Resisting Frailty in Later Life: Intrapersonal, Interpersonal, and Environmental Influences

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A Chart of Ageing and Decline

Increasing Age >>

Bad

Good

Everything
The Language of Research

Decline

Death – life in an institution and end-of-life care

Dementia – cognitive and intellectual fragmentation

Dependency – focus on passive role in relationships

Disability – focus on physical decrements
Frailty

- Term used increasingly in clinical literature since the mid-1980s to describe older people in poor health
- Interaction of ageing, disease, and factors such as functional performance or nutritional status that make some persons at high risk and susceptible for adverse health outcomes
- Prevalence
  - less than 10% in adults 65 years to nearly 40% of adults aged ≥80.
  - 60% of older people admitted to UK hospitals assessed as frail
### Fit vs. Frail:

Woodhouse, K.W. et al. (1988).

<table>
<thead>
<tr>
<th>Factor</th>
<th>Fit Older Person</th>
<th>Frail Older Person</th>
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</thead>
<tbody>
<tr>
<td>Lives Independently</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Freely Mobile</td>
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<td>Regular Medication</td>
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<td>Co-Morbidity</td>
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<td>Yes</td>
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<td>Mental Deficit</td>
<td>No</td>
<td>Yes</td>
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</table>
Frailty Scale
(Rockwood et al., 1999)

- (0) Those who walk without help, perform basic activities of daily living (eating, dressing, bathing, bed transfers), are continent of bowel and bladder, and are not cognitively impaired;
- (1) Bladder incontinence only;
- (2) One (two if incontinent) or more of needing assistance with mobility or ADL, has cognitive impairment, or has bowel or bladder incontinence;
- (3) Two (three if incontinent) or more of totally dependent for transfers or one or more ADL, incontinent of bowel and bladder, and diagnosis of dementia.
What use is ‘frailty’

- Indexes of frailty are better predictors of outcome than clinical measures (e.g., diagnosis, disease severity or age)
  - Predicts institutionalisation, health service use, mortality
  - Can be used as a marker of ‘need’ for multidimensional assessment or Comprehensive Geriatric Assessment (CGA)
Problems with ‘frailty’

- Circularity
- Little consensus on what constitutes frailty
- Failure to move beyond a biomedical formulation
- No concession to agency
- No theory
Theoretical frameworks (1)

- Peter Laslett: The Fourth Age (1989)
  - Contrasts with the Third Age
    - An early late-life stage in which people are free from economic and social responsibilities and retain intellect and function (‘fit’)
  - The Fourth Age
    - The final stage of life when acute and chronic illness impacts upon functioning; disability and dependency (‘frail’)
  - cf. Status Passage (Glaser & Straus, 1971)
    - all individuals move from one situation or period in their life to a series of different locations
Theoretical Frameworks (2)

- Third/Fourth Age framework is more descriptive than explanatory; need theory/model from which hypotheses can be derived and tested

- The Body Drop:
  - A failing of the body initiates or interacts with cognitive processes in such a way as to influence physical functioning beyond that which would be expected as a result of the original failure.
  - In later life this can lead to a reconstruction of self-identity from ‘fit’ to ‘frail’

Resisting Frailty

- Intrapersonal Factors
  - Causal Attributions
  - Comparative Risk
  - Reminiscence
- Interpersonal Factors
  - Caregiving & the Negotiation of Dependency
- Environmental Factors
  - Person-environment fit
Intrapersonal factors: causal attributions

- Advancing age=marker for decline
- Association between ageing & decline leads to causal attributions:
  - E.g., Williamson & Fried (1996)
    - Study of 230 Community-living older people questioned about reasons for impairment
    - 31% gave ‘old age’ as a reason for at least one impairment
    - 20% gave ‘old age’ as a reason for 2+
  - Hopelessness Attributional Style
    - ‘old age’ as a stable and global cause
Causal attributions and recovery from falls

