Operationalization of frailty and its external validity in the Swiss Interdisciplinary Longitudinal Study on the Oldest Old (SWILSO-O)

Franca Armí, Edith Guilley, Paolo Ghisletta, Christian Lalive d’Epinay

Center for Interdisciplinary Gerontology, University of Geneva

This research is supported by a grant from the Swiss National Science Foundation (Priority Program, “Switzerland: towards the future”; No 5004-058534/058536)

Principal Investigator: Prof. Lalive d’Epinay

Abstract

Data are from 340 community-dwelling octogenarians participating in the Swiss Interdisciplinary Longitudinal Study on the Oldest Old (SWILSO-O) measured five times. We first operationalized the concept of frailty based on the presence of deficiencies in two or more of the following domains: physical, mobility, energy, memory, and sensory. This gave rise to a distinction between frail and non-frail. We then combined the frailty indicator with the ADL and constructed three statuses: “independent” (non-frail and no ADL restriction), “frail” (frail and no ADL restriction), and “dependent” (frail and one or more ADL restrictions). At study inception, 38% of the sample were independent, 50% were frail, and 12% were dependent. The “independent”, “frail”, and “dependent” groups differed qualitatively with respect to risks of adverse outcomes (falls, illness, and death) and the most frequently mentioned deficiency (sensory disabilities, lack of energy, and mobility disabilities). The proposed “health status” will allow a better perception of the frailty process in a longitudinal perspective.

Interest in frailty

- As a consequence of a longer life expectancy
- and a global improvement of population’s health

An intermediate state emerges, where old people have some deficiencies without being dependent

Theoretical definition of frailty

Loss of physiological, sensory and motor’s reserves. As a consequence, the capacity to maintain adaptability after some disruptive event is jeopardized.

Dimensions of frailty and its threshold

A person is frail if he/she has at least two deficiencies on the five dimensions

Situation at wave 1

340 community-dwelling octogenarians aged 80-84 years were randomly selected at baseline in two contrasting regions of Switzerland (urban and semi-urban). The participants in the SWILSO-O were interviewed 5 times (between 1994 and 1999). The information was gathered by means of face-to-face interviews based on a closed-end questionnaire.

Sample

Multidimensional assessment

Independent = non frail and no ADL restriction

Frail = frail and no ADL restriction

Dependent = frail and at least one ADL restriction

Percentage of people with some deficiencies

- Dependent persons have more deficiencies than the frail persons
- Disability is an extreme situation of frailty

Conclusions and perspectives

A) Life in old age is not synonymous with disability: most very old people are frail

B) Disability is an extreme situation of frailty

C) Frail people have a higher risk of falls, illnesses, disabilities (1 year later) and death (5 years later) than the independent

D) Frailty leads to disability

E) This working definition will allow a better perception of the frailty process in a longitudinal perspective

Does frailty lead to a rapid decline towards dependence? Is frailty always a precursor of disability? Is frailty reversible?

Odds ratio

<table>
<thead>
<tr>
<th></th>
<th>Number of deficiencies (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent</td>
<td>0.7 (0.5)</td>
</tr>
<tr>
<td>Frail</td>
<td>2.9 (0.9)</td>
</tr>
<tr>
<td>Dependent</td>
<td>3.4 (1.3)</td>
</tr>
</tbody>
</table>

**Situation at risk**

- Frail people have a higher risk of falls, illnesses, disabilities (1 year later) and death (5 years later) than the independent
- Frailty leads to disability

**External validity of the operationalization**

- As a consequence of a longer life expectancy
- As a consequence, the capacity to maintain adaptability after some disruptive event is jeopardized.