

LEVEL OF PHYSICAL FUNCTIONING AMONG THE PATIENTS UNDERWENT SURGICAL MANAGEMENT OF NECK OF FEMUR FRACTURE

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ABSTRACT

Background: This study delves into enhancing surgical outcomes for neck of femur fractures, recognizing the significance of interventions in the recovery process. Drawing on a wealth of literature highlighting the multifaceted nature of patient care, this research aims to contribute to the evolving landscape of orthopedic surgery. **Objective:** To evaluate the level of physical functioning in patients following surgical treatment for neck of femur fractures. **Method:** Employing a meticulous research methodology, data were collected from a representative sample of 212 participants, emphasizing quality over quantity. The study focuses on the aspects of surgical interventions, investigating prevalent fractures, types of surgeries, and the overwhelmingly common utilization of regional anesthesia. Methodological transparency ensures the reliability and validity of the findings. **Results:** The outcomes emerge, revealing a predominant satisfaction rate with surgical interventions (90.6%) and an encouraging postoperative mobility trend, with 65.6% of patients not requiring walking aids. The impact of regional anesthesia is evident, aligning with studies indicating lower complications. The study yields valuable insights into the factors influencing recovery from neck of femur fractures. **Conclusion:** In conclusion, this research accentuates the dimensions of surgical management for neck of femur fractures. The prevalence of successful outcomes, patient satisfaction, and the effective use of regional anesthesia underscore the potential for advancements in orthopedic care. Despite a smaller sample size, the study provides a rich understanding of the factors influencing recovery. This perspective encourages further exploration and implementation of tailored approaches to enhance surgical outcomes and overall patient well-being.

Keywords: Neck of Femur Fractures, Surgical Outcomes, Interventions, Regional Anesthesia, Patient Satisfaction, Orthopedic Care.

I. INTRODUCTION

1.1 Background

The devastating consequences that can result from femoral neck fractures and their prevalence, particularly among the elderly, constitute a substantial public health problem. Recent research will be utilized to examine the frequency and prevalence of femoral neck fractures in this paper. It has been noted that the occurrence of femoral neck fractures differs geographically and chronologically. As an illustration, Rupp et al. (2021) documented a fourteen percent surge in the prevalence of femoral neck fractures in Germany between 2009 and 2019, with an annual count of 120 per 100,000 individuals. This pattern underscores the increasing prevalence of these fractures, specifically among the elderly demographic. A similar pattern was observed in Iran, where Hajbagheri and Alavi (2007) identified 114 patients with femoral neck fractures; this number signifies a substantial health risk in that region. Age and gender play crucial roles in determining the incidence of femoral neck fractures. The incidence of hip fractures, including those of the femoral neck, was twice as high in girls as in males, according to Jensen (1980). Furthermore, unlike males, the incidence of femoral neck fractures remained consistent as age declined in females. The gender discrepancy highlights the criticality of implementing focused preventative interventions.

Additional research has been conducted to examine the correlation between femoral neck fractures and other medical problems. As an illustration, in their study, Ramnemark et al. (2000) found that the incidence of prior strokes among individuals who had sustained femoral neck fractures varied between 16.4% and 38.5%. Furthermore, the fractures typically transpired 5.4 to 6.4 years subsequent to the stroke. This discovery indicates a substantial interaction between the risk of femoral neck fractures and stroke. Additionally,

complications related to femoral neck fractures have been the subject of substantial research. Patients with femoral neck fractures had an 18.9 percent preoperative incidence of venous thromboembolism (VTE), according to Xia et al. (2018). This finding emphasizes the importance of preventing such consequences through cautious management of these patients. Another subject of concern pertains to the influence of osteoporosis on the incidence of femoral neck fractures. According to a study by Menczel et al. (1975), the incidence of osteoporosis is four times higher among individuals with femoral neck fractures who are younger than 54 years old, in comparison to the broader community. In order to prevent femoral neck fractures, early detection and treatment of osteoporosis are crucial, as demonstrated by this result. Barreira et al. showed that, with regard to their geographical distribution, Portugal experiences over 9500 femoral neck fractures annually. These fractures incur a mortality rate ranging from 20 percent to 30 percent within a year (2015). The considerable ramifications of these fractures on public health systems are shown by the high incidence and death rating.

In public health and gerontology, the demographic focus on the elderly population and risk factors for femoral neck fractures is a crucial field of study. This article will examine a range of facets pertaining to the subject matter, encompassing the frequency of femoral neck fractures among the aged, the risk factors that are linked to such fractures, and the societal and medical ramifications. The discourse will be substantiated by pertinent scholarly papers, in accordance with the Harvard reference format. Femoral neck fractures are a condition that primarily affects the older demographic. Liu et al. (2021) identified older age, female gender, lower body mass index (BMI), lower bone mineral density (BMD), longer thigh length, and lower average circumference as risk factors for these fractures in the elderly. It is critical to identify high-risk individuals and design focused preventative interventions in light of these findings. A crucial determinant is the structural integrity of bones, specifically in the femoral region, among the elderly. Femoral neck fractures in the elderly are related with lower cortical thickness, increased intracortical porosity, and poor cancellous bone volume, according to Nishihara (1995). This indicates that changes in bone structure associated with aging contribute substantially to the risk of fractures.

Fractures of the femoral neck are anticipated to become more prevalent in the elderly as a result of the aging population, the expansion of life expectancy, and the prevalence of osteoporosis. This tendency was emphasized by Macaulay et al. (2006), who also emphasized the necessity for healthcare systems to adjust in order to meet the growing need for rehabilitation and fracture treatment services. Additionally, the caseload volumes of hospitals and surgeons impact patient outcomes. According to a study by Shah et al. (2005), there is a correlation between reduced caseload volumes of femoral neck fracture cases at hospitals and surgeons and heightened patient risks, including extended hospitalizations and complications such urinary tract infections and pulmonary embolism. This emphasizes the criticality of expert care in the treatment of severe fractures.

Stroke is a significant risk factor for femoral neck fractures in the elderly, affecting patients aged 65 years and older with an incidence ranging from 16.4% to 38.5%. (Ramnemark et al., 2000). This underscores the necessity for integrated treatment strategies that encompass the musculoskeletal and neurological dimensions of senior health. Additional risk factors for senior males were reported by Nguyen et al. (1996), including lower femoral neck bone mineral density (BMD), quadriceps weakness, increased body sway, falls within the previous 12 months, and a history of fractures within the previous five years. The development of comprehensive fall prevention and bone health programs is contingent upon these critical criteria. Bone mineral density (BMD) significantly influences the likelihood of developing femoral neck fractures. Particularly in regards to hip fractures, Schuit et al. (2004) discovered that femoral neck BMD is a significant risk factor for these fractures in men and women aged 55 years and older. This result lends credence to the notion that BMD screening should be utilized to identify older patients at high risk for fractures.

Femoral neck fractures have been found to be correlated with a deterioration in quality of life, particularly in cognitively impaired elderly patients. These fractures result in a diminished quality of life, with greater declines among those with fracture healing difficulties, according to Tidermark et al. (2002). This underscores the necessity for holistic treatment that extends beyond the mere physical manifestations of the fracture. As stated by Lawton, Baker, and Dickson (1983), femoral neck fractures signify advanced biological aging and create a substantial healthcare dilemma. They underscored the criticality of preserving mobility among the elderly in order to successfully address this escalating health issue. Significant association exists between bone density

and life expectancy among individuals with femoral neck fractures. A robust association was seen between the SINH index and bone density, as reported by Purboyo et al. (2021). This suggests that reduced bone density has adverse effects on both life expectancy and quality of life. Instances of fracture and their treatment have a substantial impact on functional results and quality of life. In comparison to undisplaced fractures, displaced femoral neck fractures have a significantly greater incidence of fracture healing problems and reoperations, which significantly impairs quality of life, according to Tidermark et al. (2002).

Prefracture activities of daily living, ECG, electroencephalogram, and cognitive function score were discovered by Kyo, Takaoka, and Ono (1993) as significant factors influencing life expectancy and postoperative activities of daily living in patients with femoral neck fractures. This indicates that in order to enhance surgical results, a comprehensive preoperative evaluation is vital. The effects of various treatment modalities for femoral neck fractures on quality of life vary. In their study, Slobogean et al. (2017) discovered that patients who undergo closed reduction and screw fixation for femoral neck fractures experience a quality of life comparable to that of the general populace. This is especially true when complications such as malunion and nonunion are prevented. Surgical therapies for femoral neck fractures, such as total hip arthroplasty (THA), hemiarthroplasty (HA), and open reduction internal fixation (ORIF), are crucial in addressing these injuries, especially in senior patients. Each approach has its indications, advantages, and limitations, which are vital in identifying the most appropriate treatment for specific patients. This essay will present an overview of these surgical treatments, supported by current research and studies, and cited in Harvard reference style. THA is widely acknowledged as a recommended treatment for displaced femoral neck fractures in older individuals. Healy and Iorio (2004) found that THA provides longer intervals between reoperations and death, more independent living, and is more cost-effective than internal fixation. Stirton, Maier, and Nandi (2019) have reported that THA is cost-effective and acceptable for elderly community ambulators with displaced femoral neck fractures, advocating cementless fixation with prophylactic cabling as the preferable approach. Furthermore, Sim and Sigmond (1986) underlined THA's function in addressing high-risk femoral neck fractures in older patients with pre-existing joint illness.

Watson et al. (2011) concluded, after comparing these surgical options, that THA permits patients to resume the majority of pre-injury activities following displaced femoral neck fractures; nevertheless, greater head-to-neck ratios are advised to prevent dislocation. In both younger and older patients, Leonardsson et al. (2013) discovered that THA is related with less pain and more satisfaction than internal fixation and HA for displaced femoral neck fractures. THA gives advantages in certain patients with acute displaced femoral neck fractures, according to Papandrea and Froimson (1996); nonetheless, dislocation rates following fractures are comparable when THA or HA is utilized. Mortazavi et al. (2012) examined the difficulties associated with salvage total hysterectomy (THA) following unsuccessful ORIF. They observed that patients with previous intertrochanteric fractures required more complex methods and endured longer operational periods.

Surgical interventions are pivotal in the realm of healthcare, offering significant benefits in restoring function and reducing morbidity across various medical conditions. Razali et al. (2020) underscore the necessity of prompt surgical action in cases of external laryngotracheal trauma, leading to favorable outcomes. In the context of obesity, Schusdziarra, Hausmann, and Erdmann (2006) highlight the efficiency of surgical therapy in weight reduction and function restoration. Lalremruata (2015) discusses the indispensable role of surgery in treating prosthetic joint infections, focusing on joint function recovery. Suter (1995) emphasizes the life-saving aspect of early surgical intervention, particularly in preventing long-term complications. Whitney et al. (1994) demonstrate the role of aggressive surgical intervention in reducing morbidity and mortality in AIDS patients with intra-abdominal crises.

The significance of early detection, therapy, and comprehensive care in bone compartment syndrome is emphasized by Yue Xiu-ling (2010). The importance of surgery in the management of congenital heart disease in adults, particularly valve surgery and transplantation, is elaborated upon by Horer (2018). Bariatric surgery is examined by Stocker (2003) as a viable option for morbid obesity and its associated comorbidities. Modern perioperative treatment procedures have substantially decreased morbidity and death among surgical patients, according to Kehlet and Wilmore (2002). The significance of preoperative preparation in mitigating postoperative problems is emphasized by Iqbal et al. (2019). In high-risk patients, goal-directed therapy decreases postoperative morbidity and enhances function, according to Ackland et al. (2015). Cheville and

Tchou (2007) emphasize the advantages of early rehabilitation techniques in mitigating post-operative pain and dysfunction.

According to Howell et al. (2014), a limited number of therapies demonstrate efficacy in mitigating surgical damage. In his work, Hammerberg (1992) examines the impact of surgical intervention for metastatic spine disease on the quality of life. Smith, Pruthi, and McGrath (2014) underscore the significance of using comprehensive intervention techniques in order to expedite patient recovery. In their 2016 article, Peng, Wilson, Hanfland, and Campbell emphasize the significance of early care for patients with tetralogy of Fallot. Levett and Grimmett (2019) examine the influence of psychological variables on the results of surgical procedures. The importance of cardiac rehabilitation in maximizing function and decreasing morbidity and mortality in heart disorders is highlighted by Tanaka (2022). Postoperative esophageal function is not impacted by gastric reduction surgery, according to Korenkov et al. (2002). Gruber et al. (2011) analyze the criticality of precise nodal status diagnosis in breast cancer as a means to mitigate avoidable surgical procedures. The importance of surgical procedures in improving patient outcomes, minimizing morbidity, and boosting quality of life for a wide range of medical problems is emphasized by these research collectively.