- A fall can transform a relatively healthy, active older person into someone who has:
  - Compromised physical health; Poor social functioning; Tendency to avoid activity; Poor quality of life; Increased risk of an ‘early’ death
- From ‘fit’ to ‘frail’
- Predictors of Decline?
  - Biological/Medical Factors – ‘frailty factors’
    - Only explain % of variance in recovery

- **Phase 1**
  - Questionnaire-based interview of 82 fallers (≥ 65 yrs.), hospitalised with diagnosis of proximal femoral fracture; sequential recruitment (85.4% r.r), interviewed 5-8 days post admission following surgery; age M=80.2, SD=7.29, range 65-94; 90.2% female

- **Phase 2**
  - Structured interview assessment of functional limitation 2 months post-fall; N=57 (79.2% response)
Hopelessness attributional style moderates relationship between pre-fall and post-fall function

![Graph showing the relationship between pre-fall and post-fall function with hopelessness and no hopelessness.](image-url)
Old age as causation

- Preliminary analysis of falls data
- A prospective survey study of 196 older people hospitalised after a fall, with follow-up data collected at 12 and 24 weeks
- Giving age as the cause of the fall predicted (p<.06) higher levels of depression at 24 weeks
- Having hopelessness explanatory style significantly predicted higher functional limitation at 24 weeks
- Need for psychological support post-fall to help older people find meaning in event that is not destructive
Intrapersonal factors: comparative risk

- Tendency to believe one is less at risk of negative health-related events (Radcliffe and Klien, 2002)
- Usually associated with better health & well-being
- May be associated with avoidant tendencies
  - False sense of security
  - Low motivation for preventive health behaviours
    - Weinstein 1982, 1987
- Resistant to idea of oneself as becoming ‘frail’?
Study: comparative risk and recovery from falls

- 196 older people hospitalised after a fall
- Interviewed in hospital and self-completion questionnaire 3 and 6 months post fall
- Determine optimistic bias to falling by subtracting own from other risk of further falls
Findings 1

- 63.3% of sample had optimistic bias towards further falls
- Less optimistic bias associated with:
  - Hopelessness attributional style ($r=-.21$, $p<.01$)
  - Causal attribution for fall:
    - Characterological ($M=0.79$)
    - External ($M=1.26$)
    - Behavioural ($M=1.83$)
      - ($F=3.09$, $p<.05$)
Findings 2

- Less optimistic bias: predictive associations
  - Higher perceived risk of falls (3 and 6 months)
    - $r=-.36$, $r=-.31$ respectively, both $p<.01$
  - More anxiety (3 months)
    - $r=-.24$, $p<.05$
  - More limitation in body care activity (3 and 6 months)
    - $r=-.24$, $r=-.23$ respectively, both $p<.01$
Moderation 1

β = -.38, t = -2.40, p = .02

Optimistic Bias  No Optimistic Bias

1.25  1.31

1.03  1.01

Mean Depression Baseline  Mean Depression 3 months

β = -.38, t = -2.40, p = .02
Moderation 2

Optimistic Bias  No Optimistic Bias

1.22  1.21
0.97  1.09

Mean Depression Baseline  Mean Depression 6 Months

$\beta = -0.35$, $t = -2.37$, $p = 0.02$
Discussion

- Seeing oneself as less at risk of a negative event may be initially psychologically protective
  - Danger of failing to take protective or avoidant action
  - Eventual confrontation with ‘reality’
- Over longer term ‘denial’ may be psychologically damaging
  - Perception of relative ‘fitness’ may be counterproductive at times of physical ‘frailty’
Intrapersonal factors: reminiscence

- Reminiscence: “the vocal or silent recall of events in a person’s life, either alone or with another person or group of people” Woods et al (1992. pg. 138)

