Developing a Residential Care Facility Version of the Observable Indicators of Nursing Home Care Quality Instrument

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The last decade has seen a substantial growth in the development of residential care facilities (assisted living facilities). Evaluation of the quality of care in this service delivery sector has been hampered by the lack of a consensus definition of quality and the lack of reliable instruments to measure quality. Founded on extensive research on nursing home care quality, a field test of the Residential Care Facility Version of the Observable Indicators of Nursing Home Care Quality Instrument was conducted in 35 residential care facilities in Missouri. Content validity of the 34 items was rated by 4 expert raters as 3.4 on a 4-point scale of relevance. Test-retest was 0.94, interrater reliability was 0.75, and internal consistency was 0.90 for the total scale, indicating excellent results for initial field-testing. A focus group confirmed the 5 dimensions of quality of care measured by the instrument as important in residential care settings. Key words: assisted living, instrument development, nursing homes, quality of care, residential care.

The rapid growth of residential care facilities, also called assisted living facilities or personal care homes, has raised quality concerns for these facilities that parallel concerns for nursing home quality. There are between 30,000 and 40,000 assisted living facilities in the United States caring for an estimated 1 million residents. Driven in part by the increasing number of older adults, consumer demand for alternatives in long-term care, and concerns about nursing home quality, the number of assisted living facilities increased rapidly in the 1990s. Because of that rapid growth, one-third of assisted living facilities have been in operation 5 years or less, and 60% of assisted living facilities have been in operation 10 years or less.

Unlike the nursing home industry, there is no national regulatory standard for assisted living facilities; each state establishes its own definition of "assisted living facility" and its own set of regulations. Assisted living facilities vary in size, services provided, admission policies, resident characteristics, and staff characteristics. Evaluation of assisted living facilities is difficult for consumers and health care providers in the face of this variability.
among facilities and lack of a single definition and regulatory standard. Consumers and health care providers would benefit from a tool to measure assisted living facility care quality. While the literature on quality in long-term care facilities has addressed nursing home care quality, residential care/assisted living facilities have received little attention. Little systematic investigation of assisted living facilities and the quality of care provided has been undertaken.6

To explore the feasibility of using a tool designed for measurement of nursing home care quality to measure residential care facility quality, we conducted a pilot test of the Observable Indicators of Nursing Home Care Quality Instrument7-9 in several residential care facilities in Missouri. The pilot revealed that revision of the nursing home version was necessary to account for differences in care, environment, and residents before it was appropriate for use in residential care facilities. This report describes the revision and subsequent validity and reliability testing of the residential care version. Further development of the residential care version is also described.

The Observable Indicators of Nursing Home Care Quality Instrument (Observable Indicators) was designed to measure the multidimensional concept of nursing home care quality.10,11 The creators of the Observable Indicators anticipated its use as a quality improvement tool for nursing homes and as a heuristic guide for consumers, including older adults and their family members, evaluating a facility prospectively when considering a facility for a friend or relative.12

The current version of Observable Indicators (6.0, revised July 2002) consists of 42 items. There are 5 subscales: communication (5 items), care (9 items), staff (6 items), environment (16 items), and home/family involvement (6 items). The 16 items of the environment subscale are further divided into 3 subscales: space (5 items), odor/cleanliness/condition (5 items), and lighting/noise/atmosphere (6 items). Responses to all items are selected from a 5-point Likert-type scale, with 5 as the response indicating the highest quality and 1 as the response indicating the lowest quality.

The Observable Indicators was designed to be used by health care professionals, nursing home staff, laypeople such as the friends and families of residents, and nursing home residents. A study funded by the National Institutes of Health/National Institute of Nursing Research is in progress for further reliability and validity testing and to determine potential use by regulators. Assessment of the quality of care with the Observable Indicators begins as the observer walks through the facility, its general living spaces, hallways, and other areas commonly available to the public. The walk-through takes approximately 20-30 minutes, depending on the size of the facility. Visiting the facility during usual visiting hours and, if possible, close to a mealtime provides opportunities to note the features included in most of the items. Asking the staff for additional information is appropriate for some items.

