.06	0.003*	8.93±1.27	13.95	<0.001**	15.03±1.33	22.58	<0.001**
	Control	1.13±0.76			2.23±1.12			5.28±1.06			8.95±1.06		
<b>Emotional well being</b>	Study	4.53±3.18	-1.06	0.292	8.38±4.37	1.15	0.254	14.73±2.7	8.12	<0.001**	17.45±2.09	8.17	<0.001**
	Control	5.33±3.56			7.45±2.61			10.38±2.05			14.23±1.37		
<b>Social functioning</b>	Study	1±0			1.43±0.87	0.46	0.644	3.5±1.04	5.19	<0.001**	6.23±1	11.72	<0.001**
	Control	1±0			1.35±0.53			2.45±0.75			3.85±0.8		
<b>Pain</b>	Study	2.08±0.42	-0.31	0.760	2.73±0.99	2.22	0.029*	4.6±0.87	9.06	<0.001**	6.7±0.88	12.81	<0.001**
	Control	2.1±0.3			2.33±0.57			2.75±0.95			4.3±0.79		
<b>General health</b>	Study	8.25±2.34	-1.25	0.216	10.8±2.72	2.07	0.042*	13.78±1.69	7.89	<0.001**	19.85±1.49	20.84	<0.001**
	Control	8.93±2.49			9.65±2.23			10.53±1.99			11.73±1.96		
<b>Total QoL</b>	Study	16.8±5.5	-1.34	0.184	7.85±10.71	2.32	0.023*	51.28±10.68	9.45	<0.001**	80.13±8.5	21.97	<0.001**
	Control	18.5±5.85			23.5±5.09			33.6±5.08			45.53±5.19		

Independent T-test

\*Significant level at P value < 0.05,

NS: no statistically significant difference P value > 0.05,

\*\*Significant level at P value < 0.05

**Table (4): Correlation co-efficient between total quality of life score for study and control group during four program phases (preoperative, 3 months postoperative, 6 months postoperative and one year postoperative with patients demographic and medical data (n=80))**

Items		Total QoL			
		Preoperative	3 months postoperative	6 months postoperative	one year postoperative
Age	r	0.086	-0.147	-0.240	-.347*
	P	0.600	0.365	0.136	0.028
Sex	r	-0.144	0.033	0.165	0.296
	P	0.376	0.842	0.308	0.064
Marital status	r	-0.108	-0.250	-0.310	0.194
	P	0.509	0.119	0.052	0.230
Educational level	r	0.101	0.125	0.023	-0.070
	P	0.534	0.442	0.889	0.668
Occupation	r	-0.039	-0.048	-0.128	-0.156
	P	0.809	0.769	0.431	0.335
Residence	r	0.145	0.251	0.236	0.151
	P	0.372	0.118	0.143	0.354
Medical diagnosis	r	0.031	-0.171	0.057	0.281
	P	0.851	0.292	0.726	0.079
Length of hospital stay	r	-0.077	-0.070	-0.222	-0.198
	P	0.638	0.668	0.169	0.220
Comorbidities	r	0.050	0.210	0.255	0.251
	P	0.760	0.192	0.112	0.118
Affected side	r	0.150	-0.017	0.145	-0.018
	P	0.355	0.919	0.370	0.911
Mechanism of injury	r	-0.245	-0.282	-0.267	0.250
	P	0.127	0.078	0.096	0.037
Associated injury	r	0.057	0.281	-0.032	0.027
	P	0.726	0.079	0.845	0.869

Person correlation

NS: no statistically significant Correlation at P value >0.05,

\*Statistically Significant Correlation at P. value <0.05, \*\*Statistically Significant Correlation at P. value <0.01

#### Part I: Demographic data of the studied patients:

**Table (1): Distribution of patient demographic data related to group (n=80)** The data presented in the table reveals several key findings. First and foremost, young adult ages 18-29 years were the most affected by injury 30% of the intervention group and 42.5% of the control group followed by age group 30-39 years, represent 27.5 % of the intervention group and 20% of the control group. The average age of the studied patients was  $36.01 \pm 14.03$  years. In terms of gender distribution, a significant majority of the patients (75.0% and 67.5% respectively) were males. Moving on to marital status, it was observed that a substantial proportion of patients in both groups (70.0% and 65.0% respectively) were married. When considering the patients' education, it was found that the majority (62.5% and 55.0% respectively) had completed secondary education. In relation to occupation, more than half of the patients (52.5% and 65.0% respectively) were not employed. Lastly,

the highest percentages of patients (55.0% and 60% respectively) come from rural areas.

