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Reducing Disability in Frail Older Adults
Pamela E. Toto, PhD, OTR/L, BCG, FAOTA

Objectives
As a result of this course, participants will be able to:

- 1) Describe the distinct challenges of frailty related-disability in relation to health and healthcare costs.
- 2) Identify frailty and frailty-related disability in older adults through a variety of evidence-based tools and assessment strategies
- 3) Recognize evidence-based strategies for reducing frailty-related disability specific to individual practice settings
Frailty: Why Care?

- Frequently experienced by older adults
- Increases risk for adverse events
  - Falls
  - Hospitalization
  - Nursing home placement
  - Mortality
  - Disability

More on This later!

Is expensive
- 50% of acute care services
- 80% of home and community-based services
- 90% of residents in SNFs

Frailty vs. frailty

Concept of frailty has evolved over time

- The “old-old”
  - Older adults who are dependent and/or sick

- A state of increased vulnerability to adverse outcomes with minimal stress
- A dynamic condition of physical and/or psychological nature
Defining Frailty
International Consensus Panels
✓ A clinical syndrome
✓ Not disability
✓ Increased vulnerability in which minimal stress can cause functional impairment
✓ Potentially reversible or attenuated with intervention
✓ Important to detect as soon as possible
✓ General Frailty vs. Physical Frailty

Frailty: Two Conceptual Approaches

Frailty Phenotype
- Fried et al. (2001)
  Conditions:
  1. Unintentional weight loss
  2. Self-reported exhaustion
  3. Weakness
  4. Slow walking speed
  5. Low physical activity

Frailty Index
- Rockwood et al. (2007, 2011)
  “At-risk” status which arises as a consequence of the accumulation of multiple deficits
Frailty Phenotype

- Focuses on **physical** frailty
- Easy to quantify
- Disability a potential *result* of frailty
- Used frequently in research
  - Chan et al. (2012)
  - Fairhall et al. (2008)
  - Ottenbacher et al. (2009)

**3 of 5 criteria**
- Unintentional weight loss
- Self-reported exhaustion
- Weakness
- Slow walking speed
- Low physical activity

Frailty Index (FI)

- More comprehensive focus – Comprehensive Geriatric Assessment (CGA)
- Difficult to measure
  - # of health deficits an individual has/total # of health deficits considered (e.g. 80 items)
- May include disability as a potential component of frailty*
- Limited use in research & practice
  - Rockwood et al. (2000)
  - Song et al. (2010)
Frailty vs. Frailty-Related Disability

- Related but distinct conditions
  - Likely to co-occur/overlap
  - One may “mask” the other
  - No linear path

- Estimated that ¼ of older adults who are frail do not have disability

- Provide distinct intervention opportunities
  - In your practice, do you treat frailty, disability, or both?

Disability

- Difficulty or dependency in carrying out...
  - activities essential to independent living, including essential roles
  - tasks needed for self-care and living independently in a home
  - desired activities important to one’s quality of life

- Progressive in older adults who are frail

- Often preceded by the onset of Preclinical Disability
Preclinical Disability

- A transitional state between the onset of impairment and disability (Fried et al., 1991)
- Highly predictive of future disability
- Two Pathways
  1. Reduction in frequency of activity
  2. Successful* change in the method of activity
     - Compensation
     - Adaptation

_How might this seem like a conflict in occupational therapy practice?_

Progression of Disability

- The change is subtle
- Occupation often not part of daily routine
- Client successfully compensates

**Occupational Therapist:** “Are you having difficulty in bathing?”

**Older Adult Client:** “No”
Case Example: Mrs. B

Mrs. B is a 74 year old woman who lives in the suburbs. She finds worsening vision is making it difficult to drive at night. Overall joint stiffness in the morning causes her to take extra time for AM bathing and dressing. Because of these reasons, Mrs. Q has decided to stop driving to BINGO 2 nights per week, and now only gets fully dressed on days she has to go out. When her daughter calls to see how she is doing, she complains that she has little energy and feels life has no joy.

What may be influencing Mrs. B’s psychological well-being?
Is Mrs. B at risk for disability and why?

