

Cold-related injury outcomes among housed, sheltered, and unsheltered populations: a systematic narrative review

ABSTRACT

Background

People experiencing homelessness (PEH) face elevated risks of frostbite and other cold-related injuries, particularly among those living unsheltered. Although prior studies have described this burden, the influence of housing status on clinical outcomes such as amputation, mortality, and hospital utilization has not been systematically reviewed. This study aimed to synthesize evidence on how homelessness and housing status affect the incidence and outcomes of frostbite and hypothermia.

Methods

Following PRISMA guidelines, we searched PubMed, Medline (Ovid), and Web of Science through December 2024. Additionally, Google Scholar was used to supplement this literature review. Included studies were peer reviewed and reported quantitative data on cold-related morbidity and mortality among PEH. Extracted variables included study design, population, and cold-related outcomes such as incidence, amputation, mortality, readmission, and cost.

Results

Twenty-four studies met inclusion criteria. Across settings, PEH comprised 11%–76% of frostbite or hypothermia cases and frequently had co-occurring substance use or psychiatric illness. Cold-related injury incidence was four to twenty times higher among PEH than housed individuals. Homelessness independently predicted worse outcomes, including higher amputation rates, longer hospital stays, greater unplanned readmissions, and higher healthcare costs. Mortality findings were mixed but generally worse for unsheltered individuals. Comparisons with low-income housed and Housing First populations showed protective effects of shelter and permanent housing. Despite heterogeneity, patterns were consistent across geography and design.

Conclusions

Homelessness and housing instability are strong predictors of cold-related morbidity and adverse clinical outcomes. These findings underscore the importance of targeted prevention strategies, improved hospital discharge planning linked to shelter and supportive services, and expansion of permanent housing programs as essential public health interventions.