

参考資料 2

介護施設における利用者満足度に関する参考文献

(田宮教授提出参考資料)



INTERVIEW DETAILS

Today's Date: \_\_\_\_\_ Resident ID: \_\_\_\_\_

Length of Stay:  Long Term  
 Short Stay

Facility ID: \_\_\_\_\_ Admission Date: \_\_\_\_\_

Resident Gender:  Male  
 Female

Interviewer ID: \_\_\_\_\_

Start Time 1: \_\_\_\_\_ Hr : \_\_\_\_\_ Min am / pm  
End Time 1: \_\_\_\_\_ Hr : \_\_\_\_\_ Min am / pm  
Start Time 2: \_\_\_\_\_ Hr : \_\_\_\_\_ Min am / pm  
End Time 2: \_\_\_\_\_ Hr : \_\_\_\_\_ Min am / pm

Mark only if interview was interrupted and re-started

INTERVIEW STATUS

- Complete
- Incomplete → Reason why interview is incomplete (if applicable)
  - Resident fatigue
  - Necessary clinical care
  - Unable to respond to questions
  - Resident illness
  - Refusal to continue
  - Other

Assistance with interview (if applicable)

- Family member
- Volunteer
- Custodian/Guardian
- Other

ACTIVITIES

- YES: Would you say yes, always or yes, sometimes? YES, always YES, sometimes NO: Would you say no, hardly ever or no, never? NO, hardly ever NO, never DK/N/ANR
- FIRST I'D LIKE YOU TO THINK ABOUT THE ACTIVITIES THE FACILITY OFFERS TO ENTERTAIN YOU OR KEEP YOU INVOLVED.**
1. Do you have enough to do here? Yes or no?  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR
  2. Do you get enough information about the activities offered here? Yes or no? (Ex: Entertainment, arts and crafts, religious services, outings, exercise classes)  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR
  3. Are you satisfied with the activities offered here? Yes or no?  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR

CHOICE

- WOULD YOU LIKE TO THINK ABOUT THE CHOICES YOU HAVE HERE.**
- YES: Would you say yes, always or yes, sometimes? YES, always YES, sometimes NO: Would you say no, hardly ever or no, never? NO, hardly ever NO, never DK/N/ANR
4. Can you go to bed when you like? Yes or no?  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR
  5. Do the employees leave you alone if you don't want to do anything? Yes or no?  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR
  6. Do the people who work here let you do the things you are able to do yourself? Yes or no?  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR
  7. Are you free to come and go as you please? Yes or no?  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR
  8. Are the rules here reasonable? Yes or no? (Ex: Safety policies, dining room policies, curfew)  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR

CARE & SERVICES

- NEXT I'D LIKE YOU TO THINK ABOUT THE CARE AND SERVICES YOU GET HERE.**
- YES, always YES, sometimes NO, hardly ever NO, never DK/N/ANR
9. Can you get snacks and drinks whenever you want to? Yes or no?  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR
  10. Do you get your medications on time? Yes or no? (Ex: Do you get your medications in a timely manner)  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR
  11. Do the employees explain your care and services to you? Yes or no?  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR
  12. Do the employees who take care of you know what you like and don't like? Yes or no?  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR

EMPLOYEE RELATIONS

- I AM GOING TO ASK YOU SOME QUESTIONS ABOUT THE EMPLOYEES WHO WORK HERE.**
- YES, always YES, sometimes NO, hardly ever NO, never DK/N/ANR
13. Are the employees courteous to you? Yes or no?  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR
  14. Can you depend on the employees? Yes or no? (Ex: Do employees do what they say they will do, follow through)  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR
  15. Are the people who work here friendly? Yes or no?  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR
  16. Do the employees treat you with respect? Yes or no?  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR

EMPLOYEE RESPONSIVENESS

- YES, always YES, sometimes NO, hardly ever NO, never DK/N/ANR
17. During the weekdays, is a staff person available to help you if you need it? Yes or no? (Ex: Help getting dressed, getting things for you) (Ex: By staff, I mean the people who work here)  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR
  18. At other times, is a staff person available to help you if you need it? Yes or no? (Ex: During the evenings and nights, on weekends) (Ex: Help getting dressed, getting things for you) (Ex: By staff, I mean the people who work here)  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR
  19. Do you feel confident that the employees know how to do their jobs? Yes or no?  YES, always  YES, sometimes  NO, hardly ever  NO, never  DK/N/ANR

## COMMUNICATION

	YES Would you say yes, always or yes, sometimes? Yes, always	NO Would you say no, hardly ever or no, never? No, hardly ever	DK/NA/NR
<b>NOW I'D LIKE YOU TO THINK ABOUT THE COMMUNICATION AND MANAGEMENT HERE.</b>			
20. Are the people in charge available to talk with you? Yes or no? (Ex: Managers, supervisors, administration)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Do the people in charge treat you with respect? Yes or no? (Ex: Managers, supervisors, administration)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. Would you feel comfortable speaking up when you have a problem? Yes or no? (Ex: To the people in charge)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23. Do you know who to go to here when you have a problem? Yes or no?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. Do your problems get taken care of? Yes or no? (Ex: Are your problems addressed)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## MEALS & DINING

	YES, always	YES, sometimes	NO, hardly ever	NO, never	DK/NA/NR
<b>I WANT YOU TO THINK ABOUT THE FOOD AND MEALTIME.</b>					
25. Do you get enough to eat? Yes or no? <b>(If respondent indicates that they do not eat food, skip to question 30.)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26. Is the food here tasty? Yes or no?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. Can you get the foods you like? Yes or no?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28. Is your food served at the right temperature? Yes or no? (Ex: Cold foods cold, hot foods hot)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. Do you like the way your meals are served here? Yes or no?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## LAUNDRY

	YES, always	YES, sometimes	NO, hardly ever	NO, never	DK/NA/NR
<b>NEXT I'D LIKE YOU TO THINK ABOUT THE LAUNDRY SERVICE HERE.</b>					
30. Do you get your clothing back from the laundry? Yes or no? <b>(If respondent indicates that the facility does not do their laundry, skip to question 32.)</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31. Does your clothing come back from the laundry in good condition? Yes or no?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## FACILITY ENVIRONMENT

	YES Would you say yes, always or yes, sometimes? Yes, always	NO Would you say no, hardly ever or no, never? No, hardly ever	DK/NA/NR
<b>NOW I'D LIKE YOU TO THINK ABOUT THE BUILDING.</b>			
32. Do you like the location of this place? Yes or no? (Ex: The setting, it's in a nice area, it's near places you want to go)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33. Are the outside walkways and grounds well taken care of? Yes or no?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
34. Does this place look attractive to you? Yes or no?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35. Is this place clean enough for you? Yes or no? (Ex: The facility, your room)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36. Is this place quiet when it should be? Yes or no?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## RESIDENT ENVIRONMENT

	YES, always	YES, sometimes	NO, hardly ever	NO, never	DK/NA/NR
<b>NOW I'D LIKE YOU TO THINK ABOUT YOUR ROOM OR APARTMENT.</b>					
37. Do you have enough privacy in your room or apartment? Yes or no?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
38. Are the satisfied with your room or apartment? Yes or no?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39. Do you feel safe here? Yes or no?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40. Is your personal property safe here? Yes or no? (Ex: The things that belong to you, your personal items, your valuables)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41. Do you think this is a pleasant place for people to visit? Yes or no?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## GENERAL SATISFACTION

	YES, always	YES, sometimes	NO, hardly ever	NO, never	DK/NA/NR
<b>THIS LAST GROUP OF QUESTIONS ASKS YOU TO THINK ABOUT THE FACILITY IN GENERAL.</b>					
42. Do you feel comfortable here? Yes or no?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
43. Do you feel like you are getting your money's worth here? Yes or no?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
44. Overall, do you like living here? Yes or no?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
45. Would you recommend this place to a family member or friend? Yes or no?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

THOSE ARE ALL THE QUESTIONS I HAVE ABOUT THIS FACILITY.  
THANK YOU VERY MUCH FOR ANSWERING ALL MY QUESTIONS.

GO TO THE FIRST PAGE AND RECORD INTERVIEW STATUS AND INTERVIEW END TIME.

## Developing and Testing a Satisfaction Survey for Nursing Home Residents:

### The Ohio Experience

Jane K. Straker, Ph.D.<sup>1</sup>, Farida K. Ejaz, Ph.D.<sup>2</sup>, Catherine McCarthy,<sup>3</sup> and James A. Jones, Ph.D.<sup>4</sup>

**Abstract.** Input from consumers has become an important part of quality improvement in long-term care and for consumer decision-making. This paper documents the development of the Ohio Nursing Home Resident Satisfaction Survey (ONHRSS) through a partnership of state government, research, and industry experts. The instrument was tested and refined through two waves of data: a pretest phase and later with statewide data. Exploratory and confirmatory analyses with statewide data identified eight primary factors along with an underlying, secondary Global Satisfaction factor. Reliability of the domains ranged from .69 to .95. Recommendations for further refinement and testing of the instrument are discussed along with policy and practice implications.