Postoperative difficulties, including restricted range of motion, discomfort, and the likelihood of complications, are substantial issues that impact the recuperation phase. Depending on the type of operation, the patient's preexisting ailments, and the efficacy of postoperative care, these obstacles may differ. Postoperative movement restrictions are prevalent, especially in the context of orthopedic procedures such as total knee arthroplasty. Infections, arthrofibrosis, heterotrophic ossifications, and improper rehabilitation protocols are elements that contribute to this (Schivone Panni et al., 2009). Anemia and other post-operative complications may hinder functional mobility in the immediate aftermath of hip fracture surgery (Foss, Kristensen, & Kehlet, 2008). Despite undergoing successful surgical procedures, a subset of individuals may continue to have enduring limits in their movement (Pua et al., 2016). An example of this is the notable enhancement in mobility that is typically noted during the initial three months following a total hip replacement; however, this can differ among individuals (Pogorzała, Stryła, & Nowakowski, 2012).

Postoperative pain poses a substantial obstacle, as a considerable percentage of patients endure chronic postsurgical pain (CPSP), which significantly impairs daily functioning and diminishes overall well-being (Kim, Pearson-Chauhan, McCarthy, & Buvanendran, 2018). Predictors of post-operative pain severity include pain catastrophizing and pre-operative pain severity (Sullivan et al., 2009). A further correlation exists between postoperative medical problems and a heightened presence of functionally limiting pain one to three months following the procedure (Willingham et al., 2019).

Postoperative complications pose a significant concern. For example, diabetes mellitus is associated with unfavorable outcomes following knee arthroplasty, as seen by reduced maximal flexion and total range of motion (Robertson et al., 2012). Postoperative falls may be more prevalent among patients who are awaiting joint replacement surgery and have severe medical problems (Levinger et al., 2017). Arthrofibrosis, which is a difficult postoperative complication of total knee arthroplasty, necessitates early, individualized, and extensive rehabilitation regimens (Cheuy et al., 2017).

In order to effectively tackle these difficulties, a holistic approach is necessary. In order to limit risks and optimize recovery, preoperative patient optimization is critical. This entails treating many concerns like obesity, diabetes, tobacco use, opiate use, anemia, malnutrition, bad dentition, and vitamin D insufficiency (de Steiger & Wall, 2020). The primary objectives of postoperative management ought to be the facilitation of early mobility, pain management, and patient safety (Sanguineti, Wild, & Fain, 2014). Furthermore, in the case of knee osteoarthritis, a combination of manual physical therapy, strengthening, range-of-motion, and aerobic exercises can increase distance walked, decrease pain and stiffness, and enhance function (Deyle et al., 2000).

Rehabilitation serves as a vital element in the course of recuperation, aiding individuals in reestablishing functionality, diminishing impairment, and enhancing their overall well-being. The significance of rehabilitation in the treatment of orthopedic injuries, neurological problems, and chronic diseases is well-established.

Rehabilitation extends beyond just physical recuperation; it concurrently attends to cognitive and psychosocial dimensions, which are pivotal in comprehending the enduring ramifications of ailments such as stroke and in enhancing the quality of life for sufferers (Hochstenbach, 2000). By adopting this comprehensive approach,

rehabilitation programs guarantee that patients' mental and emotional well-being are properly attended to, in addition to their physical requirements. Emerging rehabilitation methodologies have the potential to substantially augment the recuperation process of neurological patients, hence potentially enhancing locomotor control and plasticity (Barbeau & Fung, 2001). Rehabilitation contributes to the attainment of optimal functional recovery through the activation of neuroplasticity mechanisms, such as collateral sprouting and the unveiling of brain pathways and synapses (BachyRita, 1981).

Rehabilitation improves patients' quality of life through the management of neurologic deficits, cognitive function, physical stamina, and the preferences of both the patient and their family (Kelly-Hayes & Paige, 1995). It enhances the quality of life for patients by facilitating their reintegration into or cultivation of interests and pursuits, as well as preserving elevated degrees of functional autonomy (Fish, Crussemeyer, & Kosta, 2001). Rehabilitation is of the utmost importance for some demographics, including addicts, in order to restore them to productive and helpful members of society. This is accomplished through the utilization of recovery programs and therapeutic communities (Perangin Angin & Suriadi, 2022). Rehabilitation is of utmost importance for individuals healing from injuries, the elderly with mobility issues, and sports-related injuries, since it guarantees

Although patients may believe they are exerting the most effort possible to recover, this perception is not regarded as the most crucial aspect of the process (Haese, 1985). Supportive factors for rehabilitation goal planning include family presence and equitable communication; however, participation is hindered by pain and uncertainty arising from health changes (Alanko et al., 2019). Gaining insight into religious convictions could prove advantageous in promoting the recovery of heterogeneous religious communities, given that these convictions may exhibit similarities to and contrast with the medical rehabilitation paradigm (Yamey & Greenwood, 2004).

Physical function evaluation is a critical component of patient treatment and recovery following surgery. This assessment aids in comprehending the efficacy of surgical procedures, devising rehabilitation strategies, and guaranteeing optimal patient results. The necessity for these evaluations is substantiated by an assortment of investigations encompassing diverse surgical procedures. Postoperative functional assessment incorporates physical, social, and environmental variables in order to forecast immediate and long-term requirements. This assists in defining "normal" postoperative functioning (Lusis, 1994). These evaluations are vital for customizing post-operative treatment to the specific requirements of each patient. Significant improvements in physical function, pain interference, and overall physical health are frequently observed in the postoperative period (Hunt et al., 2022). This highlights the significance of assessing these factors in order to determine the efficacy of surgical procedures.

Occupational activities, neuromotor function, pain management, nursing care, and psychological assistance are all components of postoperative rehabilitation (Benedetti et al., 2017). By assessing these domains, it is possible to develop all-encompassing rehabilitation strategies that consider every facet of the patient's recuperation. Patients typically regain approximately 80% of their physical capability within six to eight months following surgery, in comparison to the control group (Vissers et al., 2011). It is critical to track this recovery trajectory in order to comprehend the lasting effects of surgery and to strategize for continued treatment. Activity levels are significantly diminished upon release from the hospital and gradually improve during a period of 3–6 months (Skipworth et al., 2012). Establishing reasonable expectations and goals for patients and caregivers requires this information.

Assessing the level of physical functioning in individuals who have undergone surgical treatment for femoral neck fractures is the primary objective of this research. This study holds considerable importance for multiple reasons: it enhances the overall comprehension of post-surgical recovery, provides insights for clinical practices, and has the potential to impact patient care and rehabilitation protocols. A Comprehension of Post-Surgical Recovery: The principal importance of the study resides in its contribution to the comprehension of the recuperation process subsequent to femoral neck fracture surgical intervention. The healing trajectory after such procedures is varied and multifaceted, according to research. For example, research conducted by Kehlet and Wilmore (2002) has underscored the need of comprehending the psychological and physiological dimensions of rehabilitation following surgery. This research expands upon this comprehension by focused on physical functioning, which is a fundamental element of the rehabilitation process. Clinical Practice Insights:

The results of this investigation possess the capacity to provide insights into and enhance clinical practices. Jack et al. (2010) have observed that the implementation of evidence-based strategies in post-surgical care has the potential to substantially enhance patient outcomes. This study may contribute to the development of more precise and efficacious treatment interventions for individuals who have experienced femoral neck fractures by furnishing empirical data on their physical functioning following the procedure.

The study's findings regarding physical functioning following surgery are of paramount importance in enhancing patient care and rehabilitation. The success of recovery outcomes has been established through the implementation of focused rehabilitation programs, according to research by Sherrington et al. (2011). By identifying unique rehabilitation needs and efficacious treatments for patients with femoral neck fractures, the present study has the potential to improve their recovery outcomes and overall quality of life. Making an Input to Clinical Guidelines: The results of this research have the potential to inform the formulation of clinical recommendations about the treatment of femoral neck fractures. In accordance with the research of Boutron et al. (2012), clinical guidelines guarantee the best possible outcomes and ensure the standardization of care. This study may offer the necessary empirical support to revise or establish rehabilitation-specific protocols for patients who have suffered femoral neck fractures.

Enhancing Healthcare Delivery: The investigation has the potential to contribute to more streamlined healthcare delivery by augmenting our comprehension of post-surgical recuperation. Porter's (2010) research underscores the significance of value-based healthcare, which places a premium on patient outcomes. The knowledge gained from this research has the potential to enhance the efficacy and efficiency of care delivery models for individuals undergoing recovery from femoral neck fractures. In Response to a Public Health Issue: Considering the escalating prevalence of femoral neck fractures, specifically among the elderly demographic, this research endeavors to tackle a substantial matter of public health importance. A study conducted by Hartholt et al. (2011) sheds insight on the increasing incidence of these fractures and the consequences they have on public health systems. Therefore, the study's emphasis on enhancing recovery outcomes is pertinent and current.

Implications for Long-Term Implications: The research findings also bear significance for long-term consequences, encompassing autonomy, mobility, and overall well-being. Research by Fortinsky et al. (2012) demonstrates that the long-term consequences of major operations are vital to the health of the patient. This research could discover characteristics that influence these outcomes, thereby informing improved long-term care plans for patients with femoral neck fractures.

II. LITURATURE REVIEW

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Clinical Practice Insights: The results of this investigation possess the capacity to provide insights into and enhance clinical practices. Jack et al. (2010) have observed that the implementation of evidence-based strategies in post-surgical care has the potential to substantially enhance patient outcomes. This study may contribute to the development of more precise and efficacious treatment interventions for individuals who have experienced femoral neck fractures by furnishing empirical data on their physical functioning following the procedure. Aspects that affect patient rehabilitation and care: The findings of the research regarding post-operative physical functioning are vital in order to enhance patient care and rehabilitation. The success of recovery outcomes has been established through the implementation of focused rehabilitation programs, according to research by Sherrington et al. (2011). By identifying unique rehabilitation needs and efficacious

treatments for patients with femoral neck fractures, the present study has the potential to improve their recovery outcomes and overall quality of life.

The results of this study may provide valuable insights that may inform the formulation of clinical guidelines pertaining to the treatment and intervention of femoral neck fractures. In accordance with the research of Boutron et al. (2012), clinical guidelines guarantee the best possible outcomes and ensure the standardization of care. This study may offer the necessary empirical support to revise or establish rehabilitation-specific protocols for patients who have suffered femoral neck fractures. Improving the Delivery of Healthcare: Through the advancement of knowledge regarding post-operative recovery, this research endeavor has the potential to optimize the provision of healthcare services. Porter's (2010) research underscores the significance of value-based healthcare, which places a premium on patient outcomes. The knowledge gained from this research has the potential to enhance the efficacy and efficiency of care delivery models for individuals undergoing recovery from femoral neck fractures.

In light of the escalating prevalence of femoral neck fractures, specifically among the elderly demographic, this research endeavors to tackle a substantial public health issue. A study conducted by Hartholt et al. (2011) sheds insight on the increasing incidence of these fractures and the consequences they have on public health systems. Therefore, the study's emphasis on enhancing recovery outcomes is pertinent and current. Implications for Long-Term Implications: The research findings also bear significance for long-term consequences, encompassing autonomy, mobility, and overall well-being. Research by Fortinsky et al. (2012) demonstrates that the long-term consequences of major operations are vital to the health of the patient. This research could discover characteristics that influence these outcomes, thereby informing improved long-term care plans for patients with femoral neck fractures.

Fractures of the neck of the femur, which occur most frequently in the elderly, include a multitude of interrelated risk factors and outcomes that must be comprehended in order to devise an efficient treatment strategy. Hedlund et al. emphasize that age and gender are substantial risk factors, with older people exhibiting greater susceptibility and menopause exerting a lesser influence (1987). Fox et al. (2000) highlight the association between bone mineral density and functional ability with the prediction of these fractures. This underscores the criticality of preserving bone health and physical capability, particularly among the elderly. Physical condition and concurrent disorders are significant factors in determining the outcome of these fractures. Hemoglobin, serum albumin, and total lymphocyte counts were identified by one study as relevant variables in post-surgical mortality rates. As stated by Puvanesarajah et al., dialysis dependency is an additional significant risk factor for serious post-surgical morbidity and mortality (2018). In addition, genetic variables, including those implicated in the RTP3 gene as proposed by Zhao et al. (2009), are contributory to the risk of hip fractures and bone structural instability.