**NEED FOR A RESIDENTIAL CARE FACILITY VERSION**

Quality improvement nurses from the Quality Improvement Project for Missouri (QIPMO) used the Observable Indicators as a part of their consultation site visits to nursing homes. As the QIPMO project expanded to include residential care facilities, the quality improvement nurses in the St Louis area began to use the Observable Indicators to assess the quality of care in each facility. However, it was immediately apparent that some items in the tool were not appropriate for use in the residential care facility setting. The problems reflected the differences between nursing homes and residential care facilities, particularly differences in resident acuity levels, staffing, special services for confused residents, and rehabilitative therapy services.

**Acuity levels and staffing**

Nursing home residents are more frail and more dependent on staff for assistance than the residents of residential care facilities.13
Direct care staffing numbers are higher in nursing homes so that personal and skilled care needs can be met. Registered nurses have a greater presence in nursing homes because health care needs of residents are greater. In the nursing home version, one item refers to the more active role of direct care staff and another item asks about assistance with eating and drinking, common tasks in nursing homes. However, most residential care facility residents are independent in these tasks. Similarly, the nursing home version has a question about assistance with mobility, another area where most residential care facility residents are independent, even if they use assistive devices. Two other items of the nursing home version specifically address the presence of registered nurses. Registered nurses are scarce in residential care facilities where the supervisory role is frequently filled by a licensed practical nurse.

**Special services for confused residents in nursing homes**

While some residents in residential care facilities may be confused at times or may have mild cognitive impairment, it is more likely that nursing home residents will have special care needs because of moderate to severe cognitive impairment.\(^1\) Three items in the nursing home version are more appropriate to the special environments created in nursing homes for confused residents and especially for those who wander.

**Special therapy needs in nursing homes**

The Observable Indicators has an item: “Were therapy staff actively working with residents to improve or restore function?” This question, while appropriate for the skilled nursing facility that frequently has an in-house therapy team with services provided at least 5 days per week, is less appropriate in residential care facilities where a physical, occupational, or speech therapist may visit an individual resident as an outpatient in the same way as a therapist would visit a private home. On any given day, there may be no residential care facility residents scheduled to receive therapy services. Additionally, the question, “Were staff helping some residents walk or move about the facility without assistive devices such as canes, walkers, wheelchairs?” is a poor fit for some states’ residential care facility regulatory requirements that residents be sufficiently independent in mobility in order to exit the facility without assistance during emergencies.

**REVISIT THE OBSERVABLE INDICATORS INSTRUMENT**

After an informal test of the Observable Indicators in several residential care facilities, the instrument was revised by the authors. The outcome of that revision is the Observable Indicators of Nursing Home Care Quality: Residential Care Facility Version. The revised instrument has 34 items and retained the 5-point Likert-type response format of the original 42-item nursing home version.

Revision of the nursing home version took 3 forms: deletion of items, rewording of items, and rewording of responses. Two items were reworded; 8 items were deleted; and 2 items were combined into one item. One new item was added to the Residential Care Facility Version: “Were exit doors equipped with monitoring systems?” There also were minor revisions of the wording of the stem and responses of 5 items, but the revisions did not alter the content of the items.

**Validity**

After the initial revision, 4 experts were asked to review the new Residential Care Facility Version and assess for content validity. Each of the experts was a nursing home administrator licensed to practice in Missouri who had experience with Missouri residential care facilities. Two of the experts were registered nurses and 2 had backgrounds in social work. They were evenly split from urban and nonurban areas of the state of Missouri.

Working independently, the experts were given copies of the revised instrument and a rating form with instructions to rate the relevance of each item on a 4-point rating scale.
The choices on the 4-point rating scale were (1) not relevant, (2) somewhat relevant, (3) quite relevant, and (4) very relevant, following content validity measurement outlined by Waltz, Strickland, and Lenz. Although it was not requested in the instructions, all of the experts wrote comments on the rating forms.

**Content validity**

The index of content validity for the total scale was 3.426. For the individual items, when the ratings assigned to each item by the 4 experts were averaged, only 5 of the 34 items had average ratings less than 3.00. The average ratings for those 5 items and the individual ratings by each expert are displayed in Table 1. No items had average ratings less than 2.0.