**Key Words:** Consumer satisfaction, long-term care, reliability

## Introduction and Background

For over 30 years it has been recognized that the views of health care consumers can help physicians, hospitals, and other providers improve their care. For health plans, the standardization of consumer feedback has allowed for payers, providers, and consumers to measure improvement in services and has helped consumers make better decisions regarding their care (Davies, Ware, & Kosinski, 1995). Only in the last 10-15 years has input from consumers been viewed as an important part of quality improvement in long-term care (Cohen-Mansfield, Ejaz, & Werner, 2000, Institute of Medicine (IOM), 2001).

One reason that input from long-term care consumers has lagged behind input from consumers of other services is the perception that such consumers are primarily too frail to reliably evaluate the services they receive (Applebaum, Straker, & Geron, 2000; IOM, 2001). However, this perception is changing as elderly consumers increasingly choose the services they need. Many researchers have also overcome the challenges involved in designing surveys for such populations (Applebaum, Uman, & Straker, in press; Cohen-Mansfield et al., 2000).

While providers have long been interested in consumer input to improve operations, government agencies and private organizations have more recently begun developing web-based guides to help consumers choose long-term care services (Castle & Lowe, 2005; Ejaz, Straker, Fox, & Swami, 2003). In March 2000, the Ohio Legislature mandated the development of a web-based consumer guide containing general information about long-term care services and specific information about each of Ohio's nursing homes (NHs). House Bill 403 mandated the collection and dissemination of consumer satisfaction information from both NH residents and their families. Residents were to be surveyed in-person and families via the mail. The bill also stipulated the development of separate though complementary surveys for residents and families with items addressing each groups' common and unique perspectives, that the surveys be

<sup>1</sup> Director of Policy, Ohio Long-Term Care Research Project, Scripps Gerontology Center, Miami University, 396 Upham Hall, Oxford, OH 45056, strakejk@muohio.edu

<sup>2</sup> Senior Research Scientist, Margaret Blenkner Research Institute, Benjamin Rose, 850 Euclid Avenue, Cleveland, OH 44114, lejaz@benrose.org

<sup>3</sup> Senior Research Assistant, Margaret Blenkner Research Institute, Benjamin Rose, knccarthy@benrose.org

<sup>4</sup> Assistant Director, Research & Design, University Computing Services, Ball State University, Muncie, IN 47306, jones@bsu.edu

**Acknowledgments.** The authors would like to thank JoEllen Walley, Roland Hornbostel and Beverly Laubert at the Ohio Department of Aging along with other members of the Ohio Long-Term Care Consumer Guide Advisory Council. We also would like to acknowledge the contributions of Drs. Cary Kart and Jennifer Kinney for assistance with analysis of the test-retest and inter-rater pretest interview data, and Drs. John Baier and Kyoungah See for development of a sampling strategy for small populations that was tested in the pretest interviews. Research Associates Lisa Ehrlich at the Scripps Gerontology Center and Kathleen Fox at the Margaret Blenkner Research Institute at Benjamin Rose provided project management. The Commonwealth Fund provided funding for the psychometric analyses of the statewide resident survey data. We appreciate the advice of Dr. Mary Jane Koren, Program Officer, who provided valuable insights about final revisions to the survey instrument. We also appreciate the careful review and comments provided by the two reviewers of an earlier version of this paper.

statistically valid and reliable, and developed and pre-tested within six to seven months.

To oversee and provide input on all aspects of the consumer guide, including the satisfaction surveys, an advisory council (AC) comprised of representatives from Ohio's NH associations, consumers, departments of aging and health, ombudsman, and a research organization, was created. Researchers, while working with respondents to pretest instruments, needed to juggle the competing demands and interests of industry experts and stakeholders. This was critical to stakeholder acceptance of the consumer guide and NH satisfaction information.

Before starting survey development, the AC and researchers agreed on core assumptions to guide the resident and family surveys (Ejaz, Straker, Fox, & Swami, 2003). These included: resident and family satisfaction with a facility is only one part of a quality improvement program; NH satisfaction is unique and complicated because residents live in the service environment; survey development will build on existing instruments and domains; there would be a core set of items common to both the resident and family surveys; input from residents would guide the wording of common items and response categories for both the surveys; development of different surveys for short and long-stay residents will be explored; and cognitively impaired residents can provide valid and meaningful input (Ejaz & Straker, 2001). While the surveys were developed to complement each other, this paper focuses on the development of the Ohio Nursing Home Resident Satisfaction Survey (ONHRSS).

#### ONHRSS Survey Design

With these assumptions in place, the survey proceeded in phases: 1) development, 2) refinement, 3) pretest, 4) finalization for statewide use, 5) re-examination of its reliability and validity using statewide data, and 6) refinement and recommendations for the future.

A number of existing instruments were examined (Cohen-Mansfield et al., 2000, pp.272-323; Ejaz, Noelker, Schur, Whitlatch, & Looman, 2002; Kruzich, 2000; Soberman, Murray,

Norton, & van Maris, 2000) and several existing satisfaction datasets were analyzed with attention to identifying items that maximized variance and had little missing data (Ejaz et al., 2003). Based on the evaluation of existing surveys, the AC selected 90 topic areas that were ranked in order of importance, 60 areas were chosen, and a draft survey was developed.

Next, cognitive interviews were conducted with 11 residents in two facilities.

Interviewers asked residents about the relevance of items, how questions should be framed, the meaning of different terms used in the questions and response categories, and whether any additional topics important to their satisfaction should be added. Interviews lasted from 30-90 minutes and showed that residents had some difficulty responding to rating scales such as 'excellent' to 'poor', or 'very good' to 'very poor'. Overall, residents were reluctant to ever use 'excellent' because it was perceived to be "perfection". There were no clear preferences in comparing frequency responses such as 'always' to 'never', and strength of opinion responses such as 'definitely yes' to 'definitely no.' Unlike residents' absolute interpretation of 'excellent,' 'always' was viewed as something that usually happened, even if it didn't happen every time.

After these interviews, the AC agreed to pretest 71 items for short-stay and 62 items for long-stay residents using a four-point response category ('yes, definitely' to 'no, definitely not'). A branching response design was developed where respondents could begin by choosing 'yes' or 'no', then be prompted with "would you say yes, definitely, or yes, maybe?" to aid those with cognitive impairments. Response categories were scored: 'Yes, definitely'=1, 'Yes, Maybe'=2, 'No, I don't think so'=3, and 'No, definitely not'=4. Negatively worded items where a 'yes' answer indicated poorer facility performance were reverse scored.

*Survey pretest.* Twenty facilities stratified by size from Hamilton and Butler counties in southwest Ohio were asked to pretest the survey and 14 agreed. Four facilities, one from each stratum, in northwestern Ohio also were chosen to tap potential geographic differences.

Interviews were conducted in three facilities with less than 50 beds, five facilities with 51-100 beds, five facilities with 101-125 beds, and five facilities with more than 125 beds; proportional to the size distribution of all facilities in the state. A total of 206 original, 71 test-retest, and 67 inter-rater interviews were conducted. Facilities received instructions on how to draw a random sample and determine which residents were interviewable. The protocols developed excluded residents with a Cognitive Performance Score (CPS) of 6 based on their most recent Minimum Data Set (MDS), those who were both dependent in eating and severely impaired in decision-making, and those who were comatose (Morris, et al., 1995).

However, most facilities developed their own strategies for producing sample lists of residents, though in some cases interviewers drew their own samples from a census list. Interviewers were provided with additional protocols designed to minimize burden on residents and facilities. For example, residents were not to be interviewed if they were asleep when visited on three occasions; not found either in their room or in the public areas after three attempts, or could not provide appropriate answers for three consecutive questions. Of the 369 residents sampled from the 18 sites, 55.8% completed interviews, 13.8% refused, 4% could not be located, 9.2% could not fit interview into schedule, 3.5% were out of facility on interview day, 10% were asleep three times, 1% terminated interview, and 2% did not complete it for other reasons.

*Scale (Domain) Reliability:* Factor analyses were conducted to see if the conceptual domains in the survey were supported by the data. Unfortunately, the resident and family pretest data showed different factor structures and in general, the factor structures emerging from the family pretest data had greater conceptual clarity (Ejaz et al., 2003). Since including the same item in one domain on the family survey and in another on the resident survey would result in non-comparability of domain scores between the two surveys, the factor structures from family survey data were used to guide the development of domains for both resident and family surveys.

