

APPLYING THE HC-IDD FRAILTY INDEX TO DEVELOPMENTAL SERVICES AGENCY CHART DATA

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Background

Frailty is an age-associated clinical syndrome characterized by an elevated risk of adverse health outcomes, such as disability, institutionalization, morbidity and mortality^{1,2}, increased care intensity, and health care costs³.



- Develops earlier on average in individuals with intellectual and developmental disabilities (IDD) compared to the general population^{1,4}.
- Predicted to become a major healthcare challenge.

Home Care-IDD Frailty Index⁵ (HC-IDD FI):

- Developed using an accumulation of deficits approach.
- Includes 42 deficits that span five domains (physiological, psychological, cognitive, social, and service use).
 - All items are embedded in the RAI-HC⁶, the standard assessment in home care.
- Higher scores are associated with age, health⁵, and admission to long-term care^{7,8}.

As only a subset of adults with IDD is assessed in home care, we need to measure frailty outside of the home care system.

The purpose of this research is to apply the HC-IDD FI to clinical data held at Ongwanada, a community agency in Kingston supporting adults with IDD

Research Questions

1. Can the HC-IDD FI be applied to this developmental services agency?
2. Which HC-IDD deficits are routinely captured in chart data? Often missing? Rare?
3. Is the derived score associated with any client characteristics?
4. What can the derived score tell us?

Methods

- Cross-sectional study design
- Residential client Chart were reviewed to identify the presence of the 42 deficits
- Deficits which met the following criteria for inclusion⁹ were retained:
 1. Deficit is not too often missing (no more than 30% of the client files were missing)
 2. Deficit is not too prevalent (present in more than 80% of the clients)
 3. Deficit is not too rare (present in less than 5% of the clients)
- Chart-derived score was computed and tested for association with:
 - Age and Level of IDD (Spearman Rank Test)
 - Sex and Living arrangement (Mann-Whitney U Test)



Results

Sample comprised of 170 clients

- Age: 19 to 86 years (mean=51.9 years)
- Sex: 51.2% male
- Living arrangement: 77.6% group home vs. 22.4% host family
- Level of IDD: 26.5% unspecified, 32.9% mild-moderate, 40.6% severe-profound

Deficits and Chart-derived score

- 13/42 deficits met the inclusion criteria (Table 1)
- Scores: 0 to 0.58 (mean=0.19)
- Moderate positive correlation between score and age ($r=0.43$, $p<0.001$)
- Weak positive correlation between score and level of IDD ($r=0.22$; $p=0.002$)
- Individuals living in group homes had a higher score than those living with a host family (median=0.19 vs. 0.11; $p<0.001$)
- No sex difference in score ($p=0.163$)



Table 1. Breakdown of chart abstraction results for 13 included deficits (n=170)

Included Deficits	Not Present	Present	Not Present + Missing
Hospital Admission (within the last 90 days)	0%	5.3%	94.7%
Dementia/Alzheimer's Disease	1.2%	5.3%	94.7%
Diabetes	2.4%	8.8%	91.2%
Arthritis	1.2%	12.4%	87.7%
Hypertension	1.8%	15.3%	84.7%
Respiratory Disease	10.6%	7.6%	92.4%
Fall Frequency (more than 1 fall in the last 90 days)	19.4%	9.4%	90.6%
Osteoporosis	1.2%	29.4%	70.6%
Hearing Impairment	19.5%	17.0%	83.0%
Cataract	28.9%	23.5%	76.5%
Antidepressant (use within the last 7 days)	41.8%	18.8%	81.2%
Medications (4 or more within the last 7 days)	20.6%	70.6%	29.4%
Stamina leaving the house less than 6 days a week)	88.9%	5.3%	n/a

Discussion

- Most items in the HC-IDD FI were not systematically captured in developmental services agency charts.
- Items excluded due to missingness often concerned changes in function.
- Items excluded due to rarity include diseases often associated with increasing age (e.g. stroke & coronary artery disease).
- Chart-derived score associated with age, level of IDD, and living arrangement.
- Frailty has been shown to increase with age¹⁰, and is more prevalent among those with more severe levels of IDD⁹.
- Relationship with living arrangement has not been extensively explored.
- No significant difference in scores by sex⁴.

Conclusion

Relying on only 13 items to measure frailty is not recommended. The results highlight the importance of systematically recording changes in function in agency charts.

Future Directions

- Evaluate predictive validity of the chart-derived score by determining the association between scores and outcomes associated with frailty (e.g. hospitalization, falls, admission to long term care, and death).
- Assess concordance with the HC-IDD FI.
- Apply the HC-IDD FI to charts from other agencies to understand the generalizability of current study findings.

We are grateful to Shelley Geineau at Ongwanada for her assistance.



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