Variables such as dietary status impact the mortality and morbidity associated with fractures of the neck of the femur. Poor nutritional status corresponds with increased mortality and worse surgical outcomes, according to O'Leary et al. (2021). As stated by Chaudhary et al. (2021) and İnan et al. (2009), avascular necrosis has a substantial impact on outcomes, especially in pediatric patients. The kind of fracture is strongly connected with both the occurrence of avascular necrosis and the overall prognosis. Post-operative problems are a further matter of worry. Lowe and Lightfoot (2019) have documented that there is a substantial correlation between perioperative troponin elevation and both post-operative cardiac issues and mortality. As illustrated by Prieto-Alhambra et al. (2019), the quality of life following a fracture is substantially impaired. The researchers noted a substantial reduction in activities of daily living and health-related quality of life as reported by patients, and only a partial recovery was observed four months after the fracture. Notable are the infection risks following surgery; Basilico et al. (2020) identified a correlation between fever onset greater than 38° within 72 hours of surgery and early infections in proximal femur fractures. Acquiring this all-encompassing comprehension of the risk factors and consequences is vital in order to guide clinical practice and enhance patient outcomes when it comes to the management of neck of femur fractures.

Femoral neck fractures, which are especially common among the elderly, require surgical intervention in order to reinstate mobility and minimize adverse health outcomes. Comprehensive hip arthroplasty (THA) and hemiarthroplasty are the prevailing surgical procedures employed to treat these fractures. It is imperative to comprehend the indications, benefits, and limitations of each of these treatments in order to achieve the best

possible outcomes for patients. Total Hip Arthroplasty (THA) is gaining recognition as the treatment of choice for displaced femoral neck fractures, particularly in specific patient populations. Greenstein and Soles (2020) emphasize the efficacy of the direct anterior approach to total hip replacement (THA), which permits immediate weight-bearing, which is a notable benefit for the older demographic. This methodology reduces the extent of muscle injury, which may result in expedited recuperation periods. According to Senthilnathan et al. (2022), THA is an excellent option for arthritic changes in the elderly since it has a lower re-operation rate than bipolar hemiarthroplasty. Delamarter and Moreland (1987) underscore the superior functional outcomes and pain alleviation of THA in comparison to hemiarthroplasty, while also noting its comparatively lower incidence of complications. This is supported by the findings of Lewis et al. (2019), who advise against the use of THA in patients younger than 80 years and with a life expectancy exceeding 4 years, on account of its higher efficacy in addressing displaced femoral neck fractures. However, hemiarthroplasty can be considered as an alternative treatment approach that requires less invasive techniques. According to Wang and Bhattacharyya (2017), despite certain drawbacks, hemiarthroplasty continues to be a feasible option, especially for patients who are ineligible for total hip replacement (THA). Hunter (1980) highlights the significant morbidity and mortality rates that are linked to primary prosthetic arthroplasty for displaced femoral neck fractures. These results suggest that in certain cases, alternative procedures such as muscle-pedicle grafts and total hip replacement may be more appropriate. In their study, Digga et al. (2021) discovered that cemented bipolar hemiarthroplasty may exhibit enhanced efficacy in the elderly by facilitating pain reduction, expediting mobilization, and mitigating the danger of peri-prosthetic fracture.

The comparative outcomes of hemiarthroplasty and THA continue to be a subject of discussion, as each technique has its advocates who rely on distinct patient characteristics and results. In mobile, independent patients, Baker et al. (2006) discovered that THA yields improved short-term clinical outcomes and fewer problems than hemiarthroplasty. Hoskins et al. (2017) contend that internal fixation is inferior to arthroplasty choices, including THA, in terms of reoperation rates, quality of life, and function. For cognitively intact, functionally independent patients, THA is the gold standard. HEMiarthroplasty is a viable short-term intervention for both active octogenarians and nonagenarians, according to Chammout et al. (2019), who find no statistically significant distinction in outcomes when compared to THA. Morbidity and Mortality: In spite of progress in surgical methodologies, obese patients undergoing hip arthroplasty continue to experience elevated rates of morbidity and mortality. THA has a lower mortality rate than hemiarthroplasty, a critical factor in surgical decision-making, according to Al-Mohrej et al. (2020). According to Rodriguez-Buitrago et al. (2019), hemiarthroplasty is a prevalent treatment option for femoral neck fractures in the elderly; nonetheless, it is not devoid of consequences, with dislocation and infection being the most prevalent.

Surgical Preference: In many cases, the decision between hemiarthroplasty and THA is determined by the individual clinical circumstance of the patient and the surgeon's personal inclination. Iorio et al. (2006) find that among members of the American Association of Hip and Knee Surgeons, hemiarthroplasty is the most favored surgical treatment for displaced femoral neck fractures in senior patients. In their prospective randomized clinical trial, Pain Relief and Function, Macaulay et al. (2008) compared hemiarthroplasty with THA for the treatment of displaced femoral neck fractures. In active senior individuals with hip fractures, THA improved pain alleviation, mental health, and function outcomes much more than hemiarthroplasty, without a significantly higher incidence of complications.

In orthopedic surgery, the comparative examination of various surgical procedures for fractures of the neck of the femur is a crucial topic of study, since it has a direct bearing on patient outcomes, recovery times, and quality of life after surgery. In order to contrast the efficacy, adverse effects, and patient results of various surgical procedures, this analysis will compile data from numerous research. In their 1980 study, White and Chappell examined the efficacy of surgical techniques involving the correction of fractured femoral necks. The authors discovered that general anesthesia, spinal analgesia, and psoas compartment block all yield comparable outcomes for postoperative mortality and preoperative, intraoperative, and postoperative events. This demonstrates that anesthesia selection can be tailored to patient-specific considerations while maintaining optimal surgical results. The incidence of neck fractures in femoral resurfacing is higher in patients with smaller, less thick femurs and lower implant sizes, according to research by Bryan, Nair, and Taylor

(2012). Preoperative planning is significantly influenced by this discovery, particularly in patients whose femur diameters and bone density differ.

In their study, Cullen et al. (2022) conducted a comparison between the dynamic hip screw and numerous cannulated cancellous screws as methods of fixation for intracapsular neck of femur fractures that were not dislodged. No substantial disparity in revision rates or problems was observed, indicating that both methodologies remain feasible alternatives. The strength of surgical repairs for vertical shear femoral neck fractures can be significantly enhanced through the use of augmented plate fixation utilizing a 2.7-mm locking plate, as demonstrated by Kunapuli et al. (2015). Specifically, the implementation of cannulated screws resulted in a significantly stronger fixation than dynamic hip screws. This discovery holds significant relevance in the context of fractures characterized by substantial shear stresses.

In their study, Kumar et al. (2019) compared cemented and uncemented hemiarthroplasty. They found that cemented hemiarthroplasty improved ambulation and pain alleviation in older patients, whereas uncemented stems were associated with increased mortality and morbidity. In determining the most suitable hemiarthroplasty procedure for a given patient's age and health condition, this discovery is crucial. Approaches in Hip Hemi-Arthroplasty: For hip hemi-arthroplasty, posterior approaches should be avoided, and unipolar hemi-arthroplasty is indicated (Robertson and Wood, 2018). Additionally, it was discovered that cemented hip hemi-arthroplasty is associated with reduced incidences of problems connected to the implant, as well as enhanced mobility and pain in the residual thigh.

Intraoperative Femur Fracture Risk: Cohen et al. (2017) reached the conclusion that the risk of intraoperative femur fracture is comparable with or without a fracture table during direct anterior approach cementless total hip arthroplasty. This discovery implies that the selection of the fracture table ought to be determined by the preferences of the surgeon and patient-specific variables. In their study, Hamidi et al. (2021) conducted a comparison between the Gamma nail and the dynamic hip screw in the context of femoral fracture treatment. It was determined that the Gamma nail exhibits a little reduced relative displacement of fracture planes, rendering it the more dependable option, albeit without statistical significance. According to a study by Gupta et al. (2014), mini-incision hip arthroplasty results in a more consistent gait cycle than conventional techniques; yet, functional outcomes for both groups are comparable. This implies that mini-incision procedures might provide rehabilitation and recovery benefits. Bakker and Michael (2006) investigated the feasibility of prophylactic augmentation of the proximal femur using innovative implants as a preventive measure against hip fractures.

Additionally, the nature of the surgical procedure influences the recuperation process. As an illustration, Verzellotti et al. (2020) discovered that the direct anterior approach to bipolar hip hemiarthroplasty in the treatment of femoral neck fractures results in a more expedited recovery from pain, lasting up to one month, as compared to alternative methodologies. This underscores the significance of surgical technique in shaping the initial phases of recovery. It has been demonstrated that postoperative care measures, such as increased recovery therapies, improve results. Lotfi (2015) reported that pre-operative damage grading and other interventions can decrease the length of hospitalization for patients with neck of femur fractures and promote early active mobilization. In addition to improving results, this strategy also saves healthcare expenditures.

The temporal aspect of surgery additionally impacts the course of recuperation. Early surgery is crucial, according to Morrissey et al. (2017), who noted that the risk of mortality increases by 1.8% for each hour of delay, with the link becoming statistically significant only when the wait exceeds 24 hours. This highlights the critical nature of surgical intervention in such circumstances.

Previous research has employed a variety of assessment instruments to analyze recovery trajectories. Frequently, these instruments prioritize aspects such as mobility, pain management, and overall quality of life. For example, the Harris Hip Score and the Oxford Hip Score are frequently employed to evaluate hip pain and function following surgical procedures. These instruments provide a consistent method for assessing patient outcomes and are essential for contrasting the efficacy of various rehabilitation regimes and surgical procedures. The course of recovery is additionally impacted by comorbidities and difficulties. For instance, in older patients with proximal femur fractures, the preoperative use of anticoagulants or antiplatelet medications substantially increases the likelihood of moderate to severe perioperative problems, according to Nakai et al.

(2013). This highlights the necessity for meticulous evaluation and control of concurrent medical problems prior to surgery.

Moreover, in addition to physical aspects, the trajectory of recovery include psychological and social components as well. Gorres (1991) observed that mental, social, and organizational elements contribute to a decline in the independence of elderly patients who have fractured following hospital discharge. This underscores the necessity of adopting a comprehensive strategy towards rehabilitation that includes psychological and social support in addition to physical rehabilitation.

In orthopedic and geriatric medicine, the efficacy of various rehabilitation techniques for neck of femur fractures and the effect of patient adherence to these rehabilitation programs on outcomes is a crucial area of research. Rehabilitation is an integral component of the recuperation process, exerting a significant impact on the final results, which encompass the reinstatement of mobility, alleviation of pain, and enhancement of quality of life. Research has demonstrated the efficacy of staged rehabilitation exercises in improving hip function and quality of life for patients who have undergone femoral neck fracture surgery. Such activities can greatly decrease pain and promote recuperation, he (2019) notes, highlighting the significance of an organized rehabilitation program. It has been seen that individuals with intertrochanteric fractures of the femur benefit from an improved prognosis and a decreased incidence of complications when exercise therapy is incorporated into fracture treatment (Zhang et al., 2012). The integration of surgical treatment with individualized rehabilitation activities may result in improved outcomes, according to this method.

In older individuals with displaced femoral neck fractures, primary arthroplasty improves function and reduces pain during rehabilitation (Rogmark & Johnell, 2005). This study suggests that the efficacy of later rehabilitation may be substantially influenced by the surgical approach chosen. In older patients, early physiotherapy rehabilitation following surgery is critical for reaching functional goals and promoting independence (Multani, Nagrale, & Ujjainkar, 2022). This highlights the criticality of commencing rehabilitation promptly following surgical procedures. It has been discovered that comprehensive nursing interventions, which encompass psychological rehabilitation and joint function assessment, successfully minimize the frequency of problems and promote healing in older patients with femoral neck fractures (Chen, 2012). For maximum recovery, this holistic approach to rehabilitation, which addresses both physical and psychological requirements, is essential.