Ten domains were constructed for the resident survey and their respective Cronbach's alpha coefficients were: Social services,  $\alpha=.88$ ; Activities,  $\alpha=.74$ ; Choice,  $\alpha=.55$ ; Direct Care and Nurse Assistants  $\alpha=.84$ ; Administration,  $\alpha=.83$ ; Meals and Dining,  $\alpha=.81$ ; Laundry,  $\alpha=.63$ ; Environment,  $\alpha=.69$ ; and Overall Satisfaction,  $\alpha=.75$ . Despite having an internal consistency coefficient below .60, the items in the Choice domain were retained for the statewide survey because of their importance for consumers.

*Testing Differences Between Short and Long-Stay Residents:* Short-stay residents were defined as having been in the facility less than three months based on the limit for Medicare's reimbursement of post-hospital services. The AC and the legislature felt that short- and long-stay residents might have different goals for their NH stay and would differ in their ability to reliably assess services they hadn't used or couldn't remember (e.g. 'admissions' for long-stay residents).

Approximately 14% of respondents were short-stay residents. T-tests comparing mean differences between long- and short-stay residents on individual items and total domain scores revealed some significant differences. For example, long-stay residents were more satisfied with facility activities including spiritual ones, whereas short-stay residents were more satisfied with the food, information on their medical condition, having adequate staff to help them during the week, and laundry. Some of these difference was due to a greater number of "doesn't apply/don't know" responses from short-stay residents. Over one-fourth (27.6%) of short-stay residents did not answer whether they liked the activities, and 38% did not answer whether their clothes were lost or damaged in the laundry. When the survey was refined, the problem of non-participation in services was resolved by the use of screening questions, where interviewers were instructed to skip these questions if a resident indicated he or she did not use the laundry service or did not participate in activities. None of the other items showed significant differences between short and long-stay residents in their ability to provide answers to questions.

Further, none of the average domain scores demonstrated significant differences between short and long-stay residents with the exception of the social work domain. Interviewer comments and missing data suggested that long-stay residents rarely interacted with social workers. Also, the admissions domain, which had a high proportion of missing responses because residents indicated a family member had handled their admission, was eliminated for all residents and retained only in the family survey.

Finding few significant differences between short and long-stay residents was important. Since only 12% of nursing facility residents at any one time are short-stay, getting a sample large enough to report short- and long-stay resident results from many facilities would be costly and time-consuming. Although House Bill 403 called for separate surveys, the AC agreed that arguments for having one resident instrument for both long- and short-stay residents were valid.

*Cognitive Screening:* One goal of the pretest was to examine how residents with varying levels of cognitive impairment were able to complete interviews. Information on cognitive status was assessed by obtaining MDS data for residents who agreed to participate and by using a brief cognitive screen with three items: current season, day of the week, time of day (Ejaz, Jones, & Rose, 1998), and the Mini-Mental Status Exam (Folstein, Folstein, & McHugh, 1975) with the spelling items excluded. Residents at all levels of cognitive impairment completed interviews (Table 1). However, the distribution of scores suggests that when NH staff developed lists for sampling, residents other than those who were comatose, or severely impaired in decision-making and dependent in eating, may have been screened out. Alternately, residents with CPS scores of six that should have been excluded were included. In addition, the range of scores didn't mirror the state's NH population. In 2003, Ohio MDS data showed that nearly 20% of NH residents had a CPS score of 4 or higher compared to only 2% in our sample. In addition, only four interviews were terminated because residents were unable to participate. Lucas & Lowe

(2002) found that those with low cognitive scores were more likely to refuse to participate in a resident satisfaction interview. It appears the same phenomenon may have occurred here with residents who would have difficulty completing interviews being in the group who refused.

*Reliability Testing:* Two strategies were used to test individual item reliability. Seventy-one residents were re-interviewed by a different interviewer approximately two weeks after their original interview to examine inter-rater reliability. Sixty-seven residents were re-interviewed by the same interviewer approximately two weeks after the original interview for test-retest item reliability. Correlations between items at T1 and T2 were examined, along with paired-sample T-tests examining the differences between mean scores on each item at T1 and T2.

Five items demonstrated significant differences between the inter-rater interviews. Four of five items that showed significant (range of  $p$  value  $<.01$  to  $<.001$ ) inter-rater differences were negatively worded in the original survey (e.g. 'Do you have enough to do here?'. 'Do the staff decide when you get up in the morning?'). These same items did not exhibit significant test-retest differences. An analysis by interviewer did not show any specific differences that could be attributed to a particular interviewer interpreting or rewording these items. For all of the negatively worded items, the facilities received a better average evaluation at T2 than at T1.

Five items showed significant differences between T1 and T2 in test-retest reliability. These included three administration related items ('Does the administration treat you with respect?', 'Does the administration care about you as a person?', 'Overall, are you satisfied with the administration?'), one item on nurse aides ('Are the nurse aides gentle when they take care of you?') and one on laundry ('Do your clothes get lost in the laundry?'). Interestingly, these differences were in the opposite direction of the inter-rater differences, with respondents giving facilities worse scores at T2 on most items. Test-retest domain scores were also computed. Only the laundry domain showed significant differences between T1 and T2.

Since none of the above-mentioned items showed inconsistent test-retest or inter-rater unreliability and the contribution of these items to domain reliabilities was high, the items were retained. Most problematic in the inter-rater interviews were the negatively worded items. It could be that older, NH residents had difficulty managing the cognitive “switch” required to answer appropriately. It is also unclear why the administration items were problematic only in the test-retest. A change in administration occurring in one or more facilities could have contributed to changes in item means, but a facility-by-facility examination proved that this was not the case. Slight changes in item responses in almost every facility contributed to the overall difference between T1 and T2.

*Behavioral Coding:* Twenty pretest interviews were videotaped and observed. Instances where an interviewer had to repeat a question, a resident requested clarification, or the interviewer read the item with a slight change in wording were recorded. Questions that appeared to be particularly problematic (five or more problems in 20 interviews) were modified. For example, “Does the staff leave you alone if you want to do nothing?” was changed to “Does the staff leave you alone if you don’t want to do anything”. Twelve questions were changed by adopting the wording changes made naturally by interviewers.

*Response Categories:* Several problems were noted with the response categories from both the family and resident pretests. The pretest interviews used ‘yes, definitely,’ to ‘no, definitely not’, yet many residents responded with answers such as ‘yes, well, sometimes they do.’ The initial cognitive interviews determined virtually no difference between resident preferences for ‘yes, definitely’ compared to ‘yes, always’ but the larger pretest uncovered this problem, particularly in the pretest for families. Members of the AC also preferred frequency-type responses like ‘always to never’ over the ‘definitely yes to definitely not’ responses.

Subsequent to the pretest, nine additional cognitive interviews were conducted to

compare resident responses on these two different response sets. These residents showed a slight preference for the frequency response set (‘always’, ‘sometimes’, ‘hardly ever’, ‘never’) and this preference along with the comments from both residents and families resulted in a recommendation for using it in the statewide survey. Further, it was determined that responses would be phrased dichotomously initially (‘yes’ or ‘no’) and then rated on a four-point Likert-type scale: ‘yes, always’ or ‘yes, sometimes’ and ‘no, hardly ever’ or ‘no, never’ to encourage residents with cognitive impairments to answer the questions more easily. A fifth category was also recommended to record “don’t know,” “not applicable,” and “no response” answers.

*Survey Development Summary.* Researchers recommended a 45-item satisfaction survey (with three additional items regarding social workers asked only of short-stay residents) covering nine domains for statewide use. It was clear that residents of varying levels of cognitive impairment could complete the interview. It was also clear that these items, taken as a whole, provided a valid measure of NH satisfaction. Finally, the domains, although largely based on the family survey and conceptual relevance, showed strong internal reliability.

#### **Examining the psychometric properties of the ONHRSS based on statewide data**

In 2002, a total of 869 of the 956 NHs in Ohio participated in the survey and 18,560 resident interviews were completed (see Wheatley et al. in this issue for greater details).

Investigators used the data to conduct a second phase of psychometric testing of the ONHRSS.

Since the goals of the NH surveys were to compare NHs to enable consumer make informed choices in selecting a facility and to provide NHs with information to improve quality of care, the data for each item were aggregated by facility. The dataset was then randomly split into two halves: 1) an exploratory dataset to test the factor structure of the instrument; and 2) a confirmatory dataset to confirm the factor structures identified in the exploratory analyses (Stevens, 2002). A total of 433 and 434 NHs were in the exploratory and confirmatory datasets



respectively.

*Exploratory factor analyses:* A hierarchical factor analyses was conducted with the exploratory dataset using a program called SECONDOR (Thompson, 1990). This type of factor analysis is used when the implicit design suggests that both primary factors (domains) and a global or general/secondary factor might exist. All 45 items pertaining to both long and short-stay residents were entered in the analyses. The three items on social services were excluded because they pertained only to short-stay residents and had missing data for long-stay residents.

