Strategies to Measure Nursing Home Residents' Satisfaction and Preferences Related to Incontinence and Mobility Care: Implications for Evaluating Intervention Effects

John F. Schnelle, PhD, Sandra F. Simmons, PhD
This study compared four different interview strategies to measure 111 incontinent nursing home residents' "met need" related to incontinence and mobility care. Strategies were compared on criteria related to ceiling effects and stability. Four methods were used: questions that used the term "satisfaction" and direct questions about preferences that did not use the term "satisfaction" and which could be translated into three indirect measures of met need. To facilitate a comparison among the four methods, a statement of satisfaction was interpreted as met need. All of these measures were then compared to direct observations of care processes. Residents were more stable in their reports indicating that their care needs were met than they were in their reports that their needs were not met. The direct satisfaction questions produced information most characterized by ceiling effects compared to information elicited by the preference questions. Despite high reported rates of met need as assessed by two of the four methods, direct observations revealed low frequencies of care provision.

Key Words: Quality of care, Quality of life, Unmet need

Strategies to Measure Nursing Home Residents’ Satisfaction and Preferences Related to Incontinence and Mobility Care: Implications for Evaluating Intervention Effects

Sandra F. Simmons, PhD,1 and John F. Schnelle, PhD2

This article compares different strategies for assessing satisfaction among nursing home (NH) residents regarding incontinence and mobility care processes. Satisfaction is defined according to the extent to which residents' incontinence and mobility care needs are met by their levels of received care. Residents are deemed "satisfied" if their care needs are being met (i.e., "met need") and dissatisfied if their care needs are not being met (i.e., "unmet need") by their received care levels. The terms satisfaction and dissatisfaction are, thus, used interchangeably in this article with the terms met need and unmet need, respectively. Our purpose was to identify the assessment strategy that would be most useful for designing and evaluating interventions to improve care processes.

The fact that many NH residents suffer from cognitive and emotional conditions, which may distort their perceptions and reduce their expectations of care, may create problems when using resident interview information to measure satisfaction. Older adults in general and women in particular, as well as individuals in poorer health, tend to report higher rates of satisfaction with health care services (Cleary & McNeil, 1988; Davies & Ware, 1988; Locker & Dunt, 1978; Pascoe, 1983; Ross, Steward, & Sinacore, 1995). Previous studies of satisfaction with health care services have demonstrated that high rates of satisfaction may also result from reduced expectations, social desirability, and acquiescent response biases (Bond & Thomas, 1992; La Monica, Oberst, Madea, & Wolf, 1986; Lebow, 1982; McMillan, 1987; Pascoe, 1983; Pascoe & Attkisson, 1983; Ross et al., 1995). Social desirability and acquiescent response biases are likely to be more prevalent among dependent groups, such as institutionalized elderly adults, due to fear of repercussions from staff or other caregivers (Bond & Thomas, 1992; Grau, Chandler, & Saunders, 1995; Lebow, 1982; Pascoe & Attkisson, 1983; Zinn, Lavizzo-Mourey, & Taylor, 1993). Thus, there is a risk that extremely old and frail NH residents, who are predominantly female, will report high rates of satisfaction with substandard or inconsistent levels of care. Factors related to response biases and...
fear of reprisal may explain the results of a recent study in which NH residents responding to interview questions reported high levels of satisfaction while interviewer observations and residents’ open-ended comments suggested dissatisfaction and a reluctance to criticize NH staff (Pearson, Hocking, Mott, & Riggs, 1993). Resident interview data related to satisfaction have the potential to provide unique, influential information about the quality of NH care processes. However, if such data are to be used to design and evaluate interventions to improve care processes, they must serve four functions. First, an assessment strategy should yield data that allow for the identification of care processes to be targeted for improvement. High reported rates of satisfaction with care that result from reduced expectations and/or response biases limit the usefulness of such data for problem identification purposes. Second, an assessment strategy should provide information that allows for the design of improvement interventions. Details about what and how care processes should be implemented to improve residents’ levels of met need are critical if effective interventions are to be designed. Third, an assessment strategy should yield data that are sensitive to actual changes in care processes. Finally, an assessment strategy should allow for a time-efficient evaluation of changes in residents’ levels of met need.

The approach used in this study was to estimate the degree to which reduced expectations and acquiescence limit the usefulness of resident assessment information by comparing residents’ interview responses to objective measures of care that could be categorized along a dimension of quality (e.g., high to low). There is little previous research that provides data comparing NH residents’ subjective perceptions with any objective measure of care, particularly objective measures of daily care processes that reflect the content of many NH resident satisfaction instruments (e.g., individualized care routines, NH staff assistance with activities of daily living; Schnelle et al., in press; Ware, Wright, Snyder, & Chu, 1975).

Four methods of measuring NH residents’ met need with respect to two daily care areas, incontinence and mobility care, are compared in this article. One reason we targeted these two care areas is because they are the focus of an ongoing clinical intervention trial from which we have data describing the objective levels of incontinence and mobility care that residents normally receive. In addition, there are data to document that incontinence and mobility care processes are highly valued by NH consumers (i.e., both residents and family members) and other data that can be used to define “high quality” incontinence and mobility care according to objective clinical outcome criteria (Schnelle, 1990; Schnelle, Keeler, et al., 1995; Schnelle, MacRae, Ouslander, Simmons, & Nitta, 1995). These latter clinical outcome data document that residents require toileting assistance three to four times within a 12-hour period to maintain continence (Schnelle, 1990). In addition, walking assistance must be rendered three to four times per day to produce improvements in mobility and endurance above the level at which a resident would be considered deconditioned (Schnelle, MacRae, et al., 1995). Even though the “gold standard” nature of these objective quality criteria with regard to incontinence and mobility may be arguable, there are not many, if any, other care areas for which there are data upon which to base a quality criterion.

