

Sex-Specific Trends in Alzheimer’s Disease Mortality Associated With Falls and Hip Fractures Among Older Adults in the United States, 1999-2023

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Key take-away: Fall-related hip fractures are an increasing and sex-disparate contributor to Alzheimer’s disease mortality among older U.S. adults, emphasizing the need for targeted fall and fracture prevention

INTRODUCTION	METHODS	RESULTS	CONCLUSIONS
- Fall-related hip fractures are a serious complication in older adults with Alzheimer’s disease. - They reflect frailty, impaired mobility, and osteoporosis. - These fractures are linked to increased morbidity, loss of independence, and mortality. - Long-term mortality trends related to these injuries remain underexplored.	- We used CDC WONDER mortality data from 1999-2023 to conduct a population-based trend analysis among U.S. adults aged ≥65 years. - Alzheimer’s disease was identified as the underlying cause of death using ICD-10 codes G30.0-G30.9, while fall-related hip fractures were identified as contributing causes using ICD-10 codes W00-W19 and S72.0-S72.2. - Age-adjusted mortality rates were calculated per 100,000 population using the 2000 U.S. standard population. - Trends were assessed overall and by sex using NCI Joinpoint regression to identify inflection points and estimate APC and AAPC with 95% CIs. Statistical significance was defined as $p < 0.05$.	- From 1999-2023, 19,053 deaths were recorded; most occurred among females (13,503; 70.9%) compared with males (5,550; 29.1%). - Overall mortality showed an early rise from 1999–2002, declined through 2013, increased again from 2013–2021, and then declined significantly from 2021–2023. - Across the full study period, overall mortality increased significantly, with an AAPC of 1.49% (95% CI: 0.80–2.32). - Females showed a significant long-term increase, with mortality rising most notably from 2012–2019 and an AAPC of 2.07% (95% CI: 1.49-2.89). - Males showed smaller fluctuations, with a modest overall change and a non-significant AAPC of 0.53% (95% CI: -0.20 to 1.27). Multiple Joinpoint Models	- Alzheimer’s disease mortality linked to fall-related hip fractures rose significantly among U.S. adults aged ≥65 years from 1999–2023. - Females showed greater long-term increases than males. - These findings highlight fall-related hip fractures as a critical terminal event and support stronger fall and fracture prevention in older adults with Alzheimer’s disease.
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