- Erikson’s theory of lifespan development
  - Lifespan divided into stages; each marked by a psychological task.
  - Eighth stage (old age):
    - Attaining wisdom through resolving conflict between ego integrity and despair
    - Achieved through a re-engagement with the unresolved aspects of one’s past.
Reframing reminiscence in terms of frailty

- Erikson’s eighth stage as the context for the transition between fitness and frailty
- Ageing initiates cognitive search for meaning
- Failure to resolve ‘ego-integrity vs. despair’ can lead to psychological ‘frailty’; successful resolution helps maintain psychological ‘fitness’
Study


- 18 long-stay care settings visited.
- 142 older people recruited (52%).
  - 118 Intervention study
    - Allocated randomly by home to reminiscence, life review, or disclosure activity
    - Activity delivered once per week for four weeks with one month follow-up
  - 24 control (‘normal activities’).
Findings: Improvement in Morale (PGCMS), Baseline to Follow-Up, Intervention relative to Control

Variance in Follow-Up minus Baseline Change Scores:
Group membership
$r(109)=.16, p=.049$
Findings: Improvement in Psychological Morbidity (GHQ), Post 4\textsuperscript{th} Session to Follow Up, Intervention and Intervention relative to Control

Variance in Follow-Up minus Post 4\textsuperscript{th} Session Change Scores: Group membership sr(98)=-.21, p=.018

Follow-Up minus Post 4th session Change Score:
Intervention: 
t(84)=-2.12, p=.019
Control: 
t(19)=2.18, p=.042
Findings: No reduction in Positive Affect (AARS), Baseline to Follow-Up, Intervention relative to Control

Baseline vs. Follow-Up:
- Intervention: 
  - Baseline: 4.6
  - Follow-Up: 3.7
- Control: 
  - Baseline: 4.6
  - Follow-Up: 3.8

Change Score: intervention: $t(19) = -2.62, p = .017$

Variance in Follow-Up minus Baseline:
Change Scores: Group membership $r(114) = .21, p = .012$
Findings: Improvement in Negative Affect (AARS), Baseline to Follow-Up, Intervention and Intervention relative to control

Variance in Follow-Up minus Baseline Change Scores: Group membership sr(106)=−.19, p=.023

Intervention: Follow-Up Minus Baseline Change Score: t(89)=−2.73, p=.004
Discussion

- Did our intervention participants benefit from engaging in our activities? Yes.
  - When comparing psychological well-being one month after the intervention with well-being before intervention:
    - Intervention participants had significantly less negative affect
    - Relative to controls intervention participants had better morale, less morbidity, more positive affect & less negative affect
- Did how activities were carried out make a significant difference to our outcomes? No.
  - No significant differences between disclosure, life review, and reminiscence activities
Study


- Seven focus groups were held with family carers, care staff, and older people drawn from 16 fieldwork sites throughout a twelve month period of data collection.
- Groups were asked to consider when they might talk about the past or present, how and why; psychosocial benefits and costs
- Taped, transcribed, and analysed
Discontinuity, Disconnection, Displacement

- Past is a safer world - then and now, community, comfort zone.
- Present is not our world - hostile, lonely, not belonging, impotent.
- Displaced self: cut off, trapped and enclosed.
Discontinuity: Past vs. Present
Disconnection: present is not our world

I wouldn’t like to relive my life again, not in this world. The world’s all right-it’s the people that live in it - villains and vicious people, they’ll do anything for money now-murder, tie pensioners up.. (Tom, resident)
Displacement: the trapped self

There’s many a time – well most nights, I’ll sit out on the front for ten minutes, and thought about running away. I felt I was in a remand home. I hate feeling locked in, and I don’t know, I suppose there are other people in the same boat.....but it is me that’s locked in. (Jack, resident)
Discussion: Benefits and Costs

- Reminiscence can be both beneficial and detrimental:
  - Emphasis on the past may add to the reported sense of disconnection from the present.