All 4 experts wrote comments for the, "Were residents out of their rooms?" item on the rating forms. Three of the comments refer to resident preferences. The comments were as follows:

1. Not sure that I understand this one. Out of room is equated to care?
2. Many have private rooms, consider them as apartments. Some choose to stay in and only come out for meals or activities of choice.
3. They have their apartments and it's their choice when to participate.
4. Some residents like to stay in their rooms.

**Table 1. Summary of the experts' average ratings less than 3.0**

<table>
<thead>
<tr>
<th>Item</th>
<th>Mean rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Were residents out of their rooms?</td>
<td>2.00</td>
</tr>
<tr>
<td>Were exit doors equipped with monitoring systems?</td>
<td>2.00</td>
</tr>
<tr>
<td>Were residents' rooms personalized with furniture, pictures, and other things from their past?</td>
<td>2.25</td>
</tr>
<tr>
<td>Were home-like things such as plants and pets in resident rooms?</td>
<td>2.75</td>
</tr>
<tr>
<td>Were visitors visible in the facility?</td>
<td>2.75</td>
</tr>
</tbody>
</table>

While nursing home quality has been associated with seeing the residents out of their rooms, the emphasis in residential care facilities is on resident autonomy and independence, as well as on social interaction. When residential care facility residents stay in their rooms, this may reflect an institutional philosophy that supports choice. If the residents choose to remain "at home" in their rooms, this might also attest to the quality of the arrangements of those rooms rather than absence of care or poor facility quality. However, remaining in one's room may also be a reaction to a lack of appealing recreational activities or to the failure of the staff to encourage participation.

Two of the experts wrote comments for the item about exit doors having monitoring systems. One expert explained that state regulations (Missouri) do not require monitoring systems on exit doors "unless resident's condition warrants this." The other expert wrote, "A lot of assisted living facilities do not have alarmed doors. We don't. Residents are free to come and go." Two key points emerge from their comments: (a) decisions about monitoring systems depend on assessment of resident condition, and (b) consideration of resident autonomy influences the use of monitoring systems.

The experts, as inferred from their comments, considered that the 2 items about resident rooms being personalized and the presence of plants and pets actually evaluated resident and family choices rather than the residential care facility and its quality. Comments included "This is a resident choice," and "This is not a facility function." Their ratings and choices again emphasize differences between nursing homes and residential care facilities. Nursing homes exert greater control over the environment of the residents' rooms. Residential care facilities tend to offer more choices to residents. Although individual nursing homes and residential care facilities may depart from these stereotypes of control and choice, nursing homes, in general, offer residents less scope for personalization of living spaces.
The last item addressed the presence of visitors in the facility. One of the experts felt that responses to this item were dependent on time of day or day of week. Another expert asked, “How can someone unfamiliar with the resident or facility know who was present?” That expert also pointed out that visitors could be present but out of sight in the private room of a host-resident. Two experts questioned the usefulness of this item as a measure of the quality of the facility.

In comments related to other items, the experts drew attention to the variations among residential care facilities and to the independence of the residents as compared with nursing home residents as potential influences on responses. For example, comments on the items related to personal hygiene and grooming were: “If they care for their personal needs, we’ll allow them to [do it their way]. We want them to stay as independent as possible” and “Some residents do their own personal care.” The experts’ comments for the items on staff visibility and the presence of a nurse in the facility also pointed out the differences among facilities and residents, and the impact of those differences on the number and type of staff present.

**Validity of subscales**

After reviewing the validity of each item, we also reviewed the validity of the subscales. As previously explained, the instrument has 5 major subscales: communication, care, staff, environment, and home/family involvement. The environment subscale is further divided into subscales for (a) odor, cleanliness, condition and (b) lighting, noise, atmosphere. The subscales had excellent validity as evidenced by the average rating for the relevance of all of the items in the subscales: communication, 3.90; care, 3.17; staff, 3.31; environment-a, 3.75; environment-b, 3.46; and home/family involvement, 3.00.

