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Interdisciplinary Fall Risk Screening and Assessment: An Evidence-Based Practice Project

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Interdisciplinary Fall Risk Screening and Assessment:

An Evidence-Based Practice Project

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Keywords: falls, fall risk, occupational therapy, screening, assessment, community dwelling, older adults

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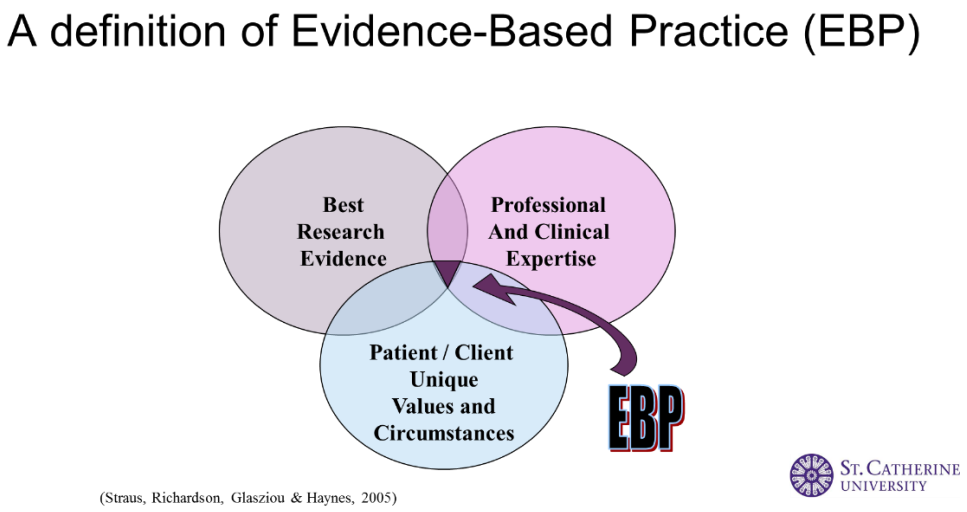
Introduction

Evidence Based Practice

Evidence based practice is defined as the integration of knowledge from professional and clinical expertise, patient/client unique values and circumstances, and best research evidence (Straus, Richardson, Glasziou, & Haynes, 2005). The EBP courses in the St. Catherine University occupational therapy programs emphasizes skill building in finding, analyzing, and synthesizing research.



The EBP Project

Occupational therapy graduate students at St. Catherine University complete an EBP project in partial fulfillment of the requirements for a course on Evidence-Based Practice.

The EBP Process

- Begins with a practice dilemma
- Dilemma is framed as an EBP question and PICO
  P (population/problem) I (intervention) C (comparison group) O (outcome(s) of interest)
- Background learning
- Search for the best evidence
- Initial appraisal and critical appraisal of the evidence
- Summary of themes from the evidence
- Recommendations for practice
- Next steps – implementation in practice

Four EBP Projects: Fall Prevention for Community-Dwelling Older Adults

1. Risk factors
2. Older Adults' Perspectives and Experiences
3. Screening and Assessment
4. Interventions and Programs

Practice Dilemma: Fall Prevention for Community-Dwelling Older Adults

Fall prevention for community-dwelling older adults is a priority area in:

- Healthy People 2020, the government's national objectives for improving the health of all Americans (Bergen, Stevens, & Burns, 2016)
- Minnesota Department of Health: Division of Health Promotion and Chronic Disease (Minnesota Department of Health, Division of Health Promotion and Chronic Disease., 2012)

Fall prevention for community-dwelling older adults is a national practice dilemma:

- It is the leading cause of fatal and nonfatal injuries for older adults Americans (Bergen, et al., 2016).
- Approximately 29% of older adults reported a fall in the last year (Bergen, et al., 2016).
- Approximately 38% of fallers had treatment or restricted activity for injury (Bergen, et al., 2016).
- Approximately 25% of independent living adults require alternative living environment after hip fracture (Minnesota Department of Health, Division of Health Promotion and Chronic Disease., 2012).
- In 2014, there were 29 million falls resulting in 7 million injuries (Bergen, et al., 2016).
- The annual Medicare costs related to falls is estimated as $ 31.3 billion (Bergen, et al., 2016).

Fall prevention for community-dwelling older adults is a Minnesota practice dilemma:

- Minnesota has the 5th highest fall death rate in the United States (Bergen, et al., 2016; Minnesota Department of Health, Division of Health Promotion and Chronic Disease., 2012).
- Minnesota has more annual deaths from falls than from motor vehicle accidents (Minnesota Department of Health, Division of Health Promotion and Chronic Disease., 2012).
- There is no seasonal variation in Minnesota falls (Minnesota Department of Health, Division of Health Promotion and Chronic Disease., 2012).
- In 2009, Minnesota had an estimated 29,000 falls, 639 fatalities, and $255 million medical costs associated with falls (Minnesota Department of Health, Division of Health Promotion and Chronic Disease., 2012).

What is the occupational therapy lens on fall prevention programs?

- Falls happen when we are 'doing' our everyday activities, don't maintain active involvement in everyday activities, and have personal characteristics or environmental conditions that put us at risk for falls.
- Fall prevention is possible when we strengthen the personal characteristics and environmental conditions that support safe 'doing' of everyday activities, and addess the factors that put us at risk for falls.

What is the interprofessional lens on fall prevention programs?

- Fall prevention is a major public health challenge because the reasons for falls are multi-dimensional and complex, it requires a team effort, and it is a priority in both medical and community settings.

Fall prevention for community-dwelling older adults is an occupational therapy practice opportunity. There are growing needs in practice and research and recent initiatives outline available resources and opportunities (Leland, Elliott, O'Malley, & Murphy, 2012; Peterson, Finlayson, Elliott, Painter, & Clemson, 2012).

- 2010 Clinical Practice Guideline (AGS, BGS)
- CDC Promotion of Fall Prevention Programs
- State Fall Prevention Coalitions

There are a growing number of state-specific and national resources for practitioners. A sample of Minnesota and national resources related to fall prevention for community-dwelling older adults include:

- Minnesota Falls Prevention http://www.mnfallsprevention.org/index.html
- Minnesota Board on Aging http://mnaging.org/Administrator/HealthyAging/PreventFalls.aspx
- Leading Age Minnesota https://www.leadingagemn.org/providers/clinical-excellence/fall-prevention-toolkit
- Minnesota Safety Council
  1) https://www.minnesotasafetycouncil.org/2020Plan/UnintentionalInjuryOnline.pdf
  2) https://www.minnesotasafetycouncil.org/family/falls.cfm
- Centers for Disease Control and Prevention https://www.cdc.gov/homeandrecreationalsafety/falls/index.html

There are growing opportunities for occupational therapy professionals and other health professionals who want to work. There might also be an opportunity for MOTA to become more visible in fall prevention. A few local examples of fall prevention include:

- Regions Hospital and the St. Paul Fire Department teamed up to provide St. Paul seniors with fire and fall prevention information from the National Fire Protection Association's Remembering When program. Thanks to a strong partnership with Merrick Community Services that's been in place since January, Shonette and Jeremy were able to visit and educate nearly 50 seniors on the east side of St. Paul by doubling as Meals on Wheels volunteers. (Health Partners, the St. Paul Fire Department, and St. Paul's Merrick Community Services: Meals on Wheels, https://www.healthpartners.com/hp/about/about-blog/fire-and-fall-prevention-education.html)

- Stand Up & Be Strong! is co-sponsored by MNPTA and the Minnesota Department of Human Services. Stand Up & Be Strong! consists of an easy-to-replicate model for assessing the risk of falls in older adults. After participating in a 30-second screening test, elderly participants learn their risk of falling and leave with a few simple exercises that can easily be performed in their home or long-term care facility. These exercises help reduce their risk of falls by improving lower extremity strength. Most notably, Stand Up & Be Strong! uses a "train the trainer" model, which allows physical therapists to train other health care professionals and community members to assess falls risk in their own communities and facilities, rather than relying on health care providers to provide assessments. (MNPTA and MN Department of Human Services: Stand Up & Be Strong!, https://www.mnapta.org/page/30)
- In 2007, the Minnesota Hospital Association initiated the Call to Action framework around falls prevention, resulting in SAFE from FALLS. Since SAFE from FALLS began, falls resulting in serious harm to patients have decreased by 25 percent in Minnesota hospitals. (Minnesota Hospital Association: SAFE from FALLS, https://www.mnhospitals.org/quality-patient-safety/quality-patient-safety-improvement-topics/falls#/videos/list)
- In the early 2000s, the Hennepin County Community Health Department launched a Senior Fall Prevention Task Force. Members of the task force represented professional and community organizations interested in preventing falls among seniors. The Senior Fall Prevention Task Force developed a Senior Fall Prevention Screening Kit to help organizations carry out fall prevention activities in their respective communities. (Minnesota Safety Council: Fall Prevention Checklist, https://www.minnesotasafetycouncil.org/SeniorSafe/fallcheck.pdf)

Appraisal of Best Research

After searching and finding evidence available from library databases and alternative sources, students conducted an initial appraisal to evaluate the quality and relevance of the evidence and select the best research for further review. Then they conducted critical appraisals of the best formal reviews of primary research (e.g., systematic reviews, meta-analyses) and/or primary/original research studies using the AOTA CAP form (American Occupational Therapy Association, 2016). One of the steps in the CAP process is to evaluate the strength or level of the research design and the types of conclusions that are possible from each design.

Initial Appraisal

- Quality of the evidence
    - type of evidence
    - research design
    - investigator qualifications
    - journal/publication/website

- Relevance of the evidence
    - PICO

Critical Appraisal

- Reviews of primary research
    - systematic reviews, meta-analysis
    - review process and approach
    - consistent and inconsistent findings
- Primary research studies AOTA CAP
    - Level 1: randomized controlled trials
    - Level 2: two groups, nonrandomized/cohort and case control
    - Level 3: nonrandomized, pretest/postest and cross-sectional
    - Level 4: single subject
    - Level 5: case report

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All EBP Projects are available at http://sophia.stkate.edu/.

EBP Question

What occupational therapy and interdisciplinary assessments have the best psychometric characteristics and are most effective for screening or evaluating person and environment fall risk factors and measuring the outcomes of fall prevention programs?

Executive Summary

Minnesota Occupational Therapy Association Continuing Education Presentation

Fall Assessments

Alissa Hynes, Hannah Kiefer, Ariel Kocher, Nicole Kroontje, Katlyn Lindblom, Laura Neubert, Cindy Nguyen, Jacqueline Nguyen, Andrew Noble

PICO Question

What occupational therapy and interdisciplinary assessments have the best psychometric characteristics and are most effective for screening or evaluating person and environment fall risk factors?

Background Learning

- 95% of older adults live in a community setting, and less than ⅓ of older adults live alone (AOTA, 2017).
- Falls are the leading cause of death for adults over 65, and 28-35% of older adults fall each year (AOTA, 2012; WHO 2007).
- Screenings for dangerous environmental risks in client's home are beneficial to prevent falls (WHO, 2017)
- There are numerous risk assessments for falls available, although generalizability can be limited due to a lack of repeated testing and testing in multiple settings (Scott, 2007).

Examples of Evidence Resources

Governmental and Major Foundations	OT Specific Resources	Interprofessional Journals, Databases, Professional associations
World Health Organization (WHO)	The American Journal of Occupational Therapy (AJOT)	American Associations of Retired Persons (AARP)
National Institutes of Health (NIH)	Sage Journals	Oxford Academic (Journal of Gerontology)
Centers for Disease Control (CDC)		
Minnesota Department of Administration		

Example of Search Processes

- Main Databases and Journals
  - PubMed/Medline
  - CINAHL
  - EBSCO
  - The Journal of Occupational Science
  - American Journal of Occupational Therapy (AJOT)
- Most helpful search strategies
  - Use MESH terms
  - Use of multiple sites to gather wide variety of literature
- Examples of productive searches
  - ("Assessment tools" AND "Fall Prevention in Home" AND "Geriatrics")
  - (("Accidental Falls"[Mesh]) AND "Predictive Value of Tests"[Mesh]) AND "Aged"[Mesh]
  - ("Assessment tool" AND "Community" AND "Falls")

Initial Appraisal of Best Evidence

Primary Research Articles	Examples	Review of Research	Examples
30	Psychometric (validity and reliability), Prospective Cohort Study, Non-experimental Research, Case Study Randomized Controlled Trial Longitudinal study	5	Systematic Review Meta-Analysis
		Conceptual article	**Examples**
		5	Clinical Guidance Statement, Overview of assessment, Treatment approaches

Overview of Critical Appraisals of Best Evidence

Primary Research
The reliability and predictive accuracy of the Falls Risk for Older People in the Community Assessment (FROP-Com) tool (Russell, Hill, Blackberry, Day, & Dharmage, 2008)
Multiple modes of assessment of gait are better than one to predict incident falls (Allali, Ionnelime & Verghese, 2015)
The Falls Efficacy Scale International (FES-I). A comprehensive longitudinal validation study (Delbaere, Close, Mikolaizak, Sachdev, Brodaty & Lord, 2010)
Feasibility of interdisciplinary community-based fall risk screening (Elliot, Ivanescu, Leland, Fogo, Painter, & Trujillo, 2012)

Overview of Critical Appraisals of Best Evidence

Primary Research
Psychometrics of the Home Safety Self-Assessment tool (HSSAT) to prevent falls in community-dwelling older adults (Tomita, Saharan, Rajendran, Nochajski, & Schweitzer, 2014)
The comparative ability of eight functional mobility tests for predicting falls in community-dwelling older people (Tiedemann, Shimada, Sherrington, Murray & Lord, 2008)
Comparison of the Berg Balance Scale and Rullerton Advanced Balance Scale to predict falls in community-dwelling adults (Jeon & Kim, 2017)
Concurrent validity and reliability of the Maximum Step Length Test in older adults (Goldberg, Schepens, & Wallace 2010)

Overview of Critical Appraisals of Best Evidence

Review of Assessments
Home Safety Self-Assessment Tool v. 5 (HSSAT) (Tomita, 2017)

http://www.freestockphotos.biz/stockphoto/17069

Critical Appraisal 1 and 2 - Fall Risk

Title of article: The reliability and predictive accuracy of the Falls Risk for Older People in the Community assessment (FROP-Com) tool (Russell, Hill, Blackberry, Day, & Dharmage, 2008)

Focused question: Does the FROP-Com have reliability and predictive accuracy?

Critical Bottom Line: The FROP-Com may be a useful assessment for addressing risk of falls.

Title of article: Multiple modes of assessment of gait are better than one to predict incident falls (Allali, Ayers, & Verghese, 2015).

Focused question: Is there overlap in different assessment methods for fall risk?

Critical Bottom Line: There is little overlap in diagnosing fall risk.

Critical Appraisal 3 and 4 -Fear of Falling

Title of article: The Falls Efficacy Scale International (FES-I). A comprehensive longitudinal validation study (Delbaere, Close, Mikolaizak, Sachdev, Brodaty, & Lord, 2010)

Focused question: Are both the 16-item and 7-item Falls Efficacy Scale International (FES-I) acceptable measures, with good reliability and validity, for predicting falls?

Critical Bottom Line: Yes, they are both acceptable forms to use that demonstrate good reliability and validity. Consider the 7-item version if a time constraint exists.

Title of article: Feasibility of interdisciplinary community-based fall risk screening (Elliot, Ivanescu, Leland, Fogo, Painter, & Trujillo, 2012)

Focused question: Would a community-wide fall prevention event have an impact on balance confidence?

Critical Bottom Line: Yes, interdisciplinary fall risk screens may inspire at-risk adults to make modifications and change behaviors to decrease risk for falls.

Critical Appraisal 5-Home Environment

https://ophp.buffalo.edu/rehabilitation-science/research-and-facilities/funded-research/aging/home-safety-self-assessment-tool.html

Title of Assessment: Home Safety Self-Assessment Tool (HSSAT) v. 5 (Tomita, 2017)

Focused question: Are there home safety assessments for older adults in the community?

Critical Bottom Line: Yes-it is useful for older adults to assess their own home environment and make changes to improve the safety of their home.

Critical Appraisal 6-Home Environment

Title of article: Psychometrics of the Home Safety Self-Assessment Tool (HSSAT) to prevent falls in community-dwelling older adults (Tomita, Saharan, Rajendran, Nochajski, & Schweitzer, 2014)

Focused question: Does the Home Safety Self-Assessment Tool (HSSAT) have satisfactory reliability, validity, and responsiveness?

Critical Bottom Line: For occupational therapy practice, the HSSAT can be used assess home fall risks and increase awareness of safety hazards in home environment to prevent falls.

Critical Appraisal 7 and 8-Balance and Mobility

Title of article: Concurrent validity and reliability of the Maximum Step Length Test in older adults (Goldberg, Schepens, & Wallace, 2010)

Focused question: Does the Maximum Step Length (MSL) test have good concurrent validity?

Critical Bottom Line: The MSL test is fairly accurate for measuring fall risk and balance problems. However, small sample size in this study.

Title of article: Comparison of the Berg Balance Scale and Fullerton Advanced Balance Scale to predict falls in community-dwelling adults (Jeon & Kim, 2017)

Focused question: How do the BBS and FAB scales compare in predicting fall risk?

Critical Bottom Line: The BBS and FAB scales were both shown to be predictive of fall risk when used with independently-functioning community dwelling older adults.

Critical Appraisal 9- Balance and Mobility

Title of article: The comparative ability of eight functional mobility tests for predicting falls in community-dwelling older people (Yadamami, Shimada, Sherrington, Murray, & Lord, 2008)

Focused question: Are the tests included in the study reliable and valid methods to predict the likelihood of older community adults experiencing multiple falls within the next year?