Assessing for Frailty and Frailty-Related Disability
Frailty Assessments

- Significant number of tools; no gold standard
- Most developed in accordance with one of the two conceptual approaches
  - Frailty Phenotype
  - Frailty Index
- All or at least part self-report*
- None are “OT –specific”
- All in public domain
- Select tools appropriate for various settings and populations

Select Frailty Assessment Tools

- SHARE-FI (Romero-Ortuno et al., 2010)
- FRAIL scale (van Kan et al., 2010)
- Edmonton Frail Scale (Rolfson et al., 2000*)
- GFI (Steverink et al., 2001)
- Other
Frailty: Survey of Health, Ageing and Retirement in Europe – Frailty Instrument (SHARE-FI)

- Quick (less than 5 minutes), valid and reliable screen
- Includes 4 self-report and one performance item
- Based on Frailty Phenotype
- Can easily be incorporated into the OT evaluation

SHARE-FI

**Performance-Based Measure**

**Self-Report Measures**

3 or higher indicates frailty
SHARE-FI DEMONSTRATION

FRAILTY: FRAIL scale

- Quick screen
- Includes 5 self-report components
- Based on Frailty Phenotype
- Reliable and valid
- Designed for community-dwelling older adults

<table>
<thead>
<tr>
<th>F</th>
<th>Fatigue</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>Resistance (climb 1 flight of stairs)</td>
</tr>
<tr>
<td>A</td>
<td>Ambulation (walk 1 block)</td>
</tr>
<tr>
<td>I</td>
<td>Illness (greater than 5)</td>
</tr>
<tr>
<td>L</td>
<td>Loss of weight (&gt; 5%)</td>
</tr>
</tbody>
</table>

Score range: 0-5
(1 point for each component)

Frail: (3-5)
Pre-frail: (1-2)
Edmonton Frail Scale

- Valid and reliable screen
- 9* Domains
  - 2 performance-based
  - 7 self-report
- Based on *Frailty Index*
- Can easily be incorporated into the OT evaluation
- Score 0-17 (higher score indicates frailty)

Rolfson, Majumdar, Taher, & Tsuyuki, 2000

Groningen Frailty Index (GFI)

- Quick screen
- Includes 15 items
  - Physical (9)
  - Cognitive (1)
  - Social (3)
  - Psychological (2)
- Self-report; Y/N/Sometimes
- Based on the *Frailty Index*

Steverink et al., 2001
GFI

Score range: 0-15

Score of 4 or higher is considered moderate to severely frail

<table>
<thead>
<tr>
<th>Groningen Frailty Index (example)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circle the appropriate answer and add score</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>Sometimes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mobility</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Can the patient perform the following tasks without assistance from another person:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Grocery shopping</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2. Walking outside the house</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3. Getting (un)dressed</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4. Visiting restroom</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Psychosocial</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does the patient miss the presence of other people around her</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Frailty: Performance Assessments

No performance assessment specifically designed to identify and quantify frailty

- Short Physical Performance Battery (SPPB)
  - Standing balance, chair stands, walking speed
  - Morley et al. (2012)

- Modified Physical Performance Test (PPT)
  - 9 functional tasks
  - Brown et al. (2000)

- Grip strength
  - Syddall et al. (2003)
  - Augyeung et al. (2014)
Disability Assessment

- Self-report most commonly used method
- Self-report of disability may be less reliable in frail older adults
  - Walsh & Khatutsky (2007)
  - Ferrucci et al. (2004)
- Progressive decline in ADL/IADL
  - Change is often subtle
  - Not part of daily routine
  - Client compensates

Preclinical Disability Assessment

“Are you having difficulty with daily activities such as…(ADL/IADL)” (Fried et al.)

```
YES  |  NO
```

Disability

```
<table>
<thead>
<tr>
<th>YES to either question</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preclinical Disability</td>
</tr>
</tbody>
</table>
```

- In the past X months, have you changed the way you do...(ADL/IADL)
- In the past X months, have you done...(ADL/IADL) less frequently?
Select Disability Assessments

- **Self-Report**
  - Canadian Occupational Performance Measure (COPM)
  - Activity Measure – Post Acute Care (AM-PAC)
  - Late Life Function and Disability Instrument (LLFDI)

- **Performance**
  - Functional Independence Measure (FIM)*
  - In-Home Occupational Performance Evaluation (I-HOPE)
  - Performance Assessment of Self-Care Skills (PASS)

Late Life Function and Disability Instrument (LLFDI)

- **Self-report questionnaire***
  - 16 items – Disability
  - 32 items - Function
    - Changing, maintaining body positions
    - Carrying, moving, handling objects
    - Basic ADLs
    - Mobility and travel
    - Communication
    - Home, social, community, vocational activities

