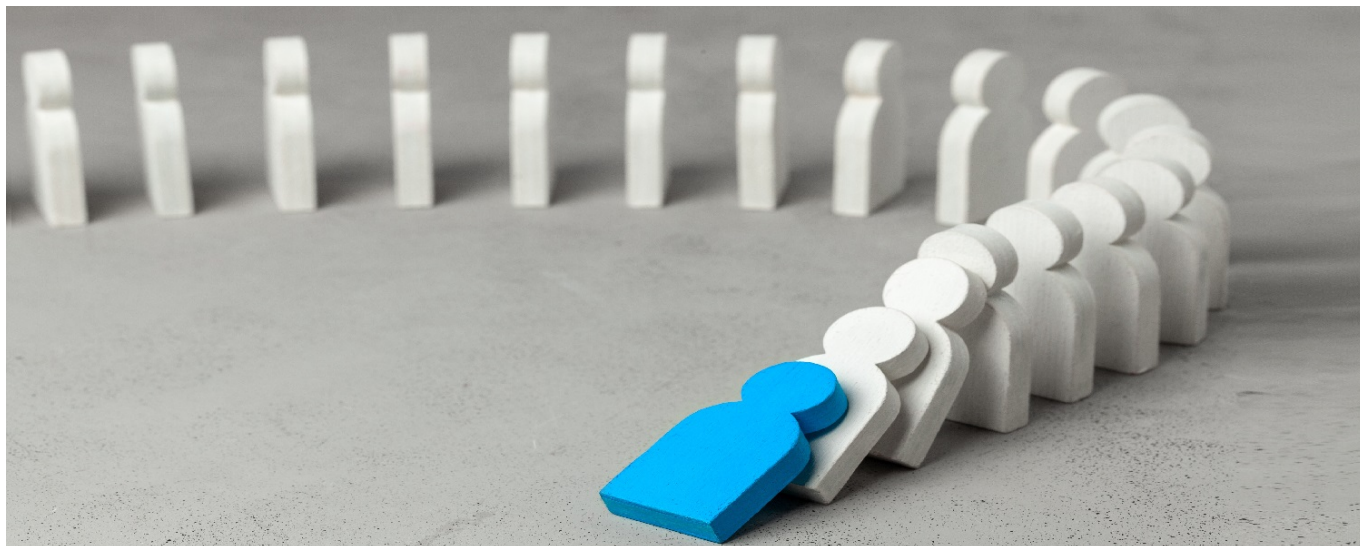


## Falls and medication

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A recent study published in *Pharmacoepidemiology and Drug Safety* found that in 2017, 94% of adults 65 years and older in the United States were prescribed at least one drug that elevated the risk of falling, a significant increase from 57% in 1999. This trend was concurrent with a substantial increase in deaths related to falls among older adults ([1]).

Falling in elderly adults is a significant yet under-recognised public health concern. Globally, more than 30% of people aged 65 years and above fall each year ([2]). Falls are the primary reason for 85% of all injury-related admissions to hospital and more than 40% of nursing home admissions ([3]). Furthermore, falls are the leading cause of injury-related death for those 70 years and older ([4]). The annual costs associated with falls and fall-related complications were estimated to be \$50 billion in 2015 in the United States alone ([5]).

Fall risks are multifactorial and include a combination of physiological, psychological, health and environmental factors ([6],[7]). Several studies have associated polypharmacy and certain drugs with an increased risk of falls in the elderly ([8],[9],[10],[11]).

The most common drugs that increase the risk of falls are psychotropic drugs, such as hypnotics, sedatives, antipsychotics, and antidepressants, which can cause sedation and impaired balance and coordination. Antihypertensive drugs and diuretics may cause or worsen orthostatic hypotension and falls ([1],[2]).

A recent meta-analysis found that deprescribing interventions based on a medicine review resulted in a relative risk reduction of 24% in the number of older adults who fell ([12]).

The current study is a cross-sectional analysis utilising data on fall-related deaths and prescription fills among US adults 65 years and older. Data was obtained from both the National Vital Statistics System (NVSS) and the Medical Expenditure Panel Survey (MEPS) for years

1999-2017 ([1]).

During the study period, there was a significant increase in fall risk-increasing drug (FRID) use. More than 560 million adults aged 65 years and older received at least one FRID during this period and filled more than 7.8 billion prescriptions. The majority of prescriptions were for antihypertensives (71.2%). However, there was also a significant increase in antidepressant prescription fills, from 12 million in 1999 to more than 52 million in 2017.

The use of FRIDs was considerably higher among females, which is relevant as the female gender is identified as an independent risk factor for falls and fractures ([1]).

Prescribing of multiple FRID classes also increased over the study period. Opioids and antihistamines were the most commonly co-prescribed drug classes, with nearly 24 million people (14% of total) prescribed this combination.

From 1999-2017, 374,972 fall-related mortalities were recorded. Age-adjusted mortality due to falls increased from 29.40 per 100 000 in 1999 to 63.27 per 100 000 in 2017. The most significant increase in deaths from falls, rising 160% between 1999 and 2017, occurred in white women aged 85 years and older.

The current study has several limitations. Due to its cross-sectional design, the study cannot prove causality between the increased exposure to FRIDs and fall-related mortality. Furthermore, the study did not account for the increasing prevalence of comorbidities and only included data for a non-institutionalised population.

Nonetheless, the study indicates fall risk-increasing drugs may partially explain the increase in mortality due to falls. The findings support guidelines for falls prevention in the elderly, emphasising the benefit of medication reviews and medication reduction as crucial interventions ([13],[14]).

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