

Evidence Summary Request ***April 2018***

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Topic of Interest: **Evidence of a link between falls and alcohol in older adults**

Purpose: **Development of Clinical Guidelines on Geriatric Addictions and hospital admissions screening for falls risk**

Request Type: **Literature Search and Evidence Summary**

Summary: There was no strong evidence found in published peer reviewed studies of the link between alcohol and falls in older adults. However there are good studies and linkages reported in a variety of studies and in the search results that should be useful in clinical guidelines. There are several citations of studies related to screening for risk factors of alcohol and or other substance use in falls or fractures at hospital admissions, and also evidence of the use of brief interventions with older adults in emergency departments and primary care that linked alcohol use in relation to falls.

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- Evidence linking alcohol and substance use to falls in older adults: seven cross-sectional, longitudinal or cohort studies that link alcohol +/- polypharmacy to falls and fractures, most using self-reports of injury or alcohol use when approached in health care settings. One recent short report "Is excess alcohol consumption an unrecognized factor contributing to falls?" [[Full-Text PMC5881968](#)] is a small sample but the most applicable to the question.
 - Alcohol or substance use as risk factors for falls: three studies looked at risk factors for falls in alcohol intake and bone mineral density, gender implications (Canadian study using CCHS) and lifestyle factors on fracture risk. There were correlations but not significant relationships of alcohol with fracture risk.
 - Alcohol and substance use in older adults - incidence and effects: a systematic review (SR) and a study of UK datasets are included in this section, with the SR attached here in PDF. The two citations relate to screening at hospital admission and changes in alcohol-related conditions or adverse outcomes for older adults.
 - Alcohol screening and brief interventions in health care settings: a systematic review and a meta-analysis (both with strong ratings from Health-Evidence) and two studies looked at the effectiveness of alcohol screening and brief interventions in emergency care, finding small effects in reducing risky drinking (the SR refers to effect on injury and fractures).
 - Behaviour and risk profiles for falls in older adults: seven article citations are included as the titles and quick scan of abstracts suggest they may contribute to evidence on 'lifestyle' risks for falls including alcohol and substance use.
 - Additional articles or studies citations are listed however these were older (2000 & 2002), weaker in evidence or less directly related to the topic of linking alcohol use to falls in older adults. The references may be of use.

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Sources

Searches were conducted in multiple databases, in systematic review syntheses sites as well as in grey literature databases, and then assessed for the relevancy and level of evidence of results. Canadian health reports and guidelines were reviewed, along with applicable American and British guidelines and government documents. Literature searches were conducted in PubMed, MEDLINE, CINAHL, and Cochrane systematic reviews. Search strategies, terms, inclusion/exclusion criteria and quality assessment are available upon request.

Literature Search Results with Abstract Summaries

Evidence linking alcohol and substance use to falls in older adults

1. Dhalwani NN, Fahami R, Sathanapally H, Seidu S, Davies MJ, Khunti K. **Association between polypharmacy and falls in older adults: a longitudinal study from England** BMJ Open, 2017. [PMID: 29042378](#) [Full text:BMJOpen e016358](#)

In England, this longitudinal cohort study took nationally representative sample of adults aged over 60 years to assess polypharmacy and falls. They found almost 1/3 of the total population using five or more drugs, significantly associated with 21% increased rate of falls over a 2-year period. Note: considered alcohol as potential confounding variable, not part of 'polypharmacy'.

2. Korcha R, Cherpitel C, Bond J, Ye Y, Monteiro M, Hao W, et al. **Drinking context and cause of injury: Emergency department studies from 22 countries.** Journal of Substance Use. 2018; 23(3): 240-246.
Summary: Using data from representative ED injury patients in 22 countries, [authors] examined associations between context of injury (private or public), cause of injury (fall or trip, being stuck/cut/or burned and violence) and alcohol use. Alcohol-related policy data were also obtained from each study locale. Results: ... cause of injury was most often due to falls (39%) or being struck/cut or burned (38%). Note: patients 18 yrs+ gave informed consent, gave self-report of cause of injury and alcohol use or by breathalyzer.

3. Mukamal KJ, Mittleman MA, Longstreth WT Jr, Newman AB, Fried LP, Siscovick DS. **Self-reported alcohol consumption and falls in older adults: cross-sectional and longitudinal analyses of the cardiovascular health study.** J Am Geriatr Soc . 2004;52(7):1174-9. [Abstract: PMID 15209658](#)
Summary: Cross-sectional and longitudinal associations between alcohol consumption and risk of falls in older adults in 4 US communities. Cross-sectional studies may fail to identify the risk of heavier drinking (14 or more drinks/week associated with increased risk of falls), as older adults at risk for falls decrease their alcohol use over time or because heavier drinkers at risk for falls tend not to enroll in cohort studies.

4. Ortolá R, García-Esquinas E, Galán I, Guallar-Castillón P, López-García E, Banegas JR, Rodríguez-Artalejo F. **Patterns of alcohol consumption and risk of falls in older adults: a prospective cohort study.** Osteoporos Int. 2017 Nov;28(11):3143-3152. [Abstract: PMID: 28725986](#)

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Summary: In a Spanish cohort with 2170 older adults followed up for 3.3 years, both moderate drinking and the Mediterranean drinking pattern were associated with a lower risk of falls and injurious falls.