- A focus on alleviating discontinuity may be most meaningful and beneficial for older people – building a bridge between personal past and personal present; and diminishing alienation from the present world.

- Fitness to Frailty transition manifests in the experience common to many older people of ‘discontinuity’ from their past, ‘disconnection’ from their present, and a ‘displacement’ of the self.
  - The ‘event horizon’ (Gilleard & Higgs, 2007)
Interpersonal Factors: caregiving & the negotiation of dependency

- Transition from fit to frail: loss of independence in ADLs
  - Increased levels of formal & informal support
- Renegotiation of familial role
  - Negotiation of dependency vs. autonomy in (I)ADLs a core component in achieving reciprocity in caregiving relationships (Grand et al., 1999; Pyke, 1999; Amari-Vaught, 1999)
  - Influenced by carer/care-receiver perceptions of ‘fit vs. frail’
  - Discrepancy in carer/care-receiver perceptions of older person’s ‘frailty’ may be associated with carer health & well-being and care outcomes (e.g. service use, institutionalisation)
Study: discrepant carer/care-receiver perceptions of dependency

- Longitudinal, baseline assessment and two-year follow-up of 115 care dyads (carer/older persons care-receiver)
- (I) ADL assessment (Gilleard, 1984)
  - 16 (I)ADLs assessed:
    - ‘Are you able, without help, to...’
      - Never able; Occasionally able; Usually able
  - 3 measures of discrepancy derived:
    1. total number of (I)ADLs with discrepancy
    2. number of (I)ADLs with carer-rated higher dependency
    3. number of (I)ADLs with care-receiver rated higher dependency
### Results (1) Associations between Discrepancy measures and Baseline Variables

<table>
<thead>
<tr>
<th>Baseline Variables</th>
<th>Carer Stress</th>
<th>Carer Psychological Morbidity</th>
<th>Carer Social Restriction</th>
<th>Affection Rejection Scale</th>
<th>Service Use</th>
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</thead>
<tbody>
<tr>
<td>Discrepancy Measures</td>
<td><strong>.39</strong>*</td>
<td><strong>.28</strong></td>
<td><strong>.33</strong>*</td>
<td><strong>.25</strong></td>
<td><strong>.36</strong>*</td>
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<tr>
<td>Total (I)ADL Discrepancy</td>
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<tr>
<td>Carer higher dependency</td>
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<td><strong>.25</strong></td>
<td><strong>.22</strong></td>
<td><strong>.27</strong></td>
<td>.15</td>
</tr>
<tr>
<td>Care-receiver higher dependency</td>
<td><strong>.23</strong></td>
<td>.05</td>
<td><strong>.19</strong></td>
<td>.02</td>
<td><strong>.26</strong></td>
</tr>
</tbody>
</table>

* p<.05; ** p<.01; *** p<.001
### Results (2) Associations between Discrepancy measures and Baseline Variables

<table>
<thead>
<tr>
<th>Baseline Variables</th>
<th>Carer need for formal support</th>
<th>Carer Preferences for Care Placement</th>
<th>Accepts Long-term care</th>
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<tbody>
<tr>
<td>sr Discrepancy Measures</td>
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<tr>
<td>Total (I)ADL Discrepancy</td>
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<td>.33***</td>
<td>.35***</td>
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<tr>
<td>Carer higher dependency</td>
<td>.21*</td>
<td>.23*</td>
<td>.34***</td>
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<tr>
<td>Care-receiver higher dependency</td>
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<td>.20*</td>
<td>.07</td>
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</table>

* p<.05; ** p<.01; *** p<.001
Results (3) Associations between Discrepancy measures and Follow-Up Variables

<table>
<thead>
<tr>
<th>Discrepancy Measures</th>
<th>Follow-Up Variables: sr/pr</th>
<th>Carer Health Worse</th>
<th>Carer Stress</th>
<th>Carer Stress Worse</th>
<th>Carer Social Restriction</th>
<th>Service Use</th>
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<tbody>
<tr>
<td>Total (I)ADL Discrepancy</td>
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<td>.15</td>
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<td>.01</td>
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<td>Care-receiver higher dependency</td>
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<td>.03</td>
<td>.23*</td>
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</table>

