A Revised Index for Social Engagement for Long-Term Care

ABSTRACT

The objective of this study was to improve validity and reliability estimates of the Index for Social Engagement (ISE) for long-term care. After exploring content validity and internal consistency in Dutch and Canadian data, two ISE items were dropped, and two new items were added. Reliability of this Revised ISE (RISE) was tested in 189 nursing home residents. It appeared that the RISE has enhanced reliability estimates, especially in residents with cognitive impairment. The RISE for long-term care improves the existing index by including additional dimensions of social engagement and by increasing the reliability of results for residents with cognitive impairment.

Social engagement refers to being active and embedded in a social context. It is an important priority for long-term care because it is a major contributor to quality of life (Gerritsen, Steverink, Ooms, & Ribbe, 2004; Mor et al., 1995). Higher levels of social engagement have been found to be associated with higher levels of well-being (Gilbart & Hirdes, 2000) and to even have a protective effect on mortality in long-stay nursing home populations (Kiely & Flacker, 2003). The opposite—social disengagement—has been associated with cognitive impairment in older adults (Bassuk, Glass, & Berkman, 1999). Therefore, stimulating residents’ social engagement in the life of the facility is crucial.

Admission to long-term care facilities often involves a significant disruption of previous relationships and implies the necessity to adapt to other people and other activities (Mor et al., 1995). Thus, low social engagement is very common in newly admitted nursing home residents (Achterberg et al., 2003). Yet, assessing and monitoring the social engagement of residents is often neglected. For example, Worden, Challis, and Pedersen (2006) found that 35% of the care facilities they investigated did not assess or monitor residents’ social activities or interests.

A scale that may be a useful and practical tool for the assessment of social engagement is the Index for Social Engagement (ISE) (Mor et al., 1995). It is an observational scale that measures positive features of long-term care residents’ social behavior through six dichotomous items. It is derived from the Resident Assessment Instrument/Minimum Data Set (RAI/MDS), a comprehensive geriatric assessment instrument for long-term care, which is used in all nursing homes in the United States and in many long-term care facilities worldwide (Hirdes et al., 1999; Morris, Hawes, & Fries, 1990). Its items are:

- "At ease interacting with others."
- "At ease doing planned or structured activities."
- "At ease doing self-initiated activities."
- "Establishes own goals."
- "Pursues involvement in the life of the facility."
- "Accepts invitations to most group activities."

Since its introduction, the ISE has been used in several investigations, including studies on the effect of social engagement on mortality (Kiely & Flacker, 2003; Kiely, Simon, Jones, & Morris, 2000), the effect of depression and sensory impairments on social engagement (Achterberg et al., 2003; Resnick, Fries, & Verbrugge, 1997), and the relationship between stress, social engagement, and psychological well-being (Gilbart & Hirdes, 2003). The ISE was found to be distinct from conflict relationships, behavioral problems, and negative affective states in the development sample (Mor et al., 1995) and stable across types of residents and across nations (Schroll, Jönsson, Mor, Berg, & Sherwood, 1997). It has been shown to have an internal consistency of 0.79 in the United States (Kiely et al., 2000; Mor et al., 1995) and 0.72 in the Netherlands (Achterberg et al., 2003) and an aver-
age kappa for interrater item reliability of 0.58 (Hawes et al., 1995).

The positive evidence described above on the use of the ISE provides an indication of its validity, but a validity study using an independent sample had not yet been performed. In addition, there has been some discussion on the definition of the concept (Kiely & Flacker, 2003). The developers of the ISE (Mor et al., 1995) describe social engagement of long-term care residents as the "ability to take advantage of opportunities for social interaction and to initiate actions that engage in the life of the home" (p. 2). Kiely and Flacker (2003) added to it "a requirement that the resident has the opportunity to engage and must take action by participating in social activities" (p. 472) and put forward that the ISE does measure what they consider are four essential components of social engagement: desire, ability, opportunity, and action.

However, the items "At ease doing self-initiated activities" and "Es-

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JOURNAL OF GERONTOLOGICAL NURSING • VOL. 34, NO. 4, 2008

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establishes own goals" do not seem to have the social orientation that would be expected in a scale that measures social engagement. These two items reflect the component of autonomy, whereas the other items reflect social involvement (Mor et al., 1995). Together with the fact that only one of the items is about contact with other people ("At ease interacting with others"), and three of the six items are about activities ("At ease doing planned or structured activities," "At ease doing self-initiated activities," "Accepts invitations to most group activities"), questions were raised about the validity of the scale.

This article describes a study aimed at validating and, if necessary, improving the ISE.