In this study, objective data describing incontinence and mobility care processes were compared to NH residents’ subjective ratings of incontinence and mobility care quality. Four major questions were addressed: (1) Are there differences in the estimates of unmet need produced by the different strategies of measuring residents’ perceptions of incontinence and mobility care processes? (2) What is the stability of residents’ reports of unmet need across two separate interviews and under conditions in which the objective levels of care processes do not change? (3) What are the objective levels of incontinence and mobility care processes, and how do residents’ subjective interview responses compare to these objective care levels? (4) How do the four assessment strategies compare on criteria related to usefulness for improvement activities?

Methods

Subjects and Setting

The inclusion criteria for the ongoing clinical intervention trial, and thus this study, required residents to be incontinent of urine but free of a catheter, older than 65, able to comprehend English, and able to pass a simple cognitive screen. The cognitive screen required residents to state their name on request or reliably identify two common objects. A resident had to fail the screen on two separate days in order to be excluded from the intervention trial. It should be noted that this cognitive screen resulted in the inclusion of many residents in this study who have been excluded in previous studies of satisfaction based on arbitrary or subjective cognitive status criteria. Subjects were recruited from a list of all residents identified as incontinent by nursing staff. As in our previous studies, incontinence status was confirmed by checking each resident for wetness on a random hour basis across multiple days (Ouslander et al., 1995).

Three facilities participated in this study. Two of the three NHs were proprietary. The three facilities ranged in size from 110 to 168 occupied beds. The resident-to-staff ratio during the day shift (7 a.m. to 3 p.m.) did not differ among the three facilities nor was the ratio atypical of industry standards (mean of 8 residents per 1 certified nursing assistant).

Nursing home staff identified a total of 305 residents as incontinent across the three facilities. Of the 305 incontinent residents, 229 (75%) met the inclusion criteria. A total of 76 residents were excluded due to the following criteria: presence of a catheter that could not be removed (40), younger than 65 (6), inability to comprehend English (3), or failure to pass the cognitive screen (27). Informed consent, or the assent of the resident and the consent of a respective family member, was obtained from 150 (66%) of the eligible residents. During data collection, 39 consented
residents across the three facilities were lost due to death (17), transferring out of the facility (3), insertion of a catheter (2), withdrawal of consent (10), or a decline in cognitive functioning to the point of unresponsiveness (7).

Of the remaining 111 consented residents, 99 provided data for at least one interview. All 99 residents who provided data for the first interview were approached within one week for a second interview. Of these 99 residents, 80 also provided data for a second interview. Reasons for incomplete data for Interviews 1 (n = 12) and 2 (n = 19) will be reported in the Results section.

The following descriptive information was obtained from each participant's medical chart: age, gender, ethnicity, length of NH residency, medications, and diagnoses. The cognitive status of all participants was evaluated with the Folstein Mini-Mental State Examination (MMSE). The MMSE is a brief, standardized cognitive status test with a total score range from 0 to 30; it is widely used and has established reliability and validity (Folstein, Folstein, & McHugh, 1975). Individuals scoring below 11 on the MMSE were administered the Test for Severe Impairment (TSI). The TSI is a mental status test that has been shown to discriminate among low cognitive functioning individuals with acceptable test-retest reliability (.96) and validity (.83) when compared to the MMSE. The TSI score range is 0 to 24 (Albert & Cohen, 1992).

**Direct Observations of Care Provided by Nursing Home Staff**

Direct, time-sampled behavioral observations were conducted by research staff for at least 2 minutes every 15 minutes for 8 hours in order to document routine incontinence and mobility assistance rendered by indigenous NH staff. Observations were conducted between the hours of 7 a.m. and 3 p.m. or 8 a.m. and 4 p.m. in order to increase the likelihood that morning incontinence care, which typically occurs as residents are assisted out of bed, would be captured in the observational data. The 8-hour time period varied (beginning time: 7 a.m. or 8 a.m.) because residents were assisted out of bed earlier in one facility. Toilet assistance, pad changes, and walking assistance care activities were targeted for observation across 3 days for each subject. The average numbers of toilet assistance, pad changes, and walk assistance across the 3 days were computed for each subject. The stability of these objective incontinence and mobility care levels as documented by the direct observation protocol was assessed across days (i.e., Days 1, 2, and 3). In addition, a more intensive observational schedule was conducted (i.e., every 2 minutes) for a small subset of residents (n = 15) in order to substantiate that a 15-minute observational schedule was sufficient to document all routine incontinence and mobility care activities. Because there were no observed differences in care frequencies between the 15-minute and 2-minute interval schedules for the subset of residents, the results of the 15-minute schedule are reported in this article. Finally, a monitoring system utilized in our previous research was also implemented in this study to confirm the reliability of the direct observations of pad changes (Schnelle, Sowell, Hu, & Traughber, 1988b). This monitoring system involved marking all subjects' pads with an ink pen and conducting hourly checks between 8 a.m. and 4 p.m. Pads were counted as having been changed by the NH staff when, upon the hourly check, the subject was no longer wearing a marked pad.

The observational protocol used to document NH staff incontinence and mobility care behavior has been used in multiple studies, and we have reported data for more than 20 NHs located in multiple states, which indicate that the frequency of incontinence care (i.e., toileting assistance and pad changes) is remarkably similar between NHs and also stable across multiple days within any given facility (Schnelle et al., 1996; Schnelle, Newman, Fogarty, Wallston, & Ory, 1991; Schnelle, Sowell, Hu, & Traughber, 1988a; Schnelle et al., 1988b).

