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Nursing Strategies for Preventing Physical and Psychological Complications Associated with Physical Restraints in Hospitalized Patients

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ABSTRACT: Physical restraints are associated with a range of serious physical complications, including pressure injuries, impaired circulation, nerve damage, aspiration,

falls, and even strangulation, making vigilant nursing care essential whenever restraints are used. Nurses should apply restraints only as a last resort after exhausting less restrictive alternatives, and only under a valid, time-limited physician order. Once restraints are in place, frequent monitoring is critical: circulation and skin integrity should be assessed at least every 15 minutes, with particular attention to the extremities for signs of cyanosis, pallor, edema, or numbness. Restraints must be applied correctly using devices that allow appropriate fit—two fingers should fit beneath the strap—and should never be secured to bed rails or in positions that risk strangulation. Regular repositioning, range-of-motion exercises, and scheduled release periods further reduce the risk of musculoskeletal and circulatory complications. Psychological complications of restraint use include anxiety, fear, agitation, depression, humiliation, loss of dignity, and an increased risk of delirium, particularly in older adults. To mitigate these effects, nurses should communicate openly with patients and families, explain the reason for restraint use, and involve patients in care decisions whenever possible. Frequent checks should include not only physical assessment but also ongoing evaluation of the patient's emotional state, comfort, and orientation. Environmental and care interventions—such as pain management, toileting, hydration, redirection, and the presence of family or familiar objects—can reduce agitation and the need for continued restraint. Throughout the process, nurses must advocate for the earliest possible discontinuation of restraints, document all assessments and interventions thoroughly, and collaborate with the interdisciplinary team to address the underlying causes of unsafe behavior.

INTRODUCTION

Physical restraints are interventions involving the use of manual methods, mechanical devices, or materials that restrict a patient's freedom of movement or ability to independently change body position. They are commonly encountered in intensive care units, medical and surgical wards, and geriatric settings, particularly among patients experiencing confusion, delirium, agitation, cognitive impairment, or dependence on life-supporting devices. Although restraints may be used to prevent falls, injuries, and accidental removal of medical equipment, their application can result in significant physical and psychological complications. Therefore, restraint use should be minimized and considered only when an immediate safety threat exists and less restrictive interventions are ineffective [1,2,3].

Physical restraints may cause pressure injuries, impaired circulation, nerve compression, respiratory complications, venous thromboembolism, reduced mobility, and functional deterioration. Psychological consequences include anxiety, fear, agitation, depression, helplessness, loss of dignity, and traumatic experiences. Older adults and critically ill patients are particularly vulnerable because of frailty, cognitive impairment, chronic diseases, and reduced physiological reserves [3,5,6]. Consequently, nurses play a central role in preventing unnecessary restraint use, identifying complications early, and implementing individualized interventions that preserve patient safety, autonomy, and dignity [1,2].

Definition and Types of Physical Restraints

Physical restraints refer to devices or methods that prevent patients from moving freely or independently controlling their body movements. Common types include wrist restraints, ankle restraints, vest restraints, restrictive bedrails, and manual restraint. Their classification depends on their actual restrictive effect rather than their name or intended purpose. For example, bedrails may function as restraints when they prevent patients from independently leaving their beds. Therefore, nurses should assess the effect of every device on patient mobility and independence before its application [3,19].

Indications and Risk Factors Associated with Physical Restraint Use

Physical restraints may occasionally be considered when patients demonstrate severe agitation, immediate risk of injury, or repeated attempts to remove essential medical devices. However, the presence of dementia, delirium, fall risk, or invasive medical equipment does not automatically justify restraint application. Individualized assessment is necessary to determine whether the potential benefits outweigh the associated risks [1,3,4].

Patient-related risk factors include advanced age, cognitive impairment, delirium, neurological disorders, communication difficulties, impaired mobility, and severe agitation. Treatment-related factors include mechanical ventilation, intravenous catheters, feeding tubes, and postoperative drains. Environmental factors such as excessive noise, unfamiliar surroundings, inadequate supervision, and sleep deprivation may also contribute to behavioral disturbances and unnecessary restraint use [4,5,14].