A decision was made to retain both items with a mean rating of 2.0. For the item in the care subscale, “Were residents out of their rooms?” we agreed with one expert comment that an item about residents being out of their rooms was to be equated with better care. We recognized that residents have a right to remain in their rooms, but we believe staff should facilitate engaging residents and their friends in activities and socialization with others. For the “Were exit doors equipped with monitoring systems?” item in the environment-b subscale, we agreed with an experts’ comment that it appears that the use of monitoring systems on exit doors is related to specific facility choices based on resident condition or regulatory requirements. The item was retained because of the great variation among residential care facilities, and because recent regulatory changes in Missouri have required monitoring systems on exit doors for some categories of residential care facilities.

We also evaluated the remaining 3 items with ratings of less than 3.0 (see Table 1) that were in the home/family involvement subscale. The items rate the residents’ rooms and the use of furnishings to create homelike dwelling places that are connected with the residents’ pasts. Environmental design recommendations for residential care facilities emphasize the homelike nature of residential care as opposed to the nursing home environment with its historical links to hospital design. Most residential care facilities encourage the residents and their families to bring in personal belongings to promote a homelike ambiance in resident rooms.

The last item in the home/family involvement subscale rates the visible presence of visitors. As the experts pointed out in their comments, the presence of visitors varies greatly across time of day and day of week. Furthermore, there may be unseen visitors in the residents’ private rooms. Unlike the nursing home setting, where visitors are often found in lounge areas and where visitors and residents may be distinguished by cues such as clothing or functional independence, visitors and residents in residential care settings may be indistinguishable. However, we believe the presence of visitors is an indication of family and community involvement that is viewed by consumers as important to quality.
Table 2. Sample items from the Observable Indicators of Nursing Home Care Quality: Residential Care Facility Version

| Were conversations between staff and residents friendly? (Communication) |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |
| Most were not | A few were | Some were | Many were | Most were |

| How often is a nurse present in the facility? (Staff) |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| Monthly | Bi-weekly | Weekly | Twice a week |

| Were odors of urine or feces noticeable in the facility? (Environment) |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| Pervasive throughout | Most of the time | Often | Occasionally |

| Were a variety of activities available for residents? (Look for posted schedule, calendars, group meetings, etc.) (Care) |
|---|---|---|---|
| 1 | 2 | 3 | 4 |
| Rarely seen | A few were | Some were | Many were |

After reviewing the average ratings for each subscale, each item, the distribution of individual expert ratings for the 5 items with mean ratings less than 3.0, and the comments of the experts for the 5 items with mean ratings less than 3.0, we decided to retain all 34 items for the field test of the instrument. The experts together rated no items as "not relevant," i.e., no items had means of less than 2.0. Although there was a suspicion that these items, and possibly others in the instrument, may be highly site-specific, the instrument, in its first version, was accepted as possessing high content validity and plans were made to assess its reliability. Table 2 displays sample items from the Observable Indicators of Nursing Home Quality: Residential Care Facility Version. The complete instrument is available from the authors.

Reliability

Inter-rater reliability and test-retest reliability were measured for the Residential Care Facility Version of the Observable Indicators of Nursing Home Care Quality Instrument. Content validity assessment answers the question “Does the instrument measure what we want it to measure?” Inter-rater reliability and test-retest reliability answer the questions “Do different assessors using the instrument at the same site and at the same time achieve similar results?” and “Does the instrument yield similar results when used again at the same sites after a specified time interval?”

The Residential Care Facility Version was tested in 35 licensed residential care facilities in Missouri. A convenience sample of facilities was selected from three geographic regions in the state. Each of the 3 regional teams of quality improvement nurses from the QIPMO project recruited 10 residential care facilities in their respective regions for the reliability field test. The centers of the regions were St Louis, Columbia, and Kansas City. Initially, 10 facilities were selected each of the 3 regions. Later, 5 additional facilities in the southeastern quadrant of the state were added to increase the geographic diversity of the sample. The quality improvement nurses were asked to stratify the convenience sample according to facility size with 30% of the facilities licensed for 1-30 residents, 40% of the facilities licensed for 31-60 residents, and 30% of the facilities licensed for more than 61 residents. The quality improvement nurses recruited the facilities to participate in this voluntary evaluation of the instrument.