#### Part II: Medical data of the studied patients:

**Table (2): Distribution of patient medical data related to group (n=80)** The data presented in this table illustrates that; the majority of the patients in the study group (37.5%) had a pelvic b fracture, whereas the majority of participants in the control group (32.5%) suffered from a pelvic c fracture. When it comes to hospitalization, the mean of hospital stay for the study and control group was  $15.92 \pm 6.91$  and  $16.97 \pm 6.04$  days respectively. Interestingly, injuries on the left side were observed in 50.0% of patients in both groups. In terms of the mechanism of injury, half (50%) of the study sample was involved in motor car accidents, while 45.0% of the control group fell from a height. Lastly, a lower limb injury was detected in 17.5% of the patients in the study group and 12.5% of the control group.

**Part III: Assessment of patient's quality of life using Rand (Sf) 36 item questionnaire:**

**Table (3): Comparison between study and control group related to quality of life for patients with pelvic fixation surgery during four Program phases (Preoperative, 3 months postoperative, 6 months postoperative and one year postoperative (n=80) This table demonstrated that,** there was a statistically significant difference in total quality of life between the study and control groups at three months postoperative  $p = 0,023^*$ . there was a highly statistically significant difference in total quality of life between the study and control groups 6 months and one year postoperative  $p= 0.001^{**}$  and  $0,001^{**}$  respectively.

#### **Part IV: Relations:**

**Table(4): Correlation co-efficient between total quality of life for study and control group during four program phases (preoperative, 3 months postoperative , 6 months postoperative and one year postoperative with patients demographic and medical data (n=80) This table demonstrated that,** A negative correlation was observed between quality of life and age one year postoperative ( $r -.347^*$ ). This means the young patient has better quality of life than old one.

#### **Discussion:**

Worldwide, the quality of life substantially declines for people who have undergone surgery following a pelvic fracture. Even though the physical aspect is the one that is most impacted, the emotional and social dimensions are just as significant (Tovar et al., 2022).

The HRQOL following a PF is suboptimal, with a majority of patients failing to resume their preinjury activities. Numerous studies have indicated that long-term complications from PF is linked to the severity of the fracture, associated injuries, complications specific to PF, and the treatment modalities utilized (Verma et al., 2020).

The main focus of the current research was to evaluate the impact of implementation of nursing instructions and exercises training on quality of life for patients undergoing pelvic fixation surgery.

**The discussion will focus on the following important findings:**

#### **Demographic and medical data:**

The demographic data from the current study indicated that, young adult ages 18-29 years were the most affected followed by age group 30-39 years with mean age  $36.06 \pm 14.05$  years. From the researcher's point of view, this may be due to that the young patients are more susceptible to the high – energy trauma. This result was in line with the  $35.84+12.22$ -year average age that (Petryla et al., 2021) found. Furthermore, a mean age of  $36.2 \pm 16.9$  years was observed by (Pan et al., 2021), which

supported the previously mentioned findings. This conclusion was in contrast to the findings of (Ko et al., 2021), which showed that the age was 45.2 years.

**In terms of gender,** the majority of the patients were males; this could be explained by the proportion of polytrauma as the cause of fracture is higher in men. This result was in line with that of (Elhence et al., 2024), who discovered that males made up the largest percentage of research participants. However, (Katz et al., 2024) found that females made up the largest percentage of the study sample. These findings consistent with the findings of (Dalos et al., 2020) who observed that, the majority of the studied patients were female. Additionally (Sherrington et al., 2020) reported that the majority of the participants were females.

**Based on the current study's results,** type B fractures made up the majority of the sample in terms of fracture type. This result was consistent with the findings of (Therrien et al., 2024), which discovered that the majority of patients had type b fracture. This findings was in contrast to the findings of (Brouwers et al., 2020), who said that the majority of research participants suffered from type A fracture

**When it comes to the mechanism of injury,** the current study shows that half of the participants of study group were involved in a motor car accident, while the majority of patients of the control group fell from a height. The present findings were in parallel with those of (Stolberg et al., 2024), who reported that care accidents were the leading cause of pelvic ring injuries, with falls from heights coming in next.

