Malnutrition in geriatric rehabilitation: prevalence, patient outcomes and criterion validity of the Scored Patient-Generated Subjective Global Assessment (PG-SGA) and the Mini Nutritional Assessment (MNA)

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Malnutrition in geriatric rehabilitation
Prevalence, patient outcomes and criterion validity of the Scored Patient-Generated Subjective Global Assessment (PG-SGA) and the Mini Nutritional Assessment (MNA)

Skye Marshall
Dr. Adrienne Young, A/Prof. Judith Bauer, Prof. Elizabeth Isenring
What is malnutrition?

“Food and nutrient intake is unable to meet protein, energy and nutrient requirements over time leading to a disruption of homeostasis in lean tissues, body weight and physical function.”


The MARRC Study: Malnutrition in the Rural Rehabilitation Community

(Observational cohort: Aug 2013-Feb 2014)

In malnourished older adults admitted to rehabilitation:

1) Determine the criterion (concurrent and predictive) validity of nutrition assessment tools:
   • Scored Patient-Generated Subjective Global Assessment (PG-SGA)
   • Mini Nutritional Assessment (MNA) in diagnosing malnutrition;

1) Report the prevalence, health and aged care use, and mortality of rural malnourished older adults.
Methods

Participants:

- Rehabilitation inpatients in rural NSW
- n=57, 79 years, 49% female
- Live at home usually
- Usual care (0.15FTE dietitian)

<table>
<thead>
<tr>
<th>Methods of diagnosis at admission</th>
<th>1. ICD-10-AM Classification of malnutrition (yardstick)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Scored Patient-Generated Subjective Global Assessment (PG-SGA)</td>
</tr>
<tr>
<td></td>
<td>3. Mini Nutritional Assessment (MNA)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Longitudinal outcomes at discharge</th>
<th>1. Discharge location (home/hospital/other)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Length of rehabilitation stay</td>
</tr>
</tbody>
</table>

| Longitudinal outcomes at 12 weeks post-discharge | 1. Admission to residential aged care at 12 weeks post-discharge |
|--------------------------------------------------|-------------------------------------------------------------------------------------------------
|                                                 | 2. Mortality at 12 weeks post-discharge                                                             |
|                                                 | 3. Rehospitalisation length of stay at 12 weeks post-discharge                                      |
**Methods**

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</table>

That’s a lot of acronyms Skye...
Criterion validity:

1) Concurrent validity: compared to accepted standard
   - ICD-10-AM (hospital coding for malnutrition)
   - Sensitivity and specificity (%)

2) Predictive validity
   - Health and aged care outcomes
   - Significant difference (t-test or chi-squared)
Global rating (A, B, C) criterion validity in geriatric rehabilitation patients?
- Sensitivity 100%
- Specificity 87%
- Can predict
  - rehospitalisation LOS ($P=0.005$)
  - admission to RACF ($P=0.008$)
  - discharge location ($P=0.046$)

= STRONG CRITERION VALIDITY

Score (≥7) criterion validity in geriatric rehabilitation patients?
- Sensitivity 92%
- Specificity 84%
- Can predict
  - rehospitalisation LOS ($P=0.03$)
  - discharge location ($P=0.033$)

= STRONG CRITERION VALIDITY

We recommend for use in geriatric rehabilitation

- Global rating:
  - A = Well-nourished
  - B = Moderately malnourished
  - C = Severely malnourished

- Score: ≥9 in adult oncology patients
Category’s criterion validity in geriatric rehabilitation patients?

- Sensitivity 58%
- Specificity 97%
- Can predict
  - rehospitalisation ($P=0.023$)
  - admission to RACF ($P=0.034$)
  - discharge location ($P=0.019$)

= MODERATE CRITERION VALIDITY

We recommend to use with caution in geriatric rehabilitation
Prevalence and health outcomes

Malnutrition prevalence was 46% (ICD-10-AM)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Well-nourished (n=31)</th>
<th>Malnourished (n=26)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rehabilitation LOS(^a) (days), median (IQR(^b))</td>
<td>23.0 (16.0-37.5)</td>
<td>22.0 (13.75-32.75)</td>
<td>NS</td>
</tr>
<tr>
<td>Rehospitalization LOS (days), median (IQR)(^c)</td>
<td>4.0 (1.0-14.75)</td>
<td>10.0 (7.0-36.0)</td>
<td>0.032</td>
</tr>
<tr>
<td>Rehospitalization incidence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Median (IQR)(^c)</td>
<td>2.0 (1.0-2.0)</td>
<td>1.0 (1.0-2.0)</td>
<td>NS</td>
</tr>
<tr>
<td>- Counts (%)</td>
<td>n=12 (38.7%)</td>
<td>n=11 (38.5%)</td>
<td></td>
</tr>
<tr>
<td>Discharge location, counts (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Home</td>
<td>n=27 (87.1%)</td>
<td>n=17 (65.4%)</td>
<td>0.052</td>
</tr>
<tr>
<td>- Other(^e)</td>
<td>n=4 (12.9%)</td>
<td>n=9 (34.6%)</td>
<td></td>
</tr>
<tr>
<td>Admitted to RACF(^f), counts (%)</td>
<td>n=4 (12.9%)</td>
<td>n=7 (26.9%)</td>
<td>NS</td>
</tr>
<tr>
<td>Mortality, counts (%)</td>
<td>n=0</td>
<td>n=3 (11.5%)</td>
<td>0.052</td>
</tr>
</tbody>
</table>
Limitations

- Generalisability
- Limitation in yardstick
- Smallish sample size
- Researcher bias
...Malnutrition in geriatric rehabilitation

- Prevalence is too high
- Patients have poor outcomes in the long term
- Scored PG-SGA has strong validity
- MNA has moderate validity
Malnutrition in geriatric rehabilitation: Prevalence, patient outcomes, and criterion validity of the Scored Patient-Generated Subjective Global Assessment (PG-SGA) and the Mini Nutritional Assessment (MNA)

Swayne Marshall, APD; Adeline Young, PhD, APD; Judith Baum, PhD, APD; Elisabeth Herbert, PhD, APD

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ABSTRACT
Background: Accurate identification and management of malnutrition is essential to ensure that patient outcomes can be improved, and resources used efficiently.

Methods: Participants were 95 adults admitted to four public rehabilitation units in New South Wales, Australia. A Standardized Nutritional Assessment form was completed at admission. The SGA was completed by the dietary therapist and the MNA by the rehabilitation nurse. The SGA was completed at admission and the MNA at discharge.

Results: The SGA had a sensitivity of 100% and a Specificity of 87% for predicting a risk of malnutrition. The MNA had a sensitivity of 97% and a Specificity of 99%.

Conclusions: Malnutrition is common in the geriatric rehabilitation setting, and the SGA and MNA are useful tools for identifying malnutrition.

The physiological and psychological consequences of malnutrition are significant and diverse, including increased mortality, decreased function, and decreased quality of life. Early recognition and intervention are essential to prevent these outcomes.

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