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CASE REPORT

Nursing Care of Immigrant Earthquake Victim with Multiple Fractures According to NANDA, NIC and NOC Classification Systems

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ABSTRACT

The most common type of injury following an earthquake is extremity injuries, which can result in multiple fractures. Appropriate orthopedic surgical interventions should be determined to maintain the physiological integrity of the patients. Additionally, the needs of earthquake survivors must be addressed in a comprehensive manner, ensuring that care is provided not only physiologically but also socially and psychologically. In this context, nursing care becomes critically important. It is essential for the provided care to be based on a standardized foundation to achieve the desired patient outcomes. The scientific basis for nursing care is grounded in the North American Nursing Diagnosis Association, Nursing Interventions Classification, and Nursing Outcomes Classification taxonomy, which are utilized in many countries. In this case presentation, the nursing process for a migrant earthquake survivor with multiple fractures employed the North American Nursing Diagnosis Association diagnoses, Nursing Interventions Classification and Nursing Outcomes Classification systems. Accordingly, ten nursing diagnoses were established in the areas of nutrition, elimination and exchange, activity and rest, coping and stress tolerance, safety/protection, and comfort, along with 29 nursing interventions aimed at these diagnoses, resulting in improvements in these domains.

Introduction

Multiple fractures are defined as injuries that occur due to natural disasters, gunshot wounds, traffic accidents, falling from a height, fire, etc., which can affect more than one bone in the skeletal system and also affect soft tissues (Sener, 2011; Tuna & Karaaslan, 2024). In cases with multiple fractures, careful planning of surgical procedures is required because more than one bone is damaged. Long bone fractures, contusion of extremities and major soft tissue trauma result in high survival rates when treated correctly and in a timely manner. Pre-hospital advanced life support protocols provide a systematic approach in cases with multiple fractures and increase the success rate of hospital interventions on survival (MacKenzie et al., 2017; Missair et al., 2013). Extremity injuries are the most common type of injury following an earthquake and can result in multiple fractures (Kang et al., 2016). After the 1999 Marmara earthquake, it was reported that 66% of the earthquake victims had extremity injuries and orthopedic interventions were among the most frequently needed interventions; however, there is no study that clearly demonstrates this rate after the earthquakes that occurred in 11 provinces centered in Kahramanmaraş on February 6, 2023 (Bulut & Vatansever, 2022; Gao et al., 2023).

Today, nurses, who are among the indispensable professionals of the health system, continue their nursing practices all over the world with systematic and high

evidence-value initiatives of nursing science, and the North American Nursing Diagnosis Association (NANDA) is undoubtedly one of the leading organizations that pioneer this systematics. NANDA is an internationally recognized organization of nurse educators, theorists and clinicians working in the United States of America (USA) and Canada. The Association first came together in 1973 to establish a common language and classification of nursing diagnoses (Herdman et al., 2021). NANDA International (NANDA-I) has created a standardized terminology for nursing diagnoses and presented their diagnoses in a classification scheme, more specifically a taxonomy. The twelfth edition of the NANDA-I taxonomy (2021-2023) includes 13 domains (Health management and promotion, Nutrition, Elimination and change, Activity/rest, Perception/cognition, Self-perception, Role relationships, Sexuality, Coping/stress tolerance, Life principles, Safety/protection, Comfort, Growth/development), 47 classes and 267 nursing diagnoses (Herdman et al., 2021).

One of the leading taxonomic structures in nursing is the Nursing Interventions Classification (NIC) system. NIC is a nursing classification system created by the Nursing Classification Center at the University of Iowa School of Nursing in 1987 to evaluate and standardize the interventions applied by nurses (Aslan & Emıroglu, 2012; Ay, 2008; Iskender & Kaplan, 2019). The NIC classifies and defines nursing interventions that are continuously evaluated and updated based on the research and scientific inputs of nursing. The interventions included in the NIC are considered evidence-based nursing practices (Bulechek GM et al., 2017). Selecting evidence-based nursing interventions is part of the nurse's clinical reasoning and decision-making process. NANDA nursing diagnoses were utilized while creating the NIC (IOWA College of Nursing, n.d.). Codes are defined for each nursing intervention (Aslan & Emıroglu, 2012). The latest edition of the NIC, the eighth edition, includes 614 interventions, thirty classes, and seven domains (Physiological: Basic, Physiological: Complex, Behavioral, Safety, Family, Health System, and Community) (Wagner et al., 2024).