Specifically, the frequencies of both pad changes and toileting assistance have been observed to range from zero to two episodes per resident, per day. In addition, using data from six different NHs, we have reported that incontinent residents who remained capable of walking but required assistance received such walking assistance on a very infrequent basis; the frequency of observed assistance ranged from zero to two episodes per resident, per day (MacRae, Schnelle, Simmons, & Ouslander, 1996; Schnelle, MacRae, et al., 1995). In this study, interrater reliability for the direct observational protocol was again established based on 178 intervals (44.8 hours) of direct care observations. There was significant agreement between raters with respect to all incontinence and mobility care activity occurrences and the extent of staff assistance provided to the resident (Kappa coefficients ranged from .73 to 1.0, p < .001 across care activities).

**Development of Interview Strategies**

Based on pilot data and the research literature, two methods of collecting information from NH residents were constructed: (1) direct satisfaction questions (e.g., "Overall, are you satisfied with how often someone helps you to walk?"); and (2) direct questions about preferences, which did not use the term "satisfaction" (e.g., "Would you like for someone to help you walk more often?"; "How many times during the day would you like someone to help you to walk?"). These two methods produced four indices of met need. The first method was regarded as requiring the most direct response from residents about their satisfaction with specific care activities. Items 2, 7, and 12 in the interview protocol (i.e., "Overall, are you satisfied with how often someone helps you to walk?"; protocol is available from the corresponding author) illustrate these direct satisfaction questions for incontinence and mobility care; a "no" response to these questions was interpreted as dissatisfaction or an expression of unmet need (Index 1—Direct Satisfaction). The second method required residents to make a response about their preferences; these preference responses were then translated into three indices. Items 3, 4, 8, 9, 13, and 14 (e.g., "Would..."
you like someone to help you to walk more (less) often?” illustrate Index 2, which asked the resident if he or she wanted “more” or “less” of each care activity. These more/less preference questions were used to generate an estimate of unmet need in that consistent reports of a preference for more or less assistance were interpreted as dissatisfaction with the current level of care; or, at the very least, a desire for improvement with respect to care frequency (Index 2—Preference).

For the third and fourth indices, comparisons were conducted between each resident’s quantitative preferences for each care activity (Items 5, 10, and 15; e.g., “How many times during the day would you like for your pad to be changed?”) and both the frequency of received care according to the direct observations (Index 3—Objective Discrepancy) and resident’s self-report (Index 4—Perceived Discrepancy) of received care (Items 1, 6, and 11; e.g., “How many times during the day does someone on the staff help you to walk?”). These comparisons yielded two discrepancy values per resident for each care activity in which a large discrepancy between received and preferred care levels was interpreted as unmet need.

To illustrate Index 3 (i.e., discrepancy between received care according to direct observations and preferred care levels), if a resident reported that she preferred toileting assistance four times per day, but the direct observational measure indicated that the resident only received toileting assistance an average of once per day, then the discrepancy value for Index 3 would be 1 (observed) − 4 (preferred) = −3 (Objective Discrepancy). Thus, larger discrepancy values indicate higher levels of unmet need. Index 4 reflected the difference between each resident’s perception of received care and her corresponding preference for care. For example, if this same resident self-reported that she did not receive any toileting assistance during the day, then the discrepancy value for Index 4 would be 0 (perceived) − 4 (preferred) = −4 (Perceived Discrepancy).

Discrepancy-based indices have been discussed frequently in the satisfaction research literature (Bond & Thomas, 1992; Davis, Sebastian, & Tschetter, 1997; Mattiasson & Andersson, 1997; Pascoe, 1983). It should be noted that in pilot research for this study, we attempted to elicit information from residents regarding level of satisfaction by asking residents to respond in a branching format based on their initial yes or no responses. For example, if a resident said “yes” in response to a direct satisfaction question (e.g., “Overall, are you satisfied with the level of received care? (e.g., “No, I do not want more toileting assistance,” and “Yes, I am satisfied with how often someone helps me to use the toilet”). Residents who responded “no-no” to the more/less questions but who subsequently expressed dissatisfaction were also deemed illogical. Logical consistency was determined for each resident within and across the three care activities. For the purpose of subsequent analyses, a resident was considered “logical” only if responses to all six more/less preference questions were logical. The demographic characteristics (i.e., age, length of residency, gender, numbers of diagnoses and medications, presence or absence of dementia or psychiatric diagnoses) and cognitive status (i.e., MMSE and TSI total scores) of “logical” and “illogical” responders were compared with independent samples t tests for the continuous variables and chi-square analyses for the categorical variables.

Finally, the stability of satisfaction and preference...
responses was determined for all residents who provided data for two separate interviews. Cross-tabulations of the categorical yes/no responses were conducted, in conjunction with the calculation of Kappa coefficients, in order to reveal the pattern of stable and unstable responses and the level of agreement between residents’ responses to the same interview question on two separate occasions. Stability analyses were conducted both for the group of respondents and separately for those residents considered “logical” and “illogical.” Pearson product-moment correlation coefficients were calculated between Interviews 1 and 2 for the preference-based discrepancy indices (Index 3—Objective Discrepancy and Index 4—Perceived Discrepancy) because measures could potentially range from -4 to +4. In addition, the discrepancy data were converted into categories of satisfied/met need (i.e., discrepancy value = 0) or dissatisfied/unmet need (i.e., discrepancy value ≥ ±1); the stability of these categories was examined according to Kappa coefficients. Specifically, discrepancy values of ±1 and higher, or -1 and lower, were categorized as an expression of unmet need because the resident was receiving at least one more or one less care process than desired. All values of zero were categorized as met need because there was congruence between the resident’s reported preference and received care levels. Pearson product-moment correlation coefficients were also calculated between Interviews 1 and 2 for residents’ reported quantitative preferences (e.g., “How many times during the day would you like for someone to help you to walk?”) and perceived care levels (e.g., “How many times during the day does someone help you to walk?”).

