

Risk Factors for Falls in Older Adults: A Multidimensional Evidence Synthesis and Implications for Nursing Assessment and Prevention

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ABSTRACT

Falls are among the most common and consequential adverse events affecting older adults, contributing substantially to morbidity, mortality, loss of independence, and healthcare expenditure worldwide. This narrative review synthesizes recent (2018–2026) peer-reviewed evidence indexed in Web of Science, Scopus, PubMed/MEDLINE, CINAHL, and the Cochrane Library to describe the intrinsic, extrinsic, and setting-specific risk factors for falls among community-dwelling, hospitalized, and long-term care older adults, and to translate this evidence into implications for nursing assessment and practice. Intrinsic risk factors reviewed include advanced age, female sex, frailty and sarcopenia, impaired gait and balance, cognitive impairment and dementia, visual and hearing impairment, fear of falling and psychological distress, diabetes mellitus, orthostatic hypotension, urinary incontinence, foot problems, nutritional status, and prior fall history. Extrinsic and iatrogenic risk factors include polypharmacy and fall-risk-increasing drugs, unsafe home and institutional environments, and inconsistent use of fall-risk screening tools. The review further discusses and compares validated fall-risk assessment instruments (e.g., the Morse Fall Scale, the Johns Hopkins Fall Risk Assessment Tool, the Hendrich II Fall Risk Model, STRATIFY) and evidence-based multifactorial prevention strategies, including individually tailored exercise, medication review and deprescribing, environmental and footwear modification, vitamin D and calcium supplementation in deficient populations, and emerging digital fall-detection technologies, consistent with the 2022 World Falls Guidelines. Nurses occupy a pivotal position across all care settings to identify at-risk older adults, implement multicomponent interventions, coordinate interdisciplinary fall-prevention care, and lead post-fall assessment and organizational quality-improvement efforts. Gaps remain in research from low- and middle-income countries, in tailoring interventions for cognitively impaired populations, in the long-term sustainability of fall-prevention programs, and in integrating emerging technologies into routine nursing workflows. Strengthening nursing-led, evidence-based fall-risk assessment and prevention protocols is essential to reducing the global burden of falls among older adults.

Keywords: *accidental falls; aged; risk factors; nursing; frailty; fear of falling; fall prevention; geriatric assessment; patient safety*

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1. INTRODUCTION

The World Health Organization classifies falls as an event in which a person comes to rest inadvertently on the ground, floor or other lower level. In older people, falls are not a natural byproduct of ageing, but the result of a complex, multi-factorial interaction between ageing-related physiological deterioration, chronic disease, medications, cognition and sensory function, psychological status and the physical environment (Li et al., 2023; Saunders et al., 2025). Falls are a major cause of unintentional injury, hospitalization, disability, and death in older adults, and the number of falls being

reported worldwide is increasing with the aging of the population.

The Global Burden of Disease (GBD) modeling estimated around 45.7 million new falls among adults aged 65 years and older in 2021, a 182% increase in fall incidence, mortality, and disability-adjusted life years (DALYs) since 1990, and the number of falls is projected to continue growing through 2040 (Chen et al., 2025). In addition to the short-term physical effects, such as fractures, traumatic brain injuries, and soft tissue injuries, falls are also linked to fear of falling, activity limitation, decreased independence, admission to long-term care

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facilities, and mortality (Okrah et al., 2025; Xiong et al., 2024).

Falls are increasingly conceptualized not as isolated accidents but as a geriatric syndrome—a multifactorial health condition that occurs when the cumulative effect of impairments in multiple systems renders an older person vulnerable to situational challenges (Saunders et al., 2025). This framing is clinically important for nursing because it shifts the focus from assigning a single "cause" to a fall toward systematically screening across the many overlapping domains—physical, cognitive, sensory, pharmacological, and environmental—that jointly determine an individual's risk. Because nurses are frequently the first point of contact for older adults across community, hospital, and residential care settings, they are uniquely positioned to identify modifiable fall-risk factors, implement standardized risk-assessment protocols, and coordinate multidisciplinary prevention strategies.

This review aims to (a) summarize current, high-quality evidence on the intrinsic and extrinsic risk factors for falls among older adults, including several risk domains—orthostatic hypotension, urinary incontinence, foot and footwear problems, and nutritional status—that are often under-recognized in general nursing assessment; (b) describe how risk profiles differ across community, hospital, and nursing home settings; and (c) translate this evidence into practical implications for nursing assessment, care planning, post-fall management, and organizational fall-prevention practice.

2. REVIEW METHODS

This is a narrative, evidence-informed review rather than a formal systematic review or meta-analysis. Literature was identified through structured searches of Web of Science, Scopus, PubMed/MEDLINE, CINAHL, and the Cochrane Library, supplemented by targeted searches of recent gray literature (e.g., conference abstracts registered with DOIs). Search terms combined controlled vocabulary and free-text terms including "accidental falls," "older adults," "aged," "risk factors," "nursing," "fall prevention," and terms for specific risk domains (e.g., "polypharmacy," "sarcopenia," "fear of falling," "cognitive impairment," "orthostatic hypotension," "urinary incontinence," "footwear," "vitamin D"). Priority was given to systematic reviews, meta-analyses, large cohort studies, and clinical practice guidelines published between 2018 and 2026, with earlier seminal sources retained where they remain foundational to the field (e.g., early validation studies of assessment tools). Reference lists of key reviews were hand-searched to identify additional relevant primary studies. All references cited are peer-reviewed, indexed publications with verifiable digital object identifiers (DOIs), and the reference list was cross-checked against publisher records prior to finalization.

Because this is a narrative rather than systematic review, formal risk-of-bias assessment and meta-analytic pooling

were not performed; instead, findings from existing systematic reviews and meta-analyses were prioritized and synthesized qualitatively to provide the clinician-facing, practice-oriented overview intended for a nursing audience. This approach is consistent with narrative review methodology commonly employed in clinical nursing journals when the goal is broad, actionable synthesis across many risk-factor domains rather than a single, tightly scoped research question.

3. A CONCEPTUAL FRAMEWORK FOR NURSING FALL-RISK ASSESSMENT

A useful way for nurses to organize the many risk factors discussed in this review is through a layered conceptual model that distinguishes predisposing (intrinsic), precipitating (proximate/situational), and environmental (extrinsic) contributors to a fall event. Predisposing factors—such as advancing age, frailty, sarcopenia, cognitive impairment, and chronic disease—establish an individual's underlying vulnerability but rarely cause a fall in isolation. Precipitating factors—such as an episode of orthostatic hypotension upon standing, an urgent need to void, sedation from a newly administered medication, or a misstep on uneven flooring—represent the proximate trigger that converts underlying vulnerability into an actual fall event at a specific moment in time. Environmental and situational factors—lighting, footwear, clutter, staffing levels, and time of day—modulate whether a given precipitating event results in a fall, and whether that fall results in injury. This layered framework, broadly consistent with the World Health Organization's International Classification of Functioning, Disability and Health model used in recent umbrella reviews of fall risk factors (Saunders et al., 2025), helps explain why comprehensive, multifactorial nursing assessment consistently outperforms single-item screening: any one risk factor may be necessary but is rarely sufficient to explain a given fall, and effective prevention requires addressing predisposing vulnerability, anticipating precipitating triggers, and modifying the immediate environment simultaneously.

This framework also has direct implications for how nurses interpret a fall once it has occurred. Rather than asking only "did the patient trip," a nurse applying this model asks three linked questions: What underlying vulnerabilities made this patient susceptible to falling in general (predisposing)? What specific event or change immediately preceded this particular fall (precipitating)? And what environmental or situational conditions were present at the time that either enabled the fall or worsened its consequences (environmental)? Answering all three questions, rather than only the most visible one, is what allows a post-fall assessment to meaningfully inform an updated, individualized prevention plan rather than simply documenting that an incident occurred.