The Nursing Outcomes Classification (NOC) is the result of nearly 25 years of work by the team at the Center for Nursing Classification and Clinical Effectiveness at the University of Iowa College of Nursing to develop nursing terminology focused on patient outcomes. The NOC standardizes outcome concepts, definitions, indicators and measurement scales for use in practice, education and research. Outcomes help nurses to assess and measure the condition of the patient, family and/or community. The NOC uses a five-point Likert scale for the outcomes and indicators (‘5’ being the best possible score and ‘1’ being the worst possible score). The seventh edition of the NOC includes 612 outcomes, thirty-six classes and seven domains (Functional Health, Physiological Health, Psychosocial Health, Health Knowledge and Behavior, Health and Quality of Life, Family Health and Community Health) (Moorhead et al., 2024).

Today, providing quality and effective health care services is very important in terms of achieving the desired patient outcomes and ensuring recovery. This is only possible by selecting the right nursing diagnoses, implementing effective nursing interventions and determining the outcome criteria. While the correct nursing diagnoses are determined under the guidance of NANDA, NIC is taken as a guide in determining effective nursing interventions appropriate for this diagnosis, and NOC is taken as a guide in achieving the determined goals (Bulechek GM et al., 2017). Diagnoses frequently recommended by NANDA for individuals with multiple fractures include acute pain, impaired mobility, impaired tissue integrity and lack of self-care (Camilo Ferreira et al., 2023; Ferreira et al., 2023). Within the scope of NIC, interventions such as pain management, positioning, wound care and self-care assistance are recommended for these diagnoses, while NOC outcomes include indicators such as pain control, improvement of mobility, tissue integrity and self-care performance (Bulechek GM et al., 2017; Camilo Ferreira et al., 2023; Clarke & Drozd, 2023; Ferreira et al., 2023). In this study, NIC interventions and NOC results determined in line with NANDA nursing diagnoses of a migrant earthquake survivor with multiple fractures will be presented.

Material and Methods

In this case report; NIC nursing interventions and NOC results applied in accordance with NANDA-I Taxonomy II to a foreign national patient who was rubble under the earthquake that occurred in Kahramanmaraş on February 6, 2023 are presented. The study was planned within the scope of the ethical rules in the Declaration of Helsinki, verbal and written consent was obtained from the patient's relatives to make a case presentation and to use the patient's information in this presentation, and a pseudonym was created using the initials of the patient's name within the scope of the Personal Data Protection Law.

Case

N.M., a 16-year-old female patient, is a foreign national (Iraqi) and single. N.M. came to Turkey with her family five years ago and lives in Kahramanmaraş. On February 6, 2023, she was trapped under a cave-in during the earthquakes centered in Kahramanmaraş and was pulled out of the cave-in after about two hours. After the first intervention by the health teams in the disaster area, N.M. was transferred to a health institution in the region, but due to multiple fractures, she was transferred to a public hospital in Sivas province. After the examinations and tests performed at the hospital, a fracture was detected in the right femur, pelvis and tibia. An operation plan was prepared by orthopedic physicians for N.M. who needed to undergo more than one operation due to multiple fractures. During hospitalization, her vital signs were monitored at frequent intervals and she received many treatments (Table 1., Table 2.). The first operation stabilized the femoral and tibial fracture line, and three weeks later the fracture line in the pelvic ring was stabilized.

Table 1. Vital signs of N.M.

	Temperature	Pulse	Blood Pressure	Respiratory	SpO_2	Pain(NRS)
During hospitalization	36,7 ºC	74/min	110/65 mmHg	17/min	%98	4/10 score
Pre-op (first surgery)	36,4 ºC	86/min	123/72 mmHg	18/min	%98	3/10 score
Post-op (first surgery)	36,0 ºC	68/min	110/60 mmHg	16/min	%98	8/10 score
Pre-op (second surgery)	36,6 ºC	92/min	128/73 mmHg	19/min	%98	3/10 score
Post-op (second surgery)	36,2 ºC	78/min	110/66 mmHg	16/min	%98	7/10 score
Before the first mobilization	36,5 ºC	72/min	115/70 mmHg	18/min	%97	2/10 score
After the first mobilization	36,6 ºC	90/min	120/79 mmHg	21/min	%99	3/10 score

NRS: Numerical Rating Scale

Table 2. Pharmacological treatment of N.M.