* p<.05; ** p<.01; *** p<.001
Results (4) Associations between Discrepancy measures and Follow-Up Variables

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<tr>
<th>Discrepancy Measures</th>
<th>Acceptance of Institutional Care</th>
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<tr>
<td>Total (I)ADL Disagreement</td>
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<tr>
<td>Care-receiver higher dependency</td>
<td>.30*</td>
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</table>

* p<.05
Discussion

- Discrepancy associated with range of variables
  - carer/care-receiver relationship, service use; carer well-being, expressed emotion, social restriction, perceived need, preferences for care-receiver place of care

- Discrepancy measures predict outcomes over two years
  - Worsening of carer health and stress, care-receiver service use, carer acceptance of institutional care

- Need to consider importance of ‘negotiation of frailty’ (dependency vs. autonomy) for outcomes of informal care & carer well-being
Environmental Factors:
Frailty as manifestation of person-environment fit

- Increasing number of older people need care in residential setting
- Physical environment very important for QoL (WHO):
  - Majority of remaining life spent within building
  - For successful ageing, environment must compensate for decline in functional abilities: mobility, sensory loss, cognitive impairment
- Little post-occupancy evaluation of existing buildings
- Study Aim:
  - To develop tool for evaluation of residential care environments
  - To explore relationships between the design of care settings for older people and residents’ QoL
**SCEAM:**
Sheffield Care Environment Assessment Matrix

<table>
<thead>
<tr>
<th>Location</th>
<th>Outside Spaces</th>
<th>Form / Circulation</th>
<th>Day Spaces</th>
<th>Bathrooms / Toilets</th>
<th>Private Rooms</th>
<th>Staff Spaces</th>
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</thead>
<tbody>
<tr>
<td>privacy</td>
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Cognitive support / building form and circulation
Cognitive support / building form and circulation features

21 items including:
- view of main public spaces from bedroom thresholds
- recognisable wc visible from dayroom threshold
- internal landmarks
- signs to aid wayfinding
- loop route
- windows in doors to public rooms
- external reference view
Scoring the SCEAM

- 330 binary items
  - walk-through checklist
  - analysis of plans
- Items scored as present (1) or absent (0);
- overall score for each domain = % items positive
- score building as designed and building as used
- profile of scores for each building
Sample

• 38 residential and nursing care homes
  • 11 small (≤ 30 beds), 14 medium (31-40), 13 large (>40)

• 452 randomly selected residents
  • of those resident at time of survey:
    • 100% observed
    • 84% proxy information
    • 43% interviewed
  • 77% Female; Mean age=85

• Building environment assessed; resident well-being & QoL assessed
## Associations between building domain scores and resident QoL

<table>
<thead>
<tr>
<th>Domain</th>
<th>QoL Outcome</th>
<th>Estimate</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice/control</td>
<td>+ Wellbeing&lt;sup&gt;3&lt;/sup&gt;</td>
<td>+.03</td>
<td>+.00, +.06</td>
</tr>
<tr>
<td>Community</td>
<td>+% time active&lt;sup&gt;2&lt;/sup&gt;</td>
<td>+.43</td>
<td>+.18, +.68</td>
</tr>
<tr>
<td>Safety/health</td>
<td>-Enjoy. activity&lt;sup&gt;3&lt;/sup&gt;</td>
<td>-.04</td>
<td>-.08, -.00</td>
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<tr>
<td></td>
<td>-Env. Control&lt;sup&gt;2&lt;/sup&gt;</td>
<td>-.06</td>
<td>-.10, -.03</td>
</tr>
<tr>
<td>Physical support</td>
<td>+Env. Control&lt;sup&gt;2&lt;/sup&gt;</td>
<td>+.10</td>
<td>+.06, +.15</td>
</tr>
<tr>
<td>Cog. support</td>
<td>+Positive affect&lt;sup&gt;3&lt;/sup&gt;</td>
<td>+.03</td>
<td>+.00, +.06</td>
</tr>
</tbody>
</table>

