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)

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“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)

| Methods of diagnosis at admission | 1. ICD-10-AM Classification of malnutrition (yardstick)  
2. Scored Patient-Generated Subjective Global Assessment (PG-SGA)  
3. Mini Nutritional Assessment (MNA) |
|----------------------------------|--------------------------------------------------------------------------------------------------|
| Longitudinal outcomes at discharge | 1. Discharge location (home/hospital/other)  
2. Length of rehabilitation stay |
| 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

| Methods of diagnosis at admission | 1. ICD-10-AM Classification of malnutrition (yardstick)  
2. Scored Patient-Generated Subjective Global Assessment (PG-SGA)  
3. Mini Nutritional Assessment (MNA) |

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)
The Scored PG-SGA

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

- Score: ≥9 in adult oncology patients

We recommend for use in geriatric rehabilitation
The MNA

Categories’ 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&lt;sup&gt;a&lt;/sup&gt; (days), median (IQR)&lt;sup&gt;b&lt;/sup&gt;</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)&lt;sup&gt;c&lt;/sup&gt;</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)&lt;sup&gt;c&lt;/sup&gt;</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&lt;sup&gt;e&lt;/sup&gt;</td>
<td>n=4 (12.9%)</td>
<td>n=9 (34.6%)</td>
<td></td>
</tr>
<tr>
<td>Admitted to RACF&lt;sup&gt;g&lt;/sup&gt;, 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; Adrienne Young, PhD, APD; Judith Poole, APD

Introduction

There is strong evidence showing malnutrition is under-recognized and undertreated in the rehabilitation setting. Accurate identification and management of malnutrition is essential as it can influence outcomes. While many patients may be identified and treated, these methods may not be effective.

The Scored PG-SGA and MNA require evaluation of their validity in diagnosing malnutrition in rehabilitation. In addition, the prevalence of malnutrition and associated patient outcomes in rural Australian populations are yet be investigated.

Methods

Participants were recruited from two rural rehabilitation units in two rural health districts in rural NSW. They were community-living older adults admitted to rehabilitation units from August 2010 to January 2012. Data were collected in parallel with patient outcomes.

Malnutrition assessment using the Scored PG-SGA and MNA was conducted by one trained registered nurse. Participants were assessed using several questions. Scores on the MNA were calculated using the MNA criteria. The MNA score was calculated using the criteria for scoring and classification of malnutrition.

Results

Five-year-old adults (≥70 years) were scored.

Malnutrition prevalence was 24%.

Kappa statistic for the PG-SGA was 0.850, sensitivity was 100% and specificity was 87%.

The MNA score was 0.567, sensitivity was 50%, and specificity was 97%.

Conclusions

Malnutrition prevalence in the rural geriatric rehabilitation population is high and associated with increased health and aged care use.

The Scored PG-SGA is useful for nutrition assessment in geriatric rehabilitation. The MNA may be suitable for nutrition assessment in geriatric rehabilitation, but care should be taken to ensure all malnourished patients are identified.