In order to estimate the amount of distortion in each resident’s perception of received care levels, the difference between objective care levels according to the direct observations and each participant’s self-report of his or her perception of received care levels was calculated for each individual within each of the three care areas. Descriptive statistics were calculated for these difference values. In addition, independent samples t tests were conducted between those residents whose perceived care levels matched their respective observed care levels and those whose perceived care levels did not match their observed care levels (i.e., participants were either under- or overestimating received care levels) with respect to total MMSE scores. In these comparisons, residents were categorized as “accurate” if their discrepancy scores were zero or one and “inaccurate” if their discrepancy scores were greater than one.

Comparisons were also conducted between the following three groups of residents with respect to each care activity and according to each of the four indices: participants reporting (1) stable satisfaction/met need, (2) stable dissatisfaction/unmet need, and (3) unstable (dis)satisfaction across Interviews 1 and 2. Independent samples t tests were conducted to compare these three groups with respect to total MMSE score, and chi-square analyses were conducted to compare these groups with respect to accuracy of perceived care levels. Specifically, stability of satisfaction reports (i.e., stable reports vs unstable reports, and stable reports of satisfaction vs stable reports of dissatisfaction) was cross-tabulated with accuracy of perceived care levels (i.e., match vs mismatch between objective and perceived care levels).

Results

Subject Demographics

The average age of the 111 participants was 87.9 (±7.7) years, and their average length of NH residency was 41.8 (±37.2) months. Participants were predominately female (77%) and Caucasian (96%). The average number of medications was 6.1 (±3.4), and the average number of medical and psychiatric diagnoses was 7.1 (±2.6). Twenty-nine percent of the resident sample had a diagnosis of dementia whereas 24% had a diagnosis of depression. A broad range of cognitive impairment was represented within the sample as evidenced by a full range of MMSE scores (0 to 30) with an average score of 15.9 (±7.9). The average TSI score for those participants scoring below 11 on the MMSE (n = 20) was 13.3 (±7.1).

Of the 111 incontinent residents who agreed to participate in this study, 99 (89%) provided data for all descriptive measures and at least one interview measure. Reasons for incomplete data (n = 12) included language barriers (i.e., indiscernible speech, unable to hear even with aid) and withdrawal of consent during the interview. All 99 residents were approached for a second interview within one week of the first interview date. A total of 80 residents provided data for both interviews. The remaining residents (n = 19) refused to participate in the second interview. All residents who cooperated with the interview protocol provided valid responses to at least some interview questions.

Objective Frequencies of Incontinence and Mobility Care Processes

Similar to findings in our previous studies, the direct observations conducted in this study revealed low frequencies of pad changes, toilet assists, and walk assists by NH staff. It should be noted that observations showed that no participant used the toilet or walked independently. The average daily frequency of observed pad changes for the group across 3 days was .57 (±.53). The average daily frequency of observed assists to the toilet was even lower: .37 (±.59). Finally, the average daily frequency of observed assists to walk was .23 (±.44). The direct observational data showed a range from zero to two episodes per resident, per day with a mode of zero for all three care activities. The monitoring system in which pads were marked and checked on an hourly basis to document the frequency of pad changes substantiated the direct observational data. This monitoring system also revealed an average of one or less pad change per resident per day with a range of zero to two across 8 daytime hours.

Regarding the stability of these frequency data, the average frequencies of observed pad changes, toilet assists, and walk assists were significantly intercorrelated among Days 1, 2, and 3. The intercorrelations for pad
changes between the three days ranged from .39 to .52 (p < .001); toilet assists ranged from .56 to .72 (p < .001); and walk assists ranged from .54 to .63 (p < .001). In addition, paired samples t tests revealed no significant differences in these care frequencies between days.

Comparisons were next conducted between objective care levels as determined by the direct observations and each resident’s perception of his or her received care levels. The perceptions of the majority of participants either matched their observed care levels (i.e., difference value = 0) or there was a difference of −1 (e.g., observed pad changes = 1 and resident’s perception of received pad changes = 2, yielding a difference value of −1). Specifically, 52% of participants had a difference value ≤ −1 for pad changes (mean = −.86 ± 1.4), and 64% had a difference value ≤ −1 for toileting assistance (mean = −1.13 ± 1.3). Seventy-eight percent had a difference value ≤ −1 for walking assistance (mean = −.75 ± 1.24). There was no difference with respect to MMSE total scores between residents whose perceived care levels closely matched their observed care levels (i.e., discrepancy values ≤ −1, “accurate”) and those who showed larger discrepancies (i.e., “inaccurate”). There was a trend, however, for the MMSE total scores of “accurate” residents to be higher than that of “inaccurate” residents (mean = 16.9 ± 7.1 and mean = 13.1 ± 8.3, p < .08, respectively).

Resident Interview Data

Logical Consistency.—The majority of incontinent NH residents in this sample answered the satisfaction and preference questions logically. Table 1 shows the response patterns of residents to the more/less preference questions (refer to Logical Consistency and Stability Analyses section) used to determine logical consistency with respect to each of the three care activities. Results are shown for Interview 1 (n = 99) only; these results are comparable across the two satisfaction interviews.