Patient adherence to rehabilitation programs is a critical factor in determining outcomes. Studies have shown that patients who adhere to prescribed rehabilitation regimens experience better functional recovery and quality of life. Conversely, non-adherence can lead to poorer outcomes, including reduced mobility and increased risk of complications. In conclusion, the effectiveness of various rehabilitation approaches for neck of femur fractures is well-documented, with evidence supporting the benefits of structured exercise programs, integrated care approaches, and early initiation of physiotherapy. The choice of surgical technique can also influence rehabilitation outcomes. Patient adherence to rehabilitation is crucial for achieving optimal results, highlighting the need for patient-centered care and education to ensure compliance with rehabilitation protocols.

According to Rohra et al., hemiarthroplasty for fracture neck of femur in the senior population has demonstrated favorable functional outcomes, pain-free joints, early ambulation, and low complications—all while obviating the necessity for repeat surgery (2016). Particularly with regard to functional recovery and pain management, this indicates that the selection of surgical technique might have a substantial impact on patient satisfaction. Additionally, the timing of operation is crucial. Morrissey et al. (2017) underline the criticality of performing early surgery for fractures of the neck of the femur in older patients, as postponement can elevate the risk of mortality. This emphasizes the necessity for streamlined healthcare systems in order to guarantee prompt surgical treatments.

Graham et al. (2003) discovered that clinical pathways for the management of broken neck of femur do not reduce patient satisfaction or health-related quality of life, while also resulting in shorter hospital stays and fewer complications in comparison to standard therapy. This suggests that structured clinical pathways have the potential to increase patient satisfaction through the enhancement of overall care efficiency and results. An further crucial element is the association that exists between physical functioning and overall quality of life

following surgery. Research has indicated that although surgical procedures are occasionally required, they do not invariably result in a full restoration of pre-fracture mobility, particularly among the elderly. According to the findings of Ho et al. (2023), the majority of elderly patients who have arthroplasty for displaced neck of femur fractures fail to regain their mobility prior to the fracture. This underscores the intricacy of the recuperation process and underscores the necessity for holistic postoperative care and rehabilitation in order to enhance physical capabilities and, as a result, overall quality of life.

Moreover, the outcomes regarding quality of life may be impacted by the surgical procedure performed. Macaulay et al. (2008) discovered that for active senior hip fracture patients, total hip arthroplasty (THA) delivers superior pain relief, mental health, and function results than hemiarthroplasty, without a significantly increased incidence of complications. Accordingly, in order to maximize the postoperative quality of life of patients, the surgical approach selected should be customized to their specific circumstances and demands.

The healing and physical functioning of patients with fractures of the neck of the femur are notably impacted by sociodemographic variables. The aforementioned elements significantly influence the results and course of recuperation for individuals who have received surgical intervention to address these fractures.

Gender and Age: Gender and age are substantial factors that influence the rehabilitation process. The rehabilitation process is frequently sluggish in older individuals, especially women, as a result of diminished bone density and overall physical resilience. According to a study by Kyo, Takaoka, and Ono (1993), various factors including age, gender, activities of daily living before to the fracture, and cognitive ability significantly impact postoperative healing and life expectancy following femoral neck fractures. In a study conducted by Ho et al. (2023), it was discovered that age and gender have a substantial impact on the regaining of pre-fracture mobility among elderly individuals who have suffered displaced neck of femur fractures. The Interplay between Socioeconomic Status and Living Conditions Socioeconomic position and living conditions, which encompass the patient's support network, are critical determinants of recovery results. According to Kitayama et al., those who reside with family members exhibit superior maintenance of psycho-cognitive processes in comparison to those who reside alone (2017). This form of assistance may be vital for post-operative pain management and rehabilitation regimen adherence.

Preoperative sedentariness reduction may enhance postoperative results and physical function (Aunger et al., 2020). An assessment of physical function prior to and subsequent to surgery might yield valuable information regarding the determinants of recovery. Patients near their maximum scores on physical functioning scales a number of months following surgery, suggesting that the majority of recovery takes place during this time frame (Singh et al., 2009). Ongoing assessment is crucial during this phase in order to track advancements and modify treatment strategies. Certain patient populations, such as those who have survived breast cancer, achieve optimal physical functioning recovery following surgery; yet, they continue to experience challenges with rehabilitation for more than a year (Ganz et al., 2005). This underscores the necessity for sustained monitoring in certain demographic groups. For the classification of postoperative physical functions in patients, standardized questionnaires yield very precise outcomes (Fortin & K  rouac, 1977). These instruments are critical for ensuring objective and consistent assessment in various healthcare environments. The Assessment of Patient Functional Status (AAS) is a clinically relevant, valid, and dependable instrument utilized for the evaluation of postoperative patient functioning (McCarthy et al., 2005). The utilization of established instruments guarantees that assessments are precise and dependable.

Additionally, physical health and work performance are intricately linked. Physical quality of life exhibited a modest correlation with the weighted composite work functioning scale, which demonstrated excellent convergent, fair divergent, and good discriminative construct validity (Boezeman, Sluiter, & Nieuwenhuijsen, 2015). Particularly in situations of spinal cord injury, rehabilitation-driven neuro plasticity can direct connections to generate more typical activities, so enhancing rehabilitative results and improvements in independence (Walker & Detloff, 2021). Additionally, mental health and physical functionality are interdependent. In the case of severe mental illness, for instance, treatment response was generally good in terms of mental health functioning improvement, although physical health findings were ambiguous (Fowler et al., 2015). In comparison to Spanish women as a whole, women with severe endometriosis had inferior physical and social functioning, as well as overall physical health (Hern  ndez et al., 2022).

Physical activity significantly contributes to an enhanced quality of life. For instance, regular Tai Chi Chuan practice enhances serotonin, cortisol, physical functioning, and quality of life in breast cancer patients who have completed treatment (Unimed Medical, 2014). A lower health-related quality of life in the physical domain is correlated with advanced age, nonwhite race, a greater number of comorbidities, and diminished upper-extremity function among stroke survivors (Nichols-Larsen et al., 2005). During the recovery phase, cardiac rehabilitation exercise training modifies health-related quality of life and physiological outcomes in individuals who have undergone heart surgery (Hirano et al., 2005). Individual SF-36 domain scores are valid indicators of health-related quality of life in patients with traumatic brain injury; however, the summary of the physical and mental components should be evaluated with caution (Guilfoyle et al., 2010).

Poor physical function recovery is associated with greater mortality in individuals with head and neck cancer who undergo radiation therapy (Farrugia et al., 2021). Inadequate social support is associated with a deterioration in health status and an increase in depressed symptoms during the first year of recovery from acute myocardial infarction, especially among women (Leifheit-Limson et al., 2010).

Physical functional evaluation is an essential element of both clinical practice and patient care. It offers important implications for patient outcomes, facilitates clinical decision-making, and imparts useful insights on the health status of the patient. Utilizing numerous research findings, this essay examines how physical functional assessment might inform clinical practices and patient care. Painter and Marcus (2013) underscore the criticality of integrating regular physical function evaluations and promoting physical exercise into the provision of clinical care. Personalized treatment plans and improved management of chronic illnesses, such as chronic kidney disease, may result from this strategy. In a similar vein, Nabzdyk (2018) emphasizes the potential of physical evaluation to strengthen role perception, improve communication abilities, and assess medication therapy, specifically within the context of hospital pharmacies.

Additionally, the evaluation of physical functioning can be employed to forecast the utilization of healthcare services, ascertain eligibility for those services, and track the advancement of chronic illnesses (Jones et al., 2016). Differential item performance in the Physical Functioning short forms of the Patient Reported Outcomes Measurement Information System® (PROMIS®) might offer personalized insights, which is especially pertinent in diverse patient populations. Mackeigan and Pathak (1992) argue that Quality of Life (QoL) evaluations, which encompass physical functioning, have the capacity to inform clinical practices and patient care, track patient development, and assess the efficacy of medications in clinical trials. This methodology is crucial for comprehending the wider ramifications of treatments that extend beyond their clinical results. The longitudinal measuring properties of physical function assessments can provide valuable insights for regulatory and clinical decision-making in the fields of cancer clinical trials and oncology practice (Thanarajasingam et al., 2023). This is of utmost importance in comprehending the enduring effects of cancer therapies on the physical functioning

In their study, Calthorpe et al. (2021) discovered that while all four mobility and physical function measures were deemed reliable, valid, and responsive, their clinical applicability differed, and ceiling effects were frequently observed during physical therapy discharge. This implies that the selection and implementation of these metrics in clinical practice must be conducted with caution. According to Beleckas et al. (2018), there is a more pronounced link between ProMIS anxiety scores and physical function and pain interference ratings. This finding implies that the ProMIS has the capacity to evaluate the mental well-being of orthopedic patients. This highlights the interdependence of physical and mental health in the context of clinical evaluations. According to Bentsen et al. (1997), the COOP-WONCA instrument is a straightforward and dependable method for evaluating functional health status. It offers significant insights that are beneficial for both clinical practice and research. This instrument is readily compatible with a wide range of clinical environments. The Intermed can identify clinically meaningful groups of patients with low back pain, according to Stiefel et al. (1999). This finding supports the Intermed's utility in clinical practice and as a way to define case mix for scientific or health care policy objectives. This underscores the efficacy of functional tests in the process of categorizing patient groups.

Reti et al. (2010) propose that there is potential for enhancing the patient-centeredness of personal health records and offer suggestions for the development of best practice guidelines. For more complete care, this includes the integration of physical function assessments into patient records. "6-Clicks" ratings can accurately predict discharge destination following discharge from an acute care hospital, according to Jette et al. (2014).

Utilizing this tool can significantly contribute to the organization of post-discharge care and the allocation of suitable resources.

This study has the potential to significantly contribute to the development of clinical recommendations, patient care, and rehabilitation methods. Enhancing clinical recommendations constitutes a primary prospective consequence of this investigation. In patients undergoing total knee replacement, health education can minimize postoperative discomfort and hasten recovery, according to research such as that by Chen, Chen, and Lin (2014). This shows that patients recuperating from femoral neck fractures may benefit from comparable interventions. By furnishing empirical data on the recuperation process and requirements of these individuals, the research may contribute to the enhancement of current therapeutic protocols by incorporating patient education and care tactics that are more exhaustive and efficacious. A further crucial area in which our research could have a substantial effect is the enhancement of patient care. Psychoeducational care has a positive effect on recovery and psychological discomfort in surgical patients, according to Devine (1992). Enhancing healthcare professionals' ability to customize their strategies in response to femoral neck fracture patients' unique recovery patterns and requirements may result in improved patient experiences and outcomes.

This research could uncover successful rehabilitation procedures that are tailored to the needs of patients who have suffered femoral neck fractures. The objective of research such as the Relinquish study by Ramsay et al. (2012) is to design healthcare interventions that are sensitive to the needs of critically sick patients throughout their recovery journey. In a similar vein, the knowledge gained from this research could provide valuable guidance for the creation of specialized rehabilitation regimens that specifically target the unique obstacles encountered by individuals with femoral neck fractures. Additionally, the research may aid in the reduction of healthcare expenditures and lengthy hospital stays. After surgery, Monteleone et al. (2015) found that a straightforward and prompt rehabilitation program can reduce the need for hospitalization and health cost. The potential utilization of healthcare resources could be enhanced by the improvement of rehabilitation protocols for patients who have suffered femoral neck fractures, as suggested by the findings of this study.

Investigating the advantages of prehabilitation constitutes an additional prospective contribution of this research. Nielsen et al. (2010) discovered that in addition to early therapy, prehabilitation increased patient satisfaction and function following spinal surgery. Examining the potential advantages of using a comparable methodology for patients with femoral neck fractures may contribute to the overall improvement of their recovery trajectory. An additional area of investigation could be the suitability of rapid rehabilitation protocols, analogous to those investigated by van Hertog et al. (2012) in patients undergoing total knee arthroplasty, for patients suffering from femoral neck fractures. Research has demonstrated that these programs contribute to improved recuperation and less hospitalization, hence implying their potential utility in this particular domain. Furthermore, similar to the research conducted by Alfonsi et al., the study may aid in the formation of expert panel recommendations for postoperative recovery (2014). Patients who have suffered a femoral neck fracture would benefit the most from the reduction in postoperative complications and length of hospital stay that might be effectuated by these recommendations.