METHOD

Procedure

To evaluate the content validity of the existing ISE, the dimensions of the concept of social engagement were identified by studying 14 other scales for positive social behavior reported in the literature (Baum, Edwards, & Morrow-Howell, 1993; Duine, 1991; Farina, Arenberg, & Guskin, 1957; Gorissen, 1986; Harvey et al., 1997; Helmes, Csapo, & Short, 1987; Hoenigfeld, Gillis, & Klet, 1966; Jette et al., 1986; Lisen & Kennedy, 1975; Pattic, 1984; Peavy et al., 1996; Saxton, McGonigle-Gibson, Swihart, Miller, & Boller, 1990; Spiegel et al., 1991; Verstraten, 1988). An expert panel of 20 nursing home psychologists and physicians was asked to rate the relevance of these dimensions for measuring the social engagement of nursing home residents on a scale from 0 (not relevant at all) to 10 (extremely relevant). The dimensions that were considered were matched with the items in the ISE. The relevance of dimensions that were not represented in the ISE was compared with the relevance of the dimensions that were included in the ISE using paired t tests. Highly relevant dimensions that were not represented in the ISE were measured with new items that were added to the data collection in the Netherlands. This was done to examine the possibility of constructing a revision of the ISE.

Next, RAI/MDS data from Canada and the Netherlands were used to determine whether all items of the ISE were needed for it to be an internally consistent scale. Additional data were collected in the Netherlands to assess were female, and their average age was 80.5 (± 9.3 years). The assessments were performed by licensed practical nurses who were involved in the daily care of the residents studied. Additional data were collected; repeated assessments by the same rater and dual assessments by a second rater were available for 142 and 151 residents, respectively. Multiple assessments for 1 resident were done within 4 weeks. Data collection took place between January 2000 and June 2001.

The Canadian data came from a 2001 pilot implementation of the RAI/MDS in Ontario long-term care homes (including for-profit nursing homes and not-for-profit homes for older adults). These homes implemented the RAI/MDS as part of normal clinical practice over a 1-year period. Assessments of 1,909 residents were completed by trained professionals (usually nurses) from the facilities. The instrument is now being implemented on a provincial basis for all 650 homes in Ontario, and the initial phase began in 2005.

The data collection was approved by ethics committees in the Netherlands and Canada.

Instruments

The RAI/MDS-derived ISE (Mor et al., 1995) is a 6-item observational scale consisting of the following dichotomous items:

- "At ease interacting with others."
- "At ease doing planned or structured activities."
- "At ease doing self-initiated activities."
- "Establishes own goals."
- "Pursues involvement in the life of the facility."
- "Accepts invitations to most group activities."

Scores range from 0 to 6 with higher values representing greater social engagement.

The Cognitive Performance Scale (CPS) (Morris et al., 1994), which is also part of the RAI/MDS, is a 7-point hierarchical observational
TABLE 1
DIMENSIONAL STRUCTURE OF POSITIVE SOCIAL BEHAVIOR MEASURES AND APPOINTED GRADES OF RELEVANCE FOR NURSING HOME RESIDENTS

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Positive Social Behavior Measures</th>
<th>Relevant</th>
<th>Weight of Indication</th>
<th>Apparent Validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activating interactions with others</td>
<td>Takings steps Calculations and solving problems</td>
<td>3 (1.2)</td>
<td>7.4 to 8.6</td>
<td></td>
</tr>
<tr>
<td>Reacting to others</td>
<td>Reacting to others Making eye contact Happy with visits Shows recognition</td>
<td>7.2 (1.3)</td>
<td>6.6 to 7.8</td>
<td></td>
</tr>
<tr>
<td>Conversational skills</td>
<td>Understanding others</td>
<td>7.9 (1.3)</td>
<td>6.2 to 7.4</td>
<td></td>
</tr>
<tr>
<td>Attitudes during interaction¹</td>
<td>Friendly toward others Assertive in group Involved with and interested in others</td>
<td>7.2 (1.3)</td>
<td>6.6 to 7.8</td>
<td></td>
</tr>
<tr>
<td>Activities in environment</td>
<td>Engaging in activities Carrying on contacts</td>
<td>6.8 (1.4)</td>
<td>6.2 to 7.4</td>
<td></td>
</tr>
<tr>
<td>Social relationships</td>
<td>Friendship Carry on contacts</td>
<td>6.8 (1.4)</td>
<td>6.2 to 7.4</td>
<td></td>
</tr>
<tr>
<td>Subjective response to activities²</td>
<td>Enjoying activities Carrying on contacts</td>
<td>6.5 (1.1)</td>
<td>6.2 to 7.0</td>
<td></td>
</tr>
<tr>
<td>Initiation of activities³</td>
<td>Spontaneous activities and occupations Spontaneous activities with others Joins organized activities</td>
<td>6.5 (1.1)</td>
<td>6.2 to 7.0</td>
<td></td>
</tr>
</tbody>
</table>