With the permission of the administrators of the facilities, pairs of QIPMO quality improvement nurses visited each facility twice
during the summer and autumn of 2001. There was an interval of 7-10 days between visits. On each visit, the quality improvement nurses walked together through the facility making observations and then independently completed the instrument. Visits to the facilities were made between 8:00 AM and 5:00 PM from Monday through Friday. No visits were made in evenings or on weekends. Completed assessment tools (n = 140) were sent by the nurses to the QIPMO project office.

The statistical analysis included the calculation of Cronbach's alpha for the full scale and subscales and inter-rater and test-retest item correlations. To quantify the strength of agreement between raters, weighted Kappa coefficients were also calculated for each item. Table 3 displays the reliability analyses for each subscale and the full scale. The total scale has excellent test-retest reliability, good interrater reliability, and excellent internal consistency. Additionally, most subscales also have excellent and good results. Therefore, preliminary psychometric studies show great promise that the instrument measures quality of residential care facilities, though further testing is needed.

REVISIONS OF FIRST VERSION OF TOOL

After the field test in the 35 residential care facilities, we carefully reviewed the results of the validity and reliability studies for possible revisions to items to improve item and subscale performance. As indicated earlier, the tool we tested had 34 items, some of which the content validity experts questioned. The item "Were residents out of their rooms?" that was questioned by the experts considering validity was deleted. This item had acceptable interrater reliability, but a non-significant test-retest correlation suggested a lack of stability over time. We also combined 2 items that addressed the presence and condition of plants and pets in the facility into one item "Were there pet and/or live plants in good condition?" After these changes, the subscale structure was: communication (5 items), care (5 items), staff (4 items), environment (12 items), and home/family (6 items) with the environment subscale further divided into odor/cleanliness/condition (6 items) and lighting/noise/atmosphere (6 items). The total scale was 32 items.

Table 3. Summary of reliability results

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Number of items per subscale</th>
<th>Test-retest correlation¹</th>
<th>Interrater correlation¹</th>
<th>Cronbach's alpha²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication</td>
<td>5</td>
<td>.81</td>
<td>.76</td>
<td>.96</td>
</tr>
<tr>
<td>Care</td>
<td>6</td>
<td>.88</td>
<td>.52</td>
<td>.71</td>
</tr>
<tr>
<td>Staff</td>
<td>4</td>
<td>.66</td>
<td>.57</td>
<td>.38</td>
</tr>
<tr>
<td>Environment</td>
<td>13</td>
<td>.94</td>
<td>.79</td>
<td>.81</td>
</tr>
<tr>
<td>Env-OCC³</td>
<td>6</td>
<td>.86</td>
<td>.81</td>
<td>.81</td>
</tr>
<tr>
<td>Env-LNA⁴</td>
<td>7</td>
<td>.93</td>
<td>.66</td>
<td>.60</td>
</tr>
<tr>
<td>Home/family</td>
<td>6</td>
<td>.86</td>
<td>.51</td>
<td>.76</td>
</tr>
<tr>
<td>Full scale</td>
<td>34</td>
<td>.94</td>
<td>.73</td>
<td>.90</td>
</tr>
</tbody>
</table>

¹N equal to 140 is the total number of instruments completed.
²Spearman's rho. Significant at <.0001.
³Cronbach's alpha. Raw alpha values rather than the standardized values are cited because all items are on the same 1-5 point scale.
⁴Env-OCC: odor/cleanliness/condition.
⁵Env-LNA: lighting/noise/atmosphere.
The statistician expressed concern that responses to several items were clustered at one end of the 5-point scale rather than distributed among the range of responses. Therefore, the anchors of these items were revised. The choice "Not Applicable" was added to 2 items.

FOCUS GROUP

Before proceeding with revisions and further testing, we decided we needed to explore additional dimensions of residential care quality and issues raised by the content experts in the comments written on their content validity forms. We recruited 5 additional experienced residential care administrators to participate in a focus group to discuss their perceptions of quality of residential care. Similar to the four original content experts, these participants had many years of experience as administrators or other direct care staff members in both urban and rural facilities in Missouri and surrounding states.