The findings from the exploratory factor analyses identified eight primary factors and one secondary G (General/Global Satisfaction) factor. No items were excluded since all had coefficients of at least .30 or higher on either one of the primary factors or the secondary G factor. The primary factors were comprised of 38 items in 8 domains: Quality of Care and Nurse Aides, Direct Care, Choice, Laundry and Safety, Activities, Administration), Meals and Dining, and Negatively worded items (Table 2).

The secondary factor structure that identified the G (Global/General Satisfaction) factor contained all items except for one item in the Choice domain that was not salient (Does the staff decide when you have to get up in the morning? See Table 2). The complete model accounted for 67.4% of the total variance. Of the explained variance, 55.9% can be attributed to the general factor with the remaining 44.1 % split among the eight primary factors.

*Confirmatory Factor Analyses:* The confirmatory dataset (419 facilities following listwise deletion) was used to test the exploratory model using AMOS (Arbuckle & Wothke, 1999). Several fit statistics were examined to assess the adequacy of the fit for the hypothesized model. The relative chi-square ( $\chi^2/df$ ; Carmines & McIver, 1981) was 2.50 and Root Mean Square Error of Approximation (RMSEA; Browne & Cudeck, 1993) was .06, which were within the guidelines for a good fit of the data (Arbuckle & Wothke, 1999). The Goodness of Fit Index

(GFI; Bollen, 1989), Adjusted Goodness of Fit Index (AGFI; Bollen, 1989), and Tucker-Lewis coefficient (TLI; Bollen, 1989) were .81, .77, and .88, respectively and fell below the .90 guideline for a good fit (Arbuckle & Wothke, 1999). The proposed model was clearly an improvement over the null, with the discrepancy dropping from 13,460.77 ( $df = 990$ ) to 2,208.25 ( $df = 883$ ), suggesting a large improvement in the fit to the data ( $\chi^2 = 11,252.52$ ,  $df = 107$ ,  $p < .001$ ). Overall, the fit statistics were mixed, but provided a partial confirmation of the model.

#### Refining the ONHRSS for Future Use

Even though the analyses of the statewide data demonstrated factor structures that were conceptually relevant, investigators made the decision to refine the instrument for future use. Decisions to recommend final factors/domains, item rewording, or deletion were based on the following: analyses of the factor structures that had emerged in the exploratory factor analyses and supported in the confirmatory analyses; correspondence between the factor structures in the resident and family satisfaction surveys (Ejaz, Jones, Fox, McCarthy, & Straker, 2004); interviewer comments; a meeting with the AC; and further testing of problematic items with a focus group of 10 long-stay residents and three short-stay residents in a NH in Cleveland.

Three of four negatively worded items factored together (see Table 2), and interviewer comments revealed that residents had difficulty answering these items appropriately. Since these items also were problematic during the pretest phase and had inter-rater reliability concerns, a recommendation was made to reword them in the positive and place them in their conceptually relevant domains (Table 3). A fourth negative item that cross-loaded on the Negative and Choice factors was dropped. Laundry items, though worded in the negative, were not reworded because they had loaded appropriately in the Laundry domain and not in the Negative domain.

Another issue was that although the items on Nurse Aides (Table 2; items 23-26) and Quality of Care (items 46-49) had emerged as one factor in the exploratory analysis, the

confirmatory factor loadings did not support this. A comparison of the factor structures that had emerged and were confirmed in two annual statewide family surveys had revealed a single factor that contained both Direct Care and Nurse Aide questions (Ejaz et al., 2004). Therefore, the recommendation was made to combine the Direct Care (Table 2: items 17-20) and the Nurse Aides items (23-26) into one domain in the resident survey (see Table 3).

Two of the 'Quality of Care' items (on recommending the facility and overall satisfaction with quality of care) had poor confirmatory loadings (Table 2). A decision was made to move these items along with the question on friendliness of the staff to an 'Overall Satisfaction' domain that investigators had conceptually started with in the pretest instrument.

Similarly, the items that did not load in any of the primary factors (Table 2: items 38-41; 43, 45, 47) but had loaded on the G-Factor were re-examined for inclusion in future surveys.

Investigators decided to move these items to conceptually relevant domains based on the factor structures that had emerged in the family survey datasets: Resident Environment, Facility Environment and Overall Satisfaction domains (see Table 3). The item on residents and staff getting along was dropped because it loaded only on the G-Factor and follow-up interviews revealed residents gave many varied interpretations of what the item meant.

Item 42 on whether resident's belongings were safe in the facility had factored in the Laundry and Safety factor but it had a poor confirmatory factor loading (Table 2). Investigators decided to move it to the Facility Environment based on the factor structure that emerged in the family survey.

Items related to 'caring about the resident as a person' were dropped from each domain despite good factor loadings because interviewers complained that many residents found these questions confusing. Residents believed that it was more important to treat them with respect and dignity than to 'care for them as a person' (Table 2). Pretesting had elicited similar comments

from residents such as "Who knows whether they really care? It's their job to act like they do." Similarly, many residents were confused by questions 12 and 15 on the staff deciding when residents have to get up and staff telling the residents when to keep their door open or closed. Residents felt it was more a question of whether *they* could make these decisions on their own. These items were reworded in the Resident 2003 survey to reflect this (Table 3).

#### Developing Subscales and Testing Their Reliability

The aggregated exploratory and confirmatory datasets were combined and scales computed for each of the domains being recommended. All scales had moderate to high internal consistencies with Cronbach's alpha coefficients ranging from a low of .69 to a high of .89. The G-Factor had an extremely high internal consistency of .95 (Table 3).

#### Limitations and Need for Future Research

Even though some of the recommended changes were included in the 2003 Ohio NH Resident Satisfaction Survey, these changes could not be tested because the Ohio General Assembly terminated funding for the Long-Term Care Consumer Guide, including the satisfaction surveys. The 2003 resident survey was halted midway even though over 8,000 residents had completed in-person interviews in about 40% of Ohio's NHs. However, in legislation passed in 2005, the consumer guide and accompanying satisfaction surveys require the family and resident NH satisfaction surveys be reinstated but conducted every other year rather than annually to control the costs of the survey. The importance of the surveys to Ohio's NHs will be more apparent in the future as a new Medicaid NH reimbursement formula based on pay-for-performance will include information from the resident and family satisfaction surveys as components of quality.

The State of Rhode Island is currently using the revised 2003 resident and family surveys that have incorporated some of the changes recommended here. This will present an opportunity

to further assess the reliability of the Ohio instrument with data from another state. Analyses are also underway to further assess the validity of the instrument by comparing the satisfaction survey results of high and low scoring facilities with other indicators of quality of care in Ohio (Ejaz, Straker, & Fox, 2005).

#### Summary and Discussion

Since survey development is an iterative process, investigators had the opportunity to not only conduct a pretest of the OHNRSS and refine it for statewide use, but to use the statewide data to explore and confirm its reliability and validity. Additionally, recommendations for further refinement to the OHNRSS were based on comparing the factor structures that emerged from an analysis of both resident and family satisfaction datasets. Such analyses demonstrated that the OHNRSS had excellent reliability and validity.

In relation to other published resident satisfaction instruments of similar length with items ranging from 41-60 (Higgs, MacDonald, & Ward, 1992; Norton, van Morris, Soberman, & Murray, 1996; Uman & Urman, 1997; Van Green, 1997), the OHNRSS factor analyses demonstrated similar domains that included Activities, Food, Nurse/Aide, and Autonomy. Except for one of these surveys (Van Green, 1997), the range of the reliability of the subscales in these surveys was either not reported (Uman & Urman, 1997) or was lower (.46 to .81) than the OHNRSS (.68 to .90 – Table 1). That 18,560 or 89% of residents who were approached completed the survey demonstrates NH residents can participate in a satisfaction survey of considerable length and can provide reliable answers regarding various aspects of their care. It also demonstrates that NH care is a multi-dimensional construct with an underlying global or general satisfaction theme. While other surveys had demonstrated resident satisfaction to be a multi-dimensional construct, they had not explored whether an underlying global factor existed in addition to primary factors (Higgs, MacDonald, & Ward, 1992; Norton, van Morris, Soberman,

& Murray, 1996; Van Green, 1997).

Another distinguishing feature of the Ohio experience is how researchers, policy makers, industry experts, and stakeholders worked together to develop a survey that was effectively implemented on a statewide level (Wheatley et al., this issue). The challenges in developing and testing the instrument are apparent: competing demands on the part of the investigators to ensure that appropriate testing and validation occurred in relation to a legislative mandate that had serious time and cost limitations; dealing with tensions that stemmed from competing interests, education and training of the researchers and those that served on the AC; ensuring compatibility between the resident and family survey processes and instruments by two separate research institutions; and, future recommendations and suggestions to further refine and test the instrument by both institutions. Investigators believe a valid and reliable instrument was developed despite the constraints.