Critical Bottom Line: The alternate-step test (AST), the six-metre-walk test (SMWT), and the sit-to-stand test with five repetitions (STS-5) were indicated to be reliable, valid, and recommended for use.

http://media.neurologyadvisor.com/images/2016/01/28/oldwalking_718921.jpg

Theme 1: Identifying Fall Risk Factors

There are numerous tools for assessing fall risk factors in community-dwelling older adults.

- The FROP-Com: high reliability and good predictive accuracy (Russell, Hill, Blackberry, Day, and Dharmage, 2008)
- The Stopping Elderly Accidents, Death, and Injury (STEADI) protocol: free checklist published by the CDC. (Center for Disease Control and Prevention [CDC], 2011)
- The Comprehensive Fall Risk Screening (CFRSI): high internal construct validity; good predictor of fall risk. (Fabre et al., 2010)
- Comparing assessments: Differences between CFRSI and FROP-Com.

Theme 2: Assessing Psychological Aspects of Falls

Assessment of psychological aspects (e.g. fear of falling, confidence of balance) of falls is important in falls prevention programs.

- The ABC scale (balance confidence) and FES-I (fear of falling) demonstrate good reliability and validity (Delahrae et al., 2010; Elliot et al., 2012)
- The majority of fear of falling assessments take less than 30 minutes to administer and require limited materials (Helmreier, Guariglia, Wromark, 2014)
- Screening at community expo events brings awareness to fall risk and fear of falling (Elliot et al., 2012)

https://www.medscape.com/viewarticle/860928

Theme 3: Assessing the Home Environment

Home environment assessments are an important component of fall prevention programs.

- The Home Safety Self-Assessment (HSSAT):
  - A free self-assessment that compares the home environment, offers suggestions for changes, and includes a document to track changes. (Tomita, 2017)
  - Support for high content and construct validity, strong reliability, and moderate responsiveness (Tomita, Saharan, Rajendran, Nochajski, & Schweitzer, 2014)
  - Implications for fall risk reduction in the community as well as the practice of OTs, PTs and other providers' (Tomita, Saharan, Rajendran, Nochajski, & Schweitzer, 2014)

Theme 3: Assessing the Home Environment Continued

Other home assessments include:

- Home Safety Checklist and Home Screen Scale (Johnson, Cusick, & Chang, 2001)
- Check for Safety: A Home Fall Prevention Checklist for Older Adults (Center for Disease Control, 2017)

https://eldercarenanswers.com/preventing-falls-older-adults/

https://blog.ohiohealth.com/fall-prevention-checklist/

Theme 4: Assessing Balance and Mobility

Balance and mobility assessments are valuable for predicting fall risk.

Balance assessments: BBS, FAB

Mobility assessments: AST, SMWT, STS-T, MSL

- These tests should not be used in isolation (Tiedemann et al., 2008)
- High reliability and success in identifying high fall risk (Jeon & Kim, 2017; Landers et al., 2016; Goldberg et al., 2010; Tiedemann et al., 2008; Alla & Verghese, 2015)
- All are inexpensive to perform, and mobility assessments take little time (Goldberg et al., 2010; Tiedemann et al., 2008)
- The BBS, FAB, AST, SMWT, and STS-5 may identify some false positives (Jeon & Kim, 2017; Landers, et al., 2016; Tiedemann, et al., 2008)
  - The Timed Up and Go test identifies too many false positives to be a significant predictor of falls (Barry, Galvin, Keogh, Horgan, & Fahey, 2014)

Recommendations for OT and Interprofessional Programs

- Based on our research it is recommended that:
  - More than one assessment be used when assessing factors of falling.
  - More research is gathered to establish the psychometric characteristics for diverse populations.
  - Clinicians use best judgement in the evaluation process to choose an assessment that is appropriate for the individual.
  - Clinicians use evidence-based fall risk assessments which include the FROP-Com, CFRSI, HSSAT, BBS, FAB, MSL, AST, SMWT, STS-5, and FES-I.

Summary and Reflections

- Screening and assessment for falls should cover four domains:
  - risk factors
  - the home environment
  - psychological factors
  - balance & mobility
- This research focused on the population of community-dwelling older adults.
- More research is needed on cognitive and vision assessments for fall prevention programs.

Summary and Reflections

- Screening and assessment are recommended to be part of any fall prevention program.
- Many of the screening and assessments are interprofessional, and evidence-based (rather than site-specific).
- As we enter the OT profession, we learned that falls are a prevalent problem, research is an ongoing process, and that all assessments used should have supporting evidence.

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Themes

Introduction

There are many assessments used to evaluate fall risk in community-dwelling older adults. Due to the wide variety of causes for falling, assessments for fall risk look at several physical, cognitive, and psychological factors. Themes identified throughout literature on fall assessments include identifying fall risk factors, psychological aspects of falling, home and environment factors, and balance and mobility.

Identifying Fall Risk Factors

A commonly used measure for assessing fall risk is the Falls Risk for Older People in the Community (FROP-Com), which has twenty-six questions that address thirteen risk factors including: falls history, medications, medical conditions, sensory loss, feet/footwear, cognitive status, continence, nutrition, environment, functional behavior, function, balance, and gait/physical activity (National Aging Research Institute, n.d.). The FROP-Com is estimated to take 10-15 minutes to complete and can be conducted by Occupational Therapists. It provides an overall fall risk score ranging from 0-60 [higher score means higher risk] based on a 0-3 score of most factors (Russell, Hill, Blackberry, Day, & Dharmage, 2008). The researchers reported good intra-rater and inter-rater reliability in primary research study of two different samples of 20 community-dwelling older adults with a history of falls (Russell et al., 2008). The FROP-Com had good predictive accuracy and was a much better predictor of falls than the Functional Reach (FR) test and Timed Up and Go Test (TUGT) in a sample of 344 older adults (Russell et al., 2008).

Two other fall risk assessments may be considered in a community-based fall prevention program. The Stopping Elderly Accidents Death and Injury (STEADI) protocol includes an

assessment that may be completed by a physician or older adult (Center for Disease Control and Prevention [CDC], 2011). This assessment is a checklist that addresses medication, fall history, incontinence, and gait, among other risk factors. The Comprehensive Fall Risk Screening (CFRSI) is used with community-dwelling older adults to screen for home safety, medication history, mobility balance, and vision (Fabre et al., 2010). The CFRSI had high internal construct validity within the subscales and could predict fall risk (Fabre et al., 2010). In comparison to the FROP-Com, the CFRSI addresses similar, but fewer fall risk factors. Various other assessments and screening tools are also available for screening for fall risk factors in community-dwelling older adults.

Assessing Psychological Aspects of Falls

Fear of falling is an important psychological aspect of fall prevention assessments. The five commonly used self-assessments for determining fear of falling include the Activities-Specific Balance Confidence Scale (ABC), Edmonson Psychiatric Fall Risk Assessment Tool, Falls Efficacy Scale-International (FES-I), Falls Risk Assessment Tool (FRAT), and the University of Illinois Chicago Fear of Falling Measure (UICFFM) (Reitemeier, Guariglia, & Womack, 2014).

Self-assessments can be a valuable component of assessing for falls risk. Self-reports of balance confidence and the Fear of Falling Avoidance Behavior Questionnaire (FFABQ) were found to be better predictors of falls than other assessments such as the Berg Balance Scale (BBS) and the TUGT (Landers, Oscar, Sasaoska, &Vaughn, 2016). Self-reports have the potential to convey information on factors like pain that may be missed by clinician observation (Allali, Ayers, & Vergese, 2015). For example, a study of three modes of gait assessment found that clinician observations and patient self-assessment shared little overlap (Allali et al., 2015).

The ABC scale and FES-I assessment are based on older adult self-reports of confidence of balance and fear of falling respectively when completing functional tasks (Reitemeier, Guariglia, Womark, 2014). The ABC scale (Elliot, Ivanescu, Leland, Fogo, Painter, & Trujillo, 2012) and the FES-I (Delbaere, Close, Mikolaizak, Sachdev, Brodaty, & Lord, 2010) are both typically conducted in a pre-test, post-test method. The ABC has 11 or 16 functional tasks such as walking on the stairs or reaching upward to grab something (Elliot et al., 2012; Reitemeier, Guariglia, Womark, 2014). The FES-I is available in both a 16-item form and a shortened 7-item form and uses a Likert scale to assess fear of falling associated with a variety of ADL's, IADL's, and functional tasks (Delbaere et al., 2010).

The practical and psychometric characteristics of the ABC scale and the FES-I assessment support their use in a community-based fall prevention program. The ABC scale and FES-I assessment require minimal supplies and are relatively brief to administer (Reitemeier et al., 2014). The ABC scale (Elliot et al., 2012) and the FES-I (Delbaere et al., 2010) demonstrate good reliability and validity however there is a wide range of sample sizes in the two studies. The ABC scale and the FES-I scale provide a good starting point to assess current confidence and fear of falling in community-dwelling older adults and help to determine factors to decrease prevalence of falls. The ABC scale also emphasizes the importance of screening tools to help identify psychological aspects of falls (Elliot et al., 2012).

Assessing the Home Environment

The home environment may be an important factor in the risk of falls for older adult populations. There are several home environment assessments that are currently used in practice and in the community. One common assessment readily available to the public is the CDC's "Check for Safety: A Home Fall Prevention Checklist for Older Adults," (CDC, 2017). This is a

brief, 1-page brochure that asks questions such as “Are there papers, shoes, books, or other objects on the stairs?” and offers a quick fix to the problem if checked by the client such as, “Always keep objects off of the stairs.” Another screening and monitoring assessment for home modification is Home-Screen Scale, which consists of 14-items: seven environmental feature items and seven home behavior items (Johnson, Cusick, & Chang, 2001). This scale was designed for nurse administration to identify home hazards and unsafe behavior. The Home Safety Checklist is also a self-administered tool for home modification and health promotion that includes three categories: home maintenance, older adult safety, and emergency safety and security (Johnson et al., 2001).

The Home Safety Self-Assessment Tool (HSSAT) is a free educational and preventative assessment for identifying fall risk factors and behaviors facilitating home hazard reduction for frail elders (Tomita, Saharan, Rajendran, Nochajski, & Schweitzer, 2014). The Home Safety Self-Assessment Tool (HSSAT) Version 5 provides a self-checklist with 10 subcategories split up by rooms in the house (Tomita, 2017). Individuals in the home compare their living environment to photos in the HSSAT booklet and complete checklists to evaluate their living space and identify areas that put them at greatest risk for a fall. In a psychometric study, the HSSAT had high content validity, effective test-retest and inter-rater reliability, established construct validity, and moderate responsiveness of changing participants’ behavior in making their home safe (Tomita et al., 2014). The strengths of using the HSSAT were to provide the evidence for the actual changes in fall risk reduction and implications for occupational therapy, physical therapy, and related practice areas (Tomita et al., 2014).

Assessing Balance and Mobility

Balance and mobility measures are valuable for predicting fall risk in community-dwelling older adults. Assessments that can considered for clinical use include Berg Balance Scale (BBS), the Fullerton Advanced Balance Scales (FAB), the Maximum Step Length (MSL) test, the alternate-step test (AST), six-metre-walk test (SMWT), and the sit-to-stand test with five repetitions (STS-5). These tests have been demonstrated to have high reliability and success in identifying older adults who are at a high risk of falling (Jeon & Kim, 2017; Landers et al., 2016; Goldberg, Schepens, & Wallace, 2010; Tiedemann, Shimada, Sherrington, Murray, & Lord, 2008; Allai & Verghese, 2015). While some assessments such as the BBS take longer perform, other assessments such as the AST, SMWT, STS-5, and MSL test require little time and equipment to conduct (Goldberg et al., 2010; Tiedemann et al., 2008).

Precautions and shortcomings of balance and mobility tests for evaluating fall risk should be noted. The BBS, FAB, AST, SMWT, and STS-5 may identify some false positives, meaning more individuals are identified at high risk for falling than actually are (Jeon & Kim, 2017; Landers, et al., 2016; Tiedemann, et al., 2008). In a meta-analysis, the TGUT, a screening tool that is commonly used to assess falls risk, was found to be ineffective as it identified too many false positives to be a significant predictor of falls (Barry, Galvin, Keogh, Horgan, & Fahey, 2014). These tests should not be used in isolation to identify risk for falling. Tiedemann et al. (2008) found that poor performance on two mobility tests was predictive of falls, and recommended that additional assessments unrelated to mobility should also be used.

Conclusion

Fall risk assessments may be classified around four factors: psychological aspects of falling, home and environment hazards, balance, and mobility. Current research supports the use of many assessments to evaluate potential causes for falls; no assessment should be used in

isolation. Future research on assessments may address other risk factors for falling such as cognitive status and vision. In practice, therapists should utilize multiple assessments, provide educational events, and supply additional resources on assessments to allow an interdisciplinary team of health professionals to address the many components of falls to ensure that older community members can live in safety.

Summary and Implications

There are many assessments available to assess fall risk for older, community-dwelling adults and should be included in any fall prevention program. These assessments do not need to be developed for specific sites, as evidence-based assessments that address many different dimensions of fall risk already exist. Assessments can examine four domains: identifying fall risk factors, psychological aspects of falling, home environment, and balance and mobility. Researchers suggest that one assessment never be used in isolation to determine fall risk because of the variety of factors that contribute to falling. Many assessments are interprofessional; however occupational therapists can conduct assessments that cover many dimensions of fall risks. These assessments naturally lead into the implementation of interventions and educational programs for older adults in the community.

Useful tools for assessing multiple fall risk factors include the Stopping Elderly Accidents Death and Injury (STEADI) protocol, Comprehensive Fall Risk Screening (CFRSI), and the Fall Risk for Older People in the Community (FROP-Com). The FROP-Com had better predictive accuracy in predicting fall risk than the Functional Reach (FR) test and the Timed Up-And-Go Test (TUGT). Psychological assessments that were valuable in predicting falls include the Activities-Specific Balance Confidence Scale (ABC), Falls Efficacy Scale-International (FES-I), and the Fear of Falling Avoidance Behavior Questionnaire (FFABQ). The FFABQ was found to be a better predictor of falls than the Berg Balance Scale (BBS) and TUGT. Assessments such as the Edmonson Psychiatric Fall Risk Assessment Tool (EPFRAT) and the Falls Risk Assessment Tool (FRAT) were listed as commonly used assessments that examine psychological aspects of falling, but more research is needed to examine its effectiveness as well as its reliability and validity.

Additionally, helpful home environment assessments such as CDC Safety checklist, and Home Safety Self-Assessment Tool (HSSAT) can be administered at home by participants. Studies have shown high reliability and validity for the HSSAT. Two common assessments that are designed for nurses and therapists to administer are Home Safety Checklist, and Home Screen Scale. However, these were not evaluated on their reliability, validity, and responsiveness. In addition, assessments that can measure balance and mobility consist of the Berg Balance Scale (BBS), Fullerton Advanced Balance Scales (FAB), the Maximum Step Length (MSL) test, the alternate-step test (AST), six-metre-walk test (SMWT), and the Sit-To-Stand test with five repetitions (STS-5). These tests have high validity and reliability and good success in identifying high risk of falling; however, the BBS takes longer and more equipment to perform compared with other assessments.

There were several strengths and weaknesses in fall assessment literature. Several studies had small sample sizes and low statistical power. A lack of demographic information about the participants of the studies limit the generalizability of their findings and prevent the identification of demographic risk factors related to falling. However, quality research was also found. Several psychometric studies with high sample sizes were conducted, and many studies had intelligent research designs that enabled confidence in their results. The studies also had relevance to the original research question because they identified effective assessments for predicting falls in community dwelling older adults.

The FROP-Com, CFRSI, HSSAT, BBS, FAB, MSL, AST, SMWT, STS-5, and FES-I are all evidence-based assessments to evaluate fall risk in community dwelling older adults. Because of the variety of assessments and assessment types available, a clinician should use best judgment when choosing assessments. Additionally, clinicians should be mindful of testing

fatigue when conducting multiple physically based assessments, cultural barriers, and always use more than one assessment to determine fall risk. Future fall assessment research should focus on evaluating vision and cognition, which are studied extensively but currently lack assessments and research that relate these client factors to fall risk.

In conclusion, assessments and screening should be a part of interventions for all community-dwelling adults. There are several current assessments that are evidence based. The screenings and assessments cover four different domains of falling, which are identifying fall risk factors, psychological aspects of fallings, home environment, and balance and mobility. Additionally, many screenings and assessments can be performed by many professionals besides occupational therapists. It is important to incorporate screenings and assessments into both interventions and education events for community dwelling older adults. This project emphasized the importance of identifying older adults who are a fall risk, as well as the importance of using more than one evidence-based assessments.

Table of EBP Resources

Table 1.

Governmental and Foundation Resources that Address Fall Prevention

Title/Name	Brief Description	Source
World Health Organization Global Report on Fall Prevention in Older Age	The report identifies the risk factors for falls; personal, environmental, and cultural determinants of falls; and challenges for prevention of falls.	World Health Organization www.who.int/en/
National Institute of Aging	This source presents information about balance problems and disorders, home safety tips, and preventing falls and fractures.	National Institute of Health https://www.nia.nih.gov/
Important Facts about Falls	This source provides facts about the prevalence, risk factors, and impact of falls.	Center for Disease Control and Prevention www.cdc.gov/
Preventing Falls in Older Adults	Has an encyclopedia feature that provides multiple pages on fall prevention information.	Kaiser Permanente https://healthy.kaiserpermanente.org/
Slip, Trip, Fall Prevention	It includes a tool to help identify human factors contributing to falls and salt melting tips for Minnesota winters.	Minnesota Department of Administration http://mn.gov/

Table 2.

