Compliant flooring to prevent fall-related injuries in older adults: A scoping review of biomechanical efficacy, clinical effectiveness, cost-effectiveness, and workplace safety


Key Concepts/Context
Compliant flooring may be broadly defined as any floor covering or flooring system with some degree of shock absorbency. Numerous previous studies have shown that different forms of compliant flooring can reduce the severity and incidence of fall-related injuries in older adult patients. However, the authors note that there is a lack of synthesized evidence concerning the efficacy of compliant flooring, which may be limiting its widespread usage within healthcare environments.

Methods
A research advisory panel comprised of “knowledge uses” (individuals who are likely to apply the knowledge generated by a literary review concerning compliant flooring systems) was formed. This panel agreed upon the criteria of the present literary synthesis, and conducted search for relevant resources through AgeLine, CINAHL, MEDLINE(Ovid), Ergo-Abs, SportDiscus, EBM Reviews, and Web of Science. Grey literature sources were also included. The researchers used four pre-specified themes to chart the outcomes of the different studies and to relate these findings to the study design created by the panel. These themes were clinical effectiveness, biomechanical efficacy, cost-effectiveness, and physical demands for healthcare workers. A key outcome used as an indicator of compliant flooring efficacy was fall-related injuries as reported within the individual resources used in the literary review.
Findings

84 records and 56 supplementary reports were included in the final data synthesis and assessment. With regard to biomechanical efficacy, it was found that compliant flooring can reduce fall-related impact forces while minimally affecting walking and standing balance. Clinical effectiveness findings suggested that while injuries may be reduced, the risk for patient falls might actually increase. Compliant flooring was proven to be a generally cost-effective strategy through analysis of preliminary evidence, but it was also found that these flooring systems might increase the physical demands placed on healthcare workers. It should be noted that the number of records describing the theme of workplace demands and safety was relatively small, and therefore may not be indicative of all compliant flooring settings.

Limitations

This study was a literary review that did not involve the collection of any original quantitative or qualitative research. The authors note several limitations within this study. Their review provided breadth, but not depth, with regard to the overarching topic of compliant flooring. No assessments for the risk of bias or the use of a quality rating of evidence were involved in the review. All grey literature used in the review was published in English only after 1990. Since the records involved in this study focused on specific flooring types, the findings of this study may not be generalizable to all other flooring types.