shall have no role in formulating the guidelines.[1,3] However, the IOM standards[3] for external review and updating guidelines specify precisely what guideline developers must do, not simply what they must report, as in AGREE II.

The IOM states that guideline developers should use a systematic review of the evidence, a tough but essential standard with the purpose to ensure that a guideline uses all of the evidence, not just that which supports the guideline developer's point of view. The IOM specified adherence to the standards of a contemporaneous IOM report on systematic reviews, which lists 21 standards for performing systematic reviews that "minimize bias in identifying, selecting, and interpreting evidence."[4] AGREE II gives instructions for reporting a literature search, including and excluding studies, and assessing bias in studies. Reporting these 3 items is important, but it is not the same as specifying adherence to the 21 standards for a systematic review.

These examples delineate the contrast between the IOM standards and AGREE. The IOM describes precisely what guideline developers must do to create trustworthy guidelines. Most of the AGREE standards imply what developers must do by stating what they must report. Even though we favor the more direct approach taken by the IOM, the IOM report would have been stronger if the committee had adopted 2 elements of the AGREE statement.

The user's manual in AGREE II is an important resource to improve the application of any standard. Although the IOM standards were explicit, detailed, and well-justified, a user's guide for applying the IOM standards could have more directly and in more detail guided developers of guidelines. Furthermore, AGREE provided a scoring system for evaluating adherence to each standard.

Our Viewpoint pointed out the need for a scoring system to evaluate partial adherence to the IOM standards. Both organizations did a lot of things right. Each should learn from the other.

David F. Ransohoff, MD
Michael Pignone, MD, MPH
Harold C. Sox, MD

Author Affiliations: Department of Medicine, University of North Carolina School of Medicine, Chapel Hill (Drs Ransohoff and Pignone); and Dartmouth Institute for Health Policy and Clinical Practice, Geisel School of Medicine at Dartmouth, Lebanon, New Hampshire (Dr Sox; hsox@comcast.net).
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RESEARCH LETTER

Incidence of Fall-Related Traumatic Brain Injuries Among Older Finnish Adults Between 1970 and 2011

To the Editor: Traumatic brain injury (TBI) is a major cause of hospitalization, disability, and death worldwide, and among older adults, falling is the most common cause of TBI.[1] We reported that the number and incidence of adults aged 80 years or older admitted to the hospital due to fall-induced TBI in Finland increased from 1970 through 1999.[2] We now report follow-up of this population through 2011.

Methods. The Finnish National Hospital Discharge Register is a statutory, nationwide, computer-based register that provides reliable data for severe injuries among the Finnish population of 5.4 million people.[3,4] Annual mid-year populations were taken from the official statistics of Finland.

For the entire period from 1970 through 2011, a fall-induced TBI in an adult aged 80 years or older was defined as a head injury that occurred as a consequence of a fall from a standing height of 1 m or less and resulted in hospitalization. Age-adjusted and age-specific incidences of TBI were calculated for both sexes and were expressed as the number of cases per 100 000 adults aged 80 years or older per year.

The age adjustment was performed by direct standardization using the mean population aged 80 years or older from 1970 through 2011 as the standard population. Calculations for the age-specific incidences were performed in 5-year age groups (80-84, 85-89, and ≥90 years) and the mean incidence from 1970 through 1974 was compared with the incidence from 2007 through 2011.

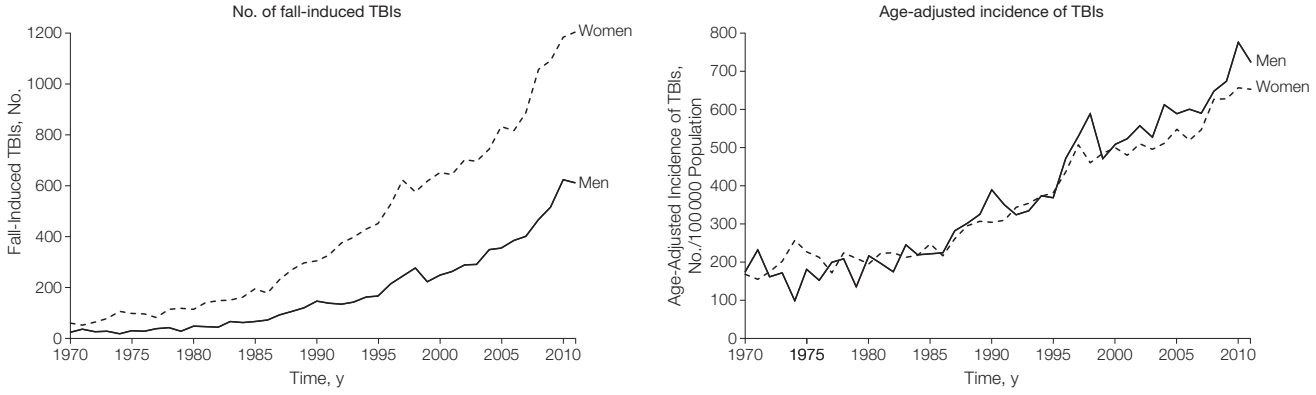
The study was approved by the UKK Institute for Health Promotion Research institutional review board. The data were analyzed using SPSS version 20 software (SPSS Inc).