1. Change associated with one-point increase in domain score.  
2. For continuous outcomes, value tabulated is the estimated difference in quality of life score.  
3. For binary outcomes, value tabulated is the estimated difference in the log odds of a high quality of life.
### Associations between building domain scores and resident QoL by resident dependency level

**Quality of Life Outcomes:**

<table>
<thead>
<tr>
<th>Domain:</th>
<th>Dependency:</th>
<th>Low</th>
<th>High</th>
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</thead>
<tbody>
<tr>
<td>Choice/control</td>
<td></td>
<td></td>
<td>+Well-being</td>
</tr>
<tr>
<td>Community</td>
<td></td>
<td>+% time active</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>+Negative affect</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>-Positive affect</td>
<td></td>
</tr>
<tr>
<td>Safety/health</td>
<td></td>
<td>-Enjoy Activity</td>
<td></td>
</tr>
<tr>
<td>Physical support</td>
<td></td>
<td>+Control/choice</td>
<td>+% time active</td>
</tr>
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<td></td>
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<td></td>
<td>+Control/choice</td>
</tr>
<tr>
<td>Personalisation</td>
<td></td>
<td></td>
<td>+Control/choice</td>
</tr>
<tr>
<td>Comfort</td>
<td></td>
<td>+Well-being</td>
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<tr>
<td>Normalness</td>
<td></td>
<td>+Positive affect</td>
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</tr>
</tbody>
</table>
Discussion

- Different domains of built environment important for different domains of QoL
  - Control for well-being (cf. Langer & Rodin, 1976); physical and sensory support for positive affect (cf. Lawton, 1982); integration with wider community for increased activity & well-being (cf. McKee et al., 2002).

- Impact of building features on QoL moderated by dependency/frailty of residents
  - inclusive design for all problematic

- Attention to diverse aspects of building design required for maximisation of successful ageing
Summary (1)

- Frailty emerges as a result of the interaction between the self, the body, and others; and is manifested in the context of a malignant or benign environment (both physical and social).

- A reductionist model of frailty as biology is problematic:
  - cannot explain high well-being/QoL in the presence of high levels of physical frailty
  - cannot deal with evidence of psychosocial factors influence on clinical outcomes in frail older people
  - Places the self of an older person in passive relationship with his/her body
  - Just another label of Decline; Self-fulfilling prophecy?
Summary (2)

- Frailty as crisis of self or correlate of QoL?
- Crisis of self:
  - Discontinuity, disconnection, displacement
  - Trajectory change from desired to undesired self
- Correlate of QoL:
  - QoL Measurement Consensus (WHOQoL Group, 1998)
    - Physical health; psychological well-being; social relationships; physical environment
    - Poor relationship between QoL domains in objective measures and those self-generated by older people (McKee et al., 2005)
- Frailty now as QoL then: need for further conceptual & empirical work
Colleagues & Collaborators

- **Falls**
  - Dr Chris Austin, (NHS, Sheffield), Dr Man Cheung Chung (Plymouth), Dr Peter Harris (Sheffield)

- **Reminiscence**
  - Dr Fiona Goudie, (CHS, Sheffield), Dr Man Chung, (Plymouth) Gillie Bolton (Kings College, London) Fiona Wilson, Dr. Helen Elford (Sheffield)

- **Caregiving**
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- **Building Design**
  - Chris Parker (NHS, Nottingham), Dr Sarah Barnes, Prof. Peter Tregenza, Judith Torrington (Sheffield), Prof. Kevin Morgan (Loughborough)