Logical consistency could not be determined for those few residents who responded to at least one of the two preference questions within each care area with a “don’t know,” “no response,” or “not applicable” response. The percentage of residents who answered the more/less questions in a logically consistent manner ranged from 63% to 75% across the three care areas. Only a small number of residents (10–12) in each care area produced an illogical response pattern. However, the same residents did not comprise the illogical group in each of the three care areas. Thus, in addition to a determination of logical consistency within each care area, a resident was deemed an overall “logical responder” only if all six preference-based consistency items were scored as logical. Seventy-five percent (n = 74) of residents who completed at least one interview answered the more/less preference questions logically across all care areas in which logical consistency could be determined. The remaining 25% (n = 25) responded illogically in one or more care areas.

Group comparisons were conducted between “logical” and “illogical” respondents with respect to demographic characteristics and cognitive status. Respondents deemed “illogical” demonstrated significantly lower cognitive functioning as evidenced by an average MMSE total score of 10.5 (±7.5) in comparison to an average of 18.4 (±7.0) for “logical” respondents (t = −0.9, p < .001). In addition, a significantly higher number of “illogical” than “logical” respondents (13 vs 7) required a TSI assessment by scoring below 11 on the MMSE (χ² = 17.95, p < .001); however, the TSI scores of each group were comparable (“logical” = 13.4 ± 7.6, “illogical” = 13.2 ± 7.2). There were no other significant differences between the two groups.

Ceiling Effects.—Table 2 shows the percentage of residents’ responses that could be interpreted as reflecting dissatisfaction, or unmet need, for each of the four satisfaction indices. Only those residents whose responses were logical across all (75%) and stable within each of the three care areas are included in this table. As can be seen in Table 2, the satisfaction indices that did not require direct responses about “satisfaction” resulted in the highest percentage of responses.

### Table 1. Logical Consistency of Responses by Care Activity: Interview 1 (n = 99)

<table>
<thead>
<tr>
<th>Residents’ Responses</th>
<th>Pad Change</th>
<th>Toilet Assistance</th>
<th>Walk Assistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>No response or nonsense</td>
<td>7%</td>
<td>7%</td>
<td>7%</td>
</tr>
<tr>
<td>“Don’t know” response</td>
<td>7%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Not applicable</td>
<td>13%</td>
<td>2%</td>
<td>4%</td>
</tr>
<tr>
<td>Illogical total</td>
<td>10%</td>
<td>12%</td>
<td>10%</td>
</tr>
<tr>
<td>Logical total</td>
<td>63%</td>
<td>75%</td>
<td>75%</td>
</tr>
</tbody>
</table>

Indices

<table>
<thead>
<tr>
<th>Satisfaction Indices</th>
<th>Pad Change</th>
<th>Toilet Assistance</th>
<th>Walk Assistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Direct Satisfaction Questions</td>
<td>11%</td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>(2) Preference for More</td>
<td>17%</td>
<td>13%</td>
<td>38%</td>
</tr>
<tr>
<td>(3) Objective Care—Preference Mean</td>
<td>-2.1</td>
<td>-1.5</td>
<td>-2</td>
</tr>
<tr>
<td>(4) Perceived Care—Preference Mean</td>
<td>-0.2</td>
<td>-0.4</td>
<td>-0.9</td>
</tr>
</tbody>
</table>

### Table 2. Indices of Unmet Need: Comparison of Dissatisfaction Percentages by Care Activity

<table>
<thead>
<tr>
<th>Indices</th>
<th>Pad Change</th>
<th>Toilet Assistance</th>
<th>Walk Assistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfaction Indices</td>
<td></td>
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<td>11%</td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>(2) Preference for More</td>
<td>17%</td>
<td>13%</td>
<td>38%</td>
</tr>
<tr>
<td>(3) Objective Care—Preference Mean</td>
<td>-2.1</td>
<td>-1.5</td>
<td>-2</td>
</tr>
<tr>
<td>(4) Perceived Care—Preference Mean</td>
<td>-0.2</td>
<td>-0.4</td>
<td>-0.9</td>
</tr>
</tbody>
</table>

*Index 1: Direct satisfaction questions: % “dissatisfied” on both Interviews 1 and 2.*

*Index 2: Preference for more: % reporting a logical and stable preference for more on both Interviews 1 and 2.*

*Index 2: Preference for less: % reporting a logical and stable preference for less on both Interviews 1 and 2.*

*Discrepancy Indices: ±1 or more = dissatisfaction (4 = 3 × per day). Index 3: Objective care frequency (direct observations) – preferred care frequency (resident self-report). Index 4: Perceived care frequency (resident self-report) – preferred care frequency.*

350 The Gerontologist
that could be categorized as “dissatisfied/unmet need,” with the two discrepancy indices producing the highest rate of stable “dissatisfied” responses. Even if we arbitrarily use a more conservative discrepancy cutoff value (e.g., ≥ ±2), the discrepancy indices still result in the highest percentage of responses indicative of unmet need across all three care areas.

The average value for Index 3 (Objective Discrepancy) ranged from −2.1 to +0.2, whereas the average value for Index 4 (Perceived Discrepancy) ranged from −0.9 to +0.1. It should be noted that, for both discrepancy indices, only a small proportion of the values were positive, indicating that objective and perceived care levels exceeded residents’ preferred care levels. In addition, only 2% to 8% of the discrepancy values exceeded +1. Residents’ reported preferences showed that they wanted an average of 2 more pad changes, 1.5 more toilet assists, and 2 more walk assists than they normally received according to direct observations. The high reported rates of “met need” according to the first two indices are surprising in the context of these quantitative preference data. The two discrepancy indices were significantly intercorrelated at the p < .01 level for the entire group of respondents across all three care areas (Pearson product-moment correlation coefficients: pad changes = .43, toilet assistance = .66, and walk assistance = .63).