Occupational Therapy Resources that Address Fall Prevention

Title/Name	Brief Description	Source
American Journal of Occupational Therapy	There are many journals that provide systematic reviews on interventions for effectiveness of fall preventions in older adults.	The American Occupational Therapy Association www.aota.org
Productive Aging (Fall Prevention Tab)	Offers literature such as booklets and PowerPoints to provide information for fall prevention.	The American Occupational Therapy Association www.aota.org
Scandinavian Journal of Occupational Therapy	Offers access to research and articles on falls prevention for older adults.	The American Occupational Therapy Association www.aota.org
Chapter 8: Falls By Rein Tideikskaar	Chapter 8 discusses the epidemiology of falls, provides fall assessments, fall prevention, causes, conditions, and strategies for best practices (pg. 193-210)	Functional Performance in Older Adults by Bette R. Bonder and Vanina Dal Bello-Haas Book Publisher-F.A. Davis Company; 3 edition (October 31, 2008)
Occupational Therapy Journal of Research: Occupation, Participation, and Health	The source includes literature reviews and research studies about fall prevention and interventions to decrease falls in older adults.	Sage Journals http://journals.sagepub.com/home/otj

Table 3.

Interdisciplinary Journals, Data Bases, Professional Associations that Address Fall Prevention

Title/Name	Brief Description	Source
AARP	Non-profit, non-partisan organization that helps people 50 and older live life Has information on fall prevention published in the last few years	American Association of Retired Persons https://www.aarp.org/
Journal of Gerontology	Peer reviewed United States journal that was founded in 1946 Publishes peer-reviewed research on fall prevention	Oxford academic https://academic.oup.com/biomedgerontology
Canadian Association of Gerontology	National and multidisciplinary scientific and educational association established in 1971 Publishes manuscripts on fall prevention of the aging population	Canadian Journal on Aging http://cagacg.ca/cja/
American Physical Therapy Association	Individual membership organization Publishes several academic articles every year on fall prevention	SCU Library: has many APTA sources http://www.apta.org/AboutUs/

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Appendix A. Initial Appraisals

Type of article	Overall Type: Primary research study Specific Type: Psychometric research study
APA Reference	Daniel, H., Oesch P, Stuck, A.E., Born, S., Bachmann, S., & Schoenenberger, A.W. (2013). Evaluation of a novel photography-based home assessment protocol for identification of environmental risk factors for falls in elderly persons. *Swiss Medical Weekly*. 143:, w13884. doi: 10.4414/smw.2013.13884.
Abstract	"PRINCIPLES: To evaluate the validity and feasibility of a novel photography-based home assessment (PhoHA) protocol, as a possible substitute for on-site home assessment (OsHA). METHODS: A total of 20 patients aged ≥65 years who were hospitalised in a rehabilitation centre for musculoskeletal disorders affecting mobility participated in this prospective validation study. For PhoHA, occupational therapists rated photographs and measurements of patients' homes provided by patients' confidants. For OsHA, occupational therapists conducted a conventional home visit. RESULTS: Information obtained by PhoHA was 79.1% complete (1,120 environmental factors identified by PhoHA vs 1416 by OsHA). Of the 1,120 factors, 749 had dichotomous (potential hazards) and 371 continuous scores (measurements with tape measure). Validity of PhoHA to potential hazards was good (sensitivity 78.9%, specificity 84.9%), except for two subdomains (pathways, slippery surfaces). Pearson's correlation coefficient for the validity of measurements was 0.87 (95% confidence interval [CI 0.80–0.92, p <0.001). Agreement between methods was 0.52 (95%CI 0.34–0.67, p <0.001, Cohen's kappa coefficient) for dichotomous and 0.86 (95%CI 0.79–0.91, p <0.001, intraclass correlation coefficient) for continuous scores. Costs of PhoHA were 53.0% lower than those of OsHA (p <0.001). CONCLUSIONS: PhoHA has good concurrent validity for environmental assessment if instructions for confidants are improved. PhoHA is potentially a cost-effective method for environmental assessment." (p. 1)
Author	Credentials: OTR, works in Physiotherapy and Rehabilitation Medicine Position and Institution: N/A Publication History in Peer-Reviewed Journals: this is the author's only research article
Publication	Type of publication: peer reviewed medical journal http://guides.lib.berkeley.edu/c.php?g=83917&p=3747680 Publisher: EMH Swiss Medical Publishers Other: Weekly Articles
Date and Citation History	Date of publication: 2013 Cited By: Use Google Scholar: 13
Stated Purpose or Research Question	"Our goal was to evaluate a newly developed protocol for photography-based home assessment (PhoHA) for concurrent validity, determine how well it agreed with OsHA, and examine its feasibility for the evaluation of environmental factors that might contribute to falls among elderly people (p.1)".
Author's Conclusion	"First, PhoHA captured the majority of the environmental factors obtained by the OsHA. Second, with the exception of pathways and slippery surfaces, concurrent validity and agreement between the two methods was moderate to very good for the assessed environmental factors. Third, its high acceptability and satisfaction ratings by confidants, as well as its lower cost, make PhoHA a feasible option (p. 6)".
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Limited Rationale: Population addresses elderly people, but not community dwelling individuals. No I or C in study. Outcomes were that PhoHA had good validity
Overall Quality of Article	Overall Quality of Article: Moderate Rationale: This is the only study the author has researched. According to Google Scholar it has been cited only 13 times. It provided good general information.

Type of article	Overall Type: Primary research study Specific Type: prospective cohort study
APA Reference	Landers, M. R., Oscar, S., Sasaoka, J., & Vaughn, K. (2016). Balance confidence and fear of falling avoidance behavior are most predictive of falling in older adults: Prospective analysis. *Physical Therapy*, *96*(4), 433-442. doi:10.2522/ptj.20150184.
Abstract	**"Background** Evidence suggests that there are several fall predictors in the elderly population, including previous fall history and balance impairment. To date, however, the role of psychological factors has not yet been thoroughly vetted in conjunction with physical factors as predictors of future falls. **Objective** The purpose of this study was to determine which measures, physical and psychological, are most predictive of falling in older adults. **Design** This was a prospective cohort study. **Methods** Sixty-four participants (mean age=72.2 years, SD=7.2; 40 women, 24 men) with and without pathology (25 healthy, 17 with Parkinson disease, 11 with cerebrovascular accident, 6 with diabetes, and 5 with a cardiovascular diagnosis) participated. Participants reported fall history and completed physical-based measures (ie, Berg Balance Scale, Dynamic Gait Index, self-selected gait speed, Timed "Up & Go" Test, Sensory Organization Test) and psychological-based measures (ie, Fear of Falling Avoidance Behavior Questionnaire, Falls Efficacy Scale, Activities-specific Balance Confidence Scale). Contact was made 1 year later to determine falls during the subsequent year (8 participants lost at follow-up). **Results** Using multiple regression, fall history, pathology, and all measures were entered as predictor candidates. Three variables were included in the final model, explaining 49.2% of the variance: Activities-specific Balance Confidence Scale (38.7% of the variance), Fear of Falling Avoidance Behavior Questionnaire (5.6% additional variance), and Timed "Up & Go" Test (4.9% additional variance). **Limitations** Falls were based on participant recall rather than a diary. **Conclusions** Balance confidence was the best predictor of falling, followed by fear of falling avoidance behavior, and the Timed "Up & Go" Test. Fall history, presence of pathology, and physical tests did not predict falling. These findings suggest that participants may have had a better sense of their fall risk than with a test that provides a snapshot of their balance." (p. 433)
Author	Credentials: PT, DPT, PhD, OCS Position and Institution: University of Nevada, Chair and Professor Publication History in Peer-Reviewed Journals: extensive
Publication	Type of publication: scholarly peer-reviewed journal Publisher: Physical Therapy Other: Part of American Physical Therapy Association
Date and Citation History	Date of publication: 2016 Cited By: Use Google Scholar: 19
Stated Purpose or Research Question	"Therefore, this prospective study was aimed to determine which elements, including falling history, presence of pathology, and physical and psychological constructs, are most predictive of falling in older adults" (para 4).
Author's Conclusion	"Balance confidence was the best predictor of falling, followed by fear of falling avoidance behavior, and the Timed "Up & Go" Test. Fall history, presence of pathology, and physical tests did not predict falling. These findings suggest that participants may have had a better sense of their fall risk than with a test that provides a snapshot of their balance." (para 1).
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Moderate Rationale: Includes P: elderly adults, No intervention because it was a cohort study. Fall history, pathology, and other measures were used as predictor candidates.
Overall Quality of Article	Overall Quality of Article: Good Rationale: Helps understand predictors of falling based on different assessments such as Berg Balance Scale, Dynamic Gait Index, Timed Up and Go test and more.

Type of article	Overall Type: Primary research study Specific Type: Psychometric
APA Reference	Jeon, Y.-J., & Kim, G.-M. (2017). Comparison of the Berg Balance Scale and Fullerton Advanced Balance Scale to predict falls in community-dwelling adults. *Journal of Physical Therapy Science*, *29*(2), 232–234. http://doi.org/10.1589/jpts.29.232
Abstract	"[Purpose] The purpose of this study was to investigate and compare the predictive properties of Berg Balance Scale and Fullerton Advanced Balance Scales, in a group of independently-functioning community dwelling older adults. [Subjects and Methods] Ninety-seven community-dwelling older adults (male=39, female=58) who were capable of walking independently on assessment were included in this study. A binary logistic regression analysis of the Berg Balance Scale and Fullerton Advanced Balance Scale scores was used to investigate a predictive model for fall risk. A receiver operating characteristic analysis was conducted for each, to determine the cut-off for optimal levels of sensitivity and specificity. [Results] The overall prediction success rate was 89.7%; the total Berg Balance Scale and Fullerton Advanced Balance Scale scores were significant in predicting fall risk. Receiver operating characteristic analysis determined that a cut-off score of 40 out of 56 on the Berg Balance Scale produced the highest sensitivity (0.82) and specificity (0.67), and a cut-off score of 22 out of 40 on the Fullerton Advanced Balance Scale produced the highest sensitivity (0.85) and specificity (0.65) in predicting faller status. [Conclusion] The Berg Balance Scale and Fullerton Advanced Balance Scales can predict fall risk, when used for independently-functioning community-dwelling older adults." (p. 232)
Author	Credentials: PT, PhD Position and Institution: N/A Publication History in Peer-Reviewed Journals: *4 other research articles*
Publication	Type of publication: scholarly peer-review journal Publisher: Society of Physical Therapy Science Other: roots in exercise science, Japanese and English journal
Date and Citation History	Date of publication: 2017 Cited By: Use Google Scholar : 1
Stated Purpose or Research Question	"The purpose of this study was to investigate and compare the predictive properties of BBS and FAB scales relative to fall risk, in a group of independently-functioning community-dwelling older adults" (para 4.).
Author's Conclusion	"In conclusion, the BBS and FAB scales are a predictive of fall risk when used with independently-functioning community-dwelling older adults". (para 10).
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Moderate Rationale: Contains P- community dwelling, no I, C and O found that BBS and FAB were predictive of fall risks
Overall Quality of Article	Overall Quality of Article: Moderate Rationale: Has not been cited many times, does a good job introducing Berg balance scale vs Fullerton advanced balance.

Type of article	Overall Type: Primary research article Specific Type: Qualitative research, non experimental
APA Reference	Vivrette, R. L., Rubenstein, L. Z., Martin, J. L., Josephson, K. R., & Kramer, B. J. (2011). Development of a fall-risk self-assessment for community-dwelling seniors. *Journal of Aging And Physical Activity*, *19*(1), 16-29.
Abstract	"Objective To determine seniors' beliefs about falls and design a fall-risk self-assessment and educational materials to promote early identification of evidence-based fall risks and encourage prevention behaviors. Methods Focus groups with community-dwelling seniors, conducted in two phases to identify perceptions about fall risks and risk reduction and to assess face validity of the fall-risk self-assessment and acceptability of educational materials. Results Lay perception of fall risks was in general concordance with evidence-based research. Maintaining independence and positive tone were perceived as key motivators for fall prevention. Seniors intended to use information in the educational tool to stimulate discussions about falls with health care providers. Implications An evidence-based, educational fall-risk self-assessment acceptable to older adults can build on existing lay knowledge about fall risks and perception that falls are a relevant problem and can educate seniors about their specific risks and how to minimize them." (p. 16)
Author	Credentials: PhD, Assistant Professor Position and Institution: University of Maryland, School of Medicine Publication History in Peer-Reviewed Journals: *6 other articles published*
Publication	Type of publication: Journal of Aging and Physical Activity Publisher: Human Kinetics Journals Other: The Official Journal of the International Coalition for Aging and Physical Activity
Date and Citation History	Date of publication: 2011 Cited By: Use Google Scholar: 18
Stated Purpose or Research Question	"The purpose of this study was to develop a fall-risk self-assessment to address this important public health issue by educating people about their own fall risks". (p. 3).
Author's Conclusion	"Lay perception of fall risks was in general concordance with evidence-based research. Maintaining independence and positive tone were perceived as key motivators for fall prevention. Seniors intended to use information in the educational tool to stimulate discussions about falls with health care providers" (p.1).
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Moderate Rationale: A qualitative study so it does not contain interventions. It does address the elderly community dwelling population and the need for an evidence based fall risk assessment.
Overall Quality of Article	Overall Quality of Article: Moderate Rationale: Looks at senior's beliefs about falls and addresses the face validity of the fall risk self assessment

Type of article	Overall Type: Review of Research Studies Specific Type: Systematic Review
APA Reference	Chung, J., Demiris, G., & Thompson, H. J. (2015). Instruments to assess mobility limitation in community-dwelling older adults: A systematic review. *Journal of Aging & Physical Activity, 23*(2), 298-313. doi:10.1123/japa.2013-0181.
Abstract	"Mobility is critical in maintaining independence in older adults. This study aims to systematically review the scientific literature to identify measures of mobility limitation for community-dwelling older adults. A systematic search of PubMed, CINAHL, and psycINFO, using the search terms "mobility limitation", "mobility disability", and "mobility difficulty" yielded 1,847 articles from 1990 to 2012; a final selection of 103 articles was used for the present manuscript. Tools to measure mobility were found to be either self-report or performance-based instruments. Commonly measured constructs of mobility included walking, climbing stairs, and lower extremity function. There was heterogeneity in ways of defining and measuring mobility limitation in older adults living in the community. Given the lack of consistency in assessment tools for mobility, a clear understanding and standardization of instruments are required for comparison across studies and for better understanding indicators and outcomes of mobility limitation in community-dwelling older adults." (p. 298)
Author	Credentials: PhD, RN Position and Institution: Assistant professor, University of New Mexico Publication History in Peer-Reviewed Journals: Moderate (20 articles)
Publication	Type of publication: Scholarly Publisher: Human Kinetics, Journal of Aging and Physical Activity Other:
Date and Citation History	Date of publication: 2015 Cited By: 8
Stated Purpose or Research Question	"We focused on a comprehensive analysis of existing studies that describe various types and characteristics of assessment tools based on a clear definition of mobility limitation," (Chung, Demiris, & Thompson, 2015, p. 299).
Author's Conclusion	"The choice of tool in the community setting may depend on researchers or clinicians' preferences, feasibility of using the instrument, or clinical characteristics of study population," (Chung, Demiris, & Thompson, 2015, p. 304).
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Strong Rationale: This article examines several assessment tools, as well as the overlap of tools different disciplines use, which is helpful to know which tools are most prevalent and effective.
Overall Quality of Article	Overall Quality of Article: Moderate Rationale: The methods look fine to me; however, this article was not cited by very many people and is available for free from a publisher I've never heard of.

Type of article	Overall Type: Primary research study Specific Type: Descriptive using baseline and prospective data
APA Reference	Fischer, B. L., Gleason, C. E., Glagnon, R. E., Janczewsk, J., Shea, T., & Mahoney, J. E. (2014). Declining cognition and falls: Role of risky performance of everyday mobility activities. *Physical Therapy*, *94*(3), 355-362. doi: 10.2522/ptj.20130195.
Abstract	"**Background** Declining cognition is a risk factor for falls among older adults. The extent to which impaired judgment in performance of daily activities increases fall risk is unclear. **Objective** The aim of this study was to determine whether engagement in mobility activities in a risky manner explains the association between declining cognition and rate of falls. **Design** This study was a secondary analysis of baseline and prospective data from older adults enrolled in the intervention arm of a randomized clinical trial. **Methods** Two hundred forty-five community-dwelling older adults (79% female; mean age=79 years, SD=8.0) who were at risk for falls received physical, cognitive, and functional evaluations. Cognition was assessed with the Short Portable Mental Status Questionnaire (SPMSQ). Using interview and in-home assessment data, physical therapists determined whether participants were at risk for falls when performing mobility-related activities of daily living (ADL) and instrumental ADL (IADL). Falls were measured prospectively for 1 year using monthly falls diaries. **Results** Declining cognition was associated with increased number of mobility activities designated as risky (1.5% of mobility activities performed in a risky manner per SPMSQ point) and with increased rate of falls (rate ratio=1.16 for each unit change in SPMSQ score). Risky performance of mobility activities mediated the relationship between cognition and rate of falls. **Limitations** Risk assessment was based on the clinical judgment of experienced physical therapists. Cognition was measured with a relatively insensitive instrument, and only selected mobility activities were evaluated. **Conclusions** Engagement in mobility ADL and IADL tasks in a risky manner emerged as a link between declining cognition and increased number of falls, suggesting a mechanism through which the rate of falls may increase. Specifically, declining cognition is associated with performance of mobility activities in an unsafe manner, thereby increasing the risk for fall." (p. 355)
Author	Credentials: PsyD Position and Institution: Geriatric Research, Education, and Clinical Center, William S. Middleton Memorial Veterans Hospital Publication History in Peer-Reviewed Journals: *Extensive*
Publication	Type of publication: Scholarly Publisher: American Physical Therapy Association
Date and Citation History	Date of publication: 2014 Cited By: Use Google Scholar to see how many peer-reviewed publications have cited the article: 18
Stated Purpose or Research Question	"The present study sought to examine the relationship among declining cognition, engagement in risky mobility activities, and falls," (Fischer et al., 2014, p. 355).
Author's Conclusion	"Older adults with even mildly declining cognition may benefit from an assessment of their fall risk with performance of mobility ADL and IADL tasks, with the goal of improving safety through modifications in task performance," (Fischer et al., 2014, 361).
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Limited Rationale: This study is actually more looking at a risk factor rather than an assessment tool. However, it is useful for looking at the importance of cognitive functioning.
Overall Quality of Article	Overall Quality of Article: Good Rationale: This a randomized control trial that was published by Physical therapy association. While it wasn't cited extensively, it does have good methods and is one of the first of its kind.