Physical Complications Associated with Physical Restraints

Skin Injuries and Pressure Ulcers

Prolonged pressure and friction from restraint devices may cause redness, bruising, abrasions, skin tears, and pressure injuries, particularly around the wrists and ankles. Older adults, patients with malnutrition, diabetes, edema, and vascular disorders are especially vulnerable. Regular skin inspection, appropriate device fitting, repositioning, and maintaining skin hygiene are essential nursing interventions for preventing these complications [3,6,21].

Impaired Circulation and Nerve Damage

Excessively tight restraints may compress peripheral blood vessels and nerves, resulting in swelling, pain, numbness, discoloration, reduced capillary refill, and impaired movement. Severe compression may lead to tissue ischemia and neurological injury. Nurses should regularly assess peripheral pulses, skin temperature, color, sensation, and movement, and immediately address any evidence of neurovascular compromise [3,21].

Respiratory Complications

Incorrect positioning, chest compression, abdominal restriction, and entrapment may interfere with normal respiratory function and potentially cause life-threatening respiratory compromise. Patients with obesity, respiratory diseases, reduced consciousness, or neuromuscular disorders require particular attention. Nurses must maintain appropriate positioning, assess respiratory effort and oxygenation, and respond immediately to any signs of respiratory distress [1,3].

Falls, Entrapment, and Strangulation

Although restraints are sometimes applied to prevent falls, patients may attempt to climb over bedrails or struggle against restrictive devices, resulting in fractures, head injuries, entrapment, or strangulation. Consequently, individualized fall-prevention strategies and appropriate supervision are preferable to routine restriction of movement [1,16,22].

Venous Thromboembolism and Functional Decline

Restricted mobility may contribute to venous stasis, muscle weakness, joint stiffness, reduced balance, and functional deterioration. Patients with advanced age, postoperative conditions, and pre-existing mobility limitations are particularly vulnerable. Encouraging safe mobilization, providing range-of-motion exercises, and implementing prescribed thromboprophylaxis are important preventive measures [3,6,17].

Urinary, Gastrointestinal, and Nutritional Complications

Restrained patients may experience difficulty accessing toilets, eating, drinking, and performing personal hygiene. These difficulties can contribute to urinary retention, constipation, dehydration, inadequate nutrition, and incontinence-associated skin damage. Nurses should provide regular toileting assistance, adequate hydration, nutritional support, and appropriate hygiene throughout hospitalization [1,3].

Psychological Complications Associated with Physical Restraints

Anxiety, Fear, and Agitation

Patients may experience fear, anxiety, frustration, and confusion when their movements are restricted, particularly when they do not understand the reason for the intervention. Restraint may also increase agitation and resistance, creating a cycle in which behavioral disturbances lead to further restriction. Therapeutic communication, reassurance, and early identification of discomfort are essential for reducing emotional distress [1,20].

Delirium and Cognitive Deterioration

Physical restraint exposure has been associated with delirium and cognitive disturbances among hospitalized and critically ill patients. Immobility, sleep disruption, environmental restriction, and underlying illness may contribute to this relationship. Nurses should assess cognitive changes using appropriate validated instruments, identify reversible causes, and implement multicomponent delirium-prevention interventions [7,8,23].

Depression, Helplessness, and Psychological Trauma

Restrained patients may experience sadness, humiliation, helplessness, loss of independence, and reduced self-esteem. Some individuals may develop persistent distress, nightmares, intrusive memories, and traumatic reactions following frightening restraint experiences. Emotional support, respectful communication, and appropriate psychological referral are important for preventing and managing these consequences [5,20].

Loss of Dignity and Autonomy

Restricting movement may interfere with patients' ability to make personal decisions and independently perform daily activities. Unnecessary restraint application can undermine trust in healthcare professionals and negatively affect the therapeutic relationship. Nurses must therefore protect privacy, respect individual preferences, and involve patients in care decisions whenever possible [1,2,20].

