UNDERSTANDING LATER LIFE FROM A MULTIDIMENSIONAL PERSPECTIVE

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How do we achieve health and happiness in later life?
Some Suggestions...

Active Ageing
Successful Ageing
Productive Ageing
But Mrs B says....

“I won’t have time to go to the toilet if I must do all those things that are recommended!”

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Daily Activity and Well-being in Later Life

Previous Research: Mixed Outcomes

Assumed a linear relationship between activity & well-being
- e.g., Activity Theory “Dying with his boots on” (Akien, 2001)

The more, the better? Well...
- e.g., voluntary activity (Musick et al., 1999; Louh and Herzog, 2002)
- e.g., solitary activity (Agahi and Parker, 2008; Jacobs et al., 2008)
Daily Activity and Well-being in Later Life

• Important to consider…
  • Heterogeneity of older people
  • Multidimensional nature of daily life
  • Zero-sum nature of time
MULTIDIMENSIONAL LIFE BALANCE

The Concept
How Rubinstein continued to be an excellent concert pianist at the age of 80

... played fewer pieces but practiced them more often.

... used contrasts in tempo, as a compensation for the loss in mechanical finger speed.

(Baltes and Baltes, 1990)

Adaptation and Compensation
Daily Activity and Well-being in Later Life

• Model of Successful Ageing
  “…interplay between selection, optimization and compensation enables older people to maintain their goals and adapt to the increasing vulnerabilities”
  
  (Baltes and Baltes, 1990)

• What Matters is...
  Overall Balance in Daily Activity across Life Domains
Peter’s Grandmother in Heidi

“How we measure can importantly influence how we come to understand it, how we analyse it, and how we create policies to influence it.”

(Alkire and Foster, 2011:290)
Multidimensional Life Balance Framework

Physical  Social  Cognitive  Productive  Out and About

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Multidimensional Life Balance Framework

Eat a minimum of 400g … 5 portions of fruit and vegetables a day to lower the risk of serious health problems!
Multidimensional Life Balance Framework

Physical
Social
Cognitive
Productive
Out and About

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Focusing On ‘Multiple Deprivations’

- Physical
- Social
- Cognitive
- Productive
- Out and About

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Focusing On ‘Multiple Deprivations’

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AN ILLUSTRATIVE APPLICATION

Multidimensional Life Balance of Older People in the UK
Data

• **UK 2000-2001 Time Use Data**
• **Sample**: 5,243 Cases
  Usual day & Good quality diary only; Aged over 50
• **Diary**:
  One day from 04:00 until 03:59 the next morning,
  divided into 10 minute time slots
• **MTUS version (Harmornised)**
  Over 60 datasets from 25 countries
## An Example of Time Diary

<table>
<thead>
<tr>
<th>Morning Time, am</th>
<th>What were you doing?</th>
<th>What else were you doing?</th>
<th>Where were you?</th>
<th>Were you with anybody?</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 - 7:40</td>
<td>Sleeping</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7:40 - 7:50</td>
<td>Had a shower</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7:50 - 8:00</td>
<td>Made breakfast</td>
<td></td>
<td>At home</td>
<td>X</td>
</tr>
<tr>
<td>8:00 - 8:10</td>
<td>Ate breakfast</td>
<td>Read newspaper</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>8:10 - 8:20</td>
<td>Did washing up</td>
<td></td>
<td>Walking</td>
<td>x</td>
</tr>
<tr>
<td>8:20 - 8:30</td>
<td>Got my son dressed</td>
<td>Talked with my son</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>8:30 - 8:40</td>
<td>Walked to school with son</td>
<td></td>
<td>Walking</td>
<td>x</td>
</tr>
<tr>
<td>8:40 - 8:50</td>
<td>Dropped son off at school</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:50 - 9:00</td>
<td>Walked to bus stop</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:00 - 9:10</td>
<td>Travel by bus to work</td>
<td>Read newspaper</td>
<td>On the bus</td>
<td></td>
</tr>
<tr>
<td>9:10 - 9:20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:20 - 9:30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:30 - 9:40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:40 - 9:50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:50 - 10:00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Gershuny (2011:9), Part of the 2000/1 UK Time Use Data Diary Form
Method