4. EPIDEMIOLOGY AND GLOBAL BURDEN OF FALLS

Approximately one in three to one in four community-dwelling adults aged 65 years and older falls at least once

annually, with incidence rising sharply with advancing age and among residents of institutional care settings (Li et al., 2023; Salari et al., 2022). In nursing homes, pooled incidence estimates from systematic review data indicate that falls affect roughly 43% of residents, reflecting the compounding effect of frailty, cognitive impairment, and institutional environmental hazards in this population (Shao et al., 2023). GBD 2021 modeling demonstrates that although age-standardized mortality and disability rates from falls have remained comparatively stable, the absolute number of fall-related injuries continues to climb because of population aging, with the steepest projected increases occurring in low- and middle-income countries as their populations age more rapidly than their health systems can adapt (Chen et al., 2025).

The economic and human costs of falls are substantial. Beyond direct medical costs associated with emergency care, hospitalization, surgery, and rehabilitation, falls are a leading precipitant of nursing home admission and a major contributor to disability-adjusted life years lost among older populations globally (Chen et al., 2025; Okrah et al., 2025). Fall-related traumatic brain injury is of particular concern: approximately 80% of mild traumatic brain injuries among older adults are attributable to falls, yet predictive factors for this specific and serious outcome remain incompletely characterized, underscoring the need for vigilant nursing assessment even after seemingly minor fall events (Okrah et al., 2025). These trends underscore the urgency of embedding systematic, nurse-led fall-risk assessment and prevention into routine geriatric care across all settings.

Falls also disproportionately affect specific subgroups within the older adult population. Women consistently show higher rates of non-fatal falls, while men who fall tend to experience higher fall-related mortality, likely reflecting differences in comorbidity profiles, fall circumstances, and injury severity. Fall incidence rises steeply with each successive decade of life beyond 65 years, with the oldest-old (85 years and above) facing both the highest fall rates and the greatest risk of serious injury, functional decline, and institutionalization following a fall. Recurrent falls are common: a substantial proportion of older adults who fall once will fall again within the following year, making a single fall event an important clinical signal warranting comprehensive reassessment rather than a mere isolated incident to be documented and set aside (Montero-Odasso et al., 2022).

The consequences of a fall extend well beyond the immediate event itself. In addition to fracture and traumatic brain injury, falls frequently precipitate a cascade of secondary harms: prolonged hospitalization increases the risk of hospital-acquired complications such as pressure injuries, deconditioning, and delirium (Section 5.14); fear of falling following an initial event (Section 5.7) can lead to self-imposed activity restriction and further physical decline; and the psychological and functional impact of a fall is a well-recognized precipitant of transition from independent community living to

assisted living or long-term care placement. This cascading pattern underscores why fall prevention is appropriately understood as a core component of healthy aging and independence-preserving care, not merely an injury-prevention initiative narrowly focused on avoiding fractures. From a health-systems perspective, the rising absolute burden of falls documented in GBD modeling (Chen et al., 2025) has direct implications for nursing workforce planning, given the substantial nursing time required for fall-risk assessment, monitoring, and post-fall care across hospital, long-term care, and home health settings.

5. INTRINSIC (PERSON-LEVEL) RISK FACTORS

Umbrella reviews synthesizing dozens of systematic reviews have organized fall risk factors according to the World Health Organization's International Classification of Functioning, Disability and Health (ICF) framework, spanning health conditions, body structure and function, activity, participation, environmental factors, and personal factors (Saunders et al., 2025). The subsections below follow a similar person-level-to-environment structure, beginning with demographic and physiological factors intrinsic to the individual.

5.1 Demographic Factors: Age, Sex, and Frailty

Advancing age is among the most consistently reported risk factors for falls, reflecting cumulative age-related decline in strength, balance, vision, and cognition. Female sex has also been repeatedly identified as an independent risk factor, potentially related to differences in bone density, muscle mass, and fall circumstances (Li et al., 2023). Frailty—a clinical syndrome of decreased physiological reserve and vulnerability to stressors—shows a strong, consistent association with fall risk across pooled analyses; a systematic review and meta-analysis found that frail older adults face substantially elevated odds of falling compared with their robust counterparts, with the strength of association varying by frailty assessment instrument, geographic region, and level of economic development (Yang, Lin, et al., 2023). Because frailty is itself a composite of several of the domains discussed below (strength, mobility, nutrition, and cognition), it functions clinically as a useful summary marker that nurses can use to flag patients warranting more detailed multifactorial fall-risk assessment.

5.2 Sarcopenia and Muscle Weakness

Loss of skeletal muscle mass, strength, and physical performance (sarcopenia) is a well-established intrinsic contributor to fall risk. Meta-analytic evidence combining cohort studies with Mendelian randomization analyses supports a likely causal relationship between sarcopenia-related traits—including reduced hand-grip strength, low appendicular lean mass, and slow walking speed—and increased incident falls in older adults, with each unit increase in muscle-related traits associated with a meaningfully reduced fall risk (Yang, Jiang, et al., 2025). Related work confirms that sarcopenia substantially raises the risk not only of falls but of fall-related injury, hospitalization, disability, and death, reinforcing the

clinical importance of early identification of low muscle strength and mass through simple bedside measures such as grip strength dynamometry and gait speed testing, both of which are feasible for routine nursing assessment in outpatient and inpatient settings alike.

Mechanistically, sarcopenia contributes to fall risk through several interrelated pathways: reduced lower-limb power limits an individual's ability to generate the rapid, forceful muscular response needed to arrest a trip or recover from a slip before it becomes a completed fall; reduced postural muscle endurance compromises sustained standing balance, particularly during prolonged activities such as showering or waiting in line; and reduced grip and upper-limb strength limits the ability to catch oneself using a railing, countertop, or other environmental support once a loss of balance has begun. Because sarcopenia develops gradually and is frequently under-recognized in routine clinical encounters, particularly in individuals who are overweight and whose reduced muscle mass may be masked by preserved or increased body weight (sarcopenic obesity), nurses should maintain a low threshold for functional strength screening even in patients who do not appear frail on visual inspection alone.

5.3 Gait, Balance, and Mobility Impairment

Across umbrella reviews synthesizing dozens of systematic reviews, mobility-related measures—balance, gait speed and quality, physical function, dual-task ability, and lower-limb strength—account for the largest proportion of all documented fall-risk relationships, underscoring their centrality to fall etiology (Saunders et al., 2025). Clinical performance tests of balance and mobility (e.g., Timed Up and Go, gait speed, chair-stand tests, the Short Physical Performance Battery) are consistently significant predictors of falls and are recommended as core components of nursing and interdisciplinary fall-risk screening. Impairments in these domains often interact: reduced strength contributes to slower gait speed, which in turn limits an individual's ability to recover from a trip or slip before a fall occurs.

Dual-task ability—the capacity to maintain safe gait and balance while simultaneously performing a cognitive or manual task, such as carrying an object, scanning for traffic, or engaging in conversation—deserves particular nursing attention because many real-world falls occur not during simple, undistracted walking but during precisely these more demanding, divided-attention conditions. Observing a patient's gait not only in isolation but also while performing a simple concurrent task (e.g., counting backward, carrying a cup of water) can reveal functionally significant balance deficits that would be missed by observing gait alone, and this type of dual-task observation is increasingly incorporated into comprehensive nursing and physical therapy mobility assessments, particularly for patients with early cognitive impairment in whom dual-task performance often deteriorates before single-task gait speed does.

5.4 Cognitive Impairment and Dementia

Cognitive impairment substantially elevates fall risk because attention and executive function are required to maintain postural control, particularly during dual-task activities such as walking while talking. Older adults living with dementia fall two to three times more often than cognitively intact peers, with up to 60–80% of people with dementia experiencing at least one fall annually (Racey et al., 2021). Comparative meta-analytic work further suggests that annual fall prevalence differs by dementia subtype, with Alzheimer's disease associated with a higher pooled annual fall prevalence than mild cognitive impairment (Simpkins et al., 2024). These findings highlight the need for cognition-sensitive fall-risk assessment and tailored, often caregiver-involved, prevention strategies for this population. Nurses caring for cognitively impaired older adults should recognize that standard verbal risk-screening questions (e.g., self-reported fear of falling or self-reported balance confidence) may be less reliable in this population, favoring performance-based and observational assessment methods instead.