Results. The total number of older Finnish adults with a fall-induced TBI increased considerably from 60 women and 25 men in 1970 to 1205 women and 612 men in 2011 (FIGURE). The age-adjusted incidence of TBI (per 100 000 persons) also showed an increase from 168.2 women in 1970 to 653.6 in 2011(an increase of 289%) and from 174.6 to 724.0, respectively, in men (an increase of 315%; Figure).

The mean age-specific TBI incidence rates (per 100 000 persons) from 1970 through 1974 vs 2007 through 2011 in women were 176 vs 475 (aged 80-84 years), respectively, 194 vs 767 (aged 85-89 years), and 262 vs 989 (aged ≥90 years) and the respective incidence rates in men were 164 vs 551 (aged 80-84 years), 143 vs 847 (aged 85-89 years), and 281 vs 1222 (aged ≥90 years).

Discussion. Our 40-year follow-up shows that the number and age-adjusted incidence of fall-induced TBI in Finnish men and women aged 80 years or older increased considerably between 1970 and 2011. Compared with the data in our previous study,[2] the increase has continued since 1999.

Figure. Fall-Induced Traumatic Brain Injuries (TBIs) in Finnish Women and Men Aged 80 Years or Older Between 1970 and 2011



Study strengths include unchanged TBI definition, a population-based complete, accurate, and current database, and long follow-up. The limitations include the lack of information on reasons and risk factors for falls and severity of injury, and unknown generalizability.

Our findings are in line with other recent observations of fall-related TBI among elderly adults,[1,5] but the exact reasons for the ongoing increase are largely unknown. We do not know whether the increase in fall-induced TBI is related to an increase in falls or to an increase in TBI after a fall. Currently, older adults (aged ≥80 years), or at least the frailest among them, may fall more often and more seriously than their predecessors because they live longer and have many chronic disorders.[2,3] In addition, some strong external risk factors for falling, such as polypharmacy, may have become more common among older adults.[2,3,6]

Changes in living arrangements, impaired balance and vision, sensory neuropathy, alcohol consumption, and increased use of anticoagulants also may have contributed. Further studies are needed to better understand the reasons for the increase in fall-related TBI in older persons (aged ≥80 years) so that effective interventions for falls and injury prevention can be initiated.

Niina Korhonen, BM
Seppo Niemi
Jari Parkkari, MD, PhD
Harri Sievänen, ScD
Pekka Kannus, MD, PhD

Author Affiliations: Injury and Osteoporosis Research Center (Ms Korhonen, Mr Niemi, and Dr Sievänen) (njkorhon@student.uef.fi), Tampere Research Center of Sports Medicine (Dr Parkkari), UKK Institute for Health Promotion Research, Tampere, Finland; and Department of Trauma, Musculoskeletal Surgery, and Rehabilitation, Tampere University Hospital, Tampere, Finland (Dr Kannus).

Author Contributions: Ms Korhonen had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.
Study concept and design: Korhonen, Niemi, Parkkari, Kannus.
Acquisition of data: Korhonen, Niemi, Kannus.
Analysis and interpretation of data: Korhonen, Niemi, Parkkari, Sievänen, Kannus.
Drafting of the manuscript: Korhonen, Niemi, Parkkari, Kannus.
Critical revision of the manuscript for important intellectual content: Korhonen, Niemi, Parkkari, Sievänen, Kannus.
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