Drug	Dose	Route	Explanation
Pulcet 40 mg	1x1	IV	Applied every morning if the patient is hungry
Parol 100 ml	3x1	IV	Applied to provide analgesia during hospitalization
Oksapar 6000 anti-Xa IU/0.6 ml	1x1	SC	Applied to prevent embolism during the immobilization process
Ketavel 25 mg	in case of need	PO	Applied when oral intake is available and when necessary
Eqızolın 1 g	2x1	IV	Pre-op prophylactic antibiotic
Sulbaksit 500 mg	4x1	IV	Applied to reduce the incidence of post-op wound infection
Contramal 100 mg	1x0,5	IV	Applied when pain score>7
Kabiven TPN	1440ml/24h	IV	Applied as continuous IV infusion until 8 hours before the first operation
Potassium chloride 10 ml	1x1	IV	When serum potassium value was <3.5 mmol/L, it was applied
Magnesium Sulphate 10 ml	1x1	IV	When serum magnesium value was <1.8 mg/dL, it was applied
Calcium Gluconate 10 ml	1x1	IV	When serum calcium value was <8 mg/dL, it was applied
Erythrocyte suspension 1 IU	2x1	IV	When Hgb was <7 g/dL, it was applied as a 4-hour infusion

***IV:** Intravenous, **SC:** Subcutaneous, **PO:** Oral, **IU:** Unit*

N.M., who had to remain immobile for bone stabilization, was not mobilized during this process. In-bed exercises were started approximately six weeks after the first surgery and the first mobilization was performed soon after. Mobilization, which started with the help of a walker, was gradually increased with an appropriate physical therapy program. During this period, only her mother and clinic nurses provided support for N.M., who had great problems in self-care. Although there were occasional difficulties in communication with N.M., who did not speak Turkish very well, there was no disruption in care during hospitalization and no complications developed until the time of discharge.

Results

In this study, nursing care of a foreign national patient with multiple fractures who was buried under a cave-in during the earthquakes centered in Kahramanmaraş on February 6, 2023 is presented. In line with the NANDA taxonomy, 29 nursing interventions in the NIC were applied for ten nursing diagnoses determined for the areas of nutrition, excretion and change, activity and rest, coping and stress tolerance, safety/protection and comfort, and it was determined that improvement was achieved in these areas with 25 NOC results.

Intravenous (IV) fluid therapy, initiated in the disaster area as part of initial management, was continued during hospitalization. Electrolyte support (NaCl, KCl, calcium gluconate, $MgSO_4$) and fluid resuscitation were administered based on laboratory findings. Nutritional support was provided through total parenteral nutrition (TPN) for three days. Following NIC interventions targeting TPN management, a two-point improvement was achieved in the NOC outcome for parenteral nutrition. A 1-point increase was also observed in the NOC outcome for 24-hour fluid balance following interventions related to fluid monitoring and management. Electrolyte management and monitoring interventions addressing imbalances in sodium, potassium, calcium, and magnesium levels resulted in a total 8-point improvement across these four NOC indicators (Tables 3.1, 3.2, 3.3).

Due to the patient undergoing two major surgical procedures, opioid analgesics were administered in conjunction with non-pharmacological pain management strategies. The total NOC score for indicators related to pain—such as pain level, restlessness, and vocal expressions of discomfort—increased from five at baseline to 15 after interventions (Table 3.4). Constipation, a common adverse effect of opioid therapy, was exacerbated by prolonged immobility. This issue was effectively addressed through laxative use and short-term opioid therapy guided by NIC interventions targeting bowel and constipation management. As a result, the NOC score for constipation increased from two to five (Table 3.5).

An external fixator was applied to ensure fracture site stability. In addition to limited mobility from the fracture itself, pain and discomfort related to the fixator

necessitated immobilization/traction care, leading to an extended immobilization period. This posed a risk for pressure injuries. Preventive NIC interventions for pressure ulcer management were implemented throughout the six-week immobilization period, resulting in a two-point improvement in the NOC outcome for skin integrity, from three to five. Notably, no pressure-related tissue damage was observed (Tables 3.6, 3.7).

The prolonged hospitalization due to the complexity of treatment limited the patient's ability to perform activities of daily living, reduced self-care capacity, and increased stress levels. Additionally, communication challenges related to the patient's foreign national status further compounded her distress. Comprehensive NIC interventions aimed at enhancing coping mechanisms and supporting self-care were implemented throughout the hospital stay. Improvements in relevant NOC outcomes were observed. Six NOC indicators related to self-care activities—including nutrition, dressing, elimination, bathing, hygiene, and ambulation—showed an increase in total score from 12 to 29, reflecting an average three-point improvement per indicator (Tables 3.8, 3.9, 3.10).