Beyond the shared risk of impaired dual-task performance discussed above, cognitively impaired older adults face several additional, dementia-specific fall mechanisms: impaired judgment regarding personal physical limitations, leading to attempts at tasks (e.g., climbing on furniture, ambulating without a needed assistive device) that exceed actual functional capacity; visuospatial and perceptual deficits that impair safe navigation of stairs, thresholds, and low-contrast surfaces even when basic visual acuity is intact; and behavioral and psychological symptoms of dementia, including agitation and wandering, which can place individuals in unsupervised, higher-risk situations. These mechanisms reinforce why environmental modification and supervision strategies for this population must be tailored to the specific cognitive and behavioral profile of the individual rather than applying generic community fall-prevention advice unmodified.

5.5 Visual Impairment

Visual impairment is a robust and modifiable risk factor for falls. A nationally representative U.S. study using objective visual function testing found that impaired contrast sensitivity—rather than visual acuity alone—was independently associated with a higher prevalence of both recent and recurrent falls, suggesting that standard visual acuity screening may be insufficient to capture fall-relevant visual deficits (Jin et al., 2024). Pooled evidence from community-dwelling samples similarly confirms visual impairment, alongside balance disorder, dementia, and depression, as a significant predictor of falling (Li et al., 2023). These findings support incorporating functional and contrast-sensitivity vision assessment, not solely acuity charts, into comprehensive nursing fall-risk evaluations, along with referral to eye care and low-vision rehabilitation services.

5.6 Hearing Impairment

Hearing loss is an increasingly recognized, and often overlooked, intrinsic risk factor for falls. A large study using data from the Chinese Longitudinal Healthy Longevity Survey found that hearing-impaired older adults had approximately 1.5 times the odds of falling compared with peers without hearing impairment, with the association evident in both men and women and across multiple age strata (Wang et al., 2022). Proposed mechanisms include the auditory system's contribution to spatial orientation and environmental awareness, as well as the cognitive load imposed by effortful listening, which may draw attentional resources away from postural control. Because hearing loss is common, frequently undiagnosed, and readily screened, nurses are well positioned to incorporate simple hearing screening and referral for audiologic evaluation and hearing-aid fitting into comprehensive fall-risk assessment, particularly for patients also presenting with vision impairment, since dual sensory impairment appears to confer especially elevated fall risk.

5.7 Psychological Factors: Fear of Falling, Anxiety, and Depression

Fear of falling (FOF) is both a consequence and a risk factor for future falls, creating a self-reinforcing cycle of activity restriction, deconditioning, and further fall risk. A global systematic review and meta-analysis pooling 153 studies and more than 200,000 participants across 38 countries found a high worldwide prevalence of FOF, with older age, female sex, prior falls, depressive symptoms, poorer physical function, and comorbid chronic disease identified as significant risk factors (Xiong et al., 2024). A complementary rapid review of reviews confirmed that anxiety symptoms, including FOF specifically, are associated with older age and a range of demographic, health, environmental, and psychosocial factors (Whitmore et al., 2024). Depression has likewise been independently associated with increased fall risk in pooled community-dwelling samples (Li et al., 2023). Nursing assessment should therefore routinely screen for FOF and mood symptoms alongside physical risk factors, since psychological status directly shapes both fall risk and engagement with prevention programs; a patient who is fearful of falling may paradoxically become deconditioned through activity avoidance, further increasing their objective physical fall risk.

5.8 Chronic Disease: Diabetes Mellitus and Other Comorbidities

Type 2 diabetes mellitus is an independent risk factor for falls, with meta-analytic evidence showing that older adults with type 2 diabetes face a 59–63% higher risk of falling compared with non-diabetic peers, an association that is substantially amplified among insulin-treated patients, who face more than double the fall risk of non-diabetic older adults (Freire et al., 2024). Mechanisms likely include diabetic peripheral neuropathy, visual complications, hypoglycemic episodes, and polypharmacy. Other chronic conditions—including

stroke, Parkinson's disease, osteoarthritis, and cardiovascular disease—also contribute to fall risk through their effects on strength, balance, and gait, and should be incorporated into comprehensive geriatric and nursing risk assessments.

5.9 Orthostatic Hypotension and Cardiovascular Factors

Orthostatic hypotension (OH)—a sustained drop in blood pressure upon standing—is a frequently under-assessed but clinically significant risk factor for falls. A systematic review and meta-analysis found that OH was positively and significantly associated with falls in older adults (pooled odds ratio approximately 1.73), an association that held regardless of study population, design, or the specific definition of OH used (Mol et al., 2019). A three-year longitudinal follow-up study similarly found that the incidence of falls, and of falls requiring medical treatment, remained significantly higher among older adults with OH even after adjustment for multiple confounders, reinforcing OH as an independent contributor to fall risk rather than merely a marker of frailty. Because OH is frequently asymptomatic and readily identified through standardized orthostatic vital sign measurement (blood pressure and heart rate supine, then at one and three minutes after standing), routine orthostatic vital sign assessment is a low-cost, high-value nursing intervention, particularly for patients newly started on antihypertensive, diuretic, or psychotropic medications.

5.10 Urinary Incontinence and Genitourinary Symptoms

Urinary incontinence (UI) is a common but under-recognized geriatric syndrome that independently elevates fall risk. A large systematic review and meta-analysis pooling 38 studies and more than 230,000 participants found that UI was associated with a 62% increased odds of falling overall, with a similarly elevated risk (approximately 59%) specifically among adults aged 65 years and older, and an even higher risk among men with UI (Moon et al., 2021). Plausible mechanisms include rushed or nocturnal trips to the toilet, often in low-light conditions and while cognitively or physically impaired, as well as shared underlying risk factors such as frailty and cognitive impairment. Nursing assessment of fall risk should therefore routinely include screening for urinary symptoms, nocturia, and toileting patterns, with interventions such as scheduled toileting, bedside commodes, adequate nighttime lighting, and continence referral considered as part of an individualized fall-prevention plan, particularly in hospital and long-term care settings where nocturnal falls during toileting are common.

5.11 Foot Problems and Footwear

Foot and footwear-related problems are common, modifiable, yet frequently overlooked contributors to fall risk. A systematic review and meta-analysis of 15 studies found that foot pain, hallux valgus (bunion deformity), and lesser toe deformity were each significantly

associated with increased fall risk among community-dwelling older people (Menz et al., 2018). Reduced ankle dorsiflexion range of motion, diminished plantar sensation, and poorly fitting or unsupportive footwear (e.g., slippers, high heels, or shoes lacking secure fastening) further compound this risk by impairing proprioceptive feedback and base-of-support stability during gait. A structured feet/footwear-related fall risk screening tool has been developed and content-validated specifically to help clinicians, including nurses, systematically assess neuropathy and sensory impairment, foot pain, foot or ankle deformity, and footwear fit as part of routine fall-risk evaluation. Referral to podiatry for foot care and footwear counseling, alongside simple nursing assessment of footwear appropriateness during hospital admission and home visits, represents an accessible and evidence-supported component of comprehensive fall prevention.

5.12 Nutritional Status and Vitamin D

Malnutrition, unintentional weight loss, and low body mass index are recognized contributors to frailty, sarcopenia, and consequent fall risk, underscoring the importance of nutritional screening as part of comprehensive geriatric and nursing assessment. The specific role of vitamin D supplementation in fall prevention has been extensively studied but remains an area of ongoing scientific debate. A 2024 systematic review and updated network meta-analysis of 35 randomized controlled trials involving nearly 59,000 participants found that vitamin D supplementation at doses of 800–1000 IU per day was associated with a lower risk of falls, with the strongest benefit observed among older adults with baseline vitamin D deficiency and those receiving daily (rather than intermittent) dosing regimens (Tan et al., 2024). By contrast, a more recent 2025 meta-analysis restricted to community-dwelling older adults without stratifying specifically by deficiency status found no significant overall reduction in fall risk with vitamin D supplementation, regardless of dose or duration. Taken together, the evidence suggests that vitamin D supplementation is most likely to benefit older adults with confirmed or likely vitamin D deficiency rather than the general older population, supporting a targeted, deficiency-based approach to supplementation as part of nursing-coordinated fall-prevention care rather than universal high-dose supplementation.