Comprehensive Nursing Assessment Before Restraint Application

Comprehensive nursing assessment is essential for identifying the causes of unsafe behavior and determining whether restraint can be avoided. Nurses should assess vital signs, respiratory status, pain, hydration, nutrition, mobility, neurological function, cognitive status, and environmental conditions. Medical problems such as hypoxia, infection, metabolic disturbances, urinary retention, constipation, and medication adverse effects may produce agitation and should be treated before considering restrictive interventions [1,3,8].

Cognitive assessment should include attention, orientation, consciousness, memory, and behavioral changes. The Confusion Assessment Method for the Intensive Care Unit (CAM-ICU) can assist in identifying delirium among appropriate critically ill patients. Pain assessment, medication review, and evaluation of sensory impairment are also important because untreated discomfort, sedative effects, and communication difficulties may contribute to agitation and unnecessary restraint use [7,8,23].

Nursing Strategies for Preventing Physical Restraint Use

Therapeutic Communication and Patient Orientation

Developing a trusting nurse–patient relationship can reduce anxiety and improve cooperation with treatment. Nurses should introduce themselves, explain procedures, use simple language, maintain a calm tone, and provide repeated orientation when necessary. Patients should be encouraged to communicate their needs and concerns, while their emotional responses should be acknowledged respectfully [1,20].

Identification and Treatment of Reversible Causes

Nurses should identify and manage pain, hypoxia, infection, dehydration, hunger, urinary retention, constipation, medication-related problems, and sleep disturbances. Addressing these underlying conditions may reduce agitation and eliminate the perceived need for physical restraint. Sudden behavioral changes should always prompt clinical reassessment rather than immediate restriction of movement [3,8].

Environmental Modification

Maintaining a quiet, comfortable, and familiar environment may reduce confusion and agitation. Nurses should provide adequate lighting, visible clocks and calendars, accessible call bells, familiar personal belongings, and appropriate sensory aids. Unnecessary noise and nighttime interruptions should be minimized to support orientation and sleep [1,10,11].

Family Involvement

Family members can provide emotional reassurance and valuable information about patients' usual behavior, communication preferences, and personal routines. Appropriate family participation may reduce anxiety and improve cooperation, particularly

among older adults and patients experiencing cognitive impairment. Nurses should encourage family involvement while respecting patient preferences and confidentiality [1,10].

Early Mobilization and Fall Prevention

Safe mobilization helps preserve muscle strength, balance, circulation, and functional independence. Nurses should encourage walking, sitting out of bed, and appropriate rehabilitation according to clinical stability. Individualized fall-prevention measures, including low beds, supervised mobility, suitable footwear, and accessible call bells, should be prioritized over unnecessary restriction of movement [1,9,12].

Sleep Promotion and Delirium Prevention

Adequate sleep and structured daily activities are important for cognitive and psychological stability. Nurses should reduce nighttime disturbances, manage pain, promote daytime activity, and support normal sleep–wake cycles. Multicomponent interventions addressing orientation, hydration, mobility, sensory impairment, and sleep have demonstrated effectiveness in reducing delirium among hospitalized older adults [10,11].

Nursing Strategies for Preventing Physical Complications When Restraints Are Unavoidable

When an immediate safety threat requires temporary restraint, nurses must select the least restrictive effective device and ensure correct application according to institutional policies. The device should fit appropriately without excessive pressure or interference with breathing, circulation, or mobility of unaffected body parts. Restraints must be secured using approved attachment methods and must allow rapid release by authorized personnel [1,2,3].

Skin integrity should be assessed before and during restraint use, with particular attention to pressure points and areas exposed to friction. Nurses should monitor peripheral circulation, sensation, movement, swelling, and skin temperature to identify early neurovascular complications. Respiratory function must also be assessed regularly, especially in patients with reduced consciousness or respiratory disease. Any evidence of respiratory compromise, impaired circulation, or serious injury requires immediate intervention [3,6,21].

Additional preventive care should include regular repositioning, safe range-of-motion exercises, appropriate hydration and nutrition, toileting assistance, and prescribed thromboprophylaxis. Nurses should encourage mobility whenever clinically possible and ensure that restraints do not interfere with essential personal care or rehabilitation [3,6,17].