5. Shah CP, Horner S, Sanders DS, Armstrong S, Sanders S. **Is excess alcohol consumption an unrecognized factor contributing to falls?** Geriatric Orthopaedic Surgery & Rehabilitation. 2018 Mar 29; 9: [Comment/Short Report] [Full-Text PMC5881968](#), PMID: 29623235.

Summary: Authors note experience of 100 consecutive patients over the age of 65 in a UK day care center following a fall where in addition to standard history, examination, used WHO fast alcohol screening tool (FAST). They recorded that 8% of 100 had a FAST score of 8 or more, or hazardous alcohol consumption in patients over the age of 65 associated with falls.

6. Tait RJ, French DJ, Burns RA, Byles JE, Anstey KJ. **Alcohol, hospital admissions, and falls in older adults: a longitudinal evaluation.** Int Psychogeriatr. 2013;25(6):901-12. [Abstract: PMID: 23432881](#)

Summary: Authors evaluated self-reported hospital admissions and falls against current Australian alcohol consumption guidelines. In relation to falls, other health conditions appear better targets for intervention than alcohol use. For both genders, the unadjusted model showed that abstainers had increased odds of falling, with depression, diabetes, and for women, musculoskeletal conditions also associated with falls in the adjusted model.

7. Wong H, Heuberger R, Logomarsino J, Hewlings S. **Associations between alcohol use, polypharmacy and falls in older adults.** Nurs Older People. 2016 Feb;28(1):30-6. [Abstract: PMID: 26938609](#) [no full text]

Summary: Self-reported frequency of alcohol consumption, medication use and falls in a cross-sectional sample of 2,444 community-dwelling older adults in rural US. Alcohol intake was not a significant predictor of falls. Medication was positively related to, and a significant predictor of, falls

Risk factors for falls – alcohol or substance use as factor

8. Cawthon PM, Harrison SL, Barrett-Connor E, Fink HA, Cauley JA, Lewis CE, Orwoll ES, Cummings SR. **Alcohol intake and its relationship with bone mineral density, falls, and fracture risk in older men.** J Am Geriatr Soc. 2006;54(11):1649-57.

In older men, recent alcohol intake is associated with higher BMD. Alcohol intake and fracture risk is unclear. Light alcohol intake may decrease the risk of falling, but a history of problem drinking increased fall risk.

9. Chang, VC; Do, Minh T. **Risk factors for falls among seniors: implications of gender.** Am J Epidemiol. 181(7):521-31, 2015 Apr 01. [Abstract: PMID 25700887](#)

Cross-sectional study in nationally-representative sample from Canadian Community Health Survey. In women, stroke, consumption of 1+ alcoholic drinks/week and use of 5 or more medications were correlated with falls.

10. Khatib, R, Yusuf, S, Barzilay JL, Papaioannou A, Thabane L, Gao P, Joseph PG, Teo K, Mente A. **Impact of lifestyle factors on fracture risk in older patients with cardiovascular disease: a prospective cohort study of 26,335 individuals from 40 countries.** Age & Ageing. 43(5):629-635, September 2014. Abstract: [PMID:24554790](#)

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Summary: Assessed the individual and combined effect of the CVD risk factors of smoking, alcohol consumption and physical activity on fracture risk in a large sample of older individuals with CVD or diabetes with end-organ damage. Results: high alcohol intake showed a directional, but non-significant, relationship with fracture risk.

Alcohol and Substance use in older adults – effects, incidence

11. Holton AE, Gallagher P, Fahey T, Cousins G. **Concurrent use of alcohol interactive medications and alcohol in older adults: a systematic review of prevalence and associated adverse outcomes.** BMC Geriatr. 2017 Jul 17;17(1):148. [Abstract: PMID 28716004](#)

Summary: While there appears to be a high propensity for alcohol-medication interactions in older adults, there is a lack of consensus regarding what constitutes an AI medication. An explicit list of AI medications needs to be derived and validated prospectively to quantify the magnitude of risk posed by the concurrent use of alcohol for adverse outcomes in older adults. This will ...prioritise alcohol screening and brief alcohol interventions in high-risk groups.

12. Wadd S, Papadopoulos C. **Drinking behaviour and alcohol-related harm amongst older adults: analysis of existing UK datasets.** BMC Res Notes. 2014 Oct 20;7:741. PMID: 25332101 [Full-text: PMC4216362](#)

Summary: Older adults (aged 65 and over) drink less and are less likely to exceed the recommended drink limits than younger adults. However, they are more likely to be admitted to hospital for an alcohol-related condition than younger adults and the most significant increases in alcohol-related hospital admission rates in recent years have occurred in older age groups. Alcohol-related death rates are highest amongst those aged 55–74 years old.