- **Alkire and Foster Method** *(Alkire and Foster, 2011)*
  - Multidimensional Poverty Index: Dual Cut-offs
  - Flexibility
  - Decomposability
  - Prevalence of Deprivation (Headcount Ratio)
  - The intensity (Average Inadequacy Score)
  - Change across time
  - International Comparison

- **Gross National Happiness Index** *(Alkire, Santos, and Ura, 2008)*

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Dimensions, Indicators and cut-offs

Physical
- Being Active: moderate to vigorous, at least for 30 minutes
- Minimasing Sedentary: less than 4 hours on sedentary activities

Social
- Social Activity: more than 50% below the median social activity
- With Others: less than 1.5 times of the median alone time

Cognitive
- Cognitive Activity: at least 30 minutes on cognitive activities

Productive
- Productive Activity: more than 50% below the median productive activity

Out and About
- Out-of-home: more than 50% below the median away from home
Older People’s Achievement in Each Indicator: Unidimensional Approach

Sufficiency in Each Indicator (Raw Headcounts, Total Sample)

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Multidimensional Life Balance of the People Aged Over 50 in the UK

Defined as people who achieved sufficiency in three out of five dimensions or in more than 60% of weighted indicators.
Measures from Alkire-Foster Method

- **H**: The Headcount Ratio or percentage of people who are identified as having multiple deprivations. This indicates the incidence or prevalence of multidimensional deprivations (e.g. Poverty, Disempowerment).

- **A**: The Average Insufficiency Score, which indicates the average breadth or multiplicity of deprivation people suffer at the same time. This shows the intensity of deprivation.

- **M₀**: The Multidimensional Index. It reflects the level of multidimensional deprivations, summarising the incidence and intensity. It ranges between 0 and 1, with the higher value indicating greater deprivation. It is constructed by multiplying the incidence (H) by the average deprivation score (A) \( M₀ = HA \).
<table>
<thead>
<tr>
<th></th>
<th>Without Multidimensional Life Balance (H, %)</th>
<th>Average Inadequacy Score (A)</th>
<th>W-MLBI (M0)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>39.1%</td>
<td>0.502</td>
<td>0.196</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>40.7%</td>
<td>0.510</td>
<td>0.208</td>
</tr>
<tr>
<td>Women</td>
<td>37.7%</td>
<td>0.494</td>
<td>0.186</td>
</tr>
<tr>
<td><strong>Employment Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>In Paid Work</td>
<td>31.3%</td>
<td>0.471</td>
<td>0.148</td>
</tr>
<tr>
<td>Not in Paid Work</td>
<td>44.1%</td>
<td>0.515</td>
<td>0.227</td>
</tr>
<tr>
<td><strong>Income Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lowest 25%</td>
<td>47.0%</td>
<td>0.516</td>
<td>0.242</td>
</tr>
<tr>
<td>Middle 25%</td>
<td>34.8%</td>
<td>0.483</td>
<td>0.167</td>
</tr>
<tr>
<td>Highest 25%</td>
<td>27.3%</td>
<td>0.472</td>
<td>0.129</td>
</tr>
<tr>
<td>Missing</td>
<td>39.0%</td>
<td>0.510</td>
<td>0.199</td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary or Less</td>
<td>44.0%</td>
<td>0.513</td>
<td>0.226</td>
</tr>
<tr>
<td>Completed Secondary</td>
<td>36.1%</td>
<td>0.490</td>
<td>0.177</td>
</tr>
<tr>
<td>Above Secondary</td>
<td>28.0%</td>
<td>0.467</td>
<td>0.131</td>
</tr>
<tr>
<td><strong>Health Status</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>58.4%</td>
<td>0.562</td>
<td>0.328</td>
</tr>
<tr>
<td>Fair</td>
<td>45.2%</td>
<td>0.510</td>
<td>0.231</td>
</tr>
<tr>
<td>Good</td>
<td>34.4%</td>
<td>0.480</td>
<td>0.165</td>
</tr>
<tr>
<td>Very good</td>
<td>32.3%</td>
<td>0.481</td>
<td>0.155</td>
</tr>
</tbody>
</table>
Multidimensional Life Balance Headcount Ratio by Gender and Age Group