A reliable instrument has the potential to provide valuable data to consumers to make informed choices about choosing a long-term care facility as well as to help facilities identify areas for quality improvement. By building upon the Ohio experience, other investigators and states can further refine the instrumentation begun in Ohio.

## References

- Applebaum, R.A., Straker, J.K., & Geron, S. (2000). *Assessing Satisfaction in Health and Long-Term Care: Practical Approaches to Hearing the Voices of Consumers*. New York: Springer.
- Applebaum, R.A. Uman, G., & Straker, J.K. (forthcoming). Capturing the voices of consumers in long-term care: If you ask them they will tell. In S. Kunkel (Ed.), *Consumer voice and choice in long-term care*. New York, NY: Springer.
- Arbuckle, J., & Wothke, W. (1999). *AMOS 4 user's reference guide*. Chicago: Smallwaters Corporation.
- Bollen, K. A. (1989). *Structural equations with latent variables*. New York: Wiley.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen, & J. S. Long (Eds.) *Testing structural equation models* (pp. 136-162). Newbury Park, CA: Sage.
- Carmines, E. G., & Melver, J. P. (1981). Analyzing models with unobserved variables. In G. W. Bohrnstedt & E. F. Borgatta (Eds.) *Social measurement: Current issues* (pp. 65-115). Beverly Hills: Sage.
- Castle, N.G. & Lowe, T.J. (2005). Report cards and nursing homes. *The Gerontologist*, 45(1): 48-67.
- Cohen-Mansfield, J., Ejaz, F.K., & Werner, P. (Eds.). (2000). *Satisfaction surveys in long-term care*. New York, NY: Springer.
- Davies, A. R., Ware, J.E. Jr., & Kosinski, M. (1995). Standardizing health care evaluations. *Medical Outcomes Trust Bulletin*, 3(4): 2-3.
- Ejaz, F.K., Jones J., Fox, K., McCarthy, C. & Straker, J. (2004, November). *Testing the psychometric properties of a nursing home family satisfaction instrument*. Presented at the annual meeting of the Gerontological Society of America, Washington, DC.
- Ejaz, F.K., Noelker, L.S., Schur, D., Whitlatch, C.J., & Looman, W.J. (2002). Family satisfaction with nursing home care for relatives with dementia. *Journal of Applied Gerontology*, 21(3), 368-384.
- Ejaz, F. K., Rose, M. S., & Jones, J. A. (1998). Restraint removal and changes in social response among nursing home residents. *Research on Social Work Practice*, 8(1), 47-62.
- Ejaz, F. K. & Straker, J.K. (2001, June). *Pretesting The Resident And Family Satisfaction Instruments: (With A Focus On Pretesting The Family Survey)*. A Report Submitted To The Ohio Department Of Aging.
- Ejaz, F. K., Straker, J.K., & Fox, K. (2005, June). *Using Information on Quality to Improve Nursing Home Care. Final report submitted to The Commonwealth Fund*. Cleveland: Benjamin Rose.
- Ejaz, F. K., Straker, J.K., Fox, K., S. Swami (2003). Developing a Satisfaction Survey for Families of Ohio's Nursing Facility Residents. *The Gerontologist*, 43 (4): 447-458.
- Folstein M.F., Folstein, S.E., & McHugh, P.R. (1975). Mini-Mental State: A practical method for grading the state of patients for the clinician. *Journal of Psychiatric Research*, 12: 189-198.
- Higgs, P.F., MacDonald, L.D., & Ward, M.C. (1992). Responses to the institution among elderly patients in hospital long-stay care. *Social Science Medicine*, 35 (3), 287-293.
- Institute of Medicine (2001). *Improving the Quality of Long-Term Care*. National Academy Press: Washington, DC.

- Kruzich, J.M. (2000). Correlates of nursing home satisfaction. In Cohen-Mansfield, J., Ejaz, F.K., & Werner, P. (Eds.), *Satisfaction surveys in long-term care*, pp. 76-100. New York: Springer
- Lucas, J. & Lowe, T. (2002, November). *Measuring Resident Satisfaction in New Jersey Nursing Homes*. Presented at the annual meeting of the Gerontological Society of America, Boston, MA.
- Morris, J.N., Fries, B.E., Mehr, D.R., Hawes, C., Phillips, C., Mor, V. & Lipsitz, L.A. (1995). MDS cognitive performance scale. *Journals of Gerontology*, 49(4), M174-M182.
- Norton, P.G., van Maris B, Soberman L, & Murray M. (1996). Satisfaction of residents and families in long-term care: I. Construction and application of an instrument. *Quality Management in Health Care*, 4, 38-46
- Sangl, J. (2006). The development of a CAHPS instrument for nursing home residents (NHCAHPS). *Journal of Aging and Social Policy*. : UPDATE CITATION WITH PAGE NUMBERS at galley stage.
- Stevens, J. P. (2002). *Applied multivariate statistics for the social sciences (4th Ed.)*. New Jersey: Lawrence Erlbaum
- Soberman, L.R., Murray, M., Norton, P.G., & van Maris, B. (2000). The domains of satisfaction in long-term care. In Cohen-Mansfield, J., Ejaz, F.K., & Werner, P. (Eds.). *Satisfaction surveys in long-term care*, pp. 29-51. New York, NY: Springer.
- Thompson, B. (1990). SECONDOR: A program that computes a second-order principal components analysis and various interpretation aids. *Educational and Psychological Measurement*, 50, 575-580.
- Uman, G.C., & Urman, H.N. (1997). Measuring consumer satisfaction in nursing home residents. *Nutrition*, 13, 705-707.
- Van Green, V.M.C. (1997). The measure and discuss intervention: A procedure for client empowerment and quality control in residential care homes. *The Gerontologist*, 37, 817-822.
- Wheatley, M.V., Hirsch, M., Walley, J.E., Lee, C., Urman, H.N., & Uman, G.C. (2007). Implementation and results of the statewide Ohio Nursing Home Resident Satisfaction Survey. *Journal of Aging and Social Policy*. Note:UPDATE CITATION WITH PAGE NUMBERS at galley stage.

Table 1. Cognitive Performance of Nursing Home Residents who Completed Interviews—Proportion Receiving Each Score

Score	MDS CPS— Range 1-6 <sup>a</sup>	Brief Cognitive Screen Range 0-3 <sup>b</sup>	MMSE <sup>b</sup> (without spelling task) Range 0-11
0	26.8%	--	--
1	24.4%	.5%	--
2	23.4%	17.6%	--
3	23.4%	82.0%	--
4	1.0%	--	2.0%
5	.5%	--	2.0%
6	.5%	--	4.4%
7	--		5.4%
8			7.8%
9			11.7%
10			17.1%
11			49.8%

<sup>a</sup> Higher score indicates worse performance.

<sup>b</sup> Higher score indicates better performance.

Table 2. Summary of measures derived from the facility level exploratory (Exp) and confirmatory (Con) factor analyses of 2002 Ohio Department of Aging Resident Satisfaction Survey

Scale	Alpha	Items	Subscales		G-Factor			
			Exp.	Con.	Exp.	Con.		
Activities	.95	Q5-11, Q13-49						
	.83	5. Do you have enough to do here?	.37	.44	.69	.63		
		6. Are the activities here things that you like to do?	.63	.52	.56	.51		
		7. Are you satisfied with the spiritual activities they offer here?	.41	.37	.59	.52		
		8. Does the activities staff treat you with respect?	.40	.19	.58	.58		
		9. Does the activities staff care about you as a person?	.36	.20	.59	.62		
		10. Overall, are you satisfied with the activities they offer here?	.51	.46	.58	.61		
	Choice	.79	11. Can you go to bed when you like?	.45	.56	.51	.43	
			12. Does the staff decide when you have to get up in the morning?	.52	.47	--	--	
			13. Can you choose the clothes that you wear?	.54	.58	.46	.30	
		14. Can you bring in belongings that make your room feel homelike?	.38	.40	.56	.44		
		15. Does the staff tell you when to keep your door open or closed?	.40	.40	.41	.27		
		16. Does the staff leave you alone if you don't want to do anything?	.35	.39	.55	.48		
		22. Do you have the opportunity to do as much as you would like to do for yourself?	.49	.28	.60	.62		
Administration		.88	27. Is the administration available to talk with you?	.46	.37	.68	.66	
			28. Does the administration treat you with respect?	.53	.53	.63	.62	
			29. Does the administration care about you as a person?	.54	.62	.62	.65	
		30. Overall, are you satisfied with the administration here?	.43	.58	.69	.68		
	Meals & Dining	.89	31. Is the food tasty here?	.62	.72	.59	.55	
			32. Are the foods served at the right temperature?	.50	.47	.65	.60	
			33. Can you get the foods you like?	.50	.42	.62	.60	
			35. Overall, are you satisfied with the food here?	.62	.69	.64	.66	
		Laundry & Safety	.68	36. Do your clothes get lost in the laundry?	.67	.89	.52	.45
				37. Do your clothes get damaged in the laundry?	.70	.42	.38	.36
			42. Are your belongings safe here?	.31	.07	.75	.66	