Stability.—Table 3 displays the Kappa coefficients and corresponding percent agreement indicating the stability of residents’ responses between the first and second interviews (n = 80) for all four indices. These coefficients were initially calculated separately for “logical” and “illogical” respondents; however, there were no significant differences in the values. Table 3, thus, displays the coefficients for all respondents. It is recognized that although most of the Kappa coefficients are statistically significant, the sizes of the coefficients suggest moderate to low stability. An examination of the cross-tabulations of residents’ responses to the two interviews reveals why the Kappa coefficients are not larger, and illustrates a potential acquiescence phenomenon. Table 4 displays these cross-tabulations. For each index, the percentage of respondents who expressed “satisfaction/met need” versus “dissatisfaction/unmet need” in response to Interview 1 are displayed in the first column. The second and third columns show the percentage of respondents who continue to express the same response (Column 2 = % Stable) versus the percentage of respondents who change their response (Column 3 = % Unstable) on Interview 2.

Table 3. Stability of Satisfaction and Preference Responses by Care Activity and Satisfaction Index:
Kappa Coefficients and Corresponding % Agreement (n = 80)

<table>
<thead>
<tr>
<th>Care Activity</th>
<th>Index 1: Direct Satisfaction</th>
<th>Index 2: Preference for More</th>
<th>Index 2: Preference for Less</th>
<th>Index 3: Discrepancy Objective – Preferred</th>
<th>Index 4: Discrepancy Perceived – Preferred</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pad changes</td>
<td>.21</td>
<td>.40** (72%)</td>
<td>.57** (89%)</td>
<td>.30 * (82%)</td>
<td>.07 (53%)</td>
</tr>
<tr>
<td>Toilet assistance</td>
<td>.39** (80%)</td>
<td>.29* (66%)</td>
<td>.53** (87%)</td>
<td>.54** (86%)</td>
<td>.21 (60%)</td>
</tr>
<tr>
<td>Walk assistance</td>
<td>.51** (80%)</td>
<td>.35** (67%)</td>
<td>.55** (86%)</td>
<td>.55** (86%)</td>
<td>.47** (75%)</td>
</tr>
</tbody>
</table>

Note: % agreement given in parentheses.
*p < .05; **p < .01.

Vol. 39, No. 3, 1999 351
Table 4. Stability of Satisfaction and Preference Response Patterns Across Two Interviews

<table>
<thead>
<tr>
<th>Care Activity</th>
<th>Index 1 Direct Satisfaction</th>
<th>Interview 2</th>
<th>% Stable</th>
<th>% Unstable</th>
<th>Index 2 Prefer More?</th>
<th>Interview 2</th>
<th>% Stable</th>
<th>% Unstable</th>
<th>Index 2 Prefer Less?</th>
<th>Interview 2</th>
<th>% Stable</th>
<th>% Unstable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pad Changes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfied (S)</td>
<td>77%</td>
<td>87%</td>
<td>13%</td>
<td></td>
<td>61%</td>
<td>80%</td>
<td>20%</td>
<td>N-N</td>
<td>20%</td>
<td>N-Y</td>
<td>16%</td>
<td>41%</td>
</tr>
<tr>
<td>Dissatisfied (D)</td>
<td>23%</td>
<td>35%</td>
<td>65%</td>
<td></td>
<td>39%</td>
<td>59%</td>
<td>41%</td>
<td>Y-Y</td>
<td>16%</td>
<td>63%</td>
<td>16%</td>
<td>Y-N</td>
</tr>
<tr>
<td>Toilet Assistance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfied</td>
<td>80%</td>
<td>86%</td>
<td>14%</td>
<td></td>
<td>57%</td>
<td>77%</td>
<td>23%</td>
<td>N-N</td>
<td>84%</td>
<td>N-Y</td>
<td>16%</td>
<td>49%</td>
</tr>
<tr>
<td>Dissatisfied</td>
<td>20%</td>
<td>55%</td>
<td>45%</td>
<td></td>
<td>43%</td>
<td>51%</td>
<td>49%</td>
<td>Y-Y</td>
<td>16%</td>
<td>56%</td>
<td>16%</td>
<td>Y-N</td>
</tr>
<tr>
<td>Walk Assistance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfied</td>
<td>69%</td>
<td>88%</td>
<td>12%</td>
<td></td>
<td>43%</td>
<td>72%</td>
<td>28%</td>
<td>N-Y</td>
<td>83%</td>
<td>90%</td>
<td>17%</td>
<td>35%</td>
</tr>
<tr>
<td>Dissatisfied</td>
<td>31%</td>
<td>61%</td>
<td>39%</td>
<td></td>
<td>57%</td>
<td>65%</td>
<td>35%</td>
<td>Y-N</td>
<td>17%</td>
<td>71%</td>
<td>29%</td>
<td>Y-N</td>
</tr>
</tbody>
</table>

Averages Across Care Areas

1. % Satisfied-Satisfied
2. % Dissatisfied-Dissatisfied
3. % Dissatisfied-Satisfied
4. % Satisfied-Dissatisfied

Index 3 Discrepancy: Objective - Preferred

<table>
<thead>
<tr>
<th>Interview 2</th>
<th>% Stable</th>
<th>% Unstable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pad Changes</td>
<td>12%</td>
<td>50%</td>
</tr>
<tr>
<td>Toilet Assistance</td>
<td>18%</td>
<td>61%</td>
</tr>
<tr>
<td>Walk Assistance</td>
<td>20%</td>
<td>60%</td>
</tr>
</tbody>
</table>