Type of article	Overall Type: Primary Research Specific Type: Quantitative, validity and reliability
APA Reference	Halvarsson, A., Franzén, E., Olsson, E., & Ståhle, A. (2012). Relative and absolute reliability of the new 'Step-Ex' step-execution test in elderly people with and without balance problems. *Disability & Rehabilitation, 34*(23), 1986-1992. doi:10.3109/09638288.2012.665129
Abstract	"*Purpose*: To evaluate the relative and absolute test–re-test reliability of a new step-execution test, "Step-Ex", for clinical use in elderly with and without balance problems. *Method*: Test–re-test design to assess intrarater reliability. Thirty-four healthy community-dwelling elderly (65–87 years), 16 with balance problems, were tested twice two weeks apart. Step-Ex consists of two portable force platforms that register vertical ground reaction forces connected to a computer for easy detection of temporal events and phases (*reaction-, preparation-, stepping- and step execution phase*). Standing with one foot on each platform, the subjects were given a tactile stimulus on the heel to initiate rapid steps forward. *Results:* Test–re-test agreement was good to very good: ICC2.6 0.83–0.87 (without balance problems) and 0.71–0.83 (with balance problems) with no apparent systematic differences between the tests. The SEM, i.e. the smallest detectable change that may indicate a real clinical improvement for a group of individuals was small, 4.6–8.6%. The smallest real difference, representing the smallest change that reveals clinical improvement for a single individual, was 13–24%. *Conclusion*: Step-Ex is a highly reliable instrument and can be recommended as an outcome measure evaluating the effects of balance training in elderly people with and without balance deficits." (p. 1986)
Author	Credentials: Adjunct Lecturer Position and Institution:Karolinska Institute (Stockholm, Sweden) Publication History in Peer-Reviewed Journals: Little
Publication	Type of publication:Scholarly Publisher: Taylor and Francis Other:
Date and Citation History	Date of publication: March 2012 Cited By: 5
Stated Purpose or Research Question	"Thus, the present aim was to investigate the relative and absolute intrarater test–re-test reliability of the temporal phases assessed with the Step-Ex in healthy elderly subjects with and without balance problems," (para 4).
Author's Conclusion	"The new Step-Ex instrument seems to be a reliable, simple and feasible outcome measure for assessing the ability of elderly subjects with and without balance deficits to respond with rapid steps to tactile stimuli. It suggests a possibility to study balance deterioration of the reaction, preparation and execution of voluntary stepping over time in clinical studies, and to study the effects of balance training in elderly subjects, both healthy and those with balance and fall problems," (para. 30).
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Strong. Rationale: The actual content of this article is exactly what we're looking for; however, it hasn't been cited many times and isn't published by an experienced author.
Overall Quality of Article	Overall Quality of Article: Moderate Rationale: While this study hasn't been cited many other times and isn't published by an experienced researcher, it was published in a peer reviewed journal and addresses our question.

Type of article	Overall Type: Primary Research Specific Type: Quantitative, Reliability and Validity
APA Reference	Klein, P. J., Fiedler, R. C., & Rose, D. J. (2011). Rasch analysis of the Fullerton Advanced Balance (FAB) scale. *Physiotherapy Canada, 63*(1), 115-125. doi:10.3138/ptc.2009-51.
Abstract	"This cross-sectional study explores the psychometric properties and dimensionality of the Fullerton Advanced Balance (FAB) Scale, a multi-item balance test for higher-functioning older adults. Participants (n=480) were community-dwelling adults able to ambulate independently. Data gathering consisted of survey and balance performance assessment. Psychometric properties were assessed using Rasch analysis. Mean age of participants was 76.4 (SD=7.1) years. Mean FAB Scale scores were 24.7/40 (SD=7.5). Analyses for scale dimensionality showed that 9 of the 10 items fit a unidimensional measure of balance. Item 10 (Reactive Postural Control) did not fit the model. The reliability of the scale to separate persons was 0.81 out of 1.00; the reliability of the scale to separate items in terms of their difficulty was 0.99 out of 1.00. Cronbach's alpha for a 10-item model was 0.805. Items of differing difficulties formed a useful ordinal hierarchy for scaling patterns of expected balance ability scoring for a normative population. The FAB Scale appears to be a reliable and valid tool to assess balance function in higher-functioning older adults. The test was found to discriminate among participants of varying balance abilities. Further exploration of concurrent validity of Rasch-generated expected item scoring patterns should be undertaken to determine the test's diagnostic and prescriptive utility." (p. 115)
Author	Credentials: PT, Ph.D. Position and Institution: D'Youville College, Professor Emeritus Publication History in Peer-Reviewed Journals: Extensive
Publication	Type of publication: Scholarly Publisher: Physiotherapy Canada
Date and Citation History	Date of publication: 2011 Cited By: 24
Stated Purpose or Research Question	"Specific aims of the research were (a) to define the relationship between patterns of item performance and persons' abilities, (b) to examine dimensionality, (c) to identify item order hierarchy, and (d) to generate a pattern of expected scores for possible use in future research and clinical applications," (para. 4).
Author's Conclusion	"Results of Rasch modelling for the FAB Scale found that 9 of the 10 test items were related within a single domain of balance, which suggests that scores for items 1–9 may be summed into a total score for a meaningful measure of balance ability," (para. 7).
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Minimal Rationale: This is looking at the reliability and validity of a balance scale in community dwelling older adults; however, it is not looking at this assessment in relation to falls.
Overall Quality of Article	Overall Quality of Article: Good Rationale: This article is published by an established researcher in a peer-reviewed, prominent journal.

Type of article	Overall Type: review of research studies Specific Type: Systematic review
APA Reference	Schwenk, M., Lauenroth, A., Stock, C., Moreno, R. R., Oster, P., McHugh, G., Todd, C., Hauer, K. (2012). Definitions and methods of measuring and reporting on injurious falls in randomised controlled fall prevention trials: a systematic review. *BMC Medical Research Methodology*, *12*(50). doi:http://doi.org/10.1186/1471-2288-12-50
Abstract	**"Background** The standardisation of the assessment methodology and case definition represents a major precondition for the comparison of study results and the conduction of meta-analyses. International guidelines provide recommendations for the standardisation of falls methodology; however, injurious falls have not been targeted. The aim of the present article was to review systematically the range of case definitions and methods used to measure and report on injurious falls in randomised controlled trials (RCTs) on fall prevention. **Methods** An electronic literature search of selected comprehensive databases was performed to identify injurious falls definitions in published trials. Inclusion criteria were: RCTs on falls prevention published in English, study population ≥ 65 years, definition of injurious falls as a study endpoint by using the terms "injuries" and "falls". **Results** The search yielded 2089 articles, 2048 were excluded according to defined inclusion criteria. Forty-one articles were included. The systematic analysis of the methodology applied in RCTs disclosed substantial variations in the definition and methods used to measure and document injurious falls. The limited standardisation hampered comparability of study results. Our results also highlight that studies which used a similar, standardised definition of injurious falls showed comparable outcomes. **Conclusions** No standard for defining, measuring, and documenting injurious falls could be identified among published RCTs. A standardised injurious falls definition enhances the comparability of study results as demonstrated by a subgroup of RCTs used a similar definition. Recommendations for standardising the methodology are given in the present review." (p. 1)
Author	Credentials: PhD Position and Institution: Department of Geriatric Research, AGAPLESION Bethanien-Hospital/Geriatric Center at the University of Heidelberg Publication History in Peer-Reviewed Journals: extensive
Publication	Type of publication: peer reviewed journal of scholarly research articles Publisher: BMC Medical Research Methodology
Date and Citation History	Date of publication: April 17, 2012 Cited By: 64
Stated Purpose or Research Question	"The aim of the present article was to review systematically the range of case definitions and methods used to measure and report on injurious falls in randomised controlled trials (RCTs) on fall prevention."
Author's Conclusion	"No standard for defining, measuring, and documenting injurious falls could be identified among published RCTs. A standardised injurious falls definition enhances the comparability of study results as demonstrated by a subgroup of RCTs used a similar definition. Recommendations for standardising the methodology are given in the present review."
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Minimal Rationale: The article talks about the existing research on injurious falls and their assessment, however it focuses on subjects like the definition of falls, rather than on methods for assessing the risk of falling.
Overall Quality of Article	Overall Quality of Article: Good Rationale: This appears to be an article of high quality that is written by qualified professionals with a history of research on this subject that is published in a respectable publication.

Type of article	Overall Type: Primary research study Specific Type: quantitative, prospective cohort
APA Reference	Tiedemann, A., Shimada, H., Sherrington, C., Murray, S., Lord, S. (2008). The comparative ability of eight functional mobility tests for predicting falls in community-dwelling older people. *Age and Ageing, 37*(4), 430-435. doi:http://dx.doi.org/10.1093/ageing/afn100
Abstract	**"Background:** numerous tests have been suggested as fall risk indicators. However, the validity of these assessments has not been demonstrated in large representative samples of community-dwelling older people. **Objective:** the objective of this study was to examine the comparative ability and clinical utility of eight mobility tests for predicting multiple falls in older community-dwelling people. **Methods:** design—prospective cohort study; subjects −362 subjects aged 74–98 years; measurements—the sit-to-stand test with one and five repetitions, the pick-up-weight test, the half-turn test, the alternate-step test (AST), the six-metre-walk test (SMWT) and stair ascent and descent tasks. Falls were monitored for 1 year with fall calendars. **Results:** in the 12-month follow-up period, 80 subjects (22.1%) suffered two or more falls. Multiple fallers performed significantly worse than non-multiple fallers in the sit-to-stand test with five repetitions (STS-5), the AST, the half-turn test, the SMWT and the stair-descent test. When dichotomised using cut-off points from receiver-operated characteristics (ROC) curve analyses, these tests demonstrated reasonable sensitivity and specificity in identifying multiple fallers. A principal components analysis identified only one factor underlying the mobility tests. Poor performances in two mobility tests, however, increased the risk of multiple falls more than poor performance in one test alone (ORs = 3.66, 95% CI = 1.44, 9.27 and 1.61, 95% CI = 0.62, 4.16 respectively). **Conclusions:** the mobility tests appear to be measuring a similar 'mobility' construct. Based on feasibility and predictive validity, the AST, STS-5 and SMWTs were the best tests." (p. 430)
Author	Credentials: Associate Professor, degree not available Position and Institution: Prince of Wales Medical Research Institute Publication History in Peer-Reviewed Journals: extensive
Publication	Type of publication: peer reviewed medical journal Publisher: Oxford University Press
Date and Citation History	Date of publication: May 16, 2008 Cited By: 301
Stated Purpose or Research Question	"the objective of this study was to examine the comparative ability and clinical utility of eight mobility tests for predicting multiple falls in older community-dwelling people."
Author's Conclusion	"the mobility tests appear to be measuring a similar 'mobility' construct." "A single mobility test measure (the AST) provided the best discrimination between multiple and non-multiple fallers in a logistic regression analysis."
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Strong Rationale: The article directly examines the predictive value of multiple fall assessments for older adults in the community.
Overall Quality of Article	Overall Quality of Article: Good Rationale: Appears to be a good quality of article as the author has an extensive history of publishing in journals of good standing.

Type of article	Overall Type: primary research study Specific Type: validity study, quantitative
APA Reference	Delbaere, K., Close, J. C., Mikolaizak, A. S., Sachdev, P. S., Brodaty, H., Lord, S. R. (2008). The falls efficacy scale international (FES-I). A comprehensive longitudinal validation study. *Age and Ageing*, *39*(2), 210–216. doi: 10.1093/ageing/afp225
Abstract	**"Objective**: this study aimed to perform a comprehensive validation of the 16-item and 7-item Falls Efficacy Scale International (FES-I) by investigating the overall structure and measurement properties, convergent and predictive validity and responsiveness to change. **Method**: five hundred community-dwelling older people (70–90 years) were assessed on the FES-I in conjunction with demographic, physiological and neuropsychological measures at baseline and at 12 months. Falls were monitored monthly and fear of falling every 3 months. **Results**: the overall structure and measurement properties of both FES-I scales, as evaluated with item response theory, were good. Discriminative ability on physiological and neuropsychological measures indicated excellent validity, both at baseline (n = 500, convergent validity) and at 1-year follow-up (n = 463, predictive validity). The longitudinal follow-up suggested that FES-I scores increased over time regardless of any fall event, with a trend for a stronger increase in FES-I scores when a person suffered multiple falls in a 3-month period. Additionally, using receiver-operating characteristic (ROC) curves, cut-points were defined to differentiate between lower and higher levels of concern. **Conclusions**: the current study builds on the previously established psychometric properties of the FES-I. Both scales have acceptable structures, good validity and reliability and can be recommended for research and clinical purposes. Future studies should explore the FES-I's responsiveness to change during intervention studies and confirm suggested cut-points in other settings, larger samples and across different cultures." (p. 210)
Author	Credentials: Master's degree in Rehabilitation Sciences and Physiotherapy, PhD in the area of falls in community-dwelling older people in 2005 Position and Institution: Research fellow and group leader at Neuroscience Research Australia Publication History in Peer-Reviewed Journals: extensive
Publication	Type of publication: peer reviewed journal Publisher: Oxford University Press
Date and Citation History	Date of publication: March 1, 2010 Cited By: 241
Stated Purpose or Research Question	"this study aimed to perform a comprehensive validation of the 16-item and 7-item Falls Efficacy Scale International (FES-I) by investigating the overall structure and measurement properties, convergent and predictive validity and responsiveness to change."
Author's Conclusion	"Based on these analyses, we suggest that the FES-I can be recommended as a screening tool for concern about falling for research and clinical purposes."
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Strong Rationale: The article is a primary source that examines the validity of a specific fall risk assessment tool. The population used was community dwelling older adults between the ages of 70 and 90, meaning the study is highly applicable to our research focus.
Overall Quality of Article	Overall Quality of Article: Good Rationale: The article written by an author who specializes in the field of falls among community dwelling older adults. The publication is a peer reviewed journal created by a reputable publisher.

Type of article	Overall Type: primary research study Specific Type: psychometric study, quantitative
APA Reference	Palumbo, P., Klenk, J., Cattelani, L., Bandinelli, S., Ferrucci, L., Rapp, K., Chiari, L., Rothenbacher, D. (2016). Predictive performance of a fall risk assessment tool for community-dwelling older people (FRAT-up) in 4 european cohorts. *Journal of the American Medical Directors Association, 17*(12) 1106-1113. doi:https://doi.org/10.1016/j.jamda.2016.07.015
Abstract	**"Background and objective** The fall risk assessment tool (FRAT-up) is a tool for predicting falls in community-dwelling older people based on a meta-analysis of fall risk factors. Based on the fall risk factor profile, this tool calculates the individual risk of falling over the next year. The objective of this study is to evaluate the performance of FRAT-up in predicting future falls in multiple cohorts. **Methods** Information about fall risk factors in 4 European cohorts of older people [Activity and Function in the Elderly (ActiFE), Germany; English Longitudinal Study of Aging (ELSA), England; Invecchiare nel Chianti (InCHIANTI), Italy; Irish Longitudinal Study on Aging (TILDA), Ireland] was used to calculate the FRAT-up risk score in individual participants. Information about falls that occurred after the assessment of the risk factors was collected from subsequent longitudinal follow-ups. We compared the performance of FRAT-up against those of other prediction models specifically fitted in each cohort by calculation of the area under the receiver operating characteristic curve (AUC). **Results** The AUC attained by FRAT-up is 0.562 [95% confidence interval (CI) 0.530–0.594] for ActiFE, 0.699 (95% CI 0.680–0.718) for ELSA, 0.636 (95% CI 0.594–0.681) for InCHIANTI, and 0.685 (95% CI 0.660–0.709) for TILDA. Mean FRAT-up AUC as estimated from meta-analysis is 0.646 (95% CI 0.584–0.708), with substantial heterogeneity between studies. In each cohort, FRAT-up discriminant ability is surpassed, at most, by the cohort-specific risk model fitted on that same cohort. **Conclusions** We conclude that FRAT-up is a valid approach to estimate risk of falls in populations of community-dwelling older people. However, further studies should be performed to better understand the reasons for the observed heterogeneity across studies and to refine a tool that performs homogeneously with higher accuracy measures across different populations." (p. 1106)
Author	Credentials: PhD Position and Institution: Biomedical engineer at University of Bologna Publication History in Peer-Reviewed Journals: Minimal (4 publications in PubMed, but he may have authored more)
Publication	Type of publication: peer reviewed journal Publisher: Elsevier
Date and Citation History	Date of publication: December 1, 2016 Cited By: 1
Stated Purpose or Research Question	"With the present study, we aim to further validate FRAT-up and verify this hypothesis, evaluating its predictive performance on 4 datasets from relevant European epidemiologic studies including community-dwelling older adults."
Author's Conclusion	"Overall, FRAT-up seems suitable to be applied across different cohorts, thereby being a valid approach to estimate risk of falls in populations of community-dwelling older adults, although the performance varied among the different cohorts."
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Strong Rationale: The article is a primary source that tests the validity of a specific fall risk assessment tool. The population of the study was community dwelling older adults.
Overall Quality of Article	Overall Quality of Article: Moderate Rationale: The article is published in a credible peer reviewed journal. The article has only been cited once, but this may be due to its comparatively recent publication.