- LLFDI-CAT

*Jette, Haley, Coster et al., 2002*
LLFDI-CAT Demonstration

Performance Assessment of Self-Care Skills (Rogers, Holm, & Chisholm, 2016)

- Real time performance
- Criterion-referenced
- Examines 3 constructs: Independence, Safety, Adequacy
- 26 task situations
  - 5 Functional Mobility items
  - 3 ADL items
  - 14 IADL items with a cognitive emphasis
  - 4 IADL items with a physical emphasis
Case Story: Mrs. F Part 1

85 year old widow referred to home health occupational therapy referral upon discharge from SNF, s/p hospitalization for CHF
Lives alone in senior high rise apartment

*How to assess?*

- Occupational Profile
- SHARE-F1 (assess for frailty)
- Performance Assessment of Self-Care Skills

*Wants to remain in her home; Frail (SHARE-FI =4); Needs assist with bathing, laundry, meal preparation, shopping, community mobility*

Intervention:
Reducing Frailty and Frailty-Related Disability
What’s the Evidence?

- Frailty is a dynamic condition that **can** be reduced or reversed
  - Multicomponent
  - Long duration (e.g. > 5 months)
  - Intense (e.g. 3x/week; 30 – 60 minutes)

Systematic Reviews

- Chin a Paw et al. (2008)
- Chou et al. (2012)
- Theou et al. (2011)
What’s the Evidence?

- Interventions to reduce frailty have limited impact on reducing disability
  - Chin a Paw et al. (2008)
  - Ferrucci et al. (2004) – consensus report
    - Well-being and quality of life (QOL)
  - Theou et al. (2011)
  - Daniels et al. (2008)
    - Scoping review evaluating intervention effect on disability
  - Ebrahimi et al. (2013)
    - Frailty ≠ Health and QOL

Translating the Evidence

- Older adults can reduce/reverse frailty through the appropriate exercise program
- Reducing frailty does not necessarily reduce disability
- Older adults who are frail CAN still experience good health and good quality of life
Can We Reduce DISABILITY in frail older adults?

- Not a common focus in clinical practice outside of occupational therapy
- Frequently addressed in moderately frail or those post-acute
- Perception that those who are advanced stages of frail should not be treated (e.g. “do no harm”)

**OPPORTUNITY**

<table>
<thead>
<tr>
<th>Traditional OT Service Models</th>
<th>Non-Traditional OT Service Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Restorative approach</td>
<td>• Preventative, Health Promotion</td>
</tr>
<tr>
<td>• Exercise</td>
<td>• Compensatory/Adaptive</td>
</tr>
<tr>
<td>• Limited length of service</td>
<td>• Group and 1:1 service delivery</td>
</tr>
<tr>
<td>• Limited intensity of service</td>
<td>• More variability on length of service</td>
</tr>
<tr>
<td>• 1:1 service delivery</td>
<td>• Limited intensity of direct service</td>
</tr>
<tr>
<td>• Disability status (e.g. ADL/IADL performance) determines discharge placement</td>
<td>• Disability impact not necessarily immediate</td>
</tr>
</tbody>
</table>
Application to Occupational Therapy: An Evidence-Based Approach

Traditional OT Service Models
- Primary Focus on reducing disability

Non-Traditional OT Service Models
- Focus on reducing disability and/or frailty

Intervention Strategies for Reducing Frailty-Related Disability

American Occupational Therapy Association
Occupational Therapy Practice Framework (OTPF III)
- Restore***
- Modify
  - Compensate (requires new learning)
  - Adapt (modification of context/environment)
- Prevent (further decline)
- Promote (health)
Modify

- Change the environment and/or activity demands to enable performance of a desired occupation
- Compensation; Adaptation
- Occupation-based

Prevent (further decline)
- Client/caregiver education
- Dependent on client “readiness for change”
- Challenge to “sell” for persons who are experiencing preclinical disability
- May be too “late” for those experiencing moderate or long-term disability
Promote (health)

- Evidence suggests frail older adults can still experience good “health”

- Areas of focus
  - Social participation
  - Role preservation
  - Occupations of greatest meaning
  - Healthy habits/routines

- Outcome of interest: Quality of Life (QOL)

What Does It Look Like???

1. Occupational profile
   - Goal setting
2. Determination of solutions
   - Implement solutions
3. Evaluate outcome
Which Approach?

CLINICAL REASONING

RESTORE

MODIFY

PREVENT

PROMOTE

Clinical Reasoning

The process that practitioners use to plan, direct, perform and reflect on client care. Schell, 2013

- Not a theory; cannot turn on/off….how well
- Happens quick
- Tacit knowledge

Procedural
What procedures can be used to remediate the problem?