Nursing Strategies for Preventing Psychological Complications

Psychological support should continue throughout restraint application. Nurses should explain the reason for restraint, reassure patients that it is temporary, and inform them that it will be discontinued when the immediate safety concern resolves. Calm communication and frequent interaction may reduce fear, frustration, and feelings of abandonment [1,20].

Patient dignity and privacy should be maintained during all nursing procedures. Nurses should avoid threatening language, unnecessary exposure, and judgmental comments. Patients should be encouraged to express discomfort and participate in decisions whenever possible. Family presence, familiar objects, cognitive orientation, and appropriate social interaction may further improve emotional comfort [1,2,10].

Nurses should monitor for anxiety, agitation, crying, withdrawal, sleep disturbances, and expressions of helplessness. When significant distress is identified, the necessity of continued restraint should be reassessed and appropriate psychological support provided. After restraint discontinuation, patients should be encouraged to discuss their experiences and regain independence through safe mobilization and rehabilitation [5,20].

Nursing Monitoring of Restrained Patients

Monitoring should be individualized according to the patient's condition, restraint type, institutional policy, and applicable legal requirements. Assessment should include respiratory function, circulation, skin integrity, neurological status, pain, cognitive condition, emotional well-being, hydration, nutrition, mobility, and elimination. The original indication for restraint must be reassessed regularly, and the intervention should be discontinued as soon as it is no longer clinically justified [1,2,3].

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Table: Nursing Assessment and Monitoring

Assessment area	Parameters	Nursing interventions
Respiratory function	Respiratory rate, effort, oxygen saturation	Maintain safe positioning and identify respiratory distress
Circulation	Pulses, capillary refill, temperature, swelling	Assess peripheral perfusion
Skin integrity	Redness, bruising, pressure injuries	Inspect skin and reduce pressure
Neurological function	Sensation, movement, consciousness	Identify nerve compression and deterioration
Psychological status	Anxiety, fear, agitation	Provide reassurance and emotional support
Cognitive status	Orientation, attention, confusion	Assess delirium and provide reorientation
Mobility	Muscle strength and joint movement	Encourage safe movement and exercises
Nutrition and hydration	Food and fluid intake	Provide assistance and monitor intake
Elimination	Urinary retention and constipation	Provide regular toileting and hygiene

Evidence-Based Alternatives to Physical Restraints

Evidence-based restraint alternatives include enhanced observation, one-to-one supervision, bed-exit alarms, low beds, environmental modification, family involvement, regular reorientation, and appropriate securement of medical devices. These interventions aim to reduce immediate safety risks without unnecessarily restricting patient mobility [1,9,12].

Multicomponent delirium-prevention programs are particularly important because they address several factors associated with confusion and agitation. The Hospital Elder Life Program demonstrated that coordinated interventions involving orientation, mobility, sensory support, hydration, and sleep promotion can reduce delirium among hospitalized older adults. Such approaches support patient independence and may reduce the need for restrictive interventions [10,11].

Table: Physical Restraints and Alternative Nursing Interventions

Clinical problem	Alternative nursing intervention
Fall risk	Supervised mobility, low beds, and individualized fall prevention
Confusion	Reorientation, family support, and delirium assessment
Removal of intravenous lines	Appropriate device securement and enhanced observation
Agitation	Therapeutic communication and identification of triggers
Sleep disturbance	Sleep hygiene and environmental modification
Repeated attempts to leave bed	Bed-exit alarms and assisted mobilization
Anxiety and fear	Emotional support and reassurance
Device interference	Equipment repositioning and appropriate supervision

Legal, Ethical, and Professional Responsibilities

Physical restraint involves important ethical considerations related to autonomy, beneficence, nonmaleficence, dignity, and human rights. Nurses should ensure that restraint is clinically justified, proportionate to the immediate safety risk, and consistent with applicable legislation and institutional regulations. Restraints must never be used as punishment, intimidation, coercion, or a substitute for adequate staffing and appropriate nursing care [1,2,25].

Patients should receive clear explanations whenever possible, and legally authorized representatives should be involved when appropriate. Restraint authorization, monitoring, and discontinuation must follow applicable requirements. For example, United States federal regulations under 42 CFR §482.13 establish patient-rights protections and requirements concerning restraint and seclusion in hospitals [25].