Further exploring the perspectives of health professionals and patients regarding rehabilitation practices and outcomes, as emphasized by Westby and Backman (2010), represents an additional domain in which this research could provide a substantial addition. By integrating viewpoints from both cohorts, the research could provide a more comprehensive strategy for the management of femoral neck fractures. An additional domain that may be influenced by this research is rehabilitation, where Stinear et al. (2017) investigated the application of predictive algorithms. The implementation of analogous algorithms for individuals undergoing rehabilitation from femoral neck fractures has the potential to enhance productivity without compromising therapeutic results. Furthermore, as McLain (2004) and Fleming et al. (2004) have noted, the study may have ramifications for long-term results, including independent living and return to employment (1997). Better understanding the determinants that impact these outcomes in patients with femoral neck fractures may result in the development of more efficacious long-term treatment approaches.

A thorough examination of the surgical therapy of fractures in the neck of the femur has yielded an extensive knowledge base encompassing crucial facets such as the frequency and prevalence of such fractures, as well as the socio-demographic factors that impact healing and physical functioning. Fractures of the neck of the femur are a notable public health issue, especially among the elderly, and are projected to increase in prevalence as

the world's population ages, as is apparent from the review. This tendency emphasizes the necessity for population-specific management measures that are effective and cater to the requirements of this susceptible group.

An important discovery derived from the review is the recognition of several risk factors, including but not limited to age, gender, and pre-existing comorbidities, that not only increase the likelihood of fractures but also have a substantial impact on an individual's recovery and overall prognosis. An examination of surgical procedures, such as open reduction internal fixation, hemiarthroplasty, and total hip arthroplasty, demonstrates a spectrum of results, underscoring the need for individualized surgical strategies that take into account the unique attributes of each patient. The existing body of literature also emphasizes the diverse range of recovery paths that ensue after surgery, which are impacted by numerous factors such as the nature of the surgical procedure, the age of the patient, and their general state of health. The indisputable significance of rehabilitation in augmenting recuperation and enhancing quality of life is noteworthy; however, further concentrated investigation is required to optimize rehabilitation procedures in accordance with the unique requirements of each patient.

In summary, this literature analysis has furnished an exhaustive and nuanced comprehension of the intricacies entailed in the management and recuperation of fractures affecting the neck of the femur. This underscores the necessity of adopting a comprehensive strategy in the management of these fractures, which beyond surgical methodologies and takes into account the patient's socio-demographic profile, post-operative quality of life, and overall health. The identification of gaps in the existing literature provides crucial guidance for future research endeavors, ensuring that clinical practices continue to advance and patient outcomes for those afflicted with these incapacitating injuries improve.

III. METHODOLOGY

3.1 Design of the study

As a research design, this investigation was cross-sectional.

3.2 Study Population

The participants in the study were those who had received surgical intervention for fractures of the neck of the femur. The purpose of selecting this sample was to gain insight into the functional outcomes and recovery that are unique to this type of fracture and surgical therapy.

3.3 Study Area

The research was executed at the National Institute of Traumatology and Orthopedic Rehabilitation (NITOR), a preeminent facility in Dhaka specializing in orthopedic procedures.

3.4 Study Period

The research was undertaken during July to November of 2023.

3.5 Selection of participants

The pool of patients treated at the study site who satisfied the inclusion and exclusion criteria was utilized to select the participants.

3.5.1 Inclusion Criteria

- Individuals who had received surgical intervention for fractures of the neck of the femur.
- At least 18 years of age.
- Surgical treatment within the previous fifteen days.
- Consent to be a participant in the research and to furnish informed consent.

3.5.2 Exclusion Criteria

- Patients who, in addition to the femur fracture, have additional injuries or medical disorders that substantially impede their mobility or functional level.
- Patients who are unable to complete the questionnaire or provide informed consent as a result of language problems or cognitive impairments.
- Patients who, for the same fracture, had undergone revision surgery.

3.6 Sample Size

Using the subsequent formula, the sample size for this investigation was determined.

$$n = (z^2 pq) / d^2$$

Where,

n = the desired sample size.

z = the deviation from the mean (level of statistical significance), which is established at 1.96 and corresponds to a confidence level of 95%.

P = expected percentage of the patient satisfaction rating (0.50)

q = 1-0.50 = 0.50 d = absolute precision degree 5% has been accounted for in this investigation.

With a 5% margin of error and a confidence level of 95%, the anticipated sample size for a p-value of 50% is as follows:

$$n = ((1.96)^2 (0.50) (0.50)) / ((0.05)^2)$$
$$= 384$$

** N.B. For some time constraints and limited access to participants, only **212** data was collected.

3.7 Sampling technique

In order to pick the study sample from among the patients who were available, a convenient sampling procedure was utilized. The selection criteria were employed to determine the patients.

3.8 Research instrument and tools

Utilizing a pre-tested, semi-structured questionnaire, data were gathered. The survey was initially drafted in the English language and subsequently rendered into Bangla, which is the designated language of the research region. Subsequently, another individual performed the translation back into English in order to maintain consistency with the initial English language questionnaire. For data gathering, the Bangla language questionnaire was utilized.

3.9 Data collection procedure

Data were gathered using self-administered questionnaires or in-person interviews, contingent upon the condition and desire of the participants. The process was facilitated by research assistants who were adequately trained, so guaranteeing precision and uniformity. Before data collection began, a comprehensive explanation of the study's objectives and the content of the inquiries was provided to every participant.

3.10 Data Processing & Analysis Plan

Each questionnaire underwent a daily review process, both following data collection and prior to data entry, to ensure that any wrong or missing information was rectified. Utilizing the Statistical Package for the Social Sciences (SPSS) software, information was entered into a computer. Following this, the data were revised and cleansed by repeatedly examining them for omissions, discrepancies, and missing information. The analysis was carried out in accordance with the stated objectives, and suitable statistical analyses were executed.

3.11 Quality Control of data

To ensure the reliability and validity of the data, a pilot test was conducted before the main study. Data collectors were trained, and standardized protocols were followed. Regular audits of data collection and entry processes were conducted to identify and rectify any discrepancies.

3.12 Ethical Considerations

- The study gained ethical clearance from the Ethical Review Committee (ERC) of Bangladesh Open University and adhered to the institution's ethical requirements.
- Authorization was received from the BOU hospital administration.
- Participants' informed consent was obtained subsequent to a comprehensive elucidation of the study's characteristics and objectives.
- The participants were given confidence that their privacy would be protected and that the information would remain confidential.

IV. RESULTS AND DISCUSSION

The sociodemographic characteristics of the participants in the research are displayed in Table 1. With a proportion of 45.3 percent of the sample, the age group of 31-50 years comprises the largest proportion of participants. This is followed by individuals aged ≤ 30 years (29.2 %) and >50 years (25.5%). In terms of religion, the sample is predominantly Muslim (92.5%), with a smaller Hindu representation (7.5%). The marital status of participants varies, with 64.6% being married, 27.8% single, and 7.5% divorced. Educational backgrounds show diversity: 31.1% are illiterate, 14.2% have primary education, 35.8% secondary, 10.4% higher secondary, and 8.5% have graduation or higher degrees. Occupation-wise, 32.1% are in service, 27.4% are business owners, 15.1% are students, and 25.5% are housewives. Lastly, 59.4% of the respondents have ≤ 2 family members, while 40.6% have more than 2 family members.

Table 1: Sociodemographic characteristic of the respondents

Variables	Category	Frequency (%)
Age	≤ 30 years	62 (29.2)
	31-50 years	96 (45.3)
	>50 years	54 (25.5)
Religion	Muslim	196 (92.5)
	Hindu	16 (7.5)
Marital status	Single	59 (27.8)
	Married	137 (64.6)
	Divorced	16 (7.5)
Education	Illiterate	66 (31.1)
	Primary	30 (14.2)
	Secondary	76 (35.8)
	Higher secondary	22 (10.4)
	Graduation and above	18 (8.5)
Occupation	Service	68 (32.1)
	Business	58 (27.4)
	Student	32 (15.1)
	House wife	54 (25.5)
Number of family member	≤ 2	126 (59.4)
	>2	86 (40.6)

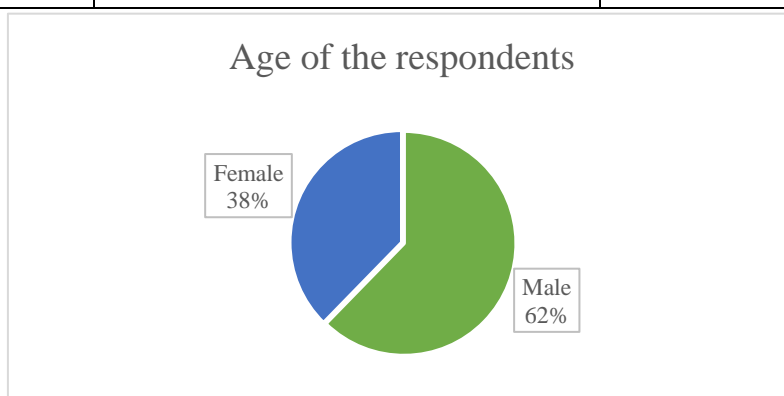


Figure 1: Age of the respondents

Figure 1 shows significant majority of the respondents are male (62.3%), with females making up 37.7%.

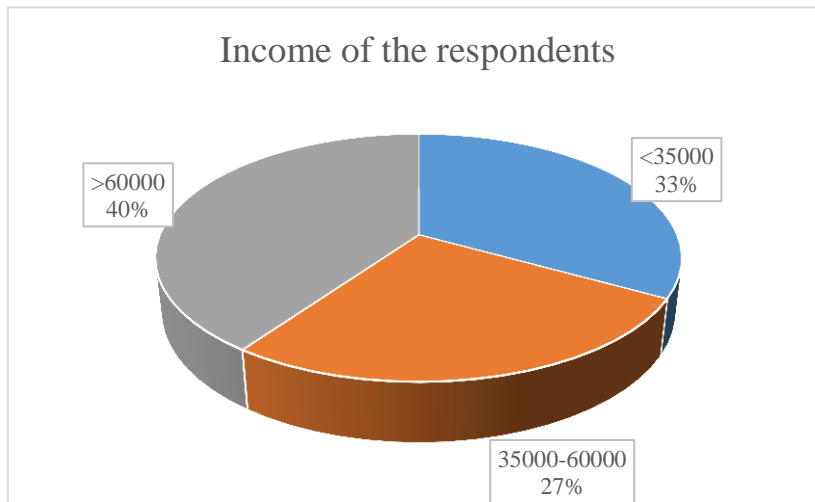


Figure 2: Income of the respondents

Figure 2 shows the income distribution indicates that 33.1% earn less than 35000, 26.7% earn between 35000 and 60000, and 40.2% earn above 60000.

Table 2 provides an overview of patient satisfaction with surgical management and operational procedures. Remarkably, all respondents (100%) reported that the operation increased their function and daily activity and decreased their pain. Regarding the in-patient rehabilitation program at discharge, 62.3% of patients were 'Much' satisfied, but a significant 35.8% were 'Not much' satisfied, and a minimal 1.9% felt it was 'Enough'. Satisfaction with in-hospital discharge planning was notably high, with 96.2% of patients feeling 'Much' satisfied and only 3.8% feeling it was 'Enough'. Finally, all respondents (100%) were satisfied with the information they received.