Type of article	Overall Type: Primary research study Specific Type: psychometric study, quantitative
APA Reference	Tomita, M. R., Saharan, S., Rajendran, S., Nochajski, S. M., Schweitzer, J. A. (2014). Psychometrics of the home safety self-assessment tool (HSSAT) to prevent falls in community-dwelling older adults. *The American Journal of Occupational Therapy,* 68(6), 711-718. doi: 10.5014/ajot.2014.010801
Abstract	**"OBJECTIVE.** To identify psychometric properties of the Home Safety Self-Assessment Tool (HSSAT) to prevent falls in community-dwelling older adults. **METHOD.** We tested content validity, test–retest reliability, interrater reliability, construct validity, convergent and discriminant validity, and responsiveness to change. **RESULTS.** The content validity index was .98, the intraclass correlation coefficient for test–retest reliability was .97, and the interrater reliability was .89. The difference on identified risk factors between the use and nonuse of the HSSAT was significant (p = .005). Convergent validity with the Centers for Disease Control and Prevention Home Safety Checklist was high (r = .65), and discriminant validity with fear of falling was very low (r = .10). The responsiveness to change was moderate (standardized response mean = 0.57). **CONCLUSION.** The HSSAT is a reliable and valid instrument to identify fall risks in a home environment, and the HSSAT booklet is effective as educational material leading to improvement in home safety." (p. 711)
Author	Credentials: PhD Position and Institution: faculty director in the department of rehabilitation science at University of Buffalo Publication History in Peer-Reviewed Journals: moderate (17)
Publication	Type of publication: peer reviewed journal Publisher: American Occupational Therapy Association
Date and Citation History	Date of publication: November, 2014 Cited By: 13
Stated Purpose or Research Question	"The purpose of this study was to establish reliability and validity of the risk factor section (HSSAT) and responsiveness to change using the HSSAT."
Author's Conclusion	"Content validity, test–retest reliability, interrater reliability, construct validity, and responsiveness to change have been established for the HSSAT. The HSSAT booklet can be used to identify fall risks and facilitate fall hazard reduction in a home environment for community-dwelling older adults."
Overall Relevance to PICO or EBP Research Question	Overall Relevance to PICO: Strong Rationale: The article focuses on the construct validity and the reliability of a specific assessment of the home environment for fall risk in community dwelling older adults. However, the tool being examined is also partly an intervention tool in addition to an assessment tool.
Overall Quality of Article	Overall Quality of Article: Good Rationale: The article appears to be written by a qualified professional in a peer reviewed publication. The limited number of citations is not necessarily an indicator or low quality given OT's limited research field.

Type of article	Overall type: Primary research study Specific type: Psychometric review
APA Reference	Elliott, S. J., Ivanescu, A., Leland, N. E., Fogo, J., Painter, J. A., & Trujillo, L. G. (2012). Feasibility of interdisciplinary community-based fall risk screening. *The American Journal of Occupational Therapy*. *66*, 161-168. Doi:10.5014/ajot.2012.002444
Abstract	"OBJECTIVE. This pilot study examined the feasibility of (1) conducting interdisciplinary fall risk screens at a communitywide adult fall prevention event and (2) collecting preliminary follow-up data from people screened at the event about balance confidence and home and activity modifications made after receiving educational information at the event. METHOD. We conducted a pilot study with pre– and posttesting (4-mo follow-up) with 35 community dwelling adults ³55 yr old. RESULTS. Approximately half the participants were at risk for falls. Most participants who anticipated making environmental or activity changes to reduce fall risk initiated changes (n 5 8/11; 72.7%) during the 4-mo follow-up period. We found no significant difference in participants' balance confidence between baseline (median 5 62.81) and follow-up (median 5 64.06) as measured by the Activities-specific Balance Confidence scale. CONCLUSION. Conducting interdisciplinary fall risk screens at an adult fall prevention event is feasible and can facilitate environmental and behavior changes to reduce fall risk." (p. 161)
Author	Credentials: DHS, GCG, OTR/L, BCG, FAOTA Position and University: Adult Therapy Services Coordinator - Therapeutic Life Center (NC) Publishing History: Peer reviewed journals - extensive
Publication	Type of publication: Peer-reviewed journal Publisher: The American Journal of Occupational Therapy
Date and Citation History	2012 Google Scholar: cited 17 times
Stated Purpose or Research Question	"The study described in this article involved a pilot study to examine the feasibility of (1) conducting interdisciplinary fall risk screens at a communitywide adult fall prevention event and (2) collecting preliminary follow-up data about the balance confidence of adults screened at the event and home or activity modifications they made after receiving educational information at the event" (P. 162).
Author's Conclusion	"In summary, given the study's results, occupational therapy clinicians should proactively explore the feasibility of developing and implementing similar communitywide events, which may lead to more targeted community resources, assessments, and interventions to reduce fall risk" (p. 167).
Overall Relevance to PICO	Overall relevance of PICO: moderate P relates to question as it relates to older adults, I is individuals receiving fall risk screening or not receiving fall risk screening, C compares different populations ages, genders, etc. and O shows some relevance of the study.
Overall Quality	Overall Quality of Article: Good Quality Established author

Type of article	**Overall Type:** Primary Research **Specific Type:** Case Study of the development and pilot-testing of HSSAT
APA Reference	Horowitz, B. P., Almonte T., & Vasil, A. (2016). Use of the *home safety self-assessment tool (HSSAT)* within community health education to improve home safety. *Occupational Therapy In Health Care, 30*(4), 356-372.
Abstract	**"ABSTRACT.** More than 70 million Americans are expected to be 65 years or older by 2030, with 8.7 million 85 or older. Occupational therapists can provide client and population-centered interventions to promote home safety, functional abilities, and quality of life to support older adults' desires for independence and to age in place. This includes the use of assistive technology, home modifications, and rehabilitation principles, to design real life solutions to support the needs of older adults. Using case study methodology this paper focuses on the development and pilot-testing of the Home Safety Self-Assessment Tool (HSSAT), a new home assessment, designed for use by older individuals to promote home safety and aging in place. The results suggest the tool may assist older adults in identifying environmental factors that are related to falls and facilitate their ability to age in place." (p. 356)
Author	**Credentials:** Beverly P. Horowitz, PhD, LMSW, OTR/L1, Position and Institution: Beverly P. Horowitz- Department of Occupational Therapy, York College-CUNY, Jamaica, New York, USA, **Publication History in Peer-Reviewed Journals:** Several-Peer reviewed pilot studies
Publication	**Type of publication:** Scholarly Journal **Publisher:** Informa Healthcare USA, Inc.
Date and Citation History	**Date of publication:** September 11, 2015 **Cited By:** Zero citations
Stated Purpose or Research Question	"Health education programs that increase public awareness about relationships between supportive home environments, functional abilities, and safety may increase acceptance and readiness for environ- mental change." (p. 219)
Author's Conclusion	The HSSAT "is a promising tool to help older adults self-identify home hazards and develop individualized solutions to solve environmental problems to support community living." (p.225)
Overall Relevance to PICO	**Overall Relevance to PICO:** Strong, Rationale: The conclusion accurately researched the population (elderly adults) and addressed the question of assessing whether health education programs help elderly people get ready to make environmental changes.
Overall Quality	**Overall Quality of Article**: Good **Rationale**: This article relates to our question reviewing assessments and their ability to help prevent falls in elderly adults living in the community.

Type of article	Overall Type: Primary Research Study Specific Type: Psychometric Research Study
APA Reference	Goldberg, A., Schepens, S., & Wallace, M. (2010). Concurrent validity and reliability of the Maximum Step Length Test in older adults. *Journal of Geriatric Physical Therapy*, *33*(3), 122-127. doi:10.1097/JPT.0b013e3181eda302
Abstract	"Purpose: This study assessed concurrent validity of the Maximum Step Length (MSL) test as a measure of falls risk and balance-impairment for community-dwelling older adults. A secondary purpose was to determine intra- and interrater reliability and standard error of measurement of the MSL test. Methods: Thirty-five community-dwelling adults aged 60 or older provided a 12-month falls history. Functional measures included the MSL test, Single Limb Stance Time, Functional Reach test, Timed Up and Go test, and a test of trunk position sense. Pearson correlation coefficient, intraclass correlation coefficient (a coefficient of relative reliability), and standard error of measurement (a measure of absolute reliability) were calculated as indices of concurrent validity and reliability of the MSL test. Minimal detectable change was also calculated; this represents actual change beyond that of measurement error or random variation in stepping performance. Results: Correlations between MSL score and clinical balance measures and self-reported number of falls in the past 12 months ranged from fair to good. Same-day and 1-month intrarater testretest reliability of the MSL test was excellent. Same-day interrater reliability between 2 raters was also excellent. Measurement error of the MSL test was low. Minimal detectable change for the MSL test at the 95% confidence level was 7.32 inches. Conclusion: The MSL test appears to be a valid and reliable measure of balance-impairment and falls risk in older adults. Clinicians should consider incorporating the MSL test into their battery of falls risk assessment tools. Use of this test as a screening measure may reduce the incidence of falls in communitydwelling older adults. Real change in performance requires a difference of more than 7.32 inches between trials; differences less than this should be interpreted as being due to measurement error or random variation in stepping performance." (p. 122)
Author	Credentials: PhD, PT Position and Institution: Department of Healthcare Sciences, Physical Therapy Program, Mobility Research Laboratory, Detroit, Michigan. Institute of Gerontology, Wayne State University, Detroit, Michigan. Department of Internal Medicine, School of Medicine; Wayne State University, Detroit, Michigan. Publication History: Published author with many different journal articles
Publication	Type of Publication: Peer reviewed journal Publication: Journal of Geriatric Physical Therapy
Date and Citation History	Year: 2010 Google Scholar cited by: 14
Stated Purpose or Research Question	"The primary objective in this study was to assess the concurrent validity of the MSL test as a measure of falls risk and balance-impairment in community-dwelling older adults" (p. 123).
Author's Conclusion	"The observation that the MSL test is a valid measure of underlying balance-impairment and falls risk in older adults, coupled with its excellent reliability, including low measurement error, and ease of administration, suggests that clinicians should consider incorporating the MSL test into their battery of falls risk assessment tools" (p. 127)
Overall Relevance to PICO	Overall relevance to PICO: high P: addressed the population of older adults in community dwellings, I: No intervention, C: compared other assessments to this assessment, O: outcomes found to prove validity and reliability of assessment
Overall Quality	Overall quality of article: Good quality Overall quality of author: Well established author with many journals

Type of article	**Overall Type:** Primary Research **Specific Type:** Qualitative-Interviews
APA Reference	Galambos, C., Rantz, M., Back, J., Jun, J. S., Skubic, M., & Miller, S. J. (2017). Older adults' perceptions of and preferences for a fall risk assessment system: exploring stages of acceptance model. *CIN: Computers, Informatics, Nursing, 35*(7):331–337. doi:10.1097/CIN.0000000000000330
Abstract	**"ABSTRACT**: Aging in place is a preferred and cost-effective living option for older adults. Research indicates that technology can assist with this goal. Information on consumer preferences will help in technology development to assist older adults to age in place. The study aim was to explore the perceptions and preferences of older adults and their family members about a fall risk assessment system. Using a qualitative approach, this study examined the perceptions, attitudes, and preferences of 13 older adults and five family members about their experience living with the fall risk assessment system during five points in time. Themes emerged in relation to preferences and expectations about the technology and how it fits into daily routines. We were able to capture changes that occurred over time for older adult participants. Results indicated that there was acceptance of the technology as participants adapted to it. Two themes were present across the five points in time-safety and usefulness. Five stages of acceptance emerged from the data from preinstallation to 2 years postinstallation. Identified themes, stages of acceptance, and design and development considerations are discussed." (p. 331)
Author	**Credentials:** Colleen Galambos, PhD, ACSW, LCSW, LCSW-C **Position and Institution**: School of Social Work (Dr Galambos and Ms Jun), Sinclair School of Nursing (Dr Rantz and Mr Miller), and Department of Electrical and Computer Engineering (Dr Skubic), University of Missouri, Columbia. Ms Back is in private practice in Columbia, MO **Publication History in Peer-Reviewed Journals:** Several-Peer reviewed articles-Gerontology and long-term care
Publication	**Type of publication:** Scholarly Journal **Publisher:** Wolters Kiuwer Health, Inc.
Date and Citation History	**Date of publication:** 7/1/2017 **Cited By:** Zero citations
Stated Purpose or Research Question	"The study aim was to explore the perceptions and preferences of older adults and their family members about a fall risk assessment system." (p. 331)
Author's Conclusion	"The results suggest that, for this limited sample, interest and acceptance of the FRAS were motivated by a declining functional status and a desire to age in place." (p.337)
Overall Relevance to PICO	**Overall Relevance to PICO:** Moderate Rationale: Conclusion mentions specific assessment not included in the stated purpose/question. Conclusion does, however, discuss preferences of older adults and their preferences.
Overall Quality	**Overall Quality of Article**: Fair **Rationale**: This article is a good source to discuss the impact of assessments on older adults in the community and allows opinions from the community we are treating to impact what we choose.

Type of article	Overall type: Primary research method Specific type: Qualitative and quantitative - mixed methods
APA Reference	Mackenzie, L. (2017). Evaluation of the clinical utility of the Home Fallsand Accidents Screening Tool (HOME FAST), *Disability and Rehabilitation*, *39*(15), 1489-1501. DOI:10.1080/09638288.2016.1204015
Abstract	"Purpose: The HOME FAST was developed and trialled in Australia as a screening tool designed to be used by any health professional to identify older people at increased risk of falls and to facilitate referral for more detailed assessment and intervention. This study aimed to evaluate the clinical utility of the HOME FAST from the perspective of users. Method: A mixed-methods approach using survey data (n¼32), focus group data (n¼46) and interview data (n¼5) from occupational therapists, physiotherapists, community nurses and other health professionals working in hospitals, community services and private practice, located in the UK, Canada and Australia. Data were integrated using a matrix of quantitative and qualitative data that aligned the findings with established theoretical constructs of clinical utility. Results: Findings across the data sources provide evidence of the clinical utility of the HOME FAST, and these findings align with theoretical constructs about how a tool such as the HOME FAST is adopted in practice. Conclusion: The HOME FAST can be used in a variety of international setting in developed countries and by different health professionals as a screening tool. A manual would assist in the consistent application of the HOME FAST." (p. 1489)
Author	Credentials: PhD Position and institution: Discipline of Occupational Therapy, Faculty of Health Sciences, University of Sydney, Lidcombe, NSW, Australia
Publication	Type of publication: peer reviewed journal Publisher: Disability and Rehabilitation
Date and Citation History	Year: 2017 Google Scholar Cited by: 0
Stated Purpose or Research Question	"Therefore, this study aimed to use a variety of exploratory data collection and analysis techniques to evaluate the clinical utility of the HOME FAST, using the research questions generated above. An international sample of health professionals was used to enhance understanding of how the HOME FAST was being adopted worldwide" (p. 1491).
Author's Conclusion	"This study illustrates how a mixed-methods approach was used to confirm the clinical utility of the HOME FAST, and its contribution to preventing falls in the homes of older people across international contexts. Despite some barriers being identified, the overall benefits of the tool were acknowledged, and many barriers could be addressed by the development of a comprehensive manual to accompany the tool" (p. 1499)
Overall Relevance to PICO	Overall relevance: minimal P: looked at health professionals in Australia, No I, C - compared the methods given for the HOME FAST, O: limited
Overall Quality	Overall Quality: moderate Author has numerous publications - many that are peer reviewed articles and have good

Type of article	Overall Type: Review of Research Specific Type: Systematic Review and Meta-Analysis
APA Reference	Barry, E., Galvin, R., Keogh, C., Horgan, F., & Fahey, T. (2014). Is the Timed Up and Go test a useful predictor of risk of falls in community dwelling older adults: a systematic review and meta-analysis. *BMC Geriatrics, 14*, 1-14. doi: 10.1186/1471-2318-14-14
Abstract	"Background: The Timed Up and Go test (TUG) is a commonly used screening tool to assist clinicians to identify patients at risk of falling. The purpose of this systematic review and meta-analysis is to determine the overall predictive value of the TUG in community-dwelling older adults. Methods: A literature search was performed to identify all studies that validated the TUG test. The methodological quality of the selected studies was assessed using the QUADAS-2 tool, a validated tool for the quality assessment of diagnostic accuracy studies. A TUG score of ≥13.5 seconds was used to identify individuals at higher risk of falling. All included studies were combined using a bivariate random effects model to generate pooled estimates of sensitivity and specificity at ≥13.5 seconds. Heterogeneity was assessed using the variance of logit transformed sensitivity and specificity. Results: Twenty-five studies were included in the systematic review and 10 studies were included in meta-analysis. The TUG test was found to be more useful at ruling in rather than ruling out falls in individuals classified as high risk (>13.5 sec), with a higher pooled specificity (0.74, 95% CI 0.52-0.88) than sensitivity (0.31, 95% CI 0.13-0.57). Logistic regression analysis indicated that the TUG score is not a significant predictor of falls (OR = 1.01, 95% CI 1.00-1.02, p = 0.05). Conclusion: The Timed Up and Go test has limited ability to predict falls in community dwelling elderly and should not be used in isolation to identify individuals at high risk of falls in this setting." (p. 1)
Author	Credentials: Unknown Position and Institution: HRB Centre for Primary Care research Department of General Practice, Royal College of Surgeons in Ireland Publication History in Peer-Reviewed Journals: Limited
Publication	Type of publication: scholarly open peer-reviewed journal Publisher: BMC Geriatrics
Date and Citation History	Date of publication: 2014 Google Scholar Cited By:162
Stated Purpose or Research Question	"The aim of this systematic review with meta-analysis is to examine the predictive value of the test to identify individuals at risk in falling in the community using the frequently cited cut-off of ≥13.5 seconds. A secondary aim of the study is to examine the summary estimates of sensitivity and specificity of alternative cut-off scores to optimally discriminate between fallers and non-fallers" (p. 2)
Author's Conclusion	"This systematic review demonstrates that the diagnostic accuracy of the Timed Up and Go test is limited at the widely used cut point of ≥13.5 seconds and should not be used for identifying community dwelling adults at high risk of falls in clinical practice" (p. 11)
Overall Relevance to PICO	Overall Relevance to PICO: Limited This source suggests that the Timed Up and Go test should not be used for identifying community-dwelling adults that are at high risk for falls. This does not give support for this assessment.
Overall Quality	Overall Quality of Article: Moderate Quality Publication within last 5 years. Researcher not well-published, but article is cited often.