Index 4 Discrepancy: Perceived - Preferred

<table>
<thead>
<tr>
<th>Interview 2</th>
<th>% Stable</th>
<th>% Unstable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pad Changes</td>
<td>88%</td>
<td>14%</td>
</tr>
<tr>
<td>Toilet Assistance</td>
<td>82%</td>
<td>92%</td>
</tr>
<tr>
<td>Walk Assistance</td>
<td>80%</td>
<td>93%</td>
</tr>
</tbody>
</table>


satisfied” was only 13%. Similar trends can be seen for all other indices, with the exception of Index 3 (Objective Discrepancy). Index 3 was also least influenced by ceiling effects, and residents who were labeled “dissatisfied” according to Interview 1 responses were highly likely to be labeled “dissatisfied” again according to Interview 2 responses (i.e., an average of 90% expressed stable dissatisfaction). Unlike all other indices, the small percentage of residents who were labeled “satisfied” according to Index 3 (Objective Discrepancy) during Interview 1 were more likely to be labeled “dissatisfied” on Interview 2 (43%). When comparing the average percentages of residents who reported stable dissatisfaction across the four indices (Table 4, % Dissatisfied-Dissatisfied), the most unstable index is Index 1 (Direct Satisfaction) in which an average of only 50% of the residents reported stable dissatisfaction across all care areas. In contrast, Index 3 (Objective Discrepancy) shows the highest stability, with an average of 90% of the residents reporting stable dissatisfaction across all three care areas.

The difference between discrepancy-based Indices 3 (Objective) and 4 (Perceived) with respect to the percentage of residents expressing stable dissatisfaction (90% vs 57%, respectively) is at least partially explained by the fact that objective care levels did not

352 The Gerontologist
change between Interviews 1 and 2. However, residents' preferred and perceived care levels were less stable, although still significant (preferred care levels: pad changes = .32, p < .05; toileting assistance = .50, p < .001; walking assistance = .53, p < .001; corresponding perceived care levels: .42, p < .001; .54, p < .001; and .56, p < .001, respectively).

Residents who reported stable and unstable (dis)satisfaction according to each index and within each care area were compared with respect to MMSE total scores and accuracy classification (refer to Logical Consistency and Stability Analyses section for definition of “accuracy”). There were no significant differences in the MMSE scores across 24 total comparisons (3 care areas x 4 indices x 2 groups). In short, differences in cognitive status did not account for instability in residents' reports of satisfaction/met need or dissatisfaction/unmet need with respect to any care area. Two findings suggest that residents' responses were potentially being influenced by acquiescence and/or a fear of reprisal. First, residents were much more likely to report stable satisfaction, or met need, than stable dissatisfaction, or unmet need. Second, there was no difference in cognitive status between those respondents expressing stable (dis)satisfaction and unstable (dis)satisfaction.

When the same comparisons were made based on accuracy classification, only two significant differences emerged out of 24 total comparisons. Both of these differences occurred within the care area of walking assistance for Indices 1 (Direct Satisfaction) and 4 (Perceived Discrepancy) in which a significantly higher proportion of those subjects reporting stable dissatisfaction/unmet need were “accurate” in their perceptions of received walking assistance care levels ($\chi^2 = 7.83, p < .01$ and $\chi^2 = 3.97, p < .05$, respectively). It should be noted in Table 2 that the walking assistance care area showed the highest percentage of residents reporting dissatisfaction; thus, the statistical ability to detect differences in this care area was less limited by a small sample size than in the other two care areas.

Discussion

This study shows that most incontinent NH residents (99/111 = 89%) included in the sample were willing to respond to satisfaction and preference questions related to their incontinence and mobility care. More importantly, the majority of the residents in the sample provided logical responses. It is notable that only 25% of the interviewed residents produced an illogical response pattern even though strict cognitive-status exclusion criteria, such as those used in previous studies of satisfaction (Cohn & Sugar, 1991; Kane, Bell, & Reiger, 1986; Kruzich, Clinton, & Kelber, 1992; Lavizzo-Mourey, Zinn, & Taylor, 1992; Pearson et al., 1993), were not used in this study. This finding dispels the unfortunately common notion that only a small subset of NH residents are capable of providing logical responses to questions about their satisfaction and preferences related to care.

However, in addition to providing logical information, resident interview data should also be reliable (i.e., stable under conditions in which care processes do not change) and sensitive to a range of met need (i.e., not be limited by ceiling effects) if such data are to be used to target care areas for improvement. The four indices used to measure met need in this study were, therefore, compared on criteria related to ceiling effects and stability of resident responses. Results showed that the direct satisfaction questions (Index 1) produced the lowest estimate of unmet need and were most influenced by ceiling effects. In comparison, the discrepancy-based indices (Indices 3—Objective and 4—Perceived) produced higher estimates of unmet need. With respect to the stability of residents' responses, three of the four indices (i.e., Index 1—Direct Satisfaction, Index 2—Preference, and Index 4—Perceived Discrepancy) were highly unstable in estimating unmet need, with the direct satisfaction index being the most unstable.

It is notable that the majority of residents in this sample were stable in their reports of met need with respect to the levels of care provided by NH staff, even though objective levels of incontinence and mobility care were extremely low. If clinical criteria of quality are considered, significantly more toileting and walking assistance is necessary to produce better resident outcomes. When considered in the context of these objective data, the high reported rates of met need with Indices 1 (Direct Satisfaction) and 2 (Preference) are difficult to understand. It could be that residents are actually “satisfied” with significantly lower objective care frequencies than those necessary to produce positive clinical outcomes; or, these data could reflect a combination of acquiescence, reduced expectations, and/or distorted perceptions of received care levels with respect to daily incontinence and mobility care. However, there are three additional reasons to suspect that it is primarily acquiescence and reduced expectations that combine to explain these results.