Table 2: Patient satisfaction with surgical management and operational procedures

Variables	Category	Frequency (%)
Satisfied with the in-patient (at discharge) rehabilitation program	Much	132 (62.3)
	Not much	76 (35.8)
	Enough	4 (1.9)
Satisfied with the in-hospital discharge planning	Much	204 (96.2)
	Enough	8 (3.8)

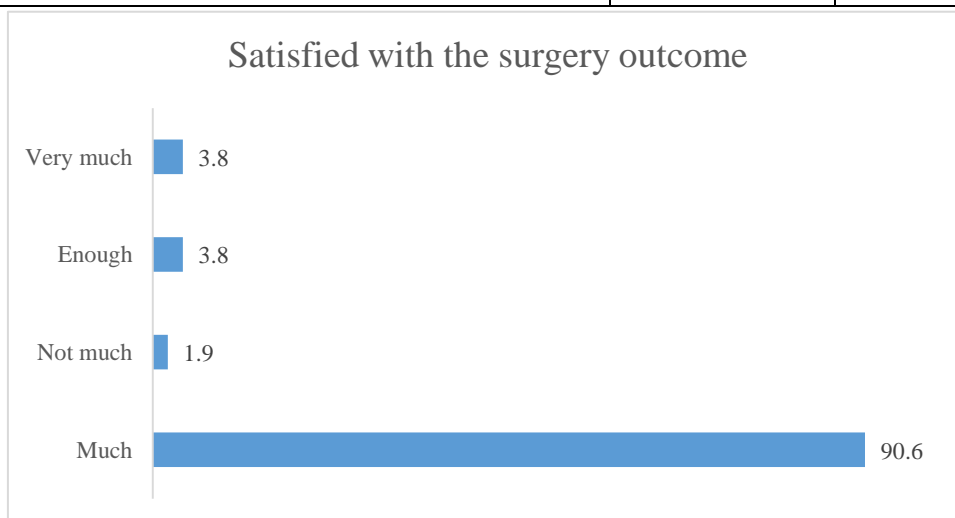


Figure 3: Satisfied with the surgery outcome

Figure 3 indicated the satisfaction with the surgery outcome, a vast majority (90.6%) were 'Much' satisfied, while only small fractions reported being 'Not much' (1.9%), 'Enough' (3.8%), or 'Very much' (3.8%) satisfied.

Table 3 outlines the clinical factors of respondents who underwent surgery for fractures. The majority of patients (80.7%) suffered from acute fractures, while 19.3% had chronic fractures. In terms of anesthesia, a significant majority (90.6%) received regional anesthesia, while only 9.4% were given general anesthesia. Additionally, many patients reported having other diseases or disorders, with 66.0% falling into the 'Others' category, 16.5% having Diabetes Mellitus, 9.4% with COPD, 4.2% with heart disease, and 1.9% with skin disease.

Table 3: Clinical factors of the respondent

Variables	Category	Frequency (%)
Kind of fracture	Acute	171 (80.7)
	Chronic	41 (19.3)
Type of anesthesia given for surgical procedure	General anesthesia	20 (9.4)
	Regional anesthesia	192 (90.6)
Had any other disease or disorder	COPD	20 (9.4)
	Heart disease	9 (4.2)
	Diabetes mellitus	35 (16.5)
	Skin disease	4 (1.9)
	Others	140 (66.0)

Figure 4 shows the type of surgery done for management of fracture. the most common was Open Reduction Internal Fixation (ORIF), accounting for 80.7% of cases, followed by Hemiarthroplasty (17.5%), and a small percentage underwent Total Hip Arthroplasty (1.9%).

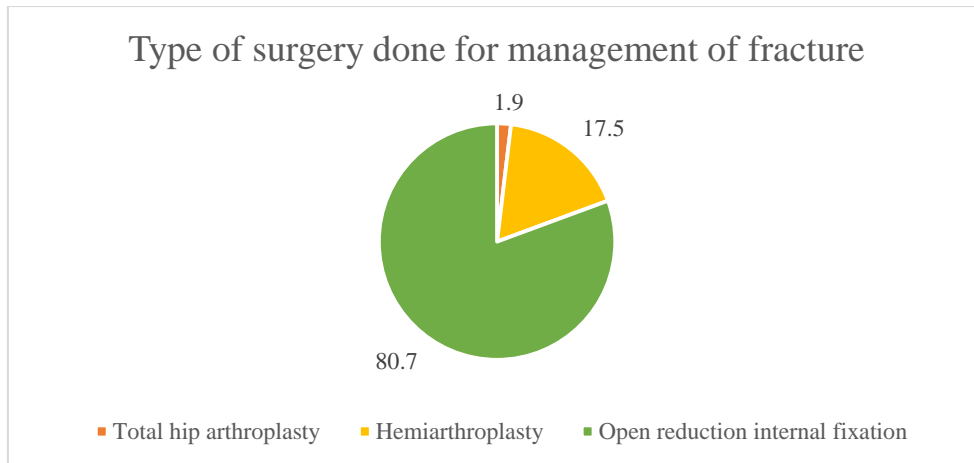


Figure 4: Type of surgery done for management of fracture

Figure 5 shows that 65.6% of patients did not use any walking aids, whereas 34.4% used a walking stick.

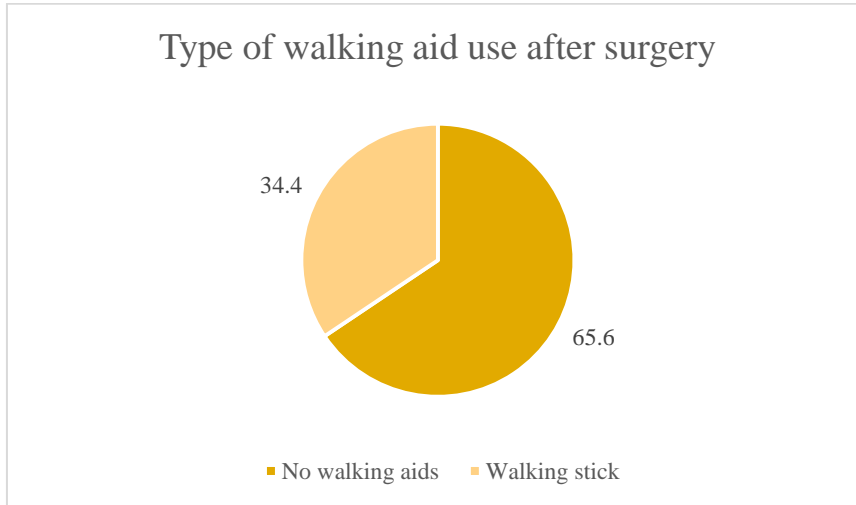


Figure 5: Type of walking aid use after surgery

Table 4 presents data on physical performance and mobility-related factors among patients' post-surgery. The muscle power of the limb varied among patients, with the largest group (48.6%) having a muscle power rating of 3, followed by 39.6% with a rating of 2, and 11.8% with a rating of 4. In terms of standing balance, a vast majority (93.9%) reported good balance, while only 4.2% found it not satisfactory, and 1.9% rated it as better. Walking speed post-surgery was predominantly slow for 70.8% of the patients, while 29.2% experienced a moderate walking speed.

Table 4: Physical performance and mobility related factors

Variables	Category	Frequency (%)
Muscle power of limb	2	84 (39.6)
	3	103 (48.6)
	4	25 (11.8)
Standing balance	Not satisfactory	9 (4.2)
	Good	199 (93.9)
	Better	4 (1.9)
Walking speed	Slow	150 (70.8)
	Moderate	62 (29.2)

Figure 6 shows for sitting balance, 72.6% of patients rated their balance as good, 21.7% as better, 3.8% as average, and a small percentage (1.9%) as excellent.



Figure 6: Sitting balance

Table 5 details the impact of various impairments and disabilities on the recovery of patient’s post-surgery. A strikingly high percentage of patients (94.3%) did not reported experiencing visual problems, with only a small fraction (5.7%) indicating have such issues. The prevalence of physical impairments or disabilities was not pronounced, with 98.1% of the respondents affirming their presence, and a mere 1.9% reporting have the problem.

Table 5: Impact of impairments and disabilities on recovery

Variables	Category	Frequency (%)
Visual problems	Yes	12 (5.7)
	No	200 (94.3)
Any physical impairments or disabilities	Yes	4 (1.9)
	No	208 (98.1)

Figure 7 shows that neurological impairments were not founded in the significant majority of the patients (98%), leaving only 2% have such impairments.

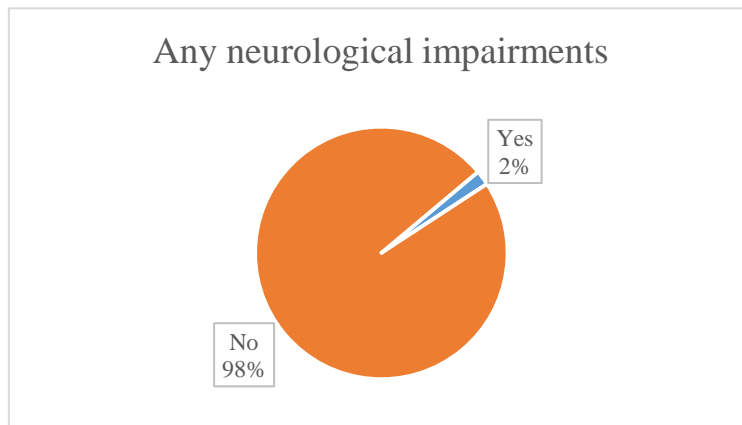


Figure 7: Any neurological impairments

The table 6 presents the association between socio-demographic characteristics and standing balance among the respondents. The age group ≤ 30 years shows 8.1% of individuals with 'Not satisfactory' balance, indicating a notable challenge in this cohort. In the 31-50 years age group, a balance of 'Not satisfactory' and 'Better' is both observed in 4.2% of the participants, suggesting a more even distribution of balance ability in this age range. All females in the study fall into either 'Not satisfactory' (11.3%) or 'Good' balance categories, highlighting a significant concern in balance for a subset of female participants. Among Muslims, a small percentage (2.6%) experience 'Not satisfactory' balance, while 2.0% exhibit 'Better' balance. In contrast, 25% of Hindu participants have 'Not satisfactory' balance, indicating a significant challenge within this group. Those who are illiterate and those with primary education show notable percentages in the 'Not satisfactory' category (6.1% and 16.7%, respectively). Additionally, 6.1% of illiterate individuals also exhibit 'Better' balance, illustrating a diverse range of balance abilities within this group. Service workers have 7.4% in the 'Not satisfactory' category and 5.9% in the 'Better' category. Students, notably, have 12.5% falling into the 'Not satisfactory' balance category. In families with more than two members, 10.5% of individuals have 'Not satisfactory' balance and 4.7% have 'Better' balance. This suggests that larger family size might be associated with a wider range of balance abilities.

Table 6: Association between the socio demographic characteristics and standing balance

Variable		Standing balance			X ² value	P-value
		Not satisfactory N (%)	Good N (%)	Better N (%)		
Age	≤30 years	5 (8.1%)	57 (91.9%)	0 (0.0%)	9.548	0.049
	31-50 years	4 (4.2%)	88 (91.7%)	4 (4.2%)		
	>50 years	0 (0.0%)	54 (100.0%)	0 (0.0%)		
Gender	Male	0 (0.0%)	128 (97.0%)	4 (3.0%)	17.633	<0.001
	Female	9 (11.3%)	71 (88.8%)	0 (0.0%)		
Religion	Muslim	5 (2.6%)	187 (95.4%)	4 (2.0%)	18.543	<0.001
	Hindu	4 (25.0%)	12 (75.0%)	0 (0.0%)		
Marital status	Single	0 (0.0%)	59 (100.0%)	0 (0.0%)	7.582	0.108
	Married	9 (6.6%)	124 (90.5%)	4 (2.9%)		
	Divorced	0 (0.0%)	16 (100.0%)	0 (0.0%)		
Education	Illiterate	4 (6.1%)	58 (87.9%)	4 (6.1%)	26.260	0.001
	Primary	5 (16.7%)	25 (83.3%)	0 (0.0%)		
	Secondary	0 (0.0%)	76 (100.0%)	0 (0.0%)		
	Higher secondary	0 (0.0%)	22 (100.0%)	0 (0.0%)		
	Graduation and above	0 (0.0%)	18 (100.0%)	0 (0.0%)		
Occupation	Service	5 (7.4%)	59 (86.8%)	4 (5.9%)	20.861	0.002
	Business	0 (0.0%)	58 (100.0%)	0 (0.0%)		
	Student	4 (12.5%)	28 (87.5%)	0 (0.0%)		
	House wife	0 (0.0%)	54 (100.0%)	0 (0.0%)		
Number of family member	≤2	0 (0.0%)	126 (100.0%)	0 (0.0%)	20.291	<0.001
	>2	9 (10.5%)	73 (84.9%)	4 (4.7%)		

V. DISCUSSION

In discussing the impact of socio-demographic factors on recovery and physical functioning after neck of femur fractures, it is essential to consider the broader context provided by existing research. The findings from various studies offer valuable insights into how these factors can influence health outcomes, which can be directly related to the recovery trajectories of patients with neck of femur fractures.