5.13 History of Previous Falls

A documented history of falling in the preceding 12 months remains one of the single strongest predictors of future falls across virtually all populations and settings, and is a core screening item in every major fall-risk assessment instrument and clinical guideline (Montero-Odasso et al., 2022). Nurses should systematically document fall history, including circumstances, injuries sustained, and associated symptoms (e.g., dizziness, palpitations, loss of consciousness), at every point of care contact, since the circumstances of a prior fall often point

toward the specific modifiable risk factors most relevant to that individual's future prevention plan.

5.14 Delirium as an Acute Precipitant of Falls

Delirium—an acute, fluctuating disturbance of attention and cognition—is a particularly important and time-sensitive risk factor for falls among hospitalized older adults, distinct from the more chronic cognitive impairment discussed in Section 5.4. A systematic review examining the overlap between falls and delirium in hospitalized older adults found a consistently elevated risk ratio for falls among patients with delirium across the studies reviewed, with a median relative risk of 4.5 and a range extending up to 12.6, concluding that falls and delirium are "inextricably linked" in the acute care setting (Sillner et al., 2019). A large multicentre study similarly identified hospital-induced delirium as the most significant contributor to elevated in-hospital fall risk among older patients, ahead of other commonly cited factors such as advanced age, polypharmacy, and mobility limitation (Kim, Lee, & Lee, 2025). Because delirium is often under-recognized, particularly its hypoactive subtype, and can develop rapidly during a hospital stay, standardized nursing delirium screening (e.g., using the Confusion Assessment Method) alongside fall-risk screening is recommended as part of comprehensive inpatient assessment, with any new onset of confusion, agitation, or reduced alertness triggering prompt reassessment of fall-prevention precautions.

5.15 Alcohol Use and Psychotropic-Alcohol Interactions

The relationship between alcohol consumption and fall risk in older adults is more complex than for many other risk factors, with some observational studies suggesting no clear association or even a modestly lower fall risk among moderate drinkers, while others point to important risks specifically related to alcohol's interaction with medications rather than alcohol consumption alone. A literature review examining psychotropic medications and alcohol as risk factors for falls among community-dwelling older adults found that benzodiazepines and antidepressants, particularly selective serotonin reuptake inhibitors, were consistently associated with fall risk, while the evidence for alcohol as an independent risk factor remained mixed (Laberge & Crizzle, 2019). The clinical significance of alcohol use in fall risk therefore lies substantially in its potential to interact with central nervous system-active and cardiovascular medications, exacerbating sedation, orthostatic hypotension, and impaired coordination, even at levels of consumption that might not be considered risky in isolation. Nursing assessment should include routine, non-judgmental screening for alcohol use as part of the medication and substance history, with particular attention to concurrent use of sedative-hypnotics, opioids, or antihypertensive medications, and education regarding these specific interaction risks rather than blanket messaging about alcohol avoidance alone.

6. EXTRINSIC AND IATROGENIC RISK FACTORS

Whereas intrinsic factors describe vulnerabilities residing within the older adult, extrinsic and iatrogenic factors describe hazards imposed by medications, care processes, and the physical environment. These factors are of particular clinical interest because they are often the most directly and immediately modifiable through nursing and interdisciplinary action, frequently requiring no more than a medication review, a lighting fixture, a properly fitted grab bar, or a change in footwear rather than a prolonged rehabilitation program. For this reason, extrinsic risk factors are frequently prioritized as "quick win" targets within multifactorial fall-prevention programs, even as longer-term work continues on intrinsic factors such as strength and balance.

6.1 Polypharmacy and Fall-Risk-Increasing Drugs (FRIDs)

Polypharmacy—commonly defined as concurrent use of five or more medications—and specific classes of fall-risk-increasing drugs (FRIDs), including sedative-hypnotics, antidepressants, antipsychotics, opioids, and certain cardiovascular agents, are among the most modifiable contributors to fall risk. A cross-sectional study among older adults in Saudi Arabia found a consistent association between polypharmacy, potentially inappropriate medication use, and increased fall risk (AlHarkan et al., 2023). A large Brazilian cohort study similarly found that older adults using two or more FRIDs had significantly higher odds of falling than non-users (odds ratio approximately 1.51), reinforcing international calls to minimize unnecessary medications and prioritize regular medication review in older adults at fall risk. Deprescribing and structured medication review, ideally involving pharmacists, physicians, and nurses collaboratively, are recommended components of multifactorial fall-prevention interventions (Montero-Odasso et al., 2022). Nurses are often best positioned to identify medication-related fall risk in practice, since they administer medications, observe real-time effects such as sedation or orthostatic symptoms, and can flag concerning polypharmacy patterns for pharmacist or prescriber review.

Antidepressants deserve particular nursing attention within this broader medication category because of the clinical tension they present: untreated depression itself independently increases fall risk (Section 5.7), yet antidepressant medications are also classified as FRIDs, creating a genuine therapeutic dilemma rather than a straightforward case for discontinuation. A clinical review of antidepressants and fall risk found that these medications contribute to falls through several distinct mechanisms, including orthostatic hypotension, sedation and impaired attention, hyponatremia, movement disorders, and, for certain agents, cardiac toxicity, with the specific fall-related side-effect profile varying meaningfully between antidepressant classes (van Poelgeest et al., 2021). Rather than defaulting to either continuation or automatic discontinuation, the review

recommends an individualized, risk-benefit-based approach to prescribing and deprescribing, supported by structured clinical decision tools; nurses contribute to this process by monitoring for early signs of these specific adverse effects and communicating findings clearly to prescribers rather than treating antidepressant use as a uniform, undifferentiated fall-risk category.

6.2 Home and Community Environmental Hazards

Environmental hazards—including poor lighting, loose rugs, cluttered walkways, absence of grab bars, and unsafe stairs—interact with intrinsic frailty to precipitate falls, particularly among older adults with reduced physiological reserve. A systematic review focused on frail community-dwelling older people found that home environmental factors, including hazard density and home layout, meaningfully influenced fall risk and emphasized the need for multidisciplinary home-hazard assessment, involving nursing, occupational therapy, and social work perspectives (Kim, 2023). Complementary U.S. survey data demonstrated that living alone combined with the presence of environmental hazards was independently associated with increased fall risk, highlighting the compounding effect of social and physical environmental vulnerability (Lee et al., 2023). A Cochrane systematic review of environmental interventions found that home-hazard modification, particularly when delivered by occupational therapists to higher-risk individuals with a history of falls, can meaningfully reduce the rate of falls in community-dwelling older people (Clemson et al., 2023).

6.3 Institutional and Hospital Environmental Factors

In nursing home and hospital settings, environmental risk factors—unsafe flooring, inadequate lighting, absence or misuse of bed rails, and poorly fitted assistive devices—account for a meaningful proportion of variance in fall occurrence between facilities. A systematic review and meta-analysis of nursing home fall incidence found that use of bed rails was protective against falls, while unsafe floors and poor lighting increased risk, with environmental factors collectively accounting for approximately 20% of the variability in fall rates across facilities (Shao et al., 2023). These findings support routine, structured environmental audits as a core nursing and facility-management responsibility in institutional care.