Scale	Alpha	Items	Subscales		G-Factor	
			Exp.	Con.	Exp.	Con.
Quality of Care & Nurse Aides	.90	23. Are the nurse aides gentle when they take care of you?	.35	.50	.69	.60
		24. Do the nurse aides treat you with respect?	.59	.64	.60	.63
		25. Do the nurse aides care about you as a person?	.47	.53	.66	.70
		26. Overall, are you satisfied with the nurse aides who care for you?	.53	.53	.69	.68
		46. Overall, are you satisfied with the friendliness of the staff?	.47	.24	.68	.69
Direct Care	.88	48. Would you recommend this facility to a family member or friend?	.34	-.01	.72	.68
		49. Overall, are you satisfied with the quality of care you get here?	.41	.00	.77	.77
		17. Does a staff person check on you to see if you are comfortable?	.46	.26	.64	.65
		18. During the week, is a staff person available to help you if you need it?	.69	.77	.63	.50
		19. During the weekends, is a staff person available to help you if you need it?	.63	.70	.65	.55
Negative	.72	20. During the evening and night, is a staff person available to help you if you need it?	.67	.78	.62	.51
		21. Do you feel you have to wait too long for your medication?	-.62	-.85	.55	.52
		34. Are there times you don't get enough to eat?	-.46	-.20	.47	.52
		44. Are there times when the staff gets you upset?	-.45	-.18	.62	.61
		38. Is your room a comfortable temperature?			.53	.43
Items that did not load on any of the 8 primary factors	NA	39. Can you find places to talk to your visitors in private?			.60	.52
		40. Are you satisfied with your room?			.69	.65
		41. Do you think the facility should be cleaner?			.65	.64
		43. Are you satisfied with the safety and security of this facility?			.79	.71
		45. Overall, do the staff and residents help each other and get along?			.75	.73
		47. Do you get adequate information from the staff about your medical condition and treatment?			.62	.56

\* Individual items from the social services measure were not included in the exploratory and confirmatory analyses because these items were only asked of short-stay residents.

Note. Item numbers correspond to those found in the 2002 Ohio Department of Aging Resident Satisfaction Survey. Items in bold were dropped and not included in the 2003 Ohio Department of Aging Resident Satisfaction Survey. Items in italics were reworded in the 2003 survey.

Table 3. Summary of Domains Being Recommended for Future Surveys: Data Derived from the 2002 Ohio Department of Aging Resident Satisfaction Survey – Facility Level Analysis

Scale and Items	Mean	Std. Dev.	No. Items	Alpha
<b>G-Factor*</b> Q5-Q8, Q10-Q24, Q26-Q28, Q30-Q43, Q46-Q48	86.3	5.2	39	.95
<b>Social Services</b>	92.4	11.8	3	.81
2. Does the social worker follow up and respond quickly to your concerns?				
3. Does the social worker treat you with respect?				
4. Overall, are you satisfied with the quality of the social workers in the facility?				
<b>Activities</b>	86.9	6.5	5	.83
5. Do you have enough to do here?				
6. Are the activities here things that you like to do?				
7. Are you satisfied with the spiritual activities they offer here?				
8. Does the activities staff treat you with respect?				
10. Overall, are you satisfied with the activities they offer here?				
<b>Choice</b>	85.2	6.5	7	.80
11. Can you go to bed when you like?				
12. Does the staff decide when you have to get up in the morning? <i>Reworded to: Can you decide when to get up in the morning?</i>				
13. Can you choose the clothes that you wear?				
14. Can you bring in belongings that make your room feel homelike?				
15. Does the staff tell you when to keep your door open or closed? <i>Reworded to: Can you decide when to keep your door open or closed?</i>				
16. Does the staff leave you alone if you don't want to do anything?				
22. Do you have the opportunity to do as much as you would like to do for yourself?				
<b>Administration</b>	92.7	6.2	3	.87
27. Is the administration available to talk with you?				
28. Does the administration treat you with respect?				
30. Overall, are you satisfied with the administration here?				
<b>Resident Environment</b>	89.5	5.9	3	.69
38. Is your room a comfortable temperature?				
39. Can you find places to talk to your visitors in private?				
40. Are you satisfied with your room? <b>Is your room quiet enough?</b>				
<b>Can you get outdoors when you want to (either with help or on your own)?</b>				
<b>Facility Environment</b>	90.0	7.6	3	.78
41. Do you think the facility should be cleaner? <i>Reworded to: Is the facility clean enough?</i>				
42. Are your belongings safe in the facility?				
43. Are you satisfied with the safety and security of this facility?				

Scale and Items	Mean	Std. Dev.	No. Items	Alpha
<b>Meals &amp; Dining</b>	79.8	8.3	5	.83
31. Is the food tasty here?				
32. Are the foods served at the right temperature?				
33. Can you get the foods you like?				
34. Are there times when you don't get enough to eat? <i>Reworded to: Do you get enough to eat?</i>				
35. Overall, are you satisfied with the food here?	77.9	10.6	2	.72
<b>Laundry</b>				
36. Do your clothes get lost in the laundry?				
37. Do your clothes get damaged in the laundry?				
<b>Direct Care &amp; Nursing Staff</b>	88.9	5.9	7	.89
17. Does a staff person check on you to see if you are comfortable?				
18. During the week, is a staff person available to help you if you need it?				
19. During the weekends, is a staff person available to help you if you need it?				
20. During the evening and night, is a staff person available to help you if you need it?				
23. Are the nurse aides gentle when they take care of you?				
24. Do the nurse aides treat you with respect?				
26. Overall, are you satisfied with the nurse aides who care for you?				
<b>Do the staff who take care of you know your likes and dislikes?</b>				
<b>Do the aides spend enough time with you?</b>				
<b>Overall Satisfaction</b>	86.2	7.1	4	.71
21. Do you feel you have to wait too long for your medication? <i>Reworded to: Do you get your medications on time?</i>				
46. Overall, are you satisfied with the friendliness of the staff? <i>Suggest rewording to: Is this staff here friendly?</i>				
47. Do you get adequate information from the staff about your medical condition and treatment?				
48. Would you recommend this facility to a family member or friend?				
<b>Overall, do you like this facility?</b>				

\* Individual items from the social services measure were not included in the G-Factor because

these items were only asked of short-stay stay residents

Note. Scales that are italicized are new. Items that are italicized were reworded in the 2003

Resident Survey or were suggested to be reworded in subsequent surveys. Items in bold are new items that are proposed but have not been tested.

# An International Comparison of the Ohio Department of Aging-Resident Satisfaction Survey: Applicability in a U.S. and Canadian Sample

Heather A. Cooke, MA,<sup>1</sup> Takashi Yamashita, PhD,<sup>2,\*</sup> J. Scott Brown, PhD,<sup>3,4</sup>  
Jane K. Straker, PhD,<sup>4</sup> and Susan Baiton Wilkinson, RN, BScN<sup>5</sup>

<sup>1</sup>Centre on Aging, University of Victoria, British Columbia, Canada.

<sup>2</sup>Department of Sociology, University of Nevada, Las Vegas.

<sup>3</sup>Department of Sociology and Gerontology, Miami University, Oxford, Ohio.

<sup>4</sup>Scipps Gerontology Center, Miami University, Oxford, Ohio.

<sup>5</sup>Fraser Health Authority, New Westminster, British Columbia, Canada.

\*Address correspondence to Takashi Yamashita, PhD, Department of Sociology, University of Nevada, Las Vegas, 4505 Maryland Parkway, Box 455033, Las Vegas, NV 89154. E-mail: [yamashita@unlv.edu](mailto:yamashita@unlv.edu)

Received April 26, 2012; Accepted October 17, 2012

Decision Editor: Rachel Fruchno, PhD

**Purpose of the Study:** The majority of resident satisfaction surveys available for use in assisted living settings have been developed in the United States; however, empirical assessment of their measurement properties remains limited and sporadic, as does knowledge regarding their applicability for use in settings outside of the United States. This study further examines the psychometric properties of the Ohio Department of Aging-Resident Satisfaction Survey (ODARSS) and explores its applicability within a sample of Canadian assisted living facilities. **Design and Methods:** Data were collected from 9,739 residential care facility (RCF) residents in Ohio, United States and 938 assisted-living residents in British Columbia, Canada. Confirmatory factor analysis was used to assess the instrument's psychometric properties within the 2 samples. **Results:** Although the ODARSS appears well suited for assessing resident satisfaction in Ohio RCFs, it is less so in British Columbia assisted living settings. Adequate reliability and validity were observed for all 8 measurable instrument domains in the Ohio sample, but only 4 (Care and Services, Employee Relations, Employee Responsiveness,

and Communications) in the British Columbia sample. **Implications:** The ODARSS performs best in an environment that encompasses a wide range of RCF types. In settings where greater uniformity and standardization exist, more nuanced questions may be required to detect variation between facilities. It is not sufficient to assume that rigorous development and empirical testing of a tool ensures its applicability in states or countries other than that in which it was initially developed.