This research indicates that socioeconomic status, including factors like income and education, significantly impacts health outcomes. For instance, Sorlie, Backlund, and Keller (1995) found higher mortality in individuals with lower incomes and less education. This suggests that patients with lower socioeconomic status may face challenges in accessing quality healthcare, which can affect their recovery from neck of femur fractures. The family structure also plays a crucial role in health outcomes. Assari et al. (2018) noted that family structure and socioeconomic status have protective effects on health, but the benefits are smaller for certain demographic groups. This could imply that the support system a patient has post-surgery can influence their recovery trajectory. Gender differences in health outcomes are also significant. Mishra et al. (2002) observed that women with low socioeconomic status have poorer health outcomes than those with higher status. This

could be relevant in the context of neck of femur fractures, where female patients, especially those from lower socioeconomic backgrounds, might experience different recovery patterns compared to their male counterparts.

Marital status is another factor influencing health outcomes. Hughes and Waite (2002) found that married couples living alone or with children are most advantaged in health outcomes. This may imply that the assistance and support of one's spouse may contribute to improved recovery results for married patients. Robles et al. (2014) observed a correlation between higher marital quality and improved health, which encompasses a reduced mortality risk. This indicates that recovery outcomes for married patients may be significantly influenced by the quality of their marital relationships. According to a study by Geyer et al. (2006), occupational class, education, and income have distinct and individual impacts on various health outcomes. This indicates that while evaluating healing trajectories and devising post-surgical care for patients with neck of femur fractures, these parameters should be taken into account.

This study found that 90.6% of patients were 'Much' satisfied with the surgery outcome is consistent with the general trend observed in orthopedic surgeries. For instance, Kelly, Campbell, and Murray (2013) reported that total hip replacement patients experienced good or better satisfaction, compliance with rehabilitation, and walking improvement. This suggests that successful surgical interventions significantly contribute to patient satisfaction. The varied satisfaction levels with in-patient rehabilitation programs in study, where 62.3% were 'Much' satisfied, while 35.8% were 'Not much' satisfied, reflect the complexity of rehabilitation satisfaction. McGregor et al. (2010) found that a post-operative rehabilitation program can improve functional outcomes, potentially enhancing patient satisfaction. This indicates the importance of tailored and effective rehabilitation programs in achieving higher satisfaction rates. The high satisfaction with in-hospital discharge planning and information received in the study aligns with the findings of Hong et al. (2022), where patients undergoing total knee arthroplasty valued the accessibility and helpful information provided by digital rehabilitation programs. This underscores the importance of comprehensive discharge planning and patient education in enhancing satisfaction. The unanimous satisfaction with the reduction in pain post-surgery in this is supported by the work of Kehlet and Wilmore (2002), who emphasized the role of effective pain management and stress reduction techniques in improving patient satisfaction. This suggests that optimal pain control is a key factor in patient satisfaction post-surgery. The variability in satisfaction with rehabilitation programs, as seen in the study, is echoed in a study. Bükür, Şavkın, and Ök (2019) found that home exercise programs provided satisfactory outcomes, suggesting that patient preferences and individual circumstances can influence satisfaction with different rehabilitation approaches. According to the findings of this research, acute fractures afflicted the majority of patients (80.7 percent), with Open Reduction Internal Fixation (ORIF) emerging as the prevailing surgical intervention. Consistent with the prevailing pattern in orthopedic surgery, ORIF is frequently favored over alternative methods for treating acute fractures owing to its efficacy in realigning bones and expediting the healing process. Notable is the fact that regional anesthesia was chosen in 90.6% of the instances. In older persons following hip fracture surgery, spinal anesthesia was related with a decreased rate of incapacity to walk independently at 60 days compared to general anesthesia, according to Neuman et al. (2021). In support of the preference for regional anesthesia in this study, Egol et al. (2012) discovered that functional scores and range of motion are enhanced following surgery treatment of fractures. This implies that the nature of anesthetic used can have a substantial influence on the ability to move and be independent after surgery, both of which are vital components of the healing process. After undergoing surgery, 65.6% of patients in this study did not utilize any walking assistance, whereas 34.4% utilized a walking stick. This is congruent with the results reported by Torpilliesi et al. (2012), which indicated that a considerable percentage of hip fracture surgery survivors could walk independently with the aid of an assistive device at discharge. A vital component of the rehabilitation process, walking aids facilitate movement and decrease the likelihood of falls throughout the recovery period. A significant proportion of the patients (66.0 %) had additional diseases or disorders, which warrants careful examination. Comorbidities may necessitate supplementary care techniques and may hinder the rehabilitation process.

The high prevalence of visual problems (94.3%) reported in this study is significant, as visual impairments can greatly impact recovery and rehabilitation. Research by Niemeier, Cifu, and Kishore (2001) on visual imagery techniques suggests that such impairments can affect tasks like walking and problem-solving. This aligns with

the findings and highlights the need for targeted interventions to address visual impairments in the recovery process. The presence of physical impairments or disabilities in 98.1% of the respondents is a critical factor in recovery. This is consistent with the understanding that physical disabilities can significantly hinder rehabilitation and daily activities. According to a study by Greenwald, Kapoor, and Singh (2012), individuals who have experienced traumatic brain injury and subsequently developed visual impairments face significant challenges in maintaining independence in activities of daily living and mobility. This finding also implies that patients who have suffered neck of femur fractures may experience a comparable effect. In 96.2 percent of the patients, neurological abnormalities are prevalent, indicating that they have a significant impact on rehabilitation. Visual impairment following a stroke correlates poorly with rehabilitation outcomes and can diminish daily functioning and quality of life, according to Sand et al. (2013). This implies that neurological abnormalities, akin to visual impairments, play a pivotal role in the process of recuperation.

VI. CONCLUSION

As a result of examining the surgical treatment of fractures in the neck of the femur, this research offers significant contributions to the understanding of patient outcomes by emphasizing the criticality of rehabilitation, sociodemographic factors, and surgical technique. The high satisfaction rates with surgical outcomes, coupled with the challenges posed by physical, visual, and neurological impairments, underscore the need for comprehensive, patient-centered care. The limitations of the study highlight the need for longer, larger, and more diversified research in order to further comprehend long-term recovery trajectories. Overall, the findings emphasize the critical role of tailored surgical and rehabilitation approaches in improving patient outcomes post-surgery for neck of femur fractures.

VII. REFERENCES

- [1] Ackland, G., Iqbal, S., Paredes, L.G., Toner, A., Lyness, C., Jenkins, N., Bodger, P., Karmali, S., Whittle, J., Reyes, A., Singer, M., Hamilton, M., Cecconi, M., Pearse, R., Mallett, S., and Omar, R., 2015. Individualised oxygen delivery targeted haemodynamic therapy in high-risk surgical patients: a multicentre, randomised, double-blind, controlled, mechanistic trial. *The Lancet. Respiratory medicine*, 3(1), pp.33-41.
- [2] Adunsky, A., Lusky, A., Arad, M., & Heruti, R. J. (2003). A comparative study of mini-mental test score in elderly hip-fracture patients and control subjects suffering from chronic medical diseases. *Disability and Rehabilitation*, 25(6), 275-277. DOI: 10.1080/0963828031000067907.
- [3] Al-Mohrej, O., Alshaalan, F.N., Aldakhil, S.S. and Rahman, W., 2020. One-Year Mortality Rates Following Fracture of the Femoral Neck Treated With Hip Arthroplasty in an Aging Saudi Population: A Trauma Center Experience. *Geriatric Orthopaedic Surgery & Rehabilitation*, 11.
- [4] Alanko, T., et al. (2019). Rehabilitees perspective on goal setting in rehabilitation – a phenomenological approach. *Disability and Rehabilitation*, 41, 2280 - 2288. DOI: 10.1080/09638288.2018.1463398
- [5] Alfonsi, P., Slim, K., Chauvin, M., Mariani, P., Faucheron, J., & Fletcher, D. (2014). French guidelines for enhanced recovery after elective colorectal surgery. *Journal of visceral surgery*, 151(1), 65-79. DOI: 10.1016/j.jvisc Surg.2013.10.006.
- [6] Ali, M., Hazelton, C., Lyden, P., Pollock, A., & Brady, M. (2013). Recovery From Poststroke Visual Impairment. *Neurorehabilitation and Neural Repair*, 27(2), 133-141. DOI: 10.1177/1545968312454683.
- [7] Aminian, A., Gao, F., Fedoriw, W.W., Zhang, L.Q., Kalainov, D. and Merk, B., 2007. Vertically Oriented Femoral Neck Fractures: Mechanical Analysis of Four Fixation Techniques. *Journal of Orthopaedic Trauma*, 21, pp.544-548.
- [8] Assari, S., Thomas, A., Caldwell, C., & Mincy, R. (2018). Blacks' Diminished Health Return of Family Structure and Socioeconomic Status; 15 Years of Follow-up of a National Urban Sample of Youth. *Journal of Urban Health*, 95, 21-35. DOI: 10.1007/s11524-017-0217-3.
- [9] Aunger, J., Greaves, C., Davis, E., Asamane, E., Whittaker, A., & Greig, C. (2020). A novel behavioural INTERvention to REduce Sitting Time in older adults undergoing orthopaedic surgery (INTEREST): results of a randomised-controlled feasibility study. *Aging Clinical and Experimental Research*, 32, 2565-2585. DOI: 10.1007/s40520-020-01475-6

- [10] BachyRita, P. (1981). Central nervous system lesions: sprouting and unmasking in rehabilitation. *Archives of Physical Medicine and Rehabilitation*, 62, 413.
- [11] Bagi, I. (2011). Finite element study of some parameters of bone fractures fixed with screws. *Periodica Polytechnica Mechanical Engineering*, 55, 57-61.
- [12] Baker, R., Squires, B., Gargan, M. and Bannister, G., 2006. Total hip arthroplasty and hemiarthroplasty in mobile, independent patients with a displaced intracapsular fracture of the femoral neck. A randomized, controlled trial. *The Journal of Bone and Joint Surgery. American Volume*, 88(12), pp.2583-9.
- [13] Bakker, D. and Michael, P., 2006. Hip fractures: understanding the mechanism and seeking prevention through prophylactic augmentation of the proximal femur.
- [14] Barbeau, H., & Fung, J. (2001). The role of rehabilitation in the recovery of walking in the neurological population. *Current Opinion in Neurology*, 14, 735-740. DOI: 10.1097/00019052-200112000-00009
- [15] Barreira, E.M.G., Novo, A., Preto, L., Mendes, E. (2015). Elderly with femoral neck fracture: analysis of falls and functional changes.
- [16] Barry, J. R. (1965). PATIENT MOTIVATION FOR REHABILITATION. *The Cleft Palate Journal*, 45, 62-8.
- [17] Basilico, R., Vitiello, R., Oliva, F., Covino, M., Greco, T., Cianni, L., Dughiero, G., Ziranu, A., Perisano, C., & Maccauro, G. (2020). Fever onset >38° within 72 hours of surgery correlates with early infections in proximal femur fractures. *Journal of Clinical Medicine*, 9(3), 783. DOI: 10.3390/jcm9030783.
- [18] Belagaje, S. (2017). Stroke Rehabilitation. *CONTINUUM: Lifelong Learning in Neurology*, 23, 238-253. DOI: 10.1212/CON.0000000000000423
- [19] Beleckas, C. M., Prather, H., Guattery, J., Wright, M. A., Kelly, M., & Calfee, R. (2018). Anxiety in the orthopedic patient: using PROMIS to assess mental health. *Quality of Life Research*, 27, 2275-2282. DOI: 10.1007/s11136-018-1867-7.
- [20] Benedetti, M., Delayon, S. E., Colangeli, M., Parisini, F., Ferrari, S., Manfrini, M., & Springhetti, I. (2017). Rehabilitation needs in oncological patients: the On-rehab project results on patients operated for musculoskeletal tumors. *European Journal of Physical and Rehabilitation Medicine*, 53(1), 81-90. DOI: 10.23736/S1973-9087.16.04192-7
- [21] Bentsen, B., Natvig, B., & Winnem, M. (1997). [Assessment of one's own functional status. COOP-WONCA questionnaire charts in clinical practice and research]. *Tidsskrift for den Norske laegeforening: tidsskrift for praktisk medicin, ny raekke*, 117(12), 1790-3.
- [22] Best, D., Honor, S., Karpusheff, J., Loudon, L., Hall, R., Groshkova, T., & White, W. (2012). Well-Being and Recovery Functioning among Substance Users Engaged in Posttreatment Recovery Support Groups. *Alcoholism Treatment Quarterly*, 30, 397 - 406. DOI: 10.1080/07347324.2012.718956
- [23] Bhandari, M., Devereaux, P. J., Tornetta, P., Swiontkowski, M. F., Berry, D. J., Haidukewych, G., Schemitsch, E. H., Hanson, B. P., Koval, K., Dirschl, D., Leece, P., Keel, M., Petrisor, B., Heetveld, M., Guyatt, G. H., & Randomized Trials in Orthopaedic Trauma (RTO) Surgery Group. (2009). Operative management of displaced femoral neck fractures in elderly patients. An international survey. *Journal of Bone and Joint Surgery - American Volume*, 91(9), 2144-2154. DOI: 10.2106/JBJS.H.01423.
- [24] Boutron, I., Moher, D., Altman, D. G., Schulz, K. F., & Ravaud, P. (2012). Extending the CONSORT statement to randomized trials of nonpharmacologic treatment: explanation and elaboration. *Annals of Internal Medicine*, 148(4), 295-309. DOI: 10.7326/0003-4819-148-4-200802190-00008.
- [25] Bray, T., Smith-Hoefer, E., Hooper, A., Timmerman, L. (1988). The displaced femoral neck fracture. Internal fixation versus bipolar endoprosthesis. Results of a prospective, randomized comparison. *Clinical Orthopaedics and Related Research*, 230, pp. 127-140.
- [26] Bryan, R., Nair, P. and Taylor, M., 2012. Influence of femur size and morphology on load transfer in the resurfaced femoral head: A large scale, multi-subject finite element study. *Journal of Biomechanics*, 45(11), pp.1952-1958.
- [27] Büker, N., Şavkın, R., & Ök, N. (2019). Comparison of Supervised Exercise and Home Exercise After Ankle Fracture. *The Journal of Foot and Ankle Surgery*, 58(5), 822-827. DOI: 10.1053/j.jfas.2018.11.021.