Table 3.1. Care plan prepared according to NNN taxonomy

Nursing Diagnosis-NANDA Code	Risk of Nutritional Imbalance: Less Than Body Requirement (00002)		
Diagnostic Domain	2. Nutrition	**Diagnostic Class**	1. Eating
Descriptive Characteristics	Inability to oral feed, prolonged fasting, trauma.		
Intervention Name-NIC Code	Total parenteral nutrition (TPN) administration (1200)		
Intervention Domain	1. Physiological: Basic	**Intervention Class**	D. Nutrition Support
Activities			
Upon acceptance of admission, a peripheral intravenous catheter suitable for TPN was placed.			
Attention was paid to the osmolarity of TPN solutions administered peripherally to be less than 900 mOsm/L.			
Infiltration, infection and metabolic complications were observed.			
Sterile technique was maintained during the preparation and application of TPN.			
The use of the catheter for purposes other than TPN was avoided.			
TPN solution was applied with an infusion pump at a constant flow rate for 72 hours.			
Intake and output monitoring was performed.			
Serum albumin, total protein, electrolyte, glucose levels, lipid and chemistry profile were monitored.			
Urine glucose was monitored for glycosuria, acetone and protein.			
Universal precautions were followed during the application process.			
Expected Patient Outcome	Nutritional requirements will be met parenterally.		
NOC Results	Food and Fluid Intake (1008)		
Result Domain	2. Physiological Health	**Result Class**	K. Digestion and Nutrition
Parenteral Nutritional Intake (100805)	**1. NOC Score:** 2	**2. NOC Score:** 4	

NOC Score Scale: 1: inadequate, 2: somewhat adequate, 3: moderately adequate, 4: very adequate, 5: completely adequate

Table 3.2. Care plan prepared according to NNN taxonomy

Nursing Diagnosis-NANDA Code	Risk of Fluid Volume Imbalance (00025)		
Diagnostic Domain	2. Nutrition	**Diagnostic Class**	5. Hydration
Descriptive Characteristics	Trauma, lack of fluids for a long time, Hb 9,1 g/dL.		
Intervention Name-NIC Code	Fluid Monitoring (4130), Fluid Management (4120)		
Intervention Domain	2: Physiological: Complex	**Intervention Class**	N. Tissue Perfusion Management
Activities			
Potential risk factors for fluid imbalance were identified.			
Daily intake and output were recorded.			
A Foley catheter was inserted upon admission.			
Symptoms of dehydration or fluid volume imbalance were monitored.			
Vital signs were monitored daily.			
Serum and urine electrolyte levels were monitored.			
Clinical signs and laboratory findings of fluid overload/retention were observed.			
Prescribed IV fluid therapy was administered over a 24-hour period.			
When serum sodium levels dropped below 130 mEq/L, free water intake was restricted.			
The amount and type of total fluid intake, as well as elimination patterns, were documented.			
Expected Patient Outcome	Hypo/hypervolemia will not develop, intake-output balance will be achieved..		
NOC Results	Fluid Balance (0601)		
Result Domain	2. Physiological Health	**Result Class**	G. Liquid-Electrolyte
24 Hourly Intake-Output Balance (060107)	**1. NOC Score:** 3	**2. NOC Score:** 4	

NOC Score Scale: 1: severe, 2: serious, 3: moderate, 4: mild, 5: no danger

Table 3.3. Care plan prepared according to NNN taxonomy

Nursing Diagnosis-NANDA Code	Risk of Electrolyte Imbalance (00195)		
Diagnostic Domain	2. Nutrition	**Diagnostic Class**	5. Hydration
Descriptive Characteristics	Na: 128 mEq/L, K: 3.3 mEq/L, Ca: 8.2 mg/dL, Mg: 1.7 mEq/L, muscle weakness, nausea, constipation.		
Intervention Name-NIC Code	Electrolyte management (2000) Electrolyte management: Hypercalcemia (2001); Hypocalcemia (2006); Hyperkalemia (2002); Hypokalemia (2007); Hypermagnesemia (2003); Hypomagnesemia (2008); Hypernatremia (2004); Hyponatremia (2009) Electrolyte monitoring (2020)		
Intervention Domain	2: Physiological: Complex	**Intervention Class**	G. Electrolyte and Acid-Base Management
Activities	Abnormal serum electrolyte levels were monitored. Risks and clinical signs of electrolyte imbalances were observed. Intake and output monitoring was performed. Adverse effects of electrolytes included in the treatment plan were monitored. Renal function was monitored (e.g., BUN and creatinine levels). Clinical signs of hypercalcemia were monitored (e.g., excessive urination, thirst, muscle weakness, loss of appetite, abdominal cramps). Clinical signs of hypocalcemia were monitored (e.g., tingling in fingertips, muscle spasms in extremities, anxiety, nausea, constipation). Clinical signs of hyperkalemia were monitored (e.g., muscle weakness, hyporeflexia, and nausea). Clinical signs of hypokalemia were monitored (e.g., muscle weakness, confusion, tachycardia, polyuria, nausea, constipation, abdominal distension). Clinical signs of hypermagnesemia were monitored (e.g., hypotension, lethargy). Clinical signs of hypomagnesemia were monitored (e.g., insomnia, auditory and visual hallucinations, agitation, fatigue, muscle twitching, foot or leg cramps, paresthesias, nausea, vomiting). Clinical signs of hypernatremia were monitored (e.g., restlessness, irritability, fatigue, disorientation, hallucinations, peripheral and pulmonary edema, tachycardia). Clinical signs of hyponatremia were monitored (e.g., lethargy, headache, anxiety, fatigue, muscle weakness, cramps, cold and clammy skin, hypovolemia, nausea). Acid-base imbalances related to electrolytes were monitored. Fluid loss and associated electrolyte depletion were monitored. The planned treatment was implemented and documented.		
Expected Patient Outcome	Electrolyte levels will not deviate from normal, and acidosis/alkalosis will not develop in N.M.		
NOC Results	Electrolyte and Acid-Base Balance (0600)		
Result Domain	2. Physiological Health	**Result Class**	G. Liquid-Electrolyte
Serum Sodium Level (060005)		**1. NOC Score:** 3	**2. NOC Score:** 5
Serum Potassium Level (060006)		**1. NOC Score:** 3	**2. NOC Score:** 5
Serum Calcium Level (060008)		**1. NOC Score:** 3	**2. NOC Score:** 5
Serum Magnesium Level (060009)		**1. NOC Score:** 3	**2. NOC Score:** 5