This result was consistent with the findings of (Monteleone, et al., 2023) that discovered that, among the causes of injury falling was the most common cause followed by road traffic incidents.

**In addition ((McMinn et al., 2020))** reported that the predominant causes of injury were motor vehicle or motorcycle accidents, accounting for 53%, followed by falls, which represented 16%, and gunshot wounds or aggravated assaults, which comprised 2.6%.

**With respect to hospital stay,** the information acquired for this study showed that the mean of hospital stay for the study and control group was  $15.92 \pm 6.91$  and  $16.97 \pm 6.04$  days respectively. This finding was in consistent with (Lai et al., 2022) who said that the mean length of hospital stay was 18.5 days.

**According to associated injury,** this study showed that lower limb injuries affect the majority of the study participants. This outcome was consistent with (Duramaz, et al., 2020) findings who found that the majority of the study participants experienced injury to their lower limb.

**Regarding the quality of life,** the present study revealed that there was statistically significant



difference between study and control group 3 months postoperative and there was highly statistically significant difference between study and control group 6 months and one year postoperative. This result supports study hypothesis. From the researcher point of view, this might be due to nursing instructions and exercises training (teaching booklet) given to the study group which improved patients' knowledge about pelvic fixation surgery.

Additionally, regular follow up by the researchers to ensure patients' commitment to the nursing instructions regarding correct body position, pain management, adequate nutrition, wound care, correct use of assistive devices, time of weight bearing, prevention of pressure ulcer and deep venous thrombosis, bowel and bladder care.

Also, continuous follow up by the researchers to ensure patients' commitment to the exercises training including coughing and breathing exercise, muscle strengthen exercise and range of motion exercise. Exercises training help to preserve the range of motion and strength in the joints and muscle surrounding the injury, prevent muscles from weakening or becoming stiff while the patient avoid butting weight on the fracture pelvic. Exercise increase blood flow which deliver more oxygen and nutrient to the injured parts of the bone and aid in healing.

These finding similarly with the study of (verma et al., 2020) who report that, those who were treated conservatively achieved the best scores in every domain of the SF-36 questionnaires than operative patients'

In addition (Petryla et al., 2021) revealed that there were no statistically significant differences between the operative and non-operative groups of treatment. However, (Swartman et al., 2020) found that the clinical results of the two groups revealed no statistically significant differences. Additionally (Petryla et al., 2021) report that there was no statistically significant differences were observed between the groups in both time points concerning SF-36 PCS and MCS scores.

**Regarding the relationship between quality of life and demographic and medical data,** A negative correlation was observed between quality of life and age one year postoperative ( $r = -.347^*$ ). This means the young patient has better quality of life than older one. From researchers point of view this may be explained by that, younger individuals generally have denser bones, strength muscles this can aid in rehabilitation and healing and making it easier to adapt to physical limitation and regain mobility. But older patients are more likely to have underlying health conditions that can complicate recovery. This result similar to (Monteleone, et al., 2023) who found that, The

analysis of the results by gender showed that age was directly correlated with the SF-12 Bodily Pain Scale. This result disagreed with (verma et al., 2020) who reported that, there were no effects of age on WHOQOL-BREF questionnaires.

### Conclusion:

Based on the results of the current study, it can be concluded that; study group patients who received nursing instructions and exercises training (teaching booklet) following pelvic fixation surgery saw significant improvement in their quality of life  $p = 0.001^{**}$ .

### Recommendations:

**These recommendations are made in light of the findings of the current study:**

#### For patients

- A discharge planning and education pamphlet, which can be given in the trauma unit, should be available to all patients undergoing PFS. Pamphlets with illustrations should be distributed to patients who are uneducated.
- Continuous patient education initiatives to raise PFS awareness.
- Establishment of a website containing information on all aspects of PFS such as audio-visual aids.

#### For nurses

- Periodic assessment of nurses' knowledge and practice in trauma unit regarding preoperative and postoperative nursing care for patients, as well as essential education and instructions given to patients prior to discharge.

**For research:** The study has to be repeated in different settings and with a bigger probability sample in order to generalize the results.

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