First, residents were more stable in their reports when indicating that their care needs were met (satisfaction) than they were in their reports that their needs were not met (dissatisfaction), and there was no difference in the cognitive status of those residents reporting stable versus unstable information. Moreover, the accuracy of residents' perceived care levels did not significantly influence the stability of residents' reports, with the exception of two indices within the walking assistance care area only. Thus, a dynamic other than cognitive impairment must be creating a pressure to verbalize consistent expressions of met need. Second, the more direct indices would intuitively create the most pressure for acquiescence, and these indices are the ones most characterized by ceiling effects and unstable reports of unmet need. In contrast, the index that is anchored by an objective measure of received care (Index 3—Objective Discrepancy) and that does not depend on residents' critical appraisal of existing care practices results in the highest and most stable reports of unmet need. Finally, the observed levels of incontinence care (i.e., both pad changes and toileting assistance) and walking...
assistance were well below the quantitative preferences reported by residents. Therefore, residents should logically be providing high reported rates of dissatisfaction/unmet need in response to direct questions that ask “Are you satisfied?” (Index 1—Direct Satisfaction) and “Do you want more?” (Index 2—Preference).

The implications of these results for designing and evaluating improvement interventions can be summarized according to the four primary functions, outlined in the introduction, that an assessment strategy must serve in order to be useful for improvement activities. The four indices described in this article can be ranked as to how each index supports these functions.

First, an assessment strategy should yield data that allow for the identification of problems in care processes, and ceiling effects are most problematic with respect to this function. The indices ranked in order of usefulness for problem identification purposes are as follows: (1) Index 3—Objective Discrepancy, (2) Index 4—Perceived Discrepancy, (3) Index 2—Preference, and (4) Index 1—Direct Satisfaction.

Second, an assessment strategy should provide information that allows for the design of improvement interventions. Details about what and how care processes should be implemented to improve residents’ satisfaction with care are much more critical for improvement purposes than for benchmarking or survey purposes. The preference index (Index 2), which provides a quantitative estimate of how often a resident prefers different care activities on a daily basis, illustrates a measurement approach that provides specific information needed to design interventions to improve care processes. The other indices described in this article do not provide such specific information and can, therefore, not be ranked according to this function.

A third function of an assessment strategy is that the information should be sensitive to actual changes in care processes. A stable report of unmet need in the context of no change in an objective care process is the most important characteristic that a measure must possess for this improvement purpose. Indices listed in the rank order of how well unmet need is measured on a stable basis are as follows: (1) Index 3—Objective Discrepancy, (2) Index 4—Perceived Discrepancy, (3) Index 2—Preference, and (4) Index 1—Direct Satisfaction.

Finally, an assessment strategy should allow for a time-efficient evaluation of changes in met need. Specifically, the continuous improvement paradigm relies on the identification of care processes that are associated with better resident outcomes. The outcomes of interest, in this case, are indices of met need. However, at the beginning of an improvement program, it is essential to establish a causal relationship between care processes and need outcomes. This step is necessary because there is no current evidence documenting what or how care processes should be implemented to improve NH residents’ subjective estimates of met need, or what the sensitivity of different measures of met need are to interventions designed to improve care processes. Once a causal relationship is defined, the indices can be monitored less frequently because the emphasis shifts from monitoring outcomes (i.e., met need levels) to monitoring care processes.

Unfortunately, the best index for all other improvement intervention purposes is Index 3 (Objective Discrepancy), and data collection for this index is also the most time-intensive due to the requirement that objective care levels be monitored. The remaining three indices differ little in terms of the time-intensity of data collection. Despite the time disadvantage, Index 3 is superior with respect to all other functions, and a case can be made that objective care levels should be monitored on at least an infrequent basis (e.g., yearly). We, thus, argue that Index 3 is also the best index for evaluating what care processes are causally related to stable, subjective measures of met need. If an index is to be monitored more frequently (e.g., weekly or monthly), we recommend that Index 3 be combined with a more time-efficient measurement index. The discrepancy between perceived and preferred care levels (Index 4) is significantly correlated with Index 3 and would require little additional time to collect; thus, we recommend Index 4 for frequent monitoring purposes. The only other index that we recommend for this monitoring purpose is Index 2 (Preference).

We have identified two primary limitations of the present study. First, satisfaction and preference data were collected from incontinent NH residents only. Although these residents represent a broad range of both cognitive and physical impairment levels, the sample may not be representative of the minority of NH residents who are continent and generally less cognitively and physically impaired. In addition, our results may not generalize to populations for whom acquiescence and/or reduced expectations may be less of an issue. Residents newly admitted to the NH, for example, may be less acquiescent, and all indices may produce a higher and more stable estimate of their unmet need. It is also recognized that notable attrition occurred both prior to and following the consent process. Twenty-five percent of those residents identified as incontinent did not meet inclusion criteria, and although the consent rate was high (66%), 26% of the consented residents were lost from the data for various reasons (refer to Subjects and Setting).

Further, resident satisfaction and preference data were collected in relation to only two care areas, incontinence and mobility. It is well documented that satisfaction is a multidimensional construct (Norton et al., 1995; Pascoe & Attkisson, 1983; Zinn et al., 1993). Thus, future research should include additional daily care areas as well as other aspects of the NH environment (e.g., quality of food, cleanliness, privacy, safety, laundry services, social activities) when measuring NH residents’ met need levels.

References


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