Type of article	Overall Type: Primary Research Study Specific Type: Quantitative Non-experimental study
APA Reference	Kamińska, M. S., Brodowski, J., & Karakiewicz, B. (2015). Fall risk factors in community-dwelling elderly depending on their physical function, cognitive status and symptoms of depression. *International Journal of Environmental Research and Public Health, 12*(4), 3406–3416. doi: 10.3390/ijerph120403406
Abstract	"Falls are the leading cause of unintentional injuries and injury-related disability, morbidity and mortality in the geriatric population. Therefore, they may also lower quality of life. The aim of this study was to analyze the fall risk factors in the community-dwelling elderly depending on their physical function, cognitive status and symptoms of depression. The study involved 304 individuals aged 65–100 years with a mean age of 78.6 ± 7.4. This survey-based study was conducted using the Geriatric Environmental Inquiry, the Barthel Scale (BS), the Abbreviated Mental Test Score (AMTS), the Geriatric Depression Scale (GDS) and the Tinetti Test (TT). There was a statistically significant correlation between the BS, the TT and the incidence of falls ($p < 0.05$). The number of falls correlated significantly with the results of the BS (R = −0.39), the GDS (R = 0.18), and the TT (R = −0.40). A statistically significant correlation was also noted between the TT results and the results of the BS (R = 0.77), the AMTS (R = 0.40) and the GDS (R = −0.37). The incidence of falls may significantly increase in people with a lower functional status, which may be related to cognitive process disturbances and lower affective functioning. A comprehensive geriatric assessment, related to all aspects of advanced-age patients' efficiency, is recommended. Fall prevention strategies should include actions undertaken to evaluate and treat depression and cognitive disturbances." (p. 3406)
Author	Credentials: Unknown Position and Institution: Department of Primary Health Care, Faculty of Health Sciences, Pomeranian Medical University in Szczecin Publication History in Peer-Reviewed Journals: Moderate
Publication	Type of publication: scholarly open peer-reviewed journal Publisher: International Journal of Environmental Research and Public Health
Date and Citation History	Date of publication: 2015 Google Scholar Cited By: 23
Stated Purpose or Research Question	"The aim of this study was to analyze the fall risk factors in the community-dwelling elderly depending on their physical function, cognitive status and symptoms of depression." (p. 3408)
Author's Conclusion	"The study presented here, demonstrated a significant relationship between functional status and a history of falls." "In this study, the risk of falls was significantly related to functional status." "Based on the obtained results, cognitive status and affective functioning do not have significant effects on the incidence of falls. A significant correlation between the number of falls and cognitive status was not confirmed either." (p. 3413)
Overall Relevance to PICO	Overall Relevance to PICO: Limited This source does not give a specific assessment that is relevant for assessing fall risk, but rather looks at factors.
Overall Quality	Overall Quality of Article: Moderate Quality Publication within last 5 years. Researcher moderately published, article cited only a few times.

Type of article	Overall Type: Primary Source Specific Type: Discriminant Function Analyses
APA Reference	Maeda, N., Urabe, Y., Murakami, M., Itotani, K., & Kato, J. (2015). Discriminant analysis for predictor of falls in stroke patients by using the Berg Balance Scale. *Singapore Medical Journal, 56*(5), 280-283. doi: 10.11622/smedj.2015033
Abstract	"INTRODUCTION An observational study was carried out to estimate the strength of the relationships among balance, mobility and falls in hemiplegic stroke inpatients. The objective was to examine factors that may aid in the prediction of the likelihood of falls in stroke patients. METHODSA total of 53 stroke patients (30 male, 23 female) aged 67.0 ± 11.1 years were interviewed regarding their fall history. Physical performance was assessed using the Berg Balance Scale (BBS) and the Functional Independence Measure (FIM) scale. Variables that differed between fallers and non-fallers were identified, and a discriminant function analysis was carried out to determine the combination of variables that effectively predicted fall status. RESULTS Of the 53 stroke patients, 19 were fallers. Compared with the non-fallers, the fallers scored low on the FIM, and differed with respect to age, time from stroke onset, length of hospital stay, Brunnstrom recovery stage and admission BBS score. Discriminant analysis for predicting falls in stroke patients showed that admission BBS score was significantly related to the likelihood of falls. Moreover, discriminant analysis showed that the use of a significant BBS score to classify fallers and non-fallers had an accuracy of 81.1%. The discriminating criterion between the two groups was a score of 31 points on the BBS. CONCLUSION The results of this study suggest that BBS score is a strong predictor of falls in stroke patients. As balance is closely related to the risk of falls in hospitalised stroke patients, BBS might be useful in the prediction of falls. Keywords: Berg Balance Scale, discriminant, falls, Functional Independence Measure, stroke" (p. 280)
Author	Credentials: PT, PhD Position and Institution: Department of Sport Rehabilitation, Graduate of Biomedical & Health Sciences, Hiroshima University, Hiroshima, Japan Publication History in Peer-Reviewed Journals: moderate
Publication	Type of publication: scholarly peer-reviewed journal Publisher: Singapore Medical Association
Date and Citation History	Date of publication: 2015 Google Scholar Cited By: 9
Stated Purpose or Research Question	"The objective of the present study was to examine the factors that contribute to falls in stroke inpatients who have chronic disabilities. This was done by investigating the fallers' and non-fallers' physical characteristics, Functional Independence Measure (FIM) scores on admission and discharge,(12) Berg Balance Scale (BBS) scores on admission(13) and mini-mental state examination (MMSE) scores.(14) The variables that were best able to discriminate between the two groups were determined." (p. 280)
Author's Conclusion	"By performing a discriminant function analysis with the occurrence of falls as the dependent variable, we found that BBS score on admission was the variable that best discriminated between fallers and non-fallers." "We found that the balance of stroke patients who are in convalescence to maintenance stages on admission was closely related to fall risk." "The findings suggest that BBS score on admission is an important factor for determining the risk of falls in stroke patients with chronic disabilities." (p. 283)
Overall Relevance to PICO	Overall Relevance to PICO: moderate This source suggests that BBS scores are an important factor for determining risk of falls in stroke patients, but the population was patients with chronic disabilities.
Overall Quality	Overall Quality of Article: moderate This article has been cited a few times elsewhere, but has a small sample size. The author is moderately published.

Type of article	Overall Type: Primary Source Specific Type: Qualitative Non-Experimental methods
APA Reference	Rodríguez-Molinero, A., Gálvez-Barrón, C., Narvaiza, L., Miñarro, A., Ruiz, J., Valldosera, E., … Yuste, A. (2017). A two-question tool to assess the risk of repeated falls in the elderly. *PLoS ONE, 12*(5), 1-12. doi: 10.1371/journal.pone.0176703
Abstract	"Introduction: Older adults' perception of their own risk of fall has never been included into screening tools. The goal of this study was to evaluate the predictive validity of questions on subjects' self-perception of their own risk of fall. Methods: This prospective study was conducted on a probabilistic sample of 772 Spanish community-dwelling older adults, who were followed-up for a one year period. At a baseline visit, subjects were asked about their recent history of falls (question 1: "Have you fallen in the last 6 months?"), as well as on their perception of their own risk of fall by using two questions (question 2: "Do you think you may fall in the next few months?" possible answers: yes/no; question 3: "What is the probability that you fall in the next few months?" possible answers: low/intermediate/high). The follow-up consisted of quarterly telephone calls, where the number of falls occurred in that period was recorded. Results: A short questionnaire built with questions 1 and 3 showed 70% sensitivity (95% CI: 56%-84%), 72% specificity (95% CI: 68%-76%) and 0.74 area under the ROC curve (95% CI:0.66–0.82) for prediction of repeated falls in the subsequent year. Conclusions: The estimation of one's own risk of fall has predictive validity for the occurrence of repeated falls in older adults. A short questionnaire including a question on perception of one's own risk of fall and a question on the recent history of falls had good predictive validity." (p. 1)
Author	Credentials: Unknown Position and Institution: Consorci Sanitari del Garraf, Fundació Privada Sant Antoni Abat, Vilanova i la Geltrú, Barcelona, Spain Publication History in Peer-Reviewed Journals: moderate
Publication	Type of publication: scholarly open peer-reviewed journal Publisher: 2017 Rodríguez-Molinero et al PloS
Date and Citation History	Date of publication: 2017 Google Scholar Cited By: 1
Stated Purpose or Research Question	"The goal of the present study was to evaluate the predictive validity of self-estimated risk of fall in a larger sample of community-dwelling subjects, as well as to evaluate the validity of an ultra-short questionnaire, which combined a question on self-perception and a question on the history of falls. In both cases, the evaluation of predictive validity was focused on the occurrence of multiple falls (not only one), because subjects who tend to fall repeatedly are at highest risk of complications" (p. 2)
Author's Conclusion	"The results of this study showed however, that older adults' self-estimation of their own risk of fall had a strong predictive value for the incidence of subsequent falls" (p. 7)
Overall Relevance to PICO	Overall Relevance to PICO: High This study found two interview questions could help predict the incidence of subsequent falls. This is a type of assessment that could be used for practitioners to assess risk of falls.
Overall Quality	Overall Quality of Article: moderate This author is moderately published, especially in articles related to falls. This article has already been cited once, and was only published this year (2017).

Type of article	Overall Type: Primary Source Specific Type: Quantitative Non-Experimental methods
APA Reference	Singh, D. K., Pillai, S. G., Tan, S.T., Tai, C. C., & Shahar, S. (2015). Association between physiological falls risk and physical performance tests among community-dwelling older adults. *Clinical Interventions in Aging, 10*,1319–1326. doi: 10.2147/CIA.S79398
Abstract	"Background: Physical performance and balance declines with aging and may lead to increased risk of falls. Physical performance tests may be useful for initial fall-risk screening test among community-dwelling older adults. Physiological profile assessment (PPA), a composite falls risk assessment tool is reported to have 75% accuracy to screen for physiological falls risk. PPA correlates with Timed Up and Go (TUG) test. However, the association between many other commonly used physical performance tests and PPA is not known. The aim of the present study was to examine the association between physiological falls risk measured using PPA and a battery of physical performance tests. Methods: One hundred and forty older adults from a senior citizens club in Kuala Lumpur, Malaysia (94 females, 46 males), aged 60 years and above (65.77±4.61), participated in this cross-sectional study. Participants were screened for falls risk using PPA. A battery of physical performance tests that include ten-step test (TST), short physical performance battery (SPPB), functional reach test (FRT), static balance test (SBT), TUG, dominant hand-grip strength (DHGS), and gait speed test (GST) were also performed. Spearman's rank correlation and binomial logistic regression were performed to examine the significantly associated independent variables (physical performance tests) with falls risk (dependent variable). Results: Approximately 13% older adults were at high risk of falls categorized using PPA. Significant differences (P,0.05) were demonstrated for age, TST, SPPB, FRT, SBT, TUG between high and low falls risk group. A significant (P,0.01) weak correlation was found between PPA and TST (r=0.25), TUG (r=0.27), SBT (r=0.23), SPPB (r=−0.33), and FRT (r=−0.23). Binary logistic regression results demonstrated that SBT measuring postural sways objectively using a balance board was the only significant predictor of physiological falls risk (P,0.05, odds ratio of 2.12). Conclusion: The reference values of physical performance tests in our study may be used as a guide for initial falls screening to categorize high and low physiological falls risk among community-dwelling older adults. A more comprehensive assessment of falls risk can be performed thereafter for more specific intervention of underlying impairments. Keywords: balance, postural sways, agility, mobility, strength, gait speed" (p. 1319)
Author	Credentials: Unknown Position and Institution: Physiotherapy Programme, School of Rehabilitation Sciences, Universiti Kebangsaan Malaysia, Jalan Raja Muda Abdul Aziz, Kuala Lumpur, Malaysia Publication History in Peer-Reviewed Journals: moderate-extensive
Publication	Type of publication: scholarly open peer-reviewed journal Publisher: Dove Medical Press Limited in Clinical Interventions of Aging
Date and Citation History	Date of publication: 2015 Google Scholar Cited By: 16
Stated Purpose or Research Question	"The aim of the present study was to examine the association between physiological falls risk measured using PPA, agility, dynamic and static balance, physical performance battery, grip strength, gait speed, and TUG tests." (p. 1320)
Author's Conclusion	"The results of this study showed that SBT measured objectively using a balance board was the most robust physical performance measure for physiological falls risk" (p. 1322)
Overall Relevance to PICO	Overall Relevance to PICO: moderate This study provides a measure for physiological risk of falls that was shown to be helpful for assessment.
Overall Quality	Overall Quality of Article: moderate This article has been cited and the author is moderately published in the subject.

Type of article	**Overall Type:** Primary Research **Specific Type:** Pre-test/Post-test
APA Reference	Johnston, K., Barras, S., & Grimmer-Somers, K. (2010). Relationship between pre-discharge occupational therapy home assessment and prevalence of post-discharge falls. *Journal Of Evaluation In Clinical Practice*, *16*(6), 1333-1339. doi:10.1111/j.1365-2753.2009.01339.x
Abstract	**"Rationale, aims and objective** Pre-discharge occupational therapy home assessments are common practice, and considered important for falls prevention in older people. This prospective, observational cohort study describes the association between pre-discharge home assessment and falls in the first month post-discharge from a rehabilitation hospital. **Methods** 342 inpatients were recruited and followed up 1 month post-discharge. Patients were classified into diagnostic groups (cardiac, orthopaedic trauma, spinal, peripheral joint surgery, neurological and deconditioned). Age, gender, falls risk [Falls Risk Assessment Scoring System (FRASS)], functional independence scores (FIMTM) and receipt (or not) of a home assessment were recorded. Patients completed a diary to document post-discharge falls. Logistic regression analysis tested the effect on falling of receiving a home assess- ment, age, gender, diagnostic group, FRASS and FIMTM. **Results** Considering all subjects, not receiving a home assessment increased the risk of falling 1 month post-discharge [odds ratio (OR) 2.6, 95% confidence interval (CI) 1.4–4.7, *P*=0.003]. Neurological and orthopaedic trauma patients had significantly elevated risks of falling [OR (95% CI), respectively, 12.5 (4.7–33.2), 3.4 (1.4–8.4)] relative to the orthopaedic joint group. For all diagnostic groups except neurological, falls risk was mitigated by a home assessment. In non-neurological patients, adjusting for the effect of diagnostic group, FRASS and FIMTM scores indicated a significant association between not receiving a home assessment and falling (OR 4.2, 95% CI 2.1–8.2, $P < 0.001$). **Conclusions** Pre-discharge occupational therapy home assessments are sound post- discharge falls-prevention strategies in non-neurological patients. The decision to conduct a home assessment should consider diagnosis, falls risk and functional independence." (p. 1365)
Author	**Credentials:** Kylie Johnston Bachelor of Applied Science [Physiotherapy] PhD Research Officer, Centre for Allied Health Evidence, University of South Australia, Adelaide, SA, Australia **Publication History in Peer-Reviewed Journals:** Peer-Reviewed Journal Articles, Physiotherapy
Publication	**Type of publication:** Scholarly **Publisher:** Blackwell Publishing Ltd
Date and Citation History	**Date of publication:** 10 August 2009 **Cited By:** 23 Citations
Stated Purpose or Research Question	This article "describes the association between a pre-discharge occupational therapy home assessment and falls recorded during the first month post-discharge from a rehabilitation facility."(p. 1334)
Author's Conclusion	"Home assessments conducted by occupational therapists at this facility generally protected patients from falling in the first month after their discharge from hospital…. These factors may form part of a decision-making matrix for the conduct of occupational therapy home assessments, to maximize the influ- ence of this intervention in falls prevention." (p. 1338)
Overall Relevance to PICO	**Overall Relevance to PICO:** Strong Rationale: Appropriately assesses the predictability of fall-risk assessments and if they accurately help prevent falls or not.
Overall Quality	**Overall Quality of Article**: Good **Rationale**: This author has a good depth of research in this area, and is a third party assessing occupational therapy assessments so she would be less biased to find accurate assessments to use in the elderly population.

Type of article	**Overall Type:** Primary Research **Specific Type:** Assessment Implementation
APA Reference	Schlismann, C. A. (2008). Fall risk reduction in home health and hospice. *Home Healthcare Nurse: The Journal for the Home Care and Hospice Professional, 26*(5), 300-307. doi:10.1097/01.NHH.0000318947.08280.48
Abstract	**No Abstract-** **From the Discussion:** "Adopting a policy of conducting a fall risk assessment for all adult pa- tients required staff education and follow-up evaluation. Currently, less than 0.5% of these assessments are incomplete when charts are audited." "Additional benefits were that the Fall Risk assessment facilitated OASIS assessment because it required observation of the patient's balance, ambulation, gait, and ability to follow directions (Figure 5) When the Joint Commission (2004) added "reduce the risk of patient harm resulting from falls" to the National Patient Safety Goals in 2005, we had been formally assessing for fall risk more than a year." (p. 307) **From Intro:** "Our OASIS Adverse Event data show a sustained reduction in injury caused by fall or accident, beginning in 2003 (Figure 3)." (p. 300)
Author	**Credentials:** Schlismann, Carol A. RN Quality Improvement Coordinator, Saint Elizabeth Home Care Services, Lincoln, Nebraska. **Publication History in Peer-Reviewed Journals:** 2 articles grounded in nursing practice
Publication	**Type of publication:** Scholarly **Publisher:** Lippincott Williams & Wilkins
Date and Citation History	**Date of publication:** May 2008 **Cited By:** 2 Citations
Stated Purpose or Research Question	"An inter- disciplinary improvement team decided to require an admission fall risk assessment, with therapy re- ferral as appropriate. In 2006, to improve documen- tation and care coordination, an electronic fall re- port form was developed for faxing to the physician (Figure 2)." (p. 300)
Author's Conclusion	"Our OASIS Adverse Event data show a sustained reduction in injury caused by fall or accident, beginning in 2003 (Figure 3)." (p. 300)
Overall Relevance to PICO	**Overall Relevance to PICO:** Adequate **Rationale:** Implements an assessment and critiques the effect on the population of older adults living in the community.
Overall Quality	**Overall Quality of Article**: Fair **Rationale**: This article implements the use of a fall risk assessment and discusses the effect it had on the community. Assessment was found adequate for predicting and preventing falls.