6.4 Anticoagulant Therapy and Fall-Related Injury Severity

Anticoagulant medications occupy a distinct position among extrinsic fall-related risk factors: unlike sedatives or orthostatic-hypotension-inducing drugs, anticoagulants do not typically increase the likelihood that an older adult will fall, but they meaningfully increase the risk and severity of injury, particularly intracranial hemorrhage, if a fall does occur. A clinical review of anticoagulant use in older adults at risk of falling concluded that although anticoagulants can increase the risk of fall-related intracranial hemorrhage, the absolute risk remains relatively low and is generally outweighed by the

substantial reduction in stroke and venous thromboembolism risk that anticoagulation provides for appropriately selected patients (Mitchell et al., 2023). Consequently, the review cautions against reflexively withholding or discontinuing anticoagulant therapy on the basis of fall risk alone, recommending instead that clinicians address modifiable fall risk factors and optimize bleeding-risk factors (e.g., blood pressure control, concurrent antiplatelet use) to make anticoagulation safer, with deprescribing reserved for patients with severe frailty, limited life expectancy, or specific elevated bleeding risk markers. For nursing practice, this distinction matters most in the post-fall assessment context discussed in Section 8.4: a patient on anticoagulant therapy who falls, even a seemingly minor fall with head contact, warrants a lower threshold for neurological assessment, physician notification, and consideration of head imaging than a patient not on anticoagulation, given the elevated and sometimes delayed risk of intracranial bleeding in this population.

7. SETTING-SPECIFIC RISK PROFILES

7.1 Community-Dwelling Older Adults

Among community-dwelling older adults, the dominant risk factors identified across umbrella reviews of 57 systematic reviews spanning 29 distinct risk factors are mobility-related impairments (balance, gait, strength), followed by cognitive impairment (particularly executive function and processing speed deficits), medication use, and frailty (Saunders et al., 2025). Notably, this evidence base remains skewed toward high-income countries, with only a small minority of reviews including populations from lower-middle-income countries and none from low-income countries, representing an important equity gap in the evidence base.

7.2 Nursing Home and Long-Term Care Residents

Nursing home residents experience substantially higher fall incidence than community-dwelling older adults, driven by the concentration of frailty, cognitive impairment, polypharmacy, and mobility limitation in this population, compounded by institutional environmental hazards (Shao et al., 2023). Falls in this setting are also more likely to be recurrent and to result in serious injury, given the higher prevalence of osteoporosis, sarcopenia, and multimorbidity among residents. Nursing-led interventions in long-term care commonly combine structured fall-risk assessment, individualized exercise, environmental modification, appropriate use (not overuse) of bed rails and mobility aids, and staff education as the most actionable components of fall-risk management programs in this setting.

Physical and chemical restraint use presents a particular paradox in long-term care fall prevention. Physical restraints (e.g., lap belts, bed rails used restrictively rather than as a positioning aid) and antipsychotic medications are sometimes used with the intent of preventing falls or managing behavioral symptoms associated with dementia, yet both carry substantial evidence of increasing, rather

than decreasing, fall and injury risk: restraints can increase injury severity when a restrained resident attempts to rise unassisted, and antipsychotic medications are well-established FRIDs that impair balance and alertness. Consistent with the World Falls Guidelines' emphasis on minimizing restrictive practices (Montero-Odasso et al., 2022), nursing-led alternatives such as individualized behavioral interventions, addressing unmet needs (pain, hunger, toileting) as a first response to agitation, low, alarmed beds, and consistent staff assignment are preferred over restraint-based approaches wherever clinically feasible.

7.3 Hospitalized Older Adults

Hospitalized older adults face acute, often transient fall risk related to unfamiliar environments, acute illness, new medications, tethering devices (e.g., intravenous lines, catheters), and post-surgical deconditioning. Standardized nursing fall-risk assessment tools, discussed in Section 8.1, were developed specifically to support rapid, reliable risk stratification in this setting. Notably, a substantial proportion of inpatient falls occur among patients initially classified as low risk by standard screening tools, highlighting the importance of combining structured instruments with ongoing clinical judgment, particularly around the time of new medication administration, toileting, and transfers, which represent common high-risk moments during a hospital stay.

The hospital environment introduces risk factors that are less prominent in community or long-term care settings: acute delirium superimposed on baseline cognitive status, unfamiliar room layouts and equipment, urgency associated with toileting in the context of new diuretics or laxatives, and the physical deconditioning that can occur even over a short admission, particularly among older adults kept on prolonged bed rest. Transitions within the hospital stay—such as the immediate post-operative period, the first mobilization after a procedure, and the period surrounding shift changes when handoff communication may be incomplete—represent particularly high-risk windows that warrant heightened nursing vigilance and, where feasible, additional supervision or assistive device use.

8. IMPLICATIONS FOR NURSING ASSESSMENT AND PRACTICE

8.1 Fall-Risk Assessment Tools

Standardized, validated fall-risk screening instruments allow nurses to systematically stratify risk and target interventions. The Morse Fall Scale (MFS) remains among the most widely used tools in acute care, assessing fall history, secondary diagnosis, use of ambulatory aids, intravenous therapy, gait, and mental status. A comparative validity study found that both the MFS and the Johns Hopkins Fall Risk Assessment Tool (JHFRAT) have distinct strengths: the JHFRAT items demonstrate higher specificity, while the MFS more accurately reflects rapidly changing clinical conditions typical of acute care (Kim et al., 2022). Other widely used tools include the

Hendrich II Fall Risk Model, which incorporates confusion, depression, altered elimination, dizziness, sex, and a timed Get-Up-and-Go component, and STRATIFY, commonly used in geriatric and rehabilitation wards. Because no single tool performs optimally across all settings and populations, current global guidelines recommend that nurses combine structured screening instruments with clinical judgment and multifactorial

assessment—including gait and balance testing, medication review, vision and hearing screening, orthostatic vital signs, continence assessment, foot and footwear evaluation, and environmental evaluation—rather than relying on any single scale in isolation (Montero-Odasso et al., 2022). Table 2 summarizes several commonly used assessment instruments and their typical clinical application.

Table 2. *Selected fall-risk assessment instruments used in nursing practice.*

Instrument	Key Domains Assessed	Typical Setting	Source
Morse Fall Scale (MFS)	History of falling, secondary diagnosis, ambulatory aid, IV therapy/heparin lock, gait, mental status	Acute care, general medical-surgical units	Kim et al., 2022
Johns Hopkins Fall Risk Assessment Tool (JHFRAT)	Age, fall history, elimination, medications, patient care equipment, mobility, cognition	Acute care; higher specificity than MFS	Kim et al., 2022
Hendrich II Fall Risk Model	Confusion/disorientation, depression, altered elimination, dizziness/vertigo, sex, prescribed antiepileptics/benzodiazepines, Get-Up-and-Go test	Acute and long-term care	Montero-Odasso et al., 2022
STRATIFY	History of falling, agitation, visual impairment, toileting needs, transfer/mobility score	Acute geriatric and rehabilitation wards	Montero-Odasso et al., 2022
Timed Up and Go (TUG) / gait speed / SPPB	Objective mobility, balance, and lower-limb strength performance	Community, primary care, and outpatient geriatric assessment	Saunders et al., 2025; Montero-Odasso et al., 2022
Feet/Footwear-Related Fall Risk Screening Tool	Neuropathy/sensory loss, foot pain, deformity, footwear fit and features	Community and podiatry/nursing screening	Menz et al., 2018

8.2 Multifactorial and Multicomponent Fall-Prevention Interventions

The strongest evidence for reducing falls among community-dwelling older adults supports individually tailored, progressive exercise programs that target balance, gait, and lower-limb strength. A landmark Cochrane systematic review found that exercise reduces the rate of falls among community-dwelling older people by approximately 23%, with multicomponent programs incorporating balance training demonstrating the greatest benefit (Sherrington et al., 2019). Exercise-based fall prevention also shows benefit, albeit with more mixed evidence, in residential aged-care settings. Complementary strategies with demonstrated or plausible benefit include home-hazard modification delivered by occupational therapists to high-risk individuals (Clemson et al., 2023); medication review and deprescribing of FRIDs (AlHarkan et al., 2023); vision and hearing assessment and correction (Jin et al., 2024; Wang et al., 2022); orthostatic vital sign monitoring and management of postural hypotension (Mol et al., 2019); continence

assessment and scheduled toileting programs (Moon et al., 2021); podiatric assessment and appropriate footwear provision (Menz et al., 2018); and targeted vitamin D supplementation for older adults with confirmed deficiency (Tan et al., 2024). For older adults with cognitive impairment, tailored, often caregiver-supported interventions are needed, since generic community fall-prevention programs may be less accessible or effective for this population (Racey et al., 2021).