Note: Bolded items are represented in the index of Social Engagement (ISE).
¹ Represented in ISE item "At ease interacting with others."
² Represented in ISE item "Pursues involvement in the life of the facility."
³ Represented in ISE item "At ease doing planned or structured activities."
⁴ Represented in ISE item "At ease doing self-initiated activities and accepts invitations to most group activities."

scale that rates cognitive impairment from 0 (intact) to 6 (very severe impairment). Its reported internal consistency ranges from 0.70 to 0.88 (Gruber-Baldini, Zimmerman, Mottimore, & Magaziner, 2000; Morris et al., 1994). Its sensitivity and specificity against the Mini-Mental State Examination (MMSE) were 0.94 (Hartmaier et al., 1995), and its correlation with the MMSE has been estimated at -0.65 (Gruber-Baldini et al., 2000). Snowden et al. (1999) found that the CPS had a larger effect size than did the MMSE. The internal consistency in this sample was 0.74.

In this study, the CPS was used as a stratification variable to investigate the suitability of the ISE and a revised ISE for residents who were cognitively intact and those who were cognitively impaired. Residents with CPS scores of 0 to 2 are considered to have no or limited cognitive impairment. Residents with CPS scores of 3 to 6 are considered to have moderate or severe cognitive impairment.

Data Analysis
Tests of reliability were used to evaluate alternative operationalization of the ISE (Steiner & Norman, 2003). Internal consistency analyses (Cronbach, 1951) were performed with the Canadian and Dutch RAI/MDS data to estimate the overall reliability of the original scale, as well as the performance of individual ISE items. Internal consistency was also evaluated for a revised ISE. In addition, interrater and intrarater reliability were studied for the original and revised indexes (Shrout & Fleiss, 1979) and their items (Cohen, 1960). This was done for the entire group and stratified by cognitive functioning.

Principal component analysis was performed to establish whether the items of the ISE and a revised ISE load on one component, and principal-axis factoring with varimax rotation provided insight into what dimensions were represented in the indexes.
### TABLE 2

DISTRIBUTIONS, INTERNAL CONSISTENCY, AND INTRARATER/INTERRATER RELIABILITY OF ITEMS AND SCALES OF THE ISE AND RISE FOR TOTAL GROUP AND FOR RESIDENTS WITH LIMITED AND MODERATE-TO-SEVERE COGNITIVE IMPAIRMENT

<table>
<thead>
<tr>
<th>Scale Type</th>
<th>Total</th>
<th>CPS</th>
<th>CPS ≤ 1</th>
<th>CPS ≤ 2</th>
<th>CPS ≤ 2a</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td>3.32 (2.36)</td>
<td>3.0</td>
<td>4.01 (1.59)</td>
<td>3.81 (1.52)</td>
<td>3.81 (1.52)</td>
</tr>
<tr>
<td>Median (IQR)</td>
<td>3.0 (1.0, 4.0)</td>
<td>3.0</td>
<td>3.0 (1.0, 4.0)</td>
<td>3.0 (1.0, 4.0)</td>
<td>3.0 (1.0, 4.0)</td>
</tr>
<tr>
<td>CPS ≤ 2</td>
<td>0.65 (0.23)</td>
<td>0.67 (0.22)</td>
<td>0.67 (0.22)</td>
<td>0.67 (0.22)</td>
<td></td>
</tr>
<tr>
<td>ISE &gt; 2</td>
<td>0.72 (0.58 to 0.82)</td>
<td>0.68 (0.52 to 0.79)</td>
<td>0.68 (0.52 to 0.79)</td>
<td>0.68 (0.52 to 0.79)</td>
<td></td>
</tr>
<tr>
<td>CPS &gt; 2</td>
<td>0.45 (0.33 to 0.62)</td>
<td>0.45 (0.33 to 0.62)</td>
<td>0.45 (0.33 to 0.62)</td>
<td>0.45 (0.33 to 0.62)</td>
<td></td>
</tr>
</tbody>
</table>

Note: The numbers of participants for the ISE and the RISE differ because data on the newly formulated items were not collected for all residents. 
CI = confidence interval; CPS = Cognitive Performance Scale; ICC = Intraclass correlation coefficient; ISE = Index for Social Engagement; RISE = Revised Index for Social Engagement. 
* Indicates limited cognitive impairment. 
** Indicates moderate-to-severe cognitive impairment.