**Key Words:** Resident satisfaction, Assisted living, Reliability, Validity, Confirmatory factor analysis

In recent decades, increased emphasis has been placed on the importance of resident involvement in the assessment of care quality within the continuum of elder care. Consumer satisfaction represents a valuable subjective measure of quality of care that is different from, yet complementary to, that garnered from service providers or more objective clinical indicators (Harris-Kojetin & Stone, 2007). The assessment of consumer satisfaction is one

of the most direct ways of empowering consumers to express their perspectives about the quality of services they receive (Applebaum, Straker, & Geron, 2000; Geron, 1998); such feedback is critical to ensuring that the care and services provided are those desired by residents (Chou, Boldy, & Lee, 2002). Satisfaction surveys can therefore serve as potent tools for improving service delivery (Cohen-Mansfield, 2000; Moran, White, Eales, Fast, & Keating, 2002), as well as an important and effective means for holding service providers accountable (Gesell, 2001). In this study, we sought to further establish the psychometric properties of one of the more comprehensive instruments for assessing resident satisfaction within assisted living and test its applicability for use outside of the United States.

#### Satisfaction Within Assisted Living

Assisted living is an increasingly popular care alternative for individuals no longer able to live independently in their own home, but who do not require the increased level of care provided in a nursing home (Hawes, Phillips, Rose, Holan, & Sherman, 2003). There is a common emphasis on the provision of a social model of care that seeks to promote resident independence, autonomy, and choice within a homelike environment (Eckert, Carder, Morgan, Frankowski, & Roth, 2009; Edelman, Guilian, Bryant, & Munroe, 2006).

Initiatives by researchers (Chou, Boldy, & Lee, 2001; Edelman et al., 2006; Moran et al., 2002; Sikorska-Simmons, 2001), proprietary firms (e.g., Service TRAC Inc., Vital Research, LLC), and states (e.g., Iowa, Ohio, Oregon, Washington, Wisconsin) have resulted in the development of a number of satisfaction surveys for use within assisted living (Ejaz & Castle, 2007; Low, Lucas, Castle, Robinson, & Crystal, 2003). However, considerable variation exists between instruments with regards to item content, number of questions and domains, response format, mode (e.g., mailed survey, in-person interview), and frequency (e.g., annual, biennial) of administration, and psychometric properties (Castle, 2007; Castle, Lowe, Lucas, Robinson, & Crystal, 2004; Lowe et al., 2003).

Of particular methodological concern is the absence of rigorous testing (and reporting) of validity and reliability (Carpenter, Sherida, Haenlein, & Dean, 2006; Castle, 2007; Castle et al., 2004; Chou et al., 2001; Geron, 1998; Lowe et al.,

2003). In terms of validity, involvement of consumers in the instrument development process is essential for ensuring that item content reflects that which is important to consumers; yet, a number of measures omit this step (Geron, 1998; Lowe et al., 2003). In the absence of resident input, satisfaction instruments may not address key values and perceptions, potentially leading to "ceiling effects" and difficulties making statistical comparisons within and between sites (Lowe et al., 2003). Only a few researchers (Chou et al., 2001; Edelman et al., 2006; Straker, Leek, McGrew, Ejaz, & Peters, 2007) report results from exploratory or confirmatory factor analyses (CFAs). Instruments without established psychometric properties may provide useful information for quality improvement efforts within individual facilities; however, their use for facility benchmarking/comparative performance evaluation is questionable (Castle, 2007; Harris-Kojetin & Stone, 2007; Lowe et al., 2003).

To date, all but two assisted living satisfaction surveys in the published literature (one Australian: Chou et al., 2001; one Canadian: Moran et al., 2002) have been developed for use within the United States. At issue for practitioners or researchers outside of the United States, who seek a psychometrically sound, well-established tool with which to assess resident satisfaction, is whether the survey questions remain contextually relevant. In such instances, it is recommended that additional work be conducted to determine the extent to which survey domains and questions remain applicable (Chou et al., 2001). This study provides a strategy for this suggested work. Our approach is applicable between international settings, as well as among diverse provider types within the United States or other countries.

Following an extensive literature review, and in the absence of a rigorously tested, empirically sound Canadian instrument, the largest health authority in British Columbia, Canada adopted one of the more comprehensive, empirically tested U.S. instruments, the Ohio Department of Aging Residential Satisfaction Survey (ODA-RSS; Straker et al., 2007), as a means of assessing satisfaction among its assisted living residents. Developed for use within Ohio's residential care facilities (RCFs), a licensing category that covers a diverse range of facility types including assisted living, ODA-RSS items are designed to ensure their relevancy for all residents, regardless of setting (Straker et al., 2007). It was therefore felt that the ODA-RSS was a suitable choice for assessing resident satisfaction in

British Columbia assisted living settings. Although survey items appear relevant and applicable, this has yet to be empirically confirmed. The biennial administration of the ODA-RSS by authorities in both Ohio and British Columbia offered an ideal opportunity to further examine the psychometric properties of the instrument, particularly in determining its applicability for use in an assisted living setting outside of the United States.

#### Assisted Living in British Columbia and Ohio

In British Columbia, assisted living has been available to seniors and adults with disabilities in need of a supportive, semi-independent living environment since 2002. In contrast to the United States, where only about one in five residents receive public (Medicaid) payment for their RCF stay (Caffrey et al., 2012), the majority of assisted living in British Columbia is publicly funded, with costs shared between several federal and provincial organizations, the local health authority, and the tenant (approximately 70% of their after tax income). As of 2011, there are 6,926 assisted living units in the province, 4,388 of which are publicly subsidized and 2,538 of which are private pay. In Fraser Health, the regional health authority within which the study was conducted, there are 2,196 assisted living units in 52 facilities, of which 1,344 units are publicly funded and 852 are private pay. (In Canada, health care is the responsibility of the provinces and territories, who provide goals, standards, and agreements for health care service delivery; within British Columbia, hands-on service delivery is overseen by regional health authorities.) The assisted living model is standardized (in terms of the facility environment and service delivery) across all five health authorities in British Columbia; all assisted living providers offer unfurnished, lockable one-bedroom or studio units, up to two meals a day, weekly housekeeping and laundry service (linens and towels), access to recreational activities, a 24-hr emergency response system, and up to 1.5-hr daily of scheduled personal care assistance with activities of daily living (e.g., eating, dressing, bathing), and/or medication management. In this regard, Fraser Health assisted living can be considered reasonably representative of assisted living across British Columbia.

In Ohio, assisted living is an informal self-specified facility designation within the larger licensing category of RCFs. In contrast to Fraser Health, where the majority of residents receive

public funding, Ohio assisted living is largely private pay. During early 2009, about 1,000 residents were reimbursed by Medicaid; at that time, only 169 RCFs were certified for the Medicaid waiver. The current waiver allows for 1,800 slots per year—about 4%–5% of the resident population, compared with nearly 20% nationally (Scripps Gerontology Center & Benjamin Rose Institute & Jesse Richardson Foundation, 2009). As of 2011, the 587 RCFs in Ohio house 27,162 residents (Vital Research, 2012), and are required, at a minimum, to provide assistance with laundry, and the opportunity for engaging in activities. Facilities can opt to provide no meals or up to all three daily meals and have the option to provide intermittent skilled nursing care such as supervision of special diets, dressing application, or medication administration for no more than 120 days per year for each resident. Although great variation exists among facilities statewide, even within the same facility, residents often have the option of receiving different packages of services. Statewide, only a little over half of the RCFs offer all private units, and nearly three quarters have lockable units. Just under half of the units in Ohio RCFs are semiprivate and have shared bathrooms.

The gender make-up, average age, and average length of stay for Fraser Health assisted living and Ohio RCF residents are similar (84.0 vs. 85.2 years and 2.3 vs. 2.5 years, respectively). A key distinction, however, pertains to the degree of cognitive impairment experienced by residents. In Fraser Health, more than 90% of tenants experience some mild cognitive impairment. With the exception of those who live with a spouse who can make decisions and communicate for them, tenants with moderate or severe dementia are not eligible for assisted living. Single tenants whose mild cognitive impairment progresses to the point at which they are no longer able to direct their own care are typically wait-listed for nursing home (i.e., skilled nursing) care. Typically, two thirds of residents will move from assisted living to nursing home care. In contrast, more than a quarter of Ohio RCF residents exhibit moderate to severe cognitive impairment, and a third receive intermittent skilled nursing care (Mehdizadeh, Applebaum, Nelson, & Straker, 2011).

