A Model for Falls with Major Injury in Nursing Home Residents

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BACKGROUND

↑Number of older adults
↑Number of nursing home (NH) residents
(U.S. Census Bureau, 2015)

→ NH residents are more likely to fall versus community-dwelling older adults
(Baranzini et al., 2009)

→ ↑Number of falls among NH residents
(Baranzini et al., 2009)

→ ↑Number of falls with major injury
(Berry & Miller, 2008)

→ ↓Health of older adults ↑Health expenditures for individuals as well as in the USA
(Hill et al., 2009)

PURPOSE

The purpose of this study is to identify risk factors for falls with major injury and to develop a model to predict falls with major injury among elderly nursing home (NH) residents.

RESEARCH QUESTIONS

- Q1) What are the intrinsic factors and extrinsic factors that contribute to falls with major injury?
- Q2) Do factors interact? If so, how do the factors interact?
- Q3) Which factors, or interactions of these factors, are most useful for predicting who will have falls with major injury among NH residents?

INDEPENDENT VARIABLES

Intrinsic Factors	Extrinsic Factors
Age, gender, race/ethnicity, marital status, vision, hearing, cognitive pattern, mood, behavior, functional status, bladder and bowel, diagnoses, pain management, fall history, swallowing and nutritional status, skin condition	Mobility devices, medications, polypharmacy, length of stay, corrective lenses, hearing aids

DEPENDENT VARIABLES

Outcome: Falls with Major Injury

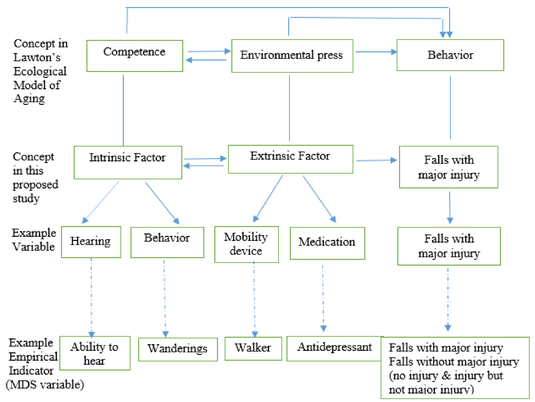
A: Falls **with** major injury
Bone fractures, joint dislocations, closed head injuries with altered consciousness, subdural hematoma (CMS, 2015)

B: Falls **without** major injury
Falls with major injury ----------Falls without major injury
No injury Injury (except major)

LITERATURE REVIEW

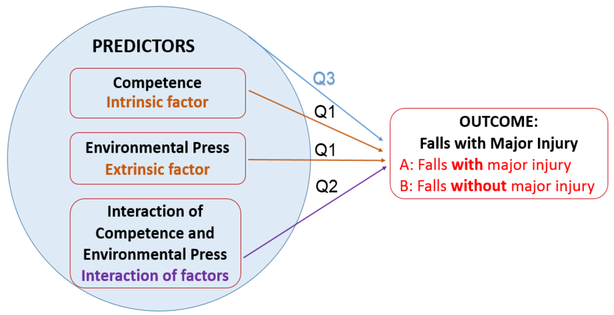
What We Know	What We Do Not Know
Inconsistencies in defining falls with major injury (Schwenk et al., 2012)	Risk factors for predicting falls with major injury
Some conflicting findings on risk factors for falls and falls with major injury (Currie, 2008)	
Inconsistencies in determining risk factors for falls with major injury	

SUBSTRUCTION



The proposed study's theoretical subtraction with examples

STUDY MODEL



Based on Lawton's Ecological Model of Aging (EMA)

METHOD

- Design: Exploratory, retrospective, secondary analysis of the Long-Term Care Minimum Data Set (MDS) 3.0 for 2014
- Setting: Medicare and Medicaid certified Nursing homes in the USA
- Sample: Approximately 841,743 Medicare beneficiaries (Research Data Assistance Center cost invoice, 2016)
- Inclusion Criteria:
  - -aged 65 or over
  - -had at least one fall incident in 2014

DATA DESCRIPTIONS

- MDS 3.0 data from January 1, 2014 to December 31, 2014
- Federally mandated comprehensive assessment tool used in Medicare and Medicaid certified NHs (CMS, 2015)
- Established reliability and validity (Saliba & Buchanan, 2008)
- Approximately 1.4 million beneficiaries
- 653 variables per beneficiary
- About 43.5 gigabyte

DATA ANALYSIS

- Logistic Regression using Statistical Analysis Software (SAS)
- Q1) What are the intrinsic factors and extrinsic factors that contribute to falls with major injury?
  - descriptive analysis; simple logistic regression
- Q2) Do factors interact? If so, how do the factors interact?
  - multiple logistic regression
- Q3) Which factors, or interactions of these factors, are most useful for predicting who will have falls with major injury among NH residents?
  - multiple logistic regression

Funding Source: Gerontological Advanced Practice Nurses Association (GAPNA) Center for Nursing Advancement: UnitedHealth Group Grant