8.3 The Nurse's Role in Interdisciplinary Fall Prevention

Nurses across community, hospital, and long-term care settings are central to fall-prevention efforts because of their continuous, direct contact with older adults and their families. Core nursing responsibilities include: performing and documenting structured fall-risk assessment on admission and at regular intervals; identifying and addressing modifiable intrinsic and extrinsic risk factors; educating patients, families, and caregivers about individualized fall-prevention strategies; coordinating referrals to physical therapy, occupational

therapy, pharmacy, podiatry, audiology, and ophthalmology/optometry; ensuring safe use of mobility aids and appropriate footwear; and participating in institutional environmental safety audits. Effective fall-prevention programs consistently require this kind of coordinated, interdisciplinary approach rather than isolated single-component interventions (Montero-Odasso et al., 2022).

Clear, structured documentation and handoff communication are essential to sustaining this

interdisciplinary coordination across shifts, units, and care transitions; a fall-risk assessment that is thoroughly completed but poorly communicated to the next caregiver provides little protective benefit. Table 4 presents a sample structured documentation framework spanning the major risk domains discussed throughout this review, intended to support consistent, comprehensive charting and handoff communication rather than to replace any specific institution's electronic health record fields or validated screening tool.

Table 4. Sample structured nursing fall-risk documentation and handoff framework.

Domain	Documentation Elements
Identification	Patient risk level (low/moderate/high per validated tool); date/time of last assessment; assessor name.
Fall History	Number of falls in past 12 months; date, location, and circumstances of most recent fall; injuries sustained.
Physical/Functional	Gait and balance status; mobility aid in use; grip strength or chair-stand performance if assessed; foot/footwear concerns.
Cognitive/Behavioral	Baseline cognitive status; delirium screening result (if applicable); behavioral symptoms relevant to safety.
Sensory	Vision status/aids; hearing status/aids; most recent screening date if known.
Cardiovascular/Autonomic	Orthostatic vital signs (supine, 1-min, 3-min); history of syncope or dizziness on standing.
Genitourinary	Continence status; nocturia frequency; toileting assistance needs.
Medication	Current FRIDs (sedatives, antidepressants, antipsychotics, opioids, antihypertensives); anticoagulant status; recent medication changes.
Environment	Bed/chair alarm status; call light within reach; pathway clear; adequate lighting; non-slip footwear in use.
Plan/Communication	Individualized interventions in place; family/caregiver education completed; risk status communicated at handoff.

8.4 Post-Fall Assessment and Injury Minimization

Nursing responsibility does not end with fall-risk screening; a structured, timely post-fall assessment is equally important to identify injury, determine contributing causes, and prevent recurrence. Immediate post-fall nursing actions typically include assessment of vital signs and neurological status (particularly important given the high proportion of fall-related mild traumatic brain injury among older adults; Okrah et al., 2025), evaluation for fracture or soft-tissue injury, review of the circumstances of the fall (activity being performed, time of day, presence of dizziness or syncope, medications recently administered), and documentation in the medical record. Medication review at this stage should specifically include anticoagulant status: as discussed in Section 6.4, patients on anticoagulant therapy warrant a lower threshold for neurological monitoring and physician notification following any fall involving possible head

contact, given their elevated risk of delayed intracranial hemorrhage (Mitchell et al., 2023). Many organizations employ structured post-fall "huddles" or debriefs involving nursing staff, in which the care team reviews the circumstances of a fall shortly after it occurs to identify immediate and systemic contributing factors and adjust the care plan accordingly. Because a substantial proportion of individuals who fall once will fall again within the following year, a fall event should routinely trigger reassessment and escalation of the fall-prevention plan rather than being treated as an isolated incident.

8.5 Patient and Family Education

Patient and family education is a cornerstone of effective fall prevention, particularly for older adults transitioning between care settings (e.g., hospital to home). Effective education addresses not only generic fall-prevention advice but also the specific risk factors identified for that individual—for example, counseling a patient with

orthostatic hypotension to rise slowly and sit at the bedside before standing, or counseling a patient with nocturia to use a bedside commode and adequate nighttime lighting rather than walking to a distant bathroom in the dark. Nurses should also address fear of falling directly during education, since excessive fear can lead to counterproductive activity restriction and deconditioning, whereas appropriately calibrated confidence supports safe engagement in recommended exercise and mobility programs (Xiong et al., 2024).

8.6 Emerging Technology in Fall Detection and Prevention

Digital and wearable technologies are increasingly being explored as adjuncts to traditional nursing fall-risk assessment and monitoring. A 2025 scoping review of digital fall-detection technologies used in aged care identified four broad categories in use: wearable motion and sensor technologies (accelerometers, gyroscopes), imaging and visual systems, environmental sensors (e.g., pressure-sensitive flooring), and robotic or autonomous monitoring systems, most commonly implemented in home, community, and nursing home environments (Konara Mudiyansele et al., 2025). These technologies show promise for both real-time fall detection, allowing more rapid staff response and reduced "long lie" time after a fall, and, in some cases, pre-fall risk prediction using gait and movement analysis. However, the review also noted that most existing research emphasizes detection after a fall has occurred rather than prevention, and that further clinical research is needed before these tools can be considered a substitute for, rather than a supplement to, standard nursing assessment and monitoring. Nurses adopting such technologies should consider workflow integration, resident privacy and dignity, alarm fatigue, and equitable access across care settings.

Practical considerations also shape whether a given technology will meaningfully improve nursing fall-prevention practice rather than simply adding an additional device to manage. Systems that generate frequent false alarms risk contributing to alarm fatigue among staff, potentially delaying response to genuine events; systems that require residents or patients to wear an unfamiliar device may face adherence challenges, particularly among individuals with cognitive impairment; and systems that continuously monitor movement or use in-room cameras raise legitimate privacy and dignity concerns that must be discussed with patients and families before implementation. As with any fall-prevention intervention, technology adoption should be guided by the individualized risk profile and preferences of the older adult rather than applied uniformly, and should be evaluated locally for its actual effect on fall rates and injury severity rather than adopted solely on the basis of technical sophistication.

8.7 Organizational and Quality-Improvement Strategies

Beyond individual patient care, nurses play a key role in organizational fall-prevention infrastructure, including participation in unit-based fall-prevention committees, contribution to incident reporting and root-cause analysis following serious fall-related injuries, and implementation of evidence-based unit protocols such as hourly rounding, standardized bed and call-light positioning, non-slip footwear provision on admission, and visual risk-identification systems (e.g., colored wristbands or door signage) to alert all staff to a patient's fall-risk status. Institutional adoption of the World Falls Guidelines' recommended multifactorial assessment and intervention framework, alongside regular staff education and competency validation in fall-risk assessment tools, supports consistent, evidence-based practice across nursing teams (Montero-Odasso et al., 2022).

Nurse leaders and unit managers additionally influence fall rates indirectly through staffing decisions, skill-mix planning, and the physical design of care units. Adequate staffing levels support timely response to call lights and toileting requests, both directly relevant to several risk factors discussed in this review (e.g., urinary incontinence-related falls during unassisted, rushed trips to the bathroom). Empirical evidence directly supports this link: a large multicentre study of hospitalized older adults found that nurse staffing levels markedly influenced fall risk, with better-staffed units associated with fewer falls even after accounting for individual patient risk factors such as delirium, polypharmacy, and mobility impairment (Kim, Lee, & Lee, 2025). A related multilevel study similarly found that both patient-level factors (age, mobility impairment, surgery) and organizational-level factors (nurse staffing and the proportion of newly hired nurses) independently predicted in-hospital fall rates, underscoring that fall prevention cannot be reduced to individual patient risk alone but must also be addressed as a matter of unit staffing and workforce experience (Kim et al., 2022). Unit design elements such as clear sightlines from the nurses' station, consistent room layouts, and adequate lighting further support the environmental component of fall prevention described in Section 6. Quality-improvement methodologies such as Plan-Do-Study-Act cycles are well suited to iteratively testing and refining fall-prevention interventions at the unit level, allowing nursing teams to adapt general evidence-based recommendations to their specific patient population, physical environment, and staffing context, and to track fall rates, injury severity, and process measures (e.g., percentage of patients with a completed fall-risk assessment within a defined time of admission) over time.