NOC Score Scale: 1: severe, 2: serious, 3: moderate, 4: mild, 5: no deviation from normal

Table 3.4. Care plan prepared according to NNN taxonomy

Nursing Diagnosis-NANDA Code	Pain (00132)		
Diagnostic Domain	12. Comfort	**Diagnostic Class**	1. Physical Comfort
Descriptive Characteristics	NRS: 7 points, facial expression, groaning and crying.		
Intervention Name-NIC Code	Pain Management: Acute (1410) Analgesic Administration (2210)		
Intervention Domain	1. Physiological: Basic	**Intervention Class**	E. Improving Physical Comfort
Activities	A comprehensive pain assessment was performed including the location, onset, duration, frequency of the pain; factors that relieve and increase the pain (pain in the lower extremity that is constantly felt and is assessed between 4-7 points during the day, increasing with minimal movement). The intensity of pain was determined during the activity (e.g. ambulation, transfer to a chair). The patient's knowledge and beliefs about pain (cultural influences, etc.) were determined. Pain was assessed with a valid and reliable rating tool appropriate for age and communication ability (NRS is used in the clinic). Non-verbal signs of discomfort were observed. Analgesic was administered before the activities that caused pain. Sedation and respiratory status were monitored before and after opioid administration. The interventions applied were recorded and the pain was re-evaluated.		
Expected Patient Outcome	No pain-related groaning, crying or restlessness will be observed, NRS pain score will be <7, N.M. will not report pain.		
NOC Results	Pain Level (2102)		
Result Domain	5. Perceived Health	**Result Class**	V. Status of Symptoms
Reported Pain (210201)		**1. NOC Score:** 1	**2. NOC Score:** 5
Groaning and Crying (210217)		**1. NOC Score:** 2	**2. NOC Score:** 5
Restlessness (210208)		**1. NOC Score:** 2	**2. NOC Score:** 5

NOC Score Scale: 1: severe, 2: serious, 3: moderate, 4: mild, 5: none

Table 3.5. Care plan prepared according to NNN taxonomy

Nursing Diagnosis-NANDA Code	Constipation (00011)		
Diagnostic Domain	3. Excretion and Exchange	**Diagnostic Class**	2. Gastrointestinal Function
Descriptive Characteristics	Inability to defecate (4 days), tenderness and tension in the abdomen.		
Intervention Name-NIC Code	Bowel Management (0430) Constipation/Fecal Impaction Management (0450)		
Intervention Domain	2: Physiological: Complex	**Intervention Class**	B. Elimination Management
Activities	Signs and symptoms of constipation were monitored. Bowel sounds were listened to. Factors that may cause or contribute to constipation, such as medications, bed rest, and diet, were determined. Laxative treatment was administered. Weight was taken at regular intervals.		
Expected Patient Outcome	N.M. will defecate, constipation will not develop.		
NOC Results	Bowel Evacuation (0501)		
Result Domain	2. Physiological Health	**Result Class**	F. Excretion
Constipation (050110)	**1. NOC Score:** 2		**2. NOC Score:** 5