Alcohol screening and brief interventions in health-care settings

13. Choi NG, DiNitto DM, Marti CN, Choi BY. **Associations of mental health and substance use disorders with presenting problems and outcomes in older adults' emergency department visits.** Acad Emerg Med. 2015;22(11):1316-26. [Abstract: PMID: 26473592](#)

Summary: Both dementia and delirium and alcohol use disorders had a small effect on falls. Late-life mental health and substance use disorders are significant risk factors for ... unintentional injuries of older adults in the ED. The findings underscore the importance of detection and treatment of these disorders among older adults.

14. Landy MS, Davey CJ, Quintero D, Pecora A, McShane KE. **A systematic review on the effectiveness of brief interventions for alcohol misuse among adults in Emergency Departments.** J Subst Abuse Treat. 2016 Feb;61:1-12. [Abstract: PMID: 26482134](#)

All studies reported a significant reduction in alcohol consumption at 3 months post-BI, with some studies finding significant differences between the BI and control groups, and other studies finding significant decreases in both conditions but no between-groups differences. Individuals who received a BI were significantly less likely to have an alcohol-related injury at 6 or 12 months post-BI than individuals who did not receive a BI. BIs may be effective in reducing some alcohol-related consequences.

15. McGinnes RA, Hutton JE, Weiland TJ, Fatovich DM, Egerton-Warburton D. **Effectiveness of ultra-brief interventions in the emergency department to reduce alcohol consumption: A systematic review.** Emerg Med Australas. 2016;28(6):629-640. [Abstract: PMID: 27459669](#)

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Summary: No studies showed an effect on frequency of alcohol consumption or ED representation. However, with the large number of people attending EDs with risky drinking, the use of an effective ultra-BI would have the potential to have a measurable population effect.

16. Schmidt CS, Schulte B, Seo HN, Kuhn S, O'Donnell A, Kriston L, Verthein U, Reimer J. **Meta-analysis on the effectiveness of alcohol screening with brief interventions for patients in emergency care settings.** *Addiction*. 2016;111(5):783-94 [Abstract: PMID: 26637990](#) [Strong rating from Health-Evidence]

Summary: In the large meta-analysis of randomized controlled trials in emergency care settings, there was evidence for small effects of brief interventions on alcohol consumption reductions.

Behaviour and risk profiles for falls in older adults

17. Chippendale T, Gentile P, James M. **Characteristics and consequences of falls among older adult trauma patients: Considerations for injury prevention programs.** *Australian Occupational Therapy Journal*. 2017; 64(5): 350-357.

18. Helgadottir B, Moller J, Laflamme L. **Patterns in health-related behaviours and fall injuries among older people: a population-based study in Stockholm County, Sweden.** *Age Ageing* . 2015;44(4):604-10.

19. Munch T, Harrison SL, Barrett-Connor E, Lane NE, Nevitt MC, Schousboe JT, Stefanick M, Cawthon PM. **Pain and falls and fractures in community-dwelling older men.** *Age Ageing*. 2015;44(6):973-9.

20. Pluijm SM, Smit JH, Tromp EA, Stel VS, Deeg DJ, Bouter LM, Lips P. **A risk profile for identifying community-dwelling elderly with a high risk of recurrent falling: results of a 3-year prospective study.** *Osteoporos Int* . 2006;17(3):417-25

21. Terrell KM, Weaver CS, Giles BK, Ross MJ. **ED patient falls and resulting injuries.** *J Emerg Nurs*]. 2009;35(2):89-92

22. Weeks LE. **An examination of the impact of gender and veteran status on falls among community-dwelling seniors: implications for targeting falls prevention activities.** *Fam Community Health*. 2007

23. Wihlborg A, Englund M, Akesson K, Gerdhem P. **Fracture predictive ability of physical performance tests and history of falls in elderly women: a 10-year prospective study.** *Osteoporos Int* . 2015;26(8):2101-9

Additional articles/studies– weaker, older or less related evidence

Bell AJ, Talbot-Stern JK, Hennessy A. **Characteristics and outcomes of older patients presenting to the emergency department after a fall: a retrospective analysis.** *Med J Aust* . 2000;173(4):179-82.

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DinhZarr, BT, Goss, CW, Heitman, E, Roberts, IG, DiGuseppi, C. **Interventions for preventing injuries in problem drinkers.** Cochrane Database of Systematic Reviews. 4, 2009. Abstract: PMID:15266456

Summary: Interventions for problem drinking appear to reduce injuries and their antecedents (e.g. falls, motor vehicle crashes, suicide attempts)

Lima MC, Simao MO, Oliveira JB, Cavariani MB, Tucci AM, Kerr-Correa F. **Alcohol use and falls among the elderly in Metropolitan Sao Paulo, Brazil.** Cad Saude Publica . 2009;25(12):2603-11. Abstract

A population-based survey was conducted in a sample of São Paulo, Brazil, using the GENACIS questionnaire, In the previous year 24.5% people had falls, which were associated with being a heavy drinker and being older.

Reid MC; Boutros NN; O'Connor PG; Cadariu A; Concato J. **The health-related effects of alcohol use in older persons: a systematic review.** Substance Abuse. 2002; 23(3): 149-164.

Summary: The magnitude of risk posed by alcohol use for falls or fall injuries, functional disability, cognitive impairment, and all-cause mortality among older adults remains uncertain.