Interactive
What strategies should be used to best collaborate with the client?

Conditional
What does the future likely look like for this client?

Pragmatic
What are the opportunities and barriers to delivering a specific intervention?
Behavioral Theories: Application with Frail Older Adults

- Goal achievement frequently requires a change in a person’s behavior.
  - May or may not occur
    - Impairment
    - Motivation
  - Applying health behavior theories to practice with older adults can assist practitioners in choosing an intervention approach
**Transtheoretical Model of Change (TTM)**

- Also called “Readiness for Change”; “Stages of Change” model
- Originally developed and used in health promotion
  - Smoking cessation
  - Weight loss
- Determines older adult client’s level of engagement in the intervention; focuses on the motivational aspect of behavior change

Prochaska & DiClemente, 1982

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**Readiness for Change**

- Precontemplation
- Contemplation
- Preparation
- Action
- Maintenance

Prochaska & DiClemente, 1983; Burbank & Riebe, 2002
Case Example: Mr. C

- Mr. C is an 81 year old man referred to your outpatient clinic for recurrent falls. He has a history of DJD, CHF, COPD and is frail. During your evaluation, you discover that he frequently forgets to take his medication which may be a factor in his fall frequency.

Precontemplation: Is Mr. C aware of his error and the risk?
Contemplation: He is aware; is he concerned about the risk and willing to make a change?
Preparation: He brings a paper and pen to your next visit to be sure he remembers what compensatory strategies he should employ
Action: Mr. C calls his daughter and asks her to purchase a talking pill dispenser for him and asks you to teach him how to use it
Maintenance: Mr. C asks his neighbor to double check the dispenser weekly to ensure he took his pills and set it up properly for the next week

Social Cognitive Theory

Psychological Model of Behavior
- Person/Environment/Behavior
- Based on learning principles; recognizes that people learn by observing and imitating others (modeling)
- Development is viewed as the accumulated effects of learning
- Components:
  - Outcomes Expectations
  - Personal Goal Setting
  - Self-Efficacy

Bandura
Self Efficacy
An older adult’s belief in their ability to perform a goal, task, or behavior not necessarily tied to their capacity/ability

- Stronger SE = increased likelihood of initiating and maintaining a certain behavior or activity
- Strategies to increase self-efficacy
  1. Successful performance
  2. Verbal persuasion and/or encouragement
  3. Vicarious learning/experience (i.e., Modeling)
  4. Physiological and/or affective responses

CAN DO > DOES DO

Self Efficacy – Application to OT Intervention

<table>
<thead>
<tr>
<th>Successful Performance</th>
<th>“Grading” an activity so it has some challenge but can be achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verbal Persuasion/Encouragement</td>
<td>Feedback while they are attempting the activity such as “good job”; “you can do it”; “I believe in you”</td>
</tr>
<tr>
<td>Vicarious Learning</td>
<td>Conducting a group treatment where all participants share similar difficulties and are all learning a new strategy</td>
</tr>
<tr>
<td>Physiological/Affective Response</td>
<td>After the activity, discussing how performing the activity and being successful at it made them feel</td>
</tr>
</tbody>
</table>
Intervention Strategies for Reducing Frailty

- Multicomponent exercise program
  - Strength, Aerobic, Balance
    - Fairhall et al. (2012)
    - Wom et al. (2001)
  - F.I.T.T. principles
  - “Match” the client’s impairments
- Clear distinction of occupational therapy approach
- Interprofessional collaboration

Case Story: Mrs. F Part 2

85 year old widow referred to home health occupational therapy upon discharge from SNF, s/p hospitalization for CHF
SHARE-FI score = 4 (indicates frailty)
Lives alone in senior high rise apartment
As per the PASS -needs assist with bathing, laundry, meal preparation, shopping, community mobility

COMPENSATION
- Facilitate obtainment of a shower chair and installation of grab bars in shower by facility management
- Recommend use of laundry cart and detergent in smaller containers to reduce difficulty of task
- Recommend modification to set up of kitchen and location of where she eats to simplify meal preparation
- Educates Mrs. F about local affordable delivery service for groceries – help her to create a checklist on her computer

RESTORATION
- Assess interest for a home program to increase strength and physical activity; if interested, provide her with a written program that includes endurance, strength and balance activities.
Questions?

Thank You

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References