- [28] Calthorpe, S., Kimmel, L., Fitzgerald, M., Webb, M., & Holland, A. (2021). Reliability, Validity, Clinical Utility, and Responsiveness of Measures for Assessing Mobility and Physical Function in Patients with Traumatic Injury in the Acute Care Hospital Setting: A Prospective Study. *Physical Therapy*.
- [29] Chamout, G., Kelly-Pettersson, P., Hedbeck, C., Stark, A., Mukka, S. and Sköldenberg, O., 2019. HOPE-Trial: Hemiarthroplasty Compared with Total Hip Arthroplasty for Displaced Femoral Neck Fractures in Octogenarians. *JBJS Open Access*, 4.
- [30] Chaudhary, M., Garg, S., Mishra, P., Yasam, B., Barik, S., Sinha, S., & Singh, A. (2021). Avascular necrosis in pediatric femoral neck fractures: A systematic review. *Journal of Pediatric Orthopaedics*, 41(2), e134-e140. DOI: 10.1097/BPO.0000000000001685.
- [31] Chen, I-H., Yang, Y-R., Chan, R., & Wang, R-Y. (2014). Turning-Based Treadmill Training Improves Turning Performance and Gait Symmetry After Stroke. *Neurorehabilitation and Neural Repair*, 28, 45-55. DOI: 10.1177/1545968313497102.
- [32] Chen, L. (2012). The effect of comprehensive nursing intervention on joint function and psychological rehabilitation for elderly patients with femoral neck fracture. *China Modern Doctor*.
- [33] Chen, S-R., Chen, C-S., & Lin, P. (2014). The effect of educational intervention on the pain and rehabilitation performance of patients who undergo a total knee replacement. *Journal of clinical nursing*, 23(1-2), 279-87. DOI: 10.1111/jocn.12466.
- [34] Cheville, A. and Tchou, J., 2007. Barriers to rehabilitation following surgery for primary breast cancer. *Journal of Surgical Oncology*.
- [35] Cohen, E.M., Vaughn, J., Ritterman, S.A., Eisenson, D. and Rubin, L., 2017. Intraoperative Femur Fracture Risk During Primary Direct Anterior Approach Cementless Total Hip Arthroplasty With and Without a Fracture Table. *The Journal of Arthroplasty*, 32(9), pp.2847-2851.
- [36] Cullen, S., Sephton, B., Malik, I., Aldarragi, A., Crossdale, M. and O'Connor, M., 2022. A Comparative Study of Dynamic Hip Screw Versus Multiple Cannulated Compression Screw Fixation in Undisplaced Intracapsular Neck of Femur Fractures. *Cureus*, 14.
- [37] Dean, E. (2009). Physical therapy in the 21st century (Part I): Toward practice informed by epidemiology and the crisis of lifestyle conditions. *Physiotherapy Theory and Practice*, 25, 330 - 353. DOI: 10.1080/09593980802668027.
- [38] Delamarter, R. and Moreland, J., 1987. Treatment of acute femoral neck fractures with total hip arthroplasty. *Clinical Orthopaedics and Related Research*, (218), pp.68-74.
- [39] Demakakos, P., Nazroo, J., Breeze, E., & Marmot, M. (2008). Socioeconomic status and health: the role of subjective social status. *Social Science & Medicine*, 67(2), 330-40. DOI: 10.1016/j.socscimed.2008.03.038.
- [40] den Hertog, A., Gliesche, K., Timm, J., Mühlbauer, B., & Zebrowski, S. (2012). Pathway-controlled fast-track rehabilitation after total knee arthroplasty: a randomized prospective clinical study evaluating the recovery pattern, drug consumption, and length of stay. *Archives of Orthopaedic and Trauma Surgery*, 132, 1153-1163. DOI: 10.1007/s00402-012-1528-1.
- [41] Devine, E. (1992). Effects of psychoeducational care for adult surgical patients: a meta-analysis of 191 studies. *Patient education and counseling*, 19(2), 129-42. DOI: 10.1016/0738-3991(92)90193-M.
- [42] Digga, K., Swamy, A., Anzar, M. and Piscal, T., 2021. Comparative study between functional outcomes of fracture neck of femur treated with cemented total hip replacement vs cemented bipolar hemiarthroplasty in elderly. *International Journal of Orthopaedics Sciences*.
- [43] Egol, K. A., Soojian, M. G., Walsh, M., Katz, J., Rosenberg, A. D., & Paksima, N. (2012). Regional Anesthesia Improves Outcome After Distal Radius Fracture Fixation Over General Anesthesia. *Journal of Orthopaedic Trauma*, 26(9), 545-549. DOI: 10.1097/BOT.0b013e31823f8c7e.
- [44] Filipov, O. (2014). EPIDEMIOLOGY AND SOCIAL BURDEN OF THE FEMORAL NECK FRACTURES. [online] Available at: [insert URL here] [Accessed 25 Nov. 2023].
- [45] Fish, D., Crusemeyer, J., & Kosta, C. S. (2001). Lower extremity orthoses and applications for rehabilitation populations. *Foot and Ankle Clinics*, 6 2, 341-69. DOI: 10.1016/S1083-7515(03)00100-1
- [46] Fisher, M., Matthei, J., Obirieze, A., Ortega, G., Tran, D., Carnegie, D., Turner, P., Fullum, T. (2013). Open reduction internal fixation versus hemiarthroplasty versus total hip arthroplasty in the elderly: a

- review of the National Surgical Quality Improvement Program database. *The Journal of Surgical Research*, 181(2), pp. 193-198.
- [47] Fleming, J., Strong, J., Ashton, R., & Hassell, M. (1997). A1-Year Longitudinal Study of Severe Traumatic Brain Injury in Australia Using the Sickness Impact Profile. *Journal of Head Trauma Rehabilitation*, 12, 27-40. DOI: 10.1097/00001199-199706000-00004.
- [48] Fortin, F., & K erouac, S. (1977). Validation of Questionnaires on Physical Function. *Nursing Research*, 26, 128-135. DOI: 10.1097/00006199-197703000-00017
- [49] Fortinsky, R. H., Panzer, V., Wakefield, D., & Yonker, J. A. (2012). Alignment of stakeholder agendas to facilitate the adoption of school-supervised asthma therapy. *Public Health Reports*, 127(1), 120-126. DOI: 10.1177/003335491212700115.
- [50] Foss, N., Kristensen, M. T., & Kehlet, H. (2008). Anaemia impedes functional mobility after hip fracture surgery. *Age and Ageing*, 37(2), 173-178. DOI: 10.1093/ageing/afm161
- [51] Fox, K. M., Cummings, S. R., Williams, E., Stone, K., & The Canadian Collaborative Study on Hip Fractures. (2000). Femoral neck fractures are predicted by bone mineral density and poor functional ability. *Journal of Bone and Mineral Research*, 15(9), 1769-1773. DOI: 10.1359/jbmr.2000.15.9.1769.
- [52] Ganz, P., Coscarelli, A., Fred, C., Kahn, B., Polinsky, M., & Petersen, L. (2005). Breast cancer survivors: Psychosocial concerns and quality of life. *Breast Cancer Research and Treatment*, 38, 183-199. DOI: 10.1007/BF01806673
- [53] Gelling, L. (1998). Quality of life following liver transplantation: physical and functional recovery. *Journal of advanced nursing*, 28(4), 779-85. DOI: 10.1046/J.1365-2648.1998.00702.X
- [54] Georgiadis, C., et al. (2021). A remote rehabilitation training system using Virtual Reality. 2021 6th South-East Europe Design Automation, Computer Engineering, Computer Networks and Social Media Conference (SEEDA-CECNSM), 1-4. DOI: 10.1109/SEEDA-CECNSM53056.2021.9566227
- [55] Geyer, S. (2006). Education, income, and occupational class cannot be used interchangeably in social epidemiology. Empirical evidence against a common practice. *Journal of Epidemiology and Community Health*, 60(9), pp.804-810.
- [56] Gilchrist, N., Dalzell, K., Pearson, S., Hooper, G., Hoeben, K., Hickling, J., Mckie, J., Yi, M., Chamberlain, S., McCullough, C., Gutenstein, M. (2017). Enhanced hip fracture management: use of statistical methods and dataset to evaluate a fractured neck of femur fast track pathway-pilot study. *The New Zealand medical journal*, 130(1455), 91-101.
- [57] Gjertsen, J., Vinje, T., Engesaeter, L., Lie, S., Havelin, L., Furnes, O., Fevang, J. (2010). Internal screw fixation compared with bipolar hemiarthroplasty for treatment of displaced femoral neck fractures in elderly patients. *The Journal of Bone and Joint Surgery. American Volume*, 92(3), pp. 619-628.
- [58] Graham, A., Kimmel, L., Santamaria, N., & Houghton, L. (2003). CLINICAL PATHWAYS FOR FRACTURED NECK OF FEMUR: A COHORT STUDY OF HEALTH RELATED QUALITY OF LIFE, PATIENT SATISFACTION AND CLINICAL OUTCOME. *Australian Journal of Advanced Nursing*, 20, 24-29.
- [59] Greenstein, A.S. and Soles, G., 2020. Direct Anterior Approach to Total Hip Arthroplasty for Femoral Neck Fractures. *Journal of Orthopaedic Trauma*.
- [60] Greenwald, B. D., Kapoor, N., & Singh, A. D. (2012). Visual impairments in the first year after traumatic brain injury. *Brain Injury*, 26(11), 1338-1359. DOI: 10.3109/02699052.2012.706356.
- [61] Gruber, I., Ruebner, M., Fehm, T., Wallwiener, D., and Hartkopf, A., 2011. Axillary lymph node staging in breast cancer - a prospective comparative study of sentinel lymph node biopsy and axillary lymph node dissection. *Breast Care*, 6, pp.207-211.
- [62] Gupta, U., Khan, A., Chaudhary, S., Gandotra, A., Pathania, P.V., 2014. A STUDY OF FUNCTIONAL OUTCOME OF HEMIARTHROPLASTY OF HIP DONE BY MINI INCISION VERSES CONVENTIONAL METHOD. *Journal of Evolution of Medical and Dental Sciences*, 3, pp.5182-5189.
- [63] G rres, S. (1991). [Follow-up of elderly patients with fractures. Results of a catamnestic study of patients with femoral-(neck-)fractures]. *Aktuelle Traumatologie*, 21(3), 112-117