8.8 Summary of Key Modifiable and Non-Modifiable Risk Factors

Table 1 summarizes the principal risk factor domains discussed in this review, distinguishing modifiable from non-modifiable factors to support nursing care planning.

Table 1. Summary of intrinsic and extrinsic fall risk factor domains among older adults.

Domain	Modifiable?	Representative Risk Factors	Key Source(s)
Physical function	Yes	Sarcopenia, muscle weakness, impaired gait/balance, low physical activity, foot problems	Saunders et al., 2025; Yang, Jiang, et al., 2025; Menz et al., 2018
Cognitive/psychological	Partially	Dementia, cognitive impairment, fear of falling, depression/anxiety	Racey et al., 2021; Xiong et al., 2024; Whitmore et al., 2024
Sensory	Yes	Visual impairment (esp. contrast sensitivity), hearing loss	Jin et al., 2024; Wang et al., 2022
Chronic disease	Partially	Diabetes mellitus, frailty, stroke, Parkinson's disease, orthostatic hypotension	Freire et al., 2024; Yang, Lin, et al., 2023; Mol et al., 2019
Genitourinary	Partially	Urinary incontinence, nocturia, overactive bladder	Moon et al., 2021
Nutrition	Yes	Vitamin D deficiency, malnutrition, low body mass index	Tan et al., 2024
Medication	Yes	Polypharmacy, fall-risk-increasing drugs (sedatives, antidepressants, antipsychotics, opioids)	AlHarkan et al., 2023; Montero-Odasso et al., 2022
Environment	Yes	Poor lighting, loose rugs, absent grab bars, unsafe stairs, ill-fitting footwear, inappropriate bed-rail use	Kim, 2023; Shao et al., 2023; Clemson et al., 2023
Historical/demographic	No	Advanced age, female sex, prior fall history	Li et al., 2023; Montero-Odasso et al., 2022

8.9 Nursing Actions Across the Care Continuum

Because fall risk factors and their relative importance shift across points of contact—from initial admission through ongoing care, discharge planning, and post-fall response—nursing fall-prevention activity is best conceptualized as a continuous process rather than a

single assessment event. Table 3 organizes core nursing actions by care point to support the translation of the risk factors reviewed above into a practical, repeatable workflow applicable across community, hospital, and long-term care settings.

Table 3. Core nursing fall-prevention actions organized by point of care.

Care Point	Core Nursing Actions	Primary Setting(s)
Admission / Initial Contact	Complete a validated fall-risk screening tool (e.g., MFS, JHFRAT, Hendrich II); document fall history and circumstances; screen vision, hearing, continence, and orthostatic vital signs; review medication list for FRIDs; assess footwear appropriateness.	All settings
Ongoing / Shift-to-Shift	Reassess risk after any change in condition, medication, or procedure; perform hourly rounding addressing toileting, positioning, and personal items within reach; verify non-slip footwear and appropriate use of mobility aids; maintain clear, uncluttered pathways and adequate lighting.	Hospital, long-term care

Care Point	Core Nursing Actions	Primary Setting(s)
Care Planning	Individualize interventions to the patient's specific risk profile (e.g., exercise referral for mobility impairment, deprescribing review for polypharmacy, podiatry referral for foot pain); involve patient and family in goal-setting; document and communicate the plan across the care team.	All settings
Discharge / Transition	Provide tailored education (e.g., rising slowly for orthostatic hypotension, nighttime toileting safety); confirm home-hazard assessment or referral; reconcile medications; ensure follow-up for vision, hearing, and podiatry needs; communicate risk status to receiving providers.	Hospital to home/facility
Post-Fall	Assess vital signs and neurological status; evaluate for injury including occult fracture and head injury; conduct a post-fall huddle to identify contributing factors; update and escalate the fall-prevention plan; document thoroughly per institutional protocol.	All settings

8.10 Illustrative Clinical Scenarios

To illustrate how the risk factors reviewed in this article converge in practice across different care settings, three brief scenarios are presented below. Each demonstrates why single-factor or single-tool approaches to fall prevention are insufficient: meaningful risk reduction requires nurses to systematically assess and address the full, individualized constellation of risk factors present for each patient, regardless of where that patient is encountered along the care continuum.

Scenario A: Acute Hospital Setting

Consider an 82-year-old woman admitted to a medical unit for a urinary tract infection, with a history of type 2 diabetes mellitus treated with insulin, mild cognitive impairment, and one fall at home in the preceding year. Applying the framework outlined above, a comprehensive nursing fall-risk assessment for this patient would extend well beyond a single screening score: it would incorporate her diabetes-related risk (Section 5.8), given the substantially elevated fall risk associated with insulin-treated type 2 diabetes; her cognitive status (Section 5.4), which may reduce the reliability of self-reported symptoms and necessitate more frequent observational checks; the possibility of superimposed delirium precipitated by her acute infection (Section 5.14), which would substantially elevate her short-term fall risk beyond her baseline cognitive status; her urinary symptoms and the acute infection itself (Section 5.10), both of which may increase nocturnal toileting frequency and urgency; orthostatic vital signs (Section 5.9), particularly relevant given possible dehydration from infection and any antihypertensive medications; a medication reconciliation for FRIDs (Section 6.1); and footwear and mobility aid assessment (Section 5.11). This composite risk profile would inform a multicomponent care plan combining scheduled toileting rounds, bedside commode placement, non-slip footwear, orthostatic vital sign monitoring before mobilization, delirium screening at each shift, simplified verbal cues suited to her cognitive status, and clear

documentation and handoff communication of her risk status to the next shift.

Scenario B: Community and Home Health Setting

Consider a 76-year-old man living alone who is referred to a home health nursing service following a minor fall in his bathroom, with a history of hypertension treated with a diuretic and alpha-blocker, moderate hearing loss for which he does not use hearing aids, and chronic foot pain that he has not mentioned to his primary care provider. A home-based nursing assessment applying this review's framework would extend beyond simply asking about the fall itself: it would include orthostatic vital signs given his antihypertensive regimen (Section 5.9), hearing screening and referral for audiologic evaluation given the documented association between untreated hearing loss and fall risk (Section 5.6), foot examination and podiatry referral given his chronic foot pain (Section 5.11), a home-hazard walkthrough addressing bathroom grab bars, lighting, and flooring (Section 6.2), and an assessment of his social support and living-alone status, which independently compounds environmental risk (Section 6.2). Because this patient lives alone, education would also need to address what to do if a future fall occurs while unassisted, including the use of a personal emergency response device or, where available, one of the digital fall-detection technologies discussed in Section 8.6, in addition to referral to a community-based, multicomponent exercise program consistent with the evidence reviewed in Section 8.2.

Scenario C: Long-Term Care Setting

Consider a 91-year-old woman residing in a nursing home with moderate dementia, a diagnosis of osteoporosis, sarcopenia evident on recent functional assessment, and a pattern of increasing agitation in the late afternoon. Applying this review's framework in the long-term care context requires attention to her cognitive status (Section 5.4) and the possibility that her behavioral symptoms reflect an underlying unmet need (e.g., pain, hunger, or need for toileting) rather than being addressed through physical or chemical restraint, both of which carry their

own well-documented fall and injury risks. Her sarcopenia (Section 5.2) and osteoporosis increase both her likelihood of falling and the severity of injury should a fall occur, supporting referral for an individualized strength and balance program adapted to her cognitive level (Section 8.2) alongside careful review of any psychotropic medications prescribed for her behavioral symptoms (Section 6.1). Nursing staff would also apply the setting-specific environmental considerations discussed in Section 7.2, including appropriate, non-restrictive use of bed and chair alarms, careful monitoring of the facility's use of bed rails, and consistent staff assignment to support early recognition of her individual behavioral patterns and needs.