Men

Women

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Average Insufficiency Score by Age Group and Gender
Relative Contributions from Each Indicator to Overall Imbalance

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Relative Contributions from Each Indicator to Overall Imbalance

Women

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Relative Contribution to Imbalance, by Gender and Age Group

Lacking Physical Activity

- Men
- Women

Lacking Social Activity

- Men
- Women

Sedentary

- Men
- Women

Lacking With Others

- Men
- Women
Relative Contribution to Imbalance, by Gender and Age Group

Lacking Productive Activity

Lacking Out & About

Lacking Cognitive Activity
Multidimensional Life Balance Headcount Ratio by Socioeconomic Status

By Income Status

By Level of Education
Average Inadequacy Score by Income Group

(Score)

- Lowest 25%
- Middle 50%
- Highest 25%

(Average Insufficiency score)

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Multidimensional Life Balance By Health Status

Men

<table>
<thead>
<tr>
<th>(Self-Assessed Health Status)</th>
<th>With MLB</th>
<th>Without MLB</th>
</tr>
</thead>
<tbody>
<tr>
<td>poor</td>
<td>58.9</td>
<td>41.1</td>
</tr>
<tr>
<td>fair</td>
<td>46.2</td>
<td>53.8</td>
</tr>
<tr>
<td>good</td>
<td>36.0</td>
<td>64.0</td>
</tr>
<tr>
<td>very good</td>
<td>35.8</td>
<td>64.2</td>
</tr>
</tbody>
</table>

Women

<table>
<thead>
<tr>
<th>(Self-Assessed Health Status)</th>
<th>With MLB</th>
<th>Without MLB</th>
</tr>
</thead>
<tbody>
<tr>
<td>poor</td>
<td>58.0</td>
<td>42.1</td>
</tr>
<tr>
<td>fair</td>
<td>44.52</td>
<td>55.5</td>
</tr>
<tr>
<td>good</td>
<td>33.13</td>
<td>66.9</td>
</tr>
<tr>
<td>very good</td>
<td>28.5</td>
<td>71.5</td>
</tr>
</tbody>
</table>
Multidimensional Life Balance & Self-Assessed Health

Predicted probability of reporting poor health: 0.24 if she does not have multidimensional life balance.

The probability would fall to 0.13 if she had maintained multidimensional life balance.


Results from multinomial logit regression (very good health as reference group).

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Results from Multinomial Logistic Regressions for Self-Assessed Health Status, Reporting Poor Health Relative to Very Good Health. Different cut-offs. (k)
Determinants of Multidimensional Life Balance

- Women
- Young old, rather than Old-old
- Higher education
- Married
- One person household
- In better health
Conclusion

- **Multidimensional Life Balance Index**
  - Measures the overall achievement of individuals across recommended daily activity domains for successful ageing outcomes
  - Identify Older People with Multiple Deprivations
  - With Decomposability: Understand the Structure of Imbalance & Policy Implication
  - Summary Measure: Cross-country, Cross-time Comparison

- Extends the applicability of Alkire-Foster Method + Adding Dimension

- **Threshold Effect**, rather than activity maximization
  - Reflects the heterogeneity of older people & the ability to adapt & compensate in later life

- Opens up discussion

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THANK YOU!

Multidimensional Life Balance