NOC Score Scale: 1: severe, 2: serious, 3: moderate, 4: mild, 5: none

Table 3.6. Care plan prepared according to NNN taxonomy

Nursing Diagnosis-NANDA Code	Impairment of Physical Mobility (00085)		
Diagnostic Domain	4. Activity/Rest	**Diagnostic Class**	2. Activity/Exercise
Descriptive Characteristics	Trauma, immobilization.		
Intervention Name-NIC Code	Traction/immobilization care (0940)		
Intervention Domain	1. Physiological: Basic	**Intervention Class**	C. Immobility Management
Activities	The immobilization fixator was positioned at the appropriate body level. The fixator was supported during bed ambulation. The fixator entry sites were cleaned using appropriate dressing materials. The disrupted tissue integrity was observed for infection, allergy, etc. Circulation, movement, and sensation of the extremity were monitored. Immobilization complications were monitored (e.g. deep vein thrombosis, chest infection, muscle loss, foot drop).		
Expected Patient Outcome	N.M. will perform traction care effectively and bone integrity will be ensured.		
NOC Results	Mobility (0208)		
Result Domain	2. Functional Health	**Result Class**	C. Mobility
Bone Integrity of Lower Extremity (020815)		**1. NOC Score:** 2	**2. NOC Score:** 5

NOC Score Scale: 1: bone integrity is severely compromised, 2: bone integrity is seriously compromised, 3: bone integrity is moderately compromised, 4: bone integrity is mildly compromised, 5: bone integrity is not compromised

Table 3.7. Care plan prepared according to NNN taxonomy

Nursing Diagnosis-NANDA Code	Risk of Perioperative Positional Injury (00087)		
Diagnostic Domain	11. Safety/Protection	**Diagnostic Class**	2. Physical Injury
Descriptive Characteristics	Prolonged bed rest, major surgery and trauma.		
Intervention Name-NIC Code	Prevention of Pressure Ulcer (3540)		
Intervention Domain	2: Physiological: Complex	**Intervention Class**	L. Skin/Wound Management
Activities	Risk factors were determined using the Braden scale (a valid and reliable scale used in the clinic). Daily tissue integrity was observed and recorded since hospitalization. Tissue moisture was kept at an optimal level by using a moisture absorbing pad to eliminate sweating caused by sweating, wound drainage, stool or urinary incontinence. In-bed positioning was provided every two hours until mobilization (first 6 weeks). Bone prominences and pressure areas were observed during repositioning. Positioning was provided with pillows to elevate pressure points in the bed. Bed linens were ensured to be clean, dry and wrinkle-free. An air mattress was used. A diet program supporting protein, B and C vitamins, iron and calorie intake was created in cooperation with a dietician.		
Expected Patient Outcome	Tissue integrity will be maintained and pressure ulcers will not develop.		
NOC Results	Skin and Mucous Membranes (1101)		
Result Domain	2. Physiological Health	**Result Class**	L. Tissue Integrity
Skin Integrity (110113)		**1. NOC Score:** 3	**2. NOC Score:** 5

NOC Score Scale: 1: severely damaged, 2: severely damaged, 3: moderately damaged, 4: mildly damaged, 5: skin integrity complete

Table 3.8. Care plan prepared according to NNN taxonomy

Nursing Diagnosis-NANDA Code	Lack of Self-Care: Bathing (00108); Dressing (00109); Feeding (00102); Elimination (00110)		
Diagnostic Domain	4. Activity/Rest	**Diagnostic Class**	5. Self-care
Descriptive Characteristics	Need for assistance in performing self-care activities, limited mobilization.		
Intervention Name-NIC Code	Self-care assistance (1800) Self-care assistance: Bathing/hygiene (1801); Dressing/grooming (1802); Feeding (1803); Toileting (1804); Transfer (1806)		
Intervention Domain	1. Physiological: Basic	**Intervention Class**	F. Self-Care Relief
Activities			
Self-care activities were planned according to the patient's culture and age. The need for assistance with personal hygiene, dressing, mobility, toileting, and eating was assessed. Necessary personal items were provided (pajamas, socks, toothbrush, comb, shampoo, etc.). Assistance was provided until the patient fully assumed responsibility for self-care (as of the 6th week). A routine was established for self-care activities. Bathing was performed using the necessary materials to meet hygiene needs. Tooth brushing was appropriately facilitated. Nail hygiene was maintained. Skin integrity was monitored. Hair was appropriately combed. The patient was dressed in laundered (laundry-provided) and clean clothes. Efforts to dress independently were progressively encouraged. The diet was adjusted in accordance with the start of enteral nutrition. An appropriate position was provided to facilitate chewing and swallowing. Oral hygiene was maintained before and after meals. Clothing was removed for elimination, and hygiene was ensured afterward. An exercise program was developed in coordination with a physiotherapist (starting from the 6th week). The patient was gradually supported in transferring from bed to chair or armchair. Support was provided in the use of crutches, wheelchair, and walker. The patient was encouraged and supported while performing independent transfers. Implemented practices and progress were documented. Privacy was maintained during self-care support activities.			
Expected Patient Outcome	N.M. will perform daily living activities and will not need support in performing self-care.		
NOC Results	Activities of Daily Living-Self-Care (0300)		
Result Domain	2. Functional Health	**Result Class**	D. Self care
Feeding (030001)		**1. NOC Score:** 2	**2. NOC Score:** 4
Dressing (030002)		**1. NOC Score:** 2	**2. NOC Score:** 5
Emptying (030003)		**1. NOC Score:** 2	**2. NOC Score:** 5
Bathing (030004)		**1. NOC Score:** 2	**2. NOC Score:** 5
Hygiene (030006)		**1. NOC Score:** 2	**2. NOC Score:** 5
Walking (030008)		**1. NOC Score:** 2	**2. NOC Score:** 5