Type of article	Overall Type: Primary research study Specific Type: Psychometric
APA Reference	Asplin, G., Kjellby-Wendt, G., Olsén, M. F., (2014). TLS-BasicADL: Development and reliability of a new assessment scale to measure basic mobility and self-care. *Inspirational Journal of Therapy and Rehabilitation, 21*(9), 421-426.
Abstract	"Aims: To describe the development and test reliability of a new assessment scale for measuring basic mobility and self-care: the Traffic Light System-BasicADL (TLS-BasicADL). Subjects: Eighteen occupational and physiotherapists took part in inter-rater, and 25 in intra-rater, reliability testing. Thirty inpatients admitted to an acute geriatric/orthopaedic unit, aged >70 years participated in inter-rater testing, 5 o f whom were included in intra-rater testing. Methods: TLS-BasicADL was constructed by members o f the interdisciplinary team at a geriatric unit. Items were generated from existing instruments, pilot testing and consensus meetings. Inter-rater testing was performed by two therapists simultaneously. Intra-rater reliability was examined using video-taped films o f 5 patients. Therapists viewed and assessed 5 patients, then retested 4 weeks later. For inter-rater testing percentage agreement (PA) and intra-class correlation coefficient (ICC) were used, and for intra-rater reliability, PA. Results: Analysis o f reliability showed high inter-rater (PA=86%; ICC=0.90) and fair intra-rater reliability (PA=>72%) for mobility items. Conclusion: The new interdisciplinary assessment, TLS-BasicADL for measuring function in older persons in the acute hospital setting is shown to have high inter-rater and fair intra-rater reliability. " (p. 421)
Author	Credentials: MSc (Master of Science in Management), RPT (registered play therapist) Position and Institution: PhD student at Institute of Neuroscience and Physiology, The Sahlgrenska Academy, Gothenburg University, Gothenburg, Sweden. Publication History in Peer-Reviewed Journals: minimal
Publication	Type of publication: scholarly peer-reviewed journal Publisher: Inspirational Journal of Therapy and Rehabilitation Other:
Date and Citation History	2014 Google Scholar Cited By: 2
Stated Purpose or Research Question	"The aim of this study was to describe the development and test reliability of a new assessment scale for measuring basic mobility and self-care, which has been named Traffic Light System-BasicADL (TLS-BasicADL). " (p. 422)
Author's Conclusion	"Through the process of brainstorming, protocol and procedure testing and regular consensus meetings TLS has emerged as a practical instrument for use in the acute geriatric care unit. Reliability testing has also shown TLS to have high inter-rater reliability for the whole instrument and fair intra-rater reliability for the items of mobility." (p. 424)
Overall Relevance to PICO	Overall Relevance to PICO: Moderate Relevance PICO: Somewhat related to P as the participants were all older than 70 yrs, however, they are inpatients, not community dwelling. Assessed the reliability of a basic mobility assessment, so it is related to I. Outcome was somewhat related.
Overall Quality	Overall Quality of Article: Poor Quality Unestablished author. Lesser known journal. Publication within last 10 years

Type of article	Overall Type: Primary research study Specific Type: Non-experimental
APA Reference	Brown, L. G., Ni, M., Schmidt, C. T., Bean, J. F., (2017). Evaluation of an outpatient rehabilitative program to address mobility limitations among older adults. *American Journal of Physical Medicine Rehabilitation, 96*(8), 600-606.
Abstract	"Live Long Walk Strong is a clinical demonstration program for community-dwelling older patients. It was designed to be consistent with current fall prevention guidelines and reimbursed under the Medicare model. Patients were screened within primary care and referred to a physiatrist followed by systematic assessment and treatment within an outpatient rehabilitative care setting. The treatment included behavioral modification, fall prevention education, community/home exercise integration, and exercise targeting strength, power, flexibility, balance, and endurance. Treatment duration and frequency varied with each patient based on baseline presentation, clinical judgment, and patient preference. Program feasibility and preliminary effectiveness were evaluated by assessing participation and changes in physical performance, respectively. There were 266 patients referred to the program, and 147 were willing to participate. Of these, 116 patients completed all scheduled visits (10.8 ± 3.9 visits). The noncompleters (n = 31) had a higher rate of falls in the previous 6 months and lower baseline Short Physical Performance Battery composite score. At the completion of care, the adjusted mean change in Short Physical Performance Battery was 1.66 units, surpassing a large clinically meaningful threshold (1 unit). The Live Long Walk Strong program appears to be feasible to implement and demonstrates preliminary effectiveness in enhancing mobility among older adults." (p. 600)
Author	Credentials: DPT, PT, GCS (Geriatric Certified Specialist) Position and Institution: Clinical Research Coordinator, Staff Physical Therapist, Spaulding Cambridge Outpatient Clinic. Education at Idaho State University. Publication History in Peer-Reviewed Journals: minimal
Publication	Type of publication: Publisher: American Journal of Physical Medicine and Rehabilitation Other:
Date and Citation History	2017 Google Scholar Cited By: 2
Stated Purpose or Research Question	"The purpose of this clinical demonstration project is to evaluate the feasibility and preliminary effectiveness of the LLWS program among community-dwelling, mobility-limited older adults." (p. 600)
Author's Conclusion	"Overall, LLWS is feasible to implement in busy outpatient rehabilitative settings and well tolerated and resulted in meaningful gains in observed performance measures. The program requires further investigation to examine true efficacy and effectiveness." (p. 605)
Overall Relevance to PICO	Overall Relevance to PICO: Moderate Relevance PICO: Directly related to the P (community dwelling older adults), and directly related to O (evaluating effectiveness of program). No I or C group in this study.
Overall Quality	Overall Quality of Article: Fair Author has limited published works on this topic. But it was published within last 3 years.

Type of article	Overall Type: Primary research study Specific Type: Randomized Controlled Trial
APA Reference	Dorresteijn, T. A. C., Zijlstra, G. A. R., Ambergen, A. W., Delbaere K., Vlaeyen, J. W. S., Kempen, G. I. J. M., (2016). Effectiveness of a home-based cognitive behavioral program to manage concerns about falls in community-dwelling, frail older people: Results of a randomized control trial. *BMC Geriatrics, 16*(2), 1-11.
Abstract	"Background: Concerns about falls are common among older people. These concerns, also referred to as fear of falling, can have serious physical and psychosocial consequences, such as functional decline, increased risk of falls, activity restriction, and lower social participation. Although cognitive behavioral group programs to reduce concerns about falls are available, no home-based approaches for older people with health problems, who may not be able to attend such group programs are available yet. The aim of this study was to assess the effectiveness of a home-based cognitive behavioral program on concerns about falls, in frail, older people living in the community. Methods: In a randomized controlled trial in the Netherlands, 389 people aged 70 years and older, in fair or poor perceived health, who reported at least some concerns about falls and related activity avoidance were allocated to a control (n = 195) or intervention group (n = 194). The intervention was a home-based, cognitive behavioral program consisting of seven sessions including three home visits and four telephone contacts. The program aims to instill adaptive and realistic views about fall risks via cognitive restructuring and to increase activity and safe behavior using goal setting and action planning and was facilitated by community nurses. Control group participants received usual care. Outcomes at 5 and 12 months follow-up were concerns about falls, activity avoidance due to concerns about falls, disability and falls. Results: At 12 months, the intervention group showed significant lower levels of concerns about falls compared to the control group. Furthermore, significant reductions in activity avoidance, disability and indoor falls were identified in the intervention group compared with the control group. Effect sizes were small to medium. No significant difference in total number of falls was noted between the groups. Conclusions: The home-based, cognitive behavioral program significantly reduces concerns about falls, related activity avoidance, disability and indoor falls in community-living, frail older people. The program may prolong independent living and provides an alternative for those people who are not able or willing to attend group programs." (p. 1)
Author	Credentials: PhD Position and Institution: Department of Health Services Research, Maastricht University. Publication History in Peer-Reviewed Journals: extensive
Publication	Type of publication: scholarly peer-reviewed journal Publisher: BMC Geriatrics Other:
Date and Citation History	2016 Google Scholar Cited By: 10
Stated Purpose or Research Question	"The aim of this study was to assess the effectiveness of a home-based cognitive behavioral program on concerns about falls, in frail, older people living in the community." (p. 1)
Author's Conclusion	"In summary, AMB-Home reduced concerns about falls and associated avoidance of activity, as well as more downstream outcomes, such as disability and indoor falls in frail older people." (p. 9)
Overall Relevance to PICO	Overall Relevance to PICO: Moderate Relevance PICO: Directly related to the P (community dwelling older adults), and somewhat related to O (addressed concerns about falling, not actual risk of falling). Comparison was within participants, due to a pretest-posttest design.
Overall Quality	Overall Quality of Article: Good Quality Established author. Peer reviewed scholarly journal. Published within last 2 years.

Type of article	Overall Type: Primary research Specific Type: Secondary data analysis
APA Reference	Kydd, L. (2016). Developing a postal screening tool for frailty in primary care: A secondary data analysis. *British Journal of Community Nursing, 21*(7), 335-341.
Abstract	"The purpose of this secondary data analysis (SDA) was to review a subset of quantitative and qualitative paired data sets from a returned postal screening tool (PST) completed by patients and compare them to the clinical letters composed by elderly care community nurses (ECCN) following patient assessment to ascertain the tool's reliability and validity. The aim was to understand to what extent the problems identified by patients in PSTs aligned with actual or potential problems identified by the ECCNs. The researcher examined this connection to establish whether the PST was a valid, reliable approach to proactive care. The findings of this SDA indicated that patients did understand the PST. Many appropriate referrals were made as a result of the ECCN visit that would not have occurred if the PST had not been sent. This article focuses specifically upon the physiotherapy section as this was the area where the most red flags were identified." (p. 335)
Author	Credentials: Adult Nursing BSc, MSc Advanced Practice Position and Institution: Lecturer, Robert Gordon University, Aberdeen Publication History in Peer-Reviewed Journals: none
Publication	Type of publication: scholarly peer-reviewed journal Publisher: British Journal of Community Nursing Other: "The UK's leading peer-reviewed journal for district nurses, containing the most up-to-date clinical coverage and research on primary care nursing." (quoted from Journal's website)
Date and Citation History	2016 Google Scholar Cited By: n/a
Stated Purpose or Research Question	"The purpose of this secondary data analysis (SDA) was to review a subset of quantitative and qualitative paired data sets from a returned postal screening tool (PST) completed by patients and compare them to the clinical letters composed by elderly care community nurses (ECCN) following patient assessment to ascertain the tool's reliability and validity." (p. 335)
Author's Conclusion	"Enough evidence appears to exist to support the implementation of a PST in primary care ." (p. 340)
Overall Relevance to PICO	Overall Relevance to PICO: Low Relevance PICO: Not related to P, Directly related to O (effectiveness of an assessment). Did not mention the I or C.
Overall Quality	Overall Quality of Article: Poor Quality Author is not established or affiliated with any institution. JOurnal is scholarly and peer reviewed, and it was published recently, but the article itself is not very good quality.

Type of article	Overall Type: Primary research study Specific Type: Descriptive
APA Reference	Talarska, D., Pacholska, R., Strugala, M., Wieczorowska-Tobis, K., (2016). Functional assessment of the elderly with the use of EASY-Care Standard 2010 and comprehensive geriatric assessment. *Scandinavian Journal of Caring Sciences, 30,* 419-426.
Abstract	"Background The wide variation in performance among the elderly leads to the search for a suitable instrument to identify the necessary support. The aim of this study was to examine the scope of independent functioning of the elderly and to indicate the necessary support using basic instruments, Comprehensive Geriatric Assessment (CGA) and EASY-Care Standard 2010. Methods For statistical analysis were qualified 101 questionnaires of patients from oncological surgery clinic. Results The study group was dominated by women (79.2%). The average age for the entire group was 74.7 ± 7.5 years. In terms of basic life activities (Barthel Index), 75.2% of the elderly performed most of their activities independently. The Lawton IADL (Instrumental Activity of Daily Living Scale) median was 25 points. Moderate depression (Geriatric Depression Scale) reported 37.6% of the group. The influence of age, education, mode of movement and efficiency in basic and instrumental life activities and depression (Geriatric Depression Scale) was demonstrated in the results in three scales of the EASY-Care Standard 2010 questionnaire: Independence score, Risk of breakdown in care and Risk of falls. There was no difference in terms of gender and the nature of the residence. Conclusion The study group of the elderly was characterised by a good level of efficiency in basic and instrumental activities of daily living. Questionnaire EASY-Care Standard 2010 enables to identify functional limitations of the elderly that may form the basis for planning individual support." (p. 419)
Author	Credentials: RN, PhD Position and Institution: Department of Preventative Medicine, Poznan University of Medical Sciences Publication History in Peer-Reviewed Journals: moderate
Publication	Type of publication: scholarly peer-reviewed journal Publisher: Scandinavian Journal of Caring Sciences Other:
Date and Citation History	2016 Google Scholar Cited By: 9
Stated Purpose or Research Question	"The aim of this study was to examine the scope of independent functioning of the elderly and to indicate the necessary support using basic instruments, Comprehensive Geriatric Assessment (CGA) and EASY-Care Standard 2010." (p. 419)
Author's Conclusion	"The study group of the elderly was characterised by a good level of efficiency in basic and instrumental activities of daily living. Questionnaire EASY-Care Standard 2010 enables to identify functional limitations of the elderly that may form the basis for planning individual support." (p. 425)
Overall Relevance to PICO	Overall Relevance to PICO: Unsure PICO: Unsure how to judge this because I can no longer access the full text of the article.
Overall Quality	Overall Quality of Article: Poor quality Author has many published works. Article is not in full text form, so quality is hard to assess.

Type of article	Overall Type: Primary Research Study Specific Type: Randomized Controlled Trial
APA Reference	Clegg, A., Barber, S., Young, J., Forster, A., & Lliffe S. (2011). The home-based older people's exercise (HOPE) trial: Study protocol for a randomised controlled trial. *Trials*, *12*(2), 143-146. doi:10.1186/1745-6215-12-143
Abstract	"Frailty is common in older age, and is associated with important adverse health outcomes including increased risk of disability and admission to hospital or long-term care. Exercise interventions for frail older people have the potential to reduce the risk of these adverse outcomes by increasing muscle strength and improving mobility. The Home-Based Older People's Exercise (HOPE) trial is a two arm, assessor blind pilot randomised controlled trial (RCT) to assess the effectiveness of a 12 week exercise intervention (the HOPE programme) designed to improve the mobility and functional abilities of frail older people living at home, compared with usual care. The primary outcome is the timed-up-and-go test (TUGT), measured at baseline and 14 weeks post-randomisation. Secondary outcomes include the Barthel Index of activities of daily living (ADL), EuroQol Group 5-Dimension Self-Report Questionnaire (EQ-5D) quality of life measure and the geriatric depression scale (GDS), measured at baseline and 14 weeks post-randomisation. We will record baseline frailty using the Edmonton Frail Scale (EFS), record falls and document muscle/joint pain. We will test the feasibility of collection of data to identify therapy resources required for delivery of the intervention. The HOPE trial will explore and evaluate a home-based exercise intervention for frail older people. Although previous RCTs have used operationalised, non-validated methods of measuring frailty, the HOPE trial is, to our knowledge, the first RCT of an exercise intervention for frail older people that includes a validated method of frailty assessment at baseline." (p. 143)
Author	Credentials: PhD Position and Institution: Clinical Senior Lecturer in the Academic Unit of Elderly Care and Rehabilitation, Honorary Consultant Geriatrician at Bradford Teaching Hospitals NHS Foundation Trust. Publication History in Peer-Reviewed Journals: extensive
Publication	Type of publication: Randomized Controlled Trial Publisher: Trials - BioMed Central Other: PubMed.gov
Date and Citation History	2011 Google Scholar Cited By: 16
Stated Purpose or Research Question	"(1) explore the feasibility of identification of frail older people in community settings, (2) assess the acceptability of the HOPE programme to frail older people, (3) test for a preliminary estimate of effectiveness, (4) test the feasibility of recording data to identify the therapy resources required to deliver the HOPE programme, (5) gather data to inform the design of a definitive clinical trial." (p.144)
Author's Conclusion	"The findings from the pilot HOPE trial will inform the design and development of a future definitive multi-site RCT and guide the future commissioning of local and national therapy services for frail older people." (p.146)
Overall Relevance to PICO	Overall Relevance to PICO: High Relevance PICO: Directly related to the O (frail older people), the I (HOPE programme to improve mobility and functional abilities), the C (people with HOPE programme compared with people with usual care), and the O (HOPE includes a validated method of frailty assessment at baseline)
Overall Quality	Overall Quality of Article: Good Quality Established author. Reliable and reputable journal and publisher. Publication within last 10 years