8.11 Outcome Measurement and Benchmarking

Effective nursing fall-prevention practice depends not only on implementing evidence-based interventions but also on measuring their impact through standardized outcome metrics that allow units and organizations to track progress and benchmark performance. Commonly used process and outcome measures include the fall rate (typically expressed as falls per 1,000 patient-days or resident-days), the injurious fall rate (falls resulting in any injury, and separately, falls resulting in serious injury such as fracture or head injury), the proportion of patients with a completed fall-risk assessment within a defined time window of admission, and the proportion of identified high-risk patients with a documented, individualized fall-prevention care plan. Tracking these metrics over time, ideally through statistical process control charts rather than simple period-to-period comparisons, allows nursing teams to distinguish meaningful changes in fall rates from normal random variation and to evaluate whether a given intervention (e.g., a new hourly rounding protocol or updated screening tool) is producing a genuine improvement. Benchmarking against national or organizational databases, where available, provides additional context for interpreting a unit's fall rate relative to comparable settings and patient populations, supporting realistic goal-setting and resource allocation for fall-prevention programs.

8.12 Limitations of This Review

As a narrative rather than systematic review, this article is subject to several limitations that should be considered when applying its conclusions to practice. First, because sources were selected to provide broad, representative coverage across many risk-factor domains rather than through an exhaustive, reproducible systematic search protocol, some relevant studies may not be represented, and the relative emphasis given to each risk factor reflects the authors' synthesis rather than a formal, weighted meta-analytic ranking of effect sizes. Second, most of the underlying evidence synthesized here originates from high-income countries, as noted throughout this review, limiting confidence in the generalizability of specific prevalence estimates and effect sizes to under-represented regions and populations. Third, because fall risk factors are numerous and frequently co-occur and interact, the

individual-factor organization of this review, while pedagogically useful, necessarily simplifies what is in practice a highly interactive, non-additive system of risk; readers should therefore treat the risk-factor domains and their associated tables as a structured starting point for comprehensive assessment rather than a checklist to be applied mechanically or in isolation.

9. IMPLICATIONS FOR NURSING EDUCATION AND CURRICULUM

Translating the evidence synthesized in this review into consistent bedside practice depends heavily on how fall-risk assessment and prevention are taught within prelicensure nursing curricula and ongoing professional development. A scoping review of clinical practice guidelines for fall risk screening and assessment across the care continuum found considerable variability in how 22 international guidelines defined and operationalized screening and assessment recommendations across community, acute care, and long-term care settings (Williams-Roberts et al., 2021), underscoring the need for consistent, guideline-concordant education rather than assuming that general geriatric nursing knowledge alone translates into accurate, comprehensive fall-risk assessment in practice. Nursing curricula should ensure that students achieve competency not merely in administering a single fall-risk screening tool, but in the broader clinical reasoning this review has attempted to model: recognizing how intrinsic vulnerability, precipitating triggers, and environmental context interact for a specific patient, and translating that recognition into an individualized, multicomponent plan of care.

Practical strategies for strengthening fall-prevention content within nursing education include structured simulation scenarios modeled on the case examples in Section 8.10, allowing students to practice integrating multiple risk domains rather than applying a single screening tool in isolation; competency-based skills validation for physical assessment techniques directly relevant to fall risk, including orthostatic vital sign measurement, grip strength and gait speed testing, and structured cognitive and delirium screening; and dedicated instructional content on medication-related fall risk, including FRIDs, deprescribing principles, and the specific antidepressant-related risk-benefit considerations discussed in Section 6.1. For practicing nurses, ongoing competency validation in the use of institutional fall-risk assessment tools, alongside regular case-based review of serious fall-related incidents through post-fall huddles and root-cause analysis, supports the continued translation of the evidence reviewed in this article into consistent, high-quality bedside practice over the course of a nursing career.

10. GAPS IN THE LITERATURE AND FUTURE RESEARCH DIRECTIONS

Despite the breadth of evidence synthesized in this review, several important gaps limit the field's ability to translate risk-factor knowledge into uniformly effective, equitable, and sustainable nursing practice. These gaps

span geographic representativeness of the evidence base, population-specific tailoring of interventions, methodological consistency in how environmental and modifiable risk factors are measured and reported, and the practical feasibility of implementing comprehensive multifactorial assessment within real-world clinical workflows. Addressing these gaps will require coordinated investment in nursing-led implementation science, not merely additional risk-factor identification studies, since the underlying risk factors themselves are, at this point, reasonably well characterized for high-income, community-dwelling populations.

- Underrepresentation of low- and middle-income country populations across the fall-risk evidence base, despite these regions facing the most rapid projected increases in fall-related burden (Chen et al., 2025; Saunders et al., 2025).
- Limited high-quality evidence on effective, feasible fall-prevention interventions specifically tailored for older adults with moderate-to-severe cognitive impairment or dementia (Racey et al., 2021).
- Inconsistent use and reporting of environmental risk factors across studies, limiting meta-analytic synthesis of specific home and institutional hazards (Shao et al., 2023).
- Continuing uncertainty regarding the optimal population, dose, and duration for vitamin D supplementation in fall prevention, with recent meta-analyses reaching differing conclusions depending on how baseline deficiency status is handled (Tan et al., 2024).
- Under-recognition and under-study of genitourinary (urinary incontinence), foot and footwear, and hearing-related risk factors relative to more extensively studied domains such as gait, balance, and cognition (Moon et al., 2021; Menz et al., 2018; Wang et al., 2022).
- Need for pragmatic trials evaluating sustainability and long-term adherence to nurse-led, multicomponent fall-prevention programs beyond the initial intervention period.
- Further research is needed on integrating digital and wearable fall-risk monitoring technologies into routine nursing assessment workflows, including their real-world impact on fall rates rather than detection speed alone (Konara Mudiyansele et al., 2025).
- Few studies have examined fall risk through an intersectional lens that accounts simultaneously for socioeconomic status, rurality, race and ethnicity, and access to interdisciplinary geriatric services, all of which likely shape both the prevalence of individual risk factors and access to evidence-based prevention resources.
- Limited nursing-specific implementation research exists on how best to operationalize multifactorial fall-

risk assessment within realistic time and staffing constraints across busy hospital and long-term care units, as opposed to research-intensive controlled settings.

11. CONCLUSION

Falls among older adults arise from the dynamic interaction of intrinsic physiological and psychological vulnerability with extrinsic medication and environmental hazards. Robust, recent evidence identifies frailty, sarcopenia, impaired gait and balance, cognitive impairment, visual and hearing impairment, fear of falling, diabetes mellitus, orthostatic hypotension, urinary incontinence, foot and footwear problems, nutritional deficiency, polypharmacy, and unsafe environments as key, largely modifiable contributors to fall risk across community, hospital, and long-term care settings. Nurses are positioned at the center of fall-risk identification and prevention across the care continuum—from initial screening through post-fall assessment and organizational quality improvement. Systematic use of validated assessment tools, combined with individualized, multicomponent interventions—particularly targeted exercise, medication review, sensory and continence assessment, environmental and footwear modification, and judicious use of emerging technology—offers the strongest evidence-based path to reducing the substantial and growing global burden of falls among older adults.

No single discipline can address the full breadth of fall risk factors reviewed in this article alone; effective prevention depends on sustained collaboration among nursing, medicine, physical and occupational therapy, pharmacy, podiatry, audiology, and ophthalmology, coordinated around the individual older adult's specific risk profile. Nurses, by virtue of their continuous presence and holistic scope of practice, are uniquely positioned to serve as the connective tissue of this interdisciplinary effort—identifying risk, initiating referrals, delivering and reinforcing education, and ensuring that fall-prevention plans are not only created but consistently implemented at the bedside and in the home. As the global population of older adults continues to grow, embedding the evidence-based, multifactorial approach outlined in this review into everyday nursing practice, institutional protocols, and nursing education curricula represents one of the most direct and achievable paths toward reducing fall-related morbidity, mortality, and healthcare costs in the decades ahead.

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