Using a discussion guide that was similar to the one successfully used to examine nursing home care quality,\textsuperscript{10,11} the focus group participants, after informed consent, were asked to recall particular facilities they had observed in the past that they thought were "excellent places, really doing a good job providing excellent resident care to their residents." Participants debriefed on what they saw, felt, smelled, heard, and touched in those facilities. We discussed key features they thought were important for quality of care. Descriptions of facilities where they had observed poor quality care were also discussed to better understand care quality in residential care facilities.

The discussion tapes were analyzed to identify additional quality dimensions or additional items to be added to the Residential Care Facility Version. The results of the focus group interview confirmed the appropriateness of 5 dimensions of care quality as discovered in the nursing home research.\textsuperscript{10,11} The results also pointed out the need to add items on the topics of food choices and snack availability, access to telephone and e-mail or other computers-based communication. We added those items to the current Version 7 that is being used in a larger field test that is currently underway in 3 states.

DISCUSSION

Measuring quality of care in residential care facilities is extremely important, given the dramatic increase in the number of these facilities nationwide. The results of this small-scale field study and follow-up focus group indicate that care quality is an important issue for facility providers, their residents, and the families and friends who visit. It is interesting that while there are many differences between residential care settings and nursing homes, the quality of care dimensions are the same. The major dimensions of communication, care, staff, environment, home, and family involvement that were discovered and confirmed in earlier work in nursing homes\textsuperscript{7,8,10,11} appear to be on-target theoretically in residential care settings. However, there are many differences that must be accounted for in the actual items measuring these dimensions.

The emphasis on autonomy and resident choice in residential care facilities is one of these differences. While nursing home staff and regulators have attempted to promote autonomy and choice, the nursing home setting is continually plagued by their reputation of regimes with which residents must comply.\textsuperscript{16,17} Consumers who live in residential care voice their fears of being forced from their homelike apartments to traditional institutional nursing homes.\textsuperscript{18}

The findings of this study are limited because the relatively small sample was selected among facilities in only one state and was not randomly selected. We are currently conducting a larger scale study in which the instrument is being used in 3 states with a larger sample. With further development, we anticipate that the residential care version will be of interest to several constituencies.

An instrument to quickly evaluate quality of care in residential care is of interest to consumers. Families who are attempting to locate...
care for a loved one need help in judging quality of care. Decisions about moving into a residential care facility cannot be driven by only proximity, which is often the case. Given the range of quality in services that are available, consumers when making a choice need to be knowledgeable about key elements to observe in facilities. We believe that making a good choice based on quality of care is a better choice in the long run. Our research team has information posted on our Web site www.nursinghomehelp.org to help consumers as they are faced with long-term care decisions.

Regulators of residential care facilities will also benefit from having an instrument to measure residential care quality. Typically, regulators focus on compliance with established rules and regulations. The premise of the regulations is that if those minimum standards are met, then there is at least adequate quality of care. Having other ways to quickly evaluate quality of care can be of assistance to regulators who are often stretched across large numbers of facilities in varying geographic regions.

Operators of residential care facilities can also make use of an instrument to measure quality. With the current emphasis on quality improvement programs in all of long-term care, quality improvement teams within facilities can objectively examine their facility and care delivery and design quality improvement projects in areas where they find that they could use improvement.

Obviously, from our point of view as researchers, other researchers interested in understanding and conducting studies in residential care settings can benefit from an instrument measuring residential care quality. Given the results of this field study, we think the Residential Care Version of the Observable Indicators holds much promise for researchers. The initial validity and reliability studies indicate that it has reasonably sound reliability and excellent validity. We anticipate that the revisions made on the basis of this field study will improve the performance of individual items, subscales, and total scale. We are confident that the dimensions of quality of care (communication, care, staffing, environment, and home/family involvement) are theoretically sound and appropriate for this setting. We encourage other researchers to contact us for the most recent version of the Observable Indicators of Nursing Home Care Quality: Residential Care Facility Version Instrument.

REFERENCES