NOC Score Scale: 1: severely endangered, 2: severely endangered, 3: moderately endangered, 4: slightly endangered, 5: no endangerment

Table 3.9. Care plan prepared according to NNN taxonomy

Nursing Diagnosis-NANDA Code	Anxiety (00146)		
Diagnostic Domain	9. Coping/Stress Tolerance	**Diagnostic Class**	2. Coping Responses
Descriptive Characteristics	Crying, anger, silence at certain times.		
Intervention Name-NIC Code	Anxiety reduction (5820)		
Intervention Domain	3. Behavioral	**Intervention Class**	T. Supporting psychological comfort
Activities			
A calm and reassuring approach was adopted.			
A sense of trust and safety was established.			
The patient was accompanied to enhance safety and reduce fear.			
The presence of a family member (mother) with the patient was ensured.			
The patient was encouraged to verbally express their emotions, perceptions, and fears.			
The period when the level of anxiety changed (from the 4th week onward) was identified.			
Activities aimed at reducing tension were provided.			
Support was given to help identify situations that trigger anxiety.			
The patient was supported in the use of appropriate defense mechanisms.			
Training was provided on the use of relaxation techniques.			
Verbal and non-verbal signs of anxiety were assessed.			
Expected Patient Outcome	N.M. will be able to tolerate anxiety-provoking factors and demonstrate effective coping behavior.		
NOC Results	Anxiety Level (1211), Fear Level (1210)		
Result Domain	2. Psychological Health	**Result Class**	M. Psychological Well-being
Restlessness (121101)	**1. NOC Score:** 3	**2. NOC Score:** 5	
Exaggerated anxiety about life events (121013)	**1. NOC Score:** 2	**2. NOC Score:** 5	
Crying (121032)	**1. NOC Score:** 2	**2. NOC Score:** 4	
Fear (121033)	**1. NOC Score:** 2	**2. NOC Score:** 4	

NOC Score Scale: 1: severe, 2: serious, 3: moderate, 4: mild, 5: none

Table 3.10. Care plan prepared according to NNN taxonomy

Nursing Diagnosis-NANDA Code	Readiness to Strengthen Endurance (00212)		
Diagnostic Domain	9. Coping/Stress Tolerance	**Diagnostic Class**	2. Coping Responses
Descriptive Characteristics	Silence, crying, not wanting to remember the trauma and not wanting to talk.		
Intervention Name-NIC Code	Emotional support (5270) Strengthening Coping (5230) Strengthening Support System (5440)		
Intervention Domain	3. Behavioral	**Intervention Class**	R. Coping therapy
Activities			
Emotional experiences were discussed with the patient.			
The current status of the family and support network were assessed.			
The adequacy of existing social relationships was assessed.			
Differences in body image were addressed realistically.			
Communication was established with supportive or empathic expressions.			
Help was provided to recognize and express feelings such as anxiety, anger, or sadness.			
Encouragement was provided to talk to reduce emotional reactions.			
A sense of security was provided by being present during periods of anxiety.			
Expected Patient Outcome	N.M.'s reaction to the trauma she has experienced will not be exaggerated; she will display effective coping behavior and will be in harmony with her environment.		
NOC Results	Personal Resilience (1309), Psychosocial Adaptation-Life Change (1305)		
Result Domain	3. Psychosocial Health	**Result Class**	N.Psychosocial Adaptation
Expressing Emotions (130903)	**1. NOC Score:** 2	**2. NOC Score:** 4	
Expressing Empowerment (130507)	**1. NOC Score:** 1	**2. NOC Score:** 4	
Feeling Comfortable in Physical Environment (130525)	**1. NOC Score:** 2	**2. NOC Score:** 4	