### RESULTS
Content Validity

Table 1 shows the dimensional structure of the identified social behavior instruments. Eight dimensions were present in the 14 social behavior measures that were found in the literature. They were:
- Actively making contact with others.
- Reacting to others.
- Conversational skills.
- Attitudes during interaction.
- Interest in environment.
- Social relationships.
- Subjective response to activities.
- Initiation of activities.

The content of the instruments' items is listed in the subcategories column of Table 1.

The 20 participants in the expert meeting rated the relevance of the dimensions, as shown in Table 1. The dimensions "Actively making contact with others" (mean = 8, SD = 1.2; 95% confidence interval [CI] = 7.4 to 8.6) and "Reacting to others" (mean = 8, SD = 1.2; CI = 7.4 to 8.6) were considered by the clinical experts to be the most important. "Initiation of activities" (mean = 6.5, SD = 1.1; CI = 6 to 7) was considered least important.
### Table 3

**Factor Structure of the ISE and RISE**

<table>
<thead>
<tr>
<th>Item</th>
<th>PI Score</th>
<th>ISE 1</th>
<th>ISE 2</th>
<th>PI 1</th>
<th>PI 2</th>
<th>PI 3</th>
<th>PI 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. At ease interacting with others</td>
<td>0.507</td>
<td>0.727</td>
<td>0.151</td>
<td>0.652</td>
<td>0.770</td>
<td>~0</td>
<td></td>
</tr>
<tr>
<td>2. At ease doing planned or structured activities</td>
<td>0.576</td>
<td>0.724</td>
<td>0.198</td>
<td>0.588</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Establishes own goals</td>
<td>0.506</td>
<td>0.515</td>
<td>0.331</td>
<td>0.607</td>
<td>0.587</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Accepts invitations to most group activities</td>
<td>0.532</td>
<td>0.610</td>
<td>~0</td>
<td>0.660</td>
<td>0.508</td>
<td>0.262</td>
<td></td>
</tr>
<tr>
<td>New 2. Reacts positively to interactions initiated by others</td>
<td>0.623</td>
<td>0.111</td>
<td>0.754</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. ISE = Index for Social Engagement; PI = principal axis factoring; RISE = Revised Index for Social Engagement. ~0 represents very small loadings; bolded numbers represent loadings greater than 0.40.

In Table 1, the four dimensions that are represented in the ISE are bolded. Each ISE item was placed in the dimension that contained those items of the other instruments that corresponded best to the ISE item. The ISE item "Establishes own goals" was not identified in the dimensions reported in the literature.

Paired t-tests showed that "Actively making contact with others" and "Reacting to others" were considered to be of even higher relevance than the four dimensions present in the ISE (all p values < 0.02), making them important additions to a new version of the ISE. Thus, two new items that represent these dimensions were formulated and included in the Dutch data collection: "Initiates interaction(s) with others" and "Reacts positively to interactions initiated by others."

**Reliability**

Internal consistency (Cronbach's alpha coefficient) of the ISE was 0.82 and 0.65 in the Canadian and Dutch samples, respectively. When stratified by CPS score, the internal consistency decreased in both samples for the residents with more severe cognitive impairment. This was particularly true when the items "At ease interacting with others," "At ease doing planned or structured activities," or "Accepts invitations to most group activities" were excluded from the ISE, which suggests they are important items to keep in the scale. Excluding the items "Establishes own goals" or "At ease doing self-initiated activities" had little effect on the ISE.

Combining the internal consistency results with the findings on content validity, "Establishes own goals" was not represented in the dimensional structure, and "At ease doing self-initiated activities" was part of the dimension that was considered the least important. Consequently, both items were excluded from the revised index.

Table 2 provides the mean scores and reliability results for the original ISE and the Revised ISE (RISE). Table 2 shows that the internal consistency of the RISE was higher than that of the original ISE, especially in the moderate-to-severe cognitive impairment group. Intrarater reliability estimates were approximately the same, but interrater reliability had clearly improved.

**Factor Structure**

**Factor Structure of the ISE.** Principal component analyses with extraction of one component showed a component with an eigenvalue of 2.4, on which all 6 items of the scale loaded above 0.40 (range = 0.53 to 0.72), explaining 39% of the variance (N = 199) (Table 3). Table 3 also shows the factor solution after principal axis factoring with varimax rotation extracting factors with an eigenvalue greater than 1, which showed a second factor on which the items that were dropped for the RISE loaded with an eigenvalue of 1.3. The total variance explained was 60%.