Type of article	Overall Type: Conceptual article Specific Type: Overview of assessment and treatment approaches
APA Reference	Ungar, A., & Rafanelli, M. (2015). My older patient with cancer reports falls: What should I do? *Geriatrics for Oncologists, 6*(6), 419-423. doi:10.1016/j.jgo.2015.09.002
Abstract	"Falling is one of the major geriatric syndromes, with a multi-factorial pathogenesis due to age-related changes, pathological conditions and environmental hazards. Such a multi-factorial syndrome needs a standardized approach aimed at identifying risk factors. A comprehensive loco-motor, gait and standing balance, cardiovascular and neurological assessment, as well as a drugs regimens review, should be part of the routinely approach. Modification of environmental hazards, exercise training, behavioral and pharmacological treatment of specific diseases which can be the leading cause of falls, should all be part of an individualized intervention. Particular attention should be paid in the evaluation of unexplained falls, which can mask hypotensive or arrhythmic syncope." (p. 419)
Author	Credentials: MD, PhD, FESC Position and Institution: Associate Professor at Internal Medicine at University of Florence, Syncope Unit, Hypertension Centre Geriatric Cardiology and Medicine Publication History Peer-Reviewed Journals: extensive
Publication	Type of publication: systematic review Publisher: Geriatrics for Oncologists Other: N/A
Date and Citation History	2015 Google Scholar Cited By: 1
Stated Purpose or Research Question	"Considering the growing incidence of cancer in older adults who may be at greater risk for falls and the aging process of the population, attention to falls becomes mandatory to meet the clinical needs of this growing population." (p. 420)
Author's Conclusion	"Modification of environmental hazards, training paths and appropriate use of support tools (sticks, walkers), which can be effective elements of a multi-factorial intervention program, are indicated." (p. 423)
Overall Relevance to PICO	Overall Relevance to PICO: Moderate Relevance PICO: Directly related to the P (older adults with cancer), but targeted to a different O (outcomes of environmental modification, not the multifactorial assessment). The I (Modification of environmental hazards, training paths, and appropriate use of support tool). No C group in this study.
Overall Quality	Overall Quality of Article: Moderate Quality Established author. Reputable publisher. Publication within last 5 years

Type of article	Overall Type: Conceptual or Theoretical Article Specific Type: The TUG is a transition test that assesses strength, agility and dynamic balance during multiple activities including sit-to-stand, walking short distances and changing direction whilst walking.
APA Reference	Dobson, F. (2015). Timed up and go test in musculoskeletal conditions. *Journal of Physiotherapy, 61*(1), 47. doi:10.1016/j.jphys.2014.11.003
Abstract	"The Timed Up and Go test (TUG)1 is a short and simple performance-based test that was originally developed for frail, elderly people, but is now also recommended for musculo- skeletal conditions, such as hip and knee osteoarthritis (OA) and lower back pain (LBP). The TUG has most commonly been used as an outcome measure following therapy or surgery, but has also been used to predict falls and function. The Osteoarthritis Research Society International has endorsed it as an outcome measure for people with hip and/or knee OA." (p. 47)
Author	Credentials: PhD, PGDip Hlth Rsch Mthds, BA Sci Position and Institution: Professor at University of Melbourne Publication History in Peer-Reviewed Journals: extensive
Publication	Type of publication: Conceptual article Publisher: Journal of Physiotherapy Other: N/A
Date and Citation History	2015 Google Scholar Cited By: 4
Stated Purpose or Research Question	"The Timed Up and Go test (TUG)1 is a short and simple performance-based test that was originally developed for frail, elderly people, but is now also recommended for musculo- skeletal conditions, such as hip and knee osteoarthritis (OA) and lower back pain (LBP)." (p. 47)
Author's Conclusion	"The TUG appears to act as a better 'confirming test' than a 'screening test' and should not be used in isolation when screening for falls." (p. 47)
Overall Relevance to PICO	Overall Relevance to PICO: Poor Relevance PICO: Directly related to the P (elderly people with hip OA and LBP), the O (good confirming test for falls). No I or C group in this study.
Overall Quality	Overall Quality of Article: Moderate Quality Established author. Reputable journal and publisher. Publication within last 5 years

Type of article	Overall Type: Primary research study Specific Type: Longitudinal study
APA Reference	Biggan, J., Melton, F., Horvat, M., Ricard, M., Keller, D., & & Ray CT. (2014). Increased load computerized dynamic posturography in prefrail and nonfrail community-dwelling older adults. *Human Kinetics Journals, 22*(1), 96-102. doi: 10.1123/japa.2012-0209.
Abstract	"The understanding of prefrail and nonfrail older adults' postural control with and without increased environ- mental and cognitive stress is imperative to the development of targeted interventions to decrease fall risk within these populations. Thirty-eight individuals participated in this study. Postural control testing included the Sensory Organization Test (SOT) on a NeuroCom EquiTest. Cognitive and environmental load testing was performed during Condition 6 of the SOT. Though there were no group differences on composite equilibrium score ($p = .06$), the cognitive task (Stroop task) impaired equilibrium scores more than the auditory or visual distracter tasks ($p < .05$ and $p < .01$) for both groups. These results suggest that both prefrail and nonfrail older adults' postural control is reduced in demanding environments. Given these findings, the need for multimodal exercise interventions to target both physical and cognitive factors is apparent." (p. 96)
Author	Credentials: PhD Position and Institution: Postdoctoral Fellow, Beckman Institute for Advanced Science and Technology,University of Illinois Publication History in Peer-Reviewed Journals: extensive
Publication	Type of publication: scholarly peer-reviewed journal Publisher: Journal of Aging and Physical Activity Other: Official journal of ICAPA
Date and Citation History	2014 Google Scholar Cited By: 3
Stated Purpose or Research Question	"We expected that prefrail individuals would not only be more likely to fall due to their poorer postural control and physical fitness, but that they would also be at an increased risk of injury (e.g., bone fracture) compared with the nonfrail individuals." (p. 97)
Author's Conclusion	"cognitive distracters have a significant negative impact on both nonfrail and prefrail individuals' postural control." (p. 101)
Overall Relevance to PICO	Overall Relevance to PICO: Moderate Relevance PICO: Directly related to the P (older people in community), but targeted to a different O (cognitive impact on postural control, not result of assessment). The C (prefrail individuals compared with nonfrail individuals) No I group in this study.
Overall Quality	Overall Quality of Article: Moderate Quality Established author. Good journal and publisher. Publication within last 5 years

Type of article	Overall Type: Primary research study Specific Type: comparative research study
APA Reference	Allali, G., Ayers, E. I., & Verghese, J. (2015). Multiple modes of assessment of gait are better than one to predict incident falls. *Archives of Gerontology and Geriatrics*, *60*(3), 389–393. http://doi.org/10.1016/j.archger.2015.02.009
Abstract	"Background Though gait evaluation is recommended as a core component of fall risk assessments, a systematic examination of the predictive validity of different modes of gait assessments for falls is lacking. Objective To compare three commonly employed gait assessments - self-reported walking difficulties, clinical evaluation, and quantitative gait - to predict incident falls. Material and Methods 380 community-dwelling older adults (mean age 76.5±6.8 y, 55.8% female) were evaluated with three independent gait assessment modes: patient-centered, quantitative, and clinician-diagnosed. The association of these three gait assessment modes with incident falls was examined using Cox proportional hazards models. Results 23.2% of participants self-reported walking difficulties, 15.5% had slow gait and 48.4% clinical gait abnormalities. 30.3% had abnormalities on only one assessment, whereas only 6.3% had abnormalities on all three. Over a mean follow-up of 24.2 months, 137 participants (36.1%) fell. Those with at least two abnormal gait assessments presented an increased risk of incident falls (HR: 1.61, 95% CI: 1.04-2.49) in comparison to the 169 participants without any abnormalities on any of the three assessments. Conclusions Multiple modes of gait evaluation provide a more comprehensive mobility assessment than only one assessment alone, and better identify incident falls in older adults." (p. 389)
Author	Credentials: MD, PhD Position and Institution: Department of Neurology, Division of Cognitive & Motor Aging, Albert Einstein College of Medicine, Yeshiva University, Bronx, New York, USA Publication History in Peer-Reviewed Journals: extensive 3132
Publication	Type of publication: scholarly peer-reviewed journal Publisher: Archives of Gerontology and Geriatrics Other:
Date and Citation History	2015 Google Scholar Cited By: 12
Stated Purpose or Research Question	"To address these knowledge gaps, we conducted a prospective study in a community residing cohort of non-demented older adults to compare the predictive validity for falls of three commonly employed, independent gait assessments: self-reported walking difficulties, clinical gait evaluation, and quantitative gait assessment" (pp.390).
Author's Conclusion	"The findings suggest that in addition to observing gait patterns during standard clinical examinations, physicians should also ask patients to report mobility difficulties as well as measure gait velocity to improve the utility of the clinical examination and the identification of patients at high risk of falling" (pp. 392).
Overall Relevance to PICO	Overall Relevance to PICO: Strong Relevance PICO: Directly related to the P (community-dwelling older adults,) and I (assessments for predicting falls), and comparison (compares relevance of assessments), and O (multiple assessments better than one)
Overall Quality	Overall Quality of Article: Good Quality Established author. Reputable journal and publisher. Publication within last 10 years

Type of article	Overall Type: Conceptual or Theoretical Article Specific Type: Clinical Guidance Statement
APA Reference	Avin, K. G., Hanke, T. A., Kirk-Sanchez, N., McDonough, C. M., Shubert, T. E., Hardage, J., & Hartley, G. (2015). Management of Falls in Community-Dwelling Older Adults: Clinical Guidance Statement From the Academy of Geriatric Physical Therapy of the American Physical Therapy Association. *Physical Therapy*, *95*(6), 815–834. http://doi.org/10.2522/ptj.20140415
Abstract	"Background Falls in older adults are a major public health concern due to high prevalence, impact on health outcomes and quality of life, and treatment costs. Physical therapists can play a major role in reducing fall risk for older adults; however, existing clinical practice guidelines (CPGs) related to fall prevention and management are not targeted to physical therapists. Objective The purpose of this clinical guidance statement (CGS) is to provide recommendations to physical therapists to help improve outcomes in the identification and management of fall risk in community-dwelling older adults. Design and Methods The Subcommittee on Evidence-Based Documents of the Practice Committee of the Academy of Geriatric Physical Therapy developed this CGS. Existing CPGs were identified by systematic search and critically appraised using the Appraisal of Guidelines, Research, and Evaluation in Europe II (AGREE II) tool. Through this process, 3 CPGs were recommended for inclusion in the CGS and were synthesized and summarized. Results Screening recommendations include asking all older adults in contact with a health care provider whether they have fallen in the previous year or have concerns about balance or walking. Follow-up should include screening for balance and mobility impairments. Older adults who screen positive should have a targeted multifactorial assessment and targeted intervention. The components of this assessment and intervention are reviewed in this CGS, and barriers and issues related to implementation are discussed. Limitations A gap analysis supports the need for the development of a physical therapy–specific CPG to provide more precise recommendations for screening and assessment measures, exercise parameters, and delivery models. Conclusion This CGS provides recommendations to assist physical therapists in the identification and management of fall risk in older community-dwelling adults." (p. 815)
Author	Credentials: PT, PhD Position and Institution: Department of Physical Therapy, Indiana University School of Health and Rehabilitation Sciences, Indianapolis, Indiana. Publication History in Peer-Reviewed Journals: extensive 599
Publication	Type of publication: scholarly peer-reviewed journal Publisher: Physical Therapy Other:
Date and Citation History	2015 Google Scholar Cited By: 35
Stated Purpose or Research Question	"Therefore, the overall aim of this project was to create a CGS to guide physical therapist practice using existing CPGs that address falls in community-dwelling older adults" (pp. 816).
Author's Conclusion	"The development of a CPG specific to the physical therapist management of fall risk to complement this CGS is an important initiative and a significant step toward improving the quality of care for and quality of life of community-dwelling older adults" (pp.827)
Overall Relevance to PICO	Overall Relevance to PICO: Moderate Relevance PICO: Directly related to the P (community-dwelling older adults), No ICO More of a guideline for PT's than relevant to OT assessments.
Overall Quality	Overall Quality of Article: Good Quality Established author. Reputable journal and publisher. Publication within last 10 years

Type of article	Overall Type: review of research studies Specific Type: Literature review
APA Reference	Sprint, G., Cook, D., & Weeks, D. (2015). Towards Automating Clinical Assessments: A Survey of the Timed Up and Go (TUG). *IEEE Reviews in Biomedical Engineering*, *8*, 64–77. http://doi.org/10.1109/RBME.2015.2390646
Abstract	"Older adults often suffer from functional impairments that affect their ability to perform everyday tasks. To detect the onset and changes in abilities, healthcare professionals administer standardized assessments. Recently, technology has been utilized to complement these clinical assessments to gain a more objective and detailed view of functionality. In the clinic and at home, technology is able to provide more information about patient performance and reduce subjectivity in outcome measures. The timed up and go (TUG) test is one such assessment recently instrumented with technology in several studies, yielding promising results towards the future of automating clinical assessments. Potential benefits of technological TUG implementations include additional performance parameters, generated reports, and the ability to be self-administered in the home. In this paper, we provide an overview of the TUG test and technologies utilized for TUG instrumentation. We then critically review the technological advancements and follow up with an evaluation of the benefits and limitations of each approach. Finally, we analyze the gaps in the implementations and discuss challenges for future research towards automated, self-administered assessment in the home." (p. 64)
Author	Credentials: unknown Position and Institution: School of Electrical Engineering and Computer Science, Washington State University, Pullman, WA Publication History in Peer-Reviewed Journals: Moderate, 57
Publication	Type of publication: scholarly peer-reviewed journal Publisher: *EEE Reviews in Biomedical Engineering* Other: Journal of Biomedical Informatics
Date and Citation History	2015 Google Scholar Cited By: 22
Stated Purpose or Research Question	"We review current technologies that are used for instrumenting TUG tests and analyze their contributions to the advancement of technical clinical assessments. Finally, we discuss the gaps in the research, challenges for engineers and clinicians, and provide suggestions for future directions towards self-administered, automated assessments" (p. 2)
Author's Conclusion	"As exhibited by this literature review, the combination of technology and a popular clinical assessment has proven to provide beneficial additional information to healthcare providers. This information is being used to provide finer-grained assessment, medical population classification, and fall risk prediction" (p.15)
Overall Relevance to PICO	Overall Relevance to PICO: Moderate Relevance PICO: Part of the article is directly related to the O (fall risk), and the P is directly related (people at home) . No I or C group in this study.
Overall Quality	Overall Quality of Article: Moderate Quality Author not yet as established as others. Publication within last 10 years

Type of article	Overall Type: review of research study Specific Type: Literature review
APA Reference	Palumbo, P., Palmerini, L., Bandinelli, S., & Chiari, L. (2015). Fall Risk Assessment Tools for Elderly Living in the Community: Can We Do Better? *PLoS ONE, 10*(12), e0146247. http://doi.org/10.1371/journal.pone.0146247
Abstract	"Background Falls are a common, serious threat to the health and self-confidence of the elderly. Assessment of fall risk is an important aspect of effective fall prevention programs. Objectives and methods In order to test whether it is possible to outperform current prognostic tools for falls, we analyzed 1010 variables pertaining to mobility collected from 976 elderly subjects (InCHIANTI study). We trained and validated a data-driven model that issues probabilistic predictions about future falls. We benchmarked the model against other fall risk indicators: history of falls, gait speed, Short Physical Performance Battery (*Guralnik et al*. 1994), and the literature-based fall risk assessment tool FRAT-up (*Cattelani et al*. 2015). Parsimony in the number of variables included in a tool is often considered a proxy for ease of administration. We studied how constraints on the number of variables affect predictive accuracy. Results The proposed model and FRAT-up both attained the same discriminative ability; the area under the Receiver Operating Characteristic (ROC) curve (AUC) for multiple falls was 0.71. They outperformed the other risk scores, which reported AUCs for multiple falls between 0.64 and 0.65. Thus, it appears that both data-driven and literature-based approaches are better at estimating fall risk than commonly used fall risk indicators. The accuracy–parsimony analysis revealed that tools with a small number of predictors (~1–5) were suboptimal. Increasing the number of variables improved the predictive accuracy, reaching a plateau at ~20–30, which we can consider as the best trade-off between accuracy and parsimony. Obtaining the values of these ~20–30 variables does not compromise usability, since they are usually available in comprehensive geriatric assessments." (p. 1)
Author	Credentials: Palumbo, Pierpaolo, Unknown Position and Institution: Department of Electrical, Electronic, and Information Engineering "Guglielmo Marconi"–DEI, University of Bologna, Bologna, Italy 2Geriatric Unit, Azienda Sanitaria di Firenze, Florence, Italy Publication History in Peer-Reviewed Journals: moderate
Publication	Type of publication: open-access peer-reviewed journal Publisher: PLoS One Other:
Date and Citation History	2015 Google Scholar Cited By: 8
Stated Purpose or Research Question	"The first aim of the present study is to test whether a predictive tool, trained using state-of-the-art statistical learning techniques over an extensive dataset, can outperform current tools for fall risk assessment. The second aim of this study is hence to evaluate the trade-off between the number of variables used within the predictive tool and accuracy of their prediction" (pp. 2-3).
Author's Conclusion	The accuracy-parsimony analysis has shown that predictive accuracy improves as the number of variables increases up to 20–30. This suggests that fall prediction is more accurate when based on multiple fall risk factors and indicators; thus simplistic screening tests (three to six variables) are suboptimal in terms of predictive accuracy" (pp. 10).
Overall Relevance to PICO	Overall Relevance to PICO: Moderate Relevance PICO: Directly related to the P (elderly living in the community), directly related to O (can we do better on fall assessments). No I or C group in this study.
Overall Quality	Overall Quality of Article: Moderate Quality Unable to find publication history of author. Article only cited 8 times. Publication within last 10 years