NOC Score Scale: 1: Never observed, 2: Rarely observed, 3: Sometimes observed, 4: Often observed, 5: Always observed

Discussion

Unexpected deaths and injuries caused by natural disasters such as earthquakes negatively affect the health of individuals physically, socially and mentally. The onset of stress response and the development of crush syndrome in the later stages is a devastating situation for metabolism. For this reason, IV fluid support is initiated at the first encounter with the earthquake victim in order to maintain volume and prevent worsening of the cilinical picture (Abu-Zidan et al., 2024; Ozpulat et al., 2023). Metabolic balance was achieved with early fluid and electrolyte support applied to the patient in the study; nutritional status supported by TPN resulted in clinical improvement.

Multiple fractures, an inevitable effect of earthquakes, have a negative impact on physical health. Postoperative complaints of patients with multiple fractures are generally due to severe pain (Ilce, 2021) Therefore, providing analgesia at the right time is an important approach to alleviate the level of pain experienced. Due to the high postoperative pain level of N.M. who underwent two major surgical interventions, opioids were included in her treatment and at the same time pain control was realized with non-pharmacologic approaches. In addition, drug-related adverse effects should be monitored in patients receiving opioids (Yıldırım & Can, 2019) Constipation and respiratory depression are among the common and undesirable effects of opioids (Ilce, 2021). The slowed intestinal peristalsis of N.M. due to prolonged bed rest contributed negatively to the development of constipation with the use of opioids. After four days of inability to defecate, this situation was managed effectively with the use of laxatives and short-term use of opioids under the guidance of NIC interventions targeting bowel management and constipation management.

In order for healing to occur in the reduced bone fragments, the stability of the fracture site must be maintained and immobilized. This stability is achieved with internal or external fixators (Ilce, 2021; Unal, 2023). External fixator was also used in N.M. (Table 3.6). In addition to the immobilization caused by the fracture, movement limitation and pain due to the fixator necessitated postoperative immobilization/traction care of N.M., and the duration of immobilization increased accordingly (Unal, 2023). This situation brings the risk of perioperative positional pressure injury (Sahın & Basak, 2020). NIC interventions for pressure injury prevention were implemented throughout the six-week immobilization period, resulting in a two-point improvement in the NOC skin integrity score and the absence of any pressure-related tissue damage.

The complexity of the treatment process in cases of multiple fractures prolongs the duration of hospitalization. This situation restricts activities of daily living, reduces the ability to perform self-care, and leads to increased stress levels. Therefore, in procedures requiring long-term hospitalization, coping mechanisms should be learned, and interventions aimed at strengthening them should be planned in order to support patients in maintaining their self-care (Ilce, 2021). In addition to N.M.'s prolonged hospitalization, her status as a foreign national posed communication challenges. Experiencing a major trauma such as an earthquake, being immobilized, having difficulty performing self-care, and being unable to communicate with her siblings who were receiving treatment in external centers all contributed to elevated stress levels. Considering the negative effects of stress on the body, interventions were planned and implemented throughout the hospitalization period to help N.M. develop effective coping strategies and to strengthen her support systems. Improvements in relevant NOC scores were observed following these interventions. s a result, the planned interventions addressing the various underlying issues effectively met N.M.'s needs and brought her stress level to a manageable range.

Conclusion

In conclusion, natural disasters such as earthquakes have a multidimensional and devastating impact on many individuals. The well-being of individuals affected by earthquakes can only be maintained through both physiological integrity and psychological support. In the case of our patient—an adolescent and a migrant who sustained multiple fractures after being trapped under rubble, underwent two major surgeries, and relied solely on her mother for social support—a scientifically grounded and systematic nursing care approach was essential. Accordingly, nursing diagnoses were formulated based on the NANDA taxonomy, nursing interventions were determined according to the NIC classification, and outcomes were evaluated using the NOC system. These structured interventions, implemented throughout the hospitalization period, were found to effectively meet the patient's needs and demonstrated the efficacy of the care provided. In this context, it is recommended that care for individuals with multiple fractures, those affected by earthquakes or who are migrants, be guided by the NANDA, NIC, and NOC classification systems.

Declarations

Acknowledgments

We would like to thank the patient's relative who granted permission for the case presentation.

Conflict of Interest

The authors declare that there is no conflict of interest regarding this study.

Ethics Statement

Not Applicable

Informed Consent

Written informed consent was obtained from the participant(s) of this study.

Author Contributions

A detailed description of each author's role in the study was provided using the CRediT taxonomy and an author contribution form was completed.

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Data Availability

The data used to support the findings of this study can be made available upon request to the corresponding author.

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