Multidisciplinary Collaboration in Restraint Prevention

Effective restraint prevention requires collaboration between nurses, physicians, pharmacists, physiotherapists, occupational therapists, psychologists, and family caregivers. Physicians evaluate underlying medical conditions, pharmacists identify potentially problematic medications, and rehabilitation professionals promote safe mobility and functional independence. Nurses coordinate bedside assessment, preventive interventions, monitoring, and communication between team members [1,8,23].

Nursing Documentation and Quality Improvement

Accurate documentation should include the clinical indication, patient assessment, alternative interventions attempted, authorization, device type, application time, monitoring findings, patient response, reassessment, and discontinuation time. Documentation must be objective and specific, describing observable behaviors rather than using judgmental statements [1,2,4].

Hospitals should monitor restraint prevalence, duration, complications, and documentation quality through regular audits. Staff education, standardized protocols, multidisciplinary review, and feedback are important strategies for improving clinical practice and reducing unnecessary restraint use. Organizational restraint-reduction programs should focus on patient safety, autonomy, and dignity [1,9,12].

Nursing Care Plan for Patients at Risk of Restraint-Related Complications

Nursing diagnosis	Expected outcome	Nursing interventions
Risk for physical injury	Patient remains free from preventable injury	Provide supervision and individualized safety measures
Acute confusion	Improved orientation	Assess cognition and treat reversible causes
Anxiety	Reduced emotional distress	Provide reassurance and therapeutic communication
Impaired physical mobility	Maintained functional ability	Encourage safe mobilization and range-of-motion exercises
Risk for impaired skin integrity	Intact skin	Inspect skin and minimize pressure
Risk for impaired peripheral perfusion	Adequate circulation	Assess pulses, sensation, and capillary refill
Disturbed sleep pattern	Improved sleep quality	Reduce nighttime interruptions
Powerlessness	Increased participation in care	Offer choices and respect patient preferences

Challenges in Preventing Physical Restraint Use

Several factors may interfere with restraint-reduction practices, including inadequate staffing, limited resources, insufficient staff education, fear of legal liability, and misconceptions regarding the effectiveness of restraints in preventing falls. Patients with severe delirium, dementia, or critical illness may also require complex interventions and intensive supervision [4,14,17].

Overcoming these challenges requires strong nursing leadership, continuous education, appropriate staffing, clear institutional policies, and access to alternative safety interventions. Hospitals should promote a culture in which restraint prevention is recognized as an essential component of patient-centered care rather than simply an individual nursing responsibility [1,2,9].

Recommendations for Nursing Practice

Nurses should prioritize comprehensive assessment and early treatment of reversible causes of agitation before considering physical restraint. Nonpharmacological interventions, therapeutic communication, family involvement, environmental modification, and safe mobilization should be implemented whenever possible. When restraint is unavoidable, the least restrictive effective device should be selected, and physical and psychological complications should be monitored carefully [1,3,8].

Hospitals should provide regular staff training, develop standardized restraint protocols, conduct quality audits, and encourage multidisciplinary collaboration. Further research is also needed to evaluate the effectiveness of restraint-reduction interventions and their impact on physical complications, psychological well-being, functional recovery, and patient satisfaction [9,12,19].

CONCLUSION

Physical restraints may expose hospitalized patients to serious physical and psychological complications, including pressure injuries, impaired circulation, respiratory compromise, venous thromboembolism, functional decline, delirium, anxiety, and psychological trauma. Although temporary restraint may occasionally be necessary to manage an immediate safety threat, unnecessary and prolonged application should be avoided. Nurses have a fundamental responsibility to prevent restraint use through comprehensive assessment, therapeutic communication, environmental modification, family involvement, mobility promotion, and individualized safety interventions. When restraint cannot be avoided, correct application, regular monitoring, psychological support, accurate documentation, and early discontinuation are essential. Ultimately, restraint-minimization strategies should aim to protect patients while maintaining their dignity, autonomy, independence, and overall quality of care.

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