**Factor Structure of the RISE.** Principal component analyses with extraction of one component showed a component with an eigenvalue of 2.6, on which all 6 items of the new scale loaded (range = 0.61 to 0.71), explaining 43% of the variance (N = 189). Principal axis factoring with varimax
KEYPOINTS

SOCIAL ENGAGEMENT


1 Because admission to long-term care facilities implies the necessity to adapt to other people and other activities, low social engagement is very common in newly admitted nursing home residents.

2 The Index for Social Engagement (ISE) is an observational scale that measures positive features of long-term care residents' social behavior.

3 After exploring content validity and internal consistency, two ISE items were dropped, and two new items were added, thus providing a more reliable and valid scale (Revised ISE [RISE]) that can be used in daily clinical practice.

4 The RISE improves the existing index by including additional dimensions of social engagement and by increasing the reliability of results for residents with cognitive impairment.

DISCUSSION

Social engagement is an important aspect of the quality of life of long-term care residents. This research increases the capacity of staff to measure social engagement by providing a more reliable and valid scale that can be used in daily clinical practice.

In the Netherlands, the RISE is included in an output module of MDS-based measurement scales that is available for nursing staff after an MDS assessment is completed. Together with an overview of the Resident Assessment Protocol triggers, these are used as the nursing staff's input for the multidisciplinary consults that are stored on each unit on a monthly basis. The output of the measurement scales includes a graphical representation of the scale scores on each completed MDS for that particular resident (up to 10 assessments). This makes it possible to monitor a resident's status over time. Nursing staff can discuss the results on the RISE with the unit's activity therapist, who may change the resident's activity program. In addition, once every 3 months, each unit receives an overview of the scale scores of their residents. Changes in the social engagement of the entire group of residents can subsequently be addressed in the unit's activity plan. With the expanding use of the RAI/MDS in routine practice worldwide, efforts to further increase the functionality and robustness of its scales can be of widespread benefit to long-term care.

The RISE includes more dimensions of social engagement. This study's method of reviewing the ISE by examining content validity enabled the exploration of the construct of positive social behavior from a perspective of clinical relevance. This led to the revision of the ISE and to the inclusion of two new items about the quality of social interaction. The RISE is also more reliable in some areas than is the original ISE. For example, the interrater item reliability and the reliability of the new scale is better than those of the old version when used with residents with moderate-to-severe cognitive impairment. The additional items needed to calculate the RISE are included in the newest versions of the RAI/MDS instruments—the interRAI LTCF® and the interRAI AL™. (For more information on these instruments, access http://www.interrai.org.)

NURSING IMPLICATIONS

The content of the RISE is based on the idea that being socially engaged in the life of the long-term care facility is something that should be strived for. Indeed, long-term care facilities are focused on creating a homelike environment that includes the provision of recreational opportunities within the facility (Murphy, 2007).

However, there may be long-term care residents who are socially well but are not highly engaged in the life of the facility because, for example, they have friends and pursuits outside of the facility. The dimensional structure of the social behavior measures (Table 1) actually shows a dimension "Social relationships," and the dimension "Interest in environment" has a subcategory "Interest in world outside nursing home." Nevertheless, as the expert panel did not consider these dimensions to be very important for social engagement, no additional items were constructed.

Yet, recent research has shown that internal social relationships are an important predictor of resident well-being (Street, Burge, Quadagno, & Barrett, 2007), which suggests relationships should be included in measurement of social engagement. Together with the growing emphasis on promoting independence and autonomy by providing person-centered, individualized care (Murphy, 2007), a broader approach to social engage-
ment that includes the world outside the facility may better represent the social life of long-term care residents in the near future. Therefore, the concept and measurement of social engagement in long-term care should be subject to further research.

It was noted that the reliability estimates of the ISE were poorer in the Netherlands than in Canada. This may have been because the licensed practical nurses in the Netherlands had lower skill levels or received less special training than did the more highly qualified nurses in Canada. It will be important to conduct more research to determine whether differences in reliability of the RISE may result from differences in skill levels. That said, these results point to the need for ongoing education of staff using the RAI/MDs (the new interRAI LTCP®) to maximize the quality of all data elements in the assessment.

CONCLUSION

The RISE is available for all clinicians who use the new versions of the interRAI instruments for long-term care and for assisted living (the interRAI LTCP® and the interRAI AL®, respectively). The RISE improves the existing index by including additional dimensions of social engagement and by increasing the reliability of results for residents with cognitive impairment.

REFERENCES


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