Given the overlap with regards to services provided, the less specific ODA-RSS item wording (so as to be applicable across all conceptual meanings of a term, e.g., safety), and straightforward language use (so as to capture the experiences of



residents with varying degrees of cognitive impairment), the ODA-RSS questions are believed to be relevant and applicable to residents in British Columbia. We therefore hypothesized that the psychometric properties of the ODA-RSS would be similar for both the Ohio and British Columbia (Fraser Health) samples.

## Design and Methods

### ODARSS

In 2005, the Ohio General Assembly instituted the development of a satisfaction survey for residents of RCFs (Straker et al., 2007). Development of the ODA-RSS proceeded in several phases: five focus groups, conducted with residents of RCFs (including three assisted living sites), established relevant themes and topics; Long-Term Consumer Guide Advisory Council input reduced the topic areas to a manageable list; two rounds of cognitive interviews with a small number of facility residents examined question wording and response choices; a test-retest written survey and interview protocol in a small sample of facilities examined mode of survey administration (limited written responses led to the decision to use in-person interviews for the statewide administration); and finally, psychometric testing (exploratory factor analysis and reliability analysis) verified domain construction.

Further psychometric testing (CFA) was conducted on the ODA-RSS following its inaugural administration in 2007 (Straker & Brown, 2008). CFAs, based on data from more than 9,000 interviews with residents in 529 RCFs, led to some minor modifications (e.g., small reduction in number of questions, slight rearrangement of questions between domains). The resultant instrument revealed good model fit, as assessed by three common indicators, model chi-square, incremental fit index (IFI), and root mean square error of approximation (RMSEA), and reliability (chi-square  $p$ -value = .55 to > .001; IFI = .91–1.00; RMSEA = .001–0.06; Cronbach's alpha = .53–.78; Straker & Brown, 2008).

In its current form, the ODA-RSS includes 46 questions in 11 domains (Table 1): (1) Activities; (2) Choice; (3) Care and Services; (4) Employee Relations; (5) Employee Responsiveness; (6) Communications; (7) Meals and Dinings; (8) Laundry; (9) Facility Environment; (10) Resident Environment; and (11) General Satisfaction. Responses are scored on a 4-point Likert scale

(where 4 = Yes, Always; 3 = Yes, Sometimes; 2 = No, Hardly Ever; 1 = No, Never); a Don't Know/Doesn't Apply category is also included, though not scored. Domain scores are calculated by totaling values for all Always, Sometimes, Hardly Ever, and Never question responses and dividing by the total number of question responses (excluding Not Applicable).

Several minor changes were made to the ODA-RSS prior to its use within Fraser Health. These included removal of the General Satisfaction domain (as questions within this domain were not deemed as relevant to Fraser Health residents) along with some minor wording changes (e.g., substitution of staff for employee and tenant for resident). The response set remained unchanged. For the purposes of this study, analyses were conducted using the 10 domains and 42 questions common to both the Ohio and British Columbia sample (Table 1).

### Survey Administration

**Ohio.**—Data for the current analysis are drawn from the 2009 Ohio RCF Resident Satisfaction Survey (i.e., ODA-RSS), which was conducted by Vital Research, LLC under contract to the ODA. Each RCF was contacted to schedule an interview date(s) and to request that an electronic census list of all residents be provided 2 weeks prior to such date. Facilities were given the option to ask guardian permission for residents with legal guardians. The resultant census list was imported into an Access database that calculated the target number of interviews to complete at each facility (in order to meet the  $\pm 10\%$  margin of error) and randomly selected a list of residents to approach for interview at each facility. When interviewers arrived at the facility, residents whose guardians had refused and residents in isolation were identified; interviewers were instructed to approach any of the other residents on their list. Consent to participate was obtained from residents or their proxy at the start of the interview. If interviewers were unable to complete the target number of interviews on the originally scheduled date(s), the facility was asked to reschedule a return date. All data were entered into SPSS for analysis.

**British Columbia (Fraser Health).**—Canadian data are drawn from the 2010 Fraser Health Assisted Living Tenant Satisfaction Survey (i.e., the slightly modified ODA-RSS), which was conducted by the health authority. In contrast to Ohio, a mail-out format was adopted, primarily due to

Table 1. ODA-RSS Items for the Ohio and British Columbia Samples

Domain	No.	Ohio, USA	No.	British Columbia (Fraser Health), Canada
Activities	1	Do you have enough to do here?	1	Do you have enough to do here?
	2	Do you get enough information about the activities offered here?	2	Do you get enough information about the activities offered here?
	3	Are you satisfied with the activities offered here?	3	Are you satisfied with the activities offered here?
	4	Can you go to bed when you like?	4	Can you go to bed when you like?
	5	Do the employees leave you alone if you don't want to do anything?	5	Do the staff leave you alone if you don't want to do anything?
	6	Do the people who work here let you do the things you are able to do yourself?	6	Do the staff let you do the things you want to do for yourself?
Choice	7	Are you free to come and go as you are able?	7	Are you free to come and go as you are able?
	8	Are the rules here reasonable? (e.g., safety policies, dining room policies, curfew)	8	Are the rules here reasonable? (e.g., safety policies, dining room policies)
Care and Services	9	Can you get snacks and drinks whenever you want to?	9	Are snacks and drinks available to you?
	10	Do the employees explain your care and services to you? (by care we mean the things workers do for you or to help you)	10	Do the staff explain your care and services to you?
Employee Relations	11	Do you get your medications on time? (e.g., do you get your medications in a timely manner?)	11	Do you get your medications on time? (e.g., do you get your medications in a timely manner?)
	12	Do the employees who take care of you know what you like and don't like?	12	Do the staff who take care of you know what you like and don't like?
Employee Responsiveness	13	Are the employees courteous to you?	13	Are the staff courteous to you?
	14	Can you depend on the employees? (e.g., do employees do what they say they will do, follow through?)	14	Can you depend on the staff? (e.g., do staff do what they say they will do, follow through?)
Employee Responsiveness	15	Are the people who work here friendly?	15	Are the staff here friendly to you?
	16	Do the employees treat you with respect?	16	Do the staff treat you with respect?
Employee Responsiveness	17	During the week, are employees available to help you if you need it?	17	During the week, are staff available to help you if you need it?
	18	During the weekend, are employees available to help you if you need it?	18	During the weekend, are staff available to help you if you need it?
Employee Responsiveness	19	During the evening and night, are employees available to help you if you need it?	19	During the evening and night, are staff available to help you if you need it?
	20	Do you feel confident that the employees know how to do their jobs?	20	Do you feel confident that the staff know how to do their job well?
Communications	21	Are the people in charge available to talk with you? (e.g., managers, supervisors, administration)	21	Are the people in charge available to talk with you? (e.g., managers, supervisors, administration)
	22	Do the people in charge treat you with respect? (e.g., managers, supervisors, administration)	22	Do the people in charge treat you with respect? (e.g., managers, supervisors, administration)
Communications	23	Would you feel comfortable speaking up when you have a problem? (to the people in charge)	23	Would you feel comfortable making a complaint? (to the people in charge)

(Table continues on next page)



Table 2. ODA-RSS Domain Means and Standard Deviations for the Ohio and British Columbia Samples

Item No.	Domain	Number of items (score range)	Ohio ( <i>n</i> = 9,781)		British Columbia—Fraser Health ( <i>n</i> = 938)	
			Mean ( <i>SD</i> )	Mean ( <i>SD</i> )	Mean ( <i>SD</i> )	Mean ( <i>SD</i> )
1	Activities	3 (3–12)	10.83 (1.61)	10.99 (1.47)		
2	Choice	5 (5–20)	19.34 (1.31)	19.65 (0.82)		
3	Care and Services	4 (4–16)	14.50 (1.80)	15.06 (1.41)		
4	Employee Relations	4 (4–16)	15.43 (1.16)	15.62 (1.02)		
5	Employee Responsiveness	4 (4–16)	15.11 (1.50)	15.20 (1.55)		
6	Communications	5 (5–20)	19.00 (1.60)	18.81 (1.97)		
7	Meals and Dining	5 (5–20)	18.14 (2.08)	17.75 (2.40)		
8	Laundry	2 (2–8)	7.69 (0.67)	7.81 (0.63)		
9	Facility Environment	5 (5–20)	19.42 (1.17)	19.34 (1.37)		
10	Resident Environment	5 (5–20)	19.45 (1.25)	19.54 (1.16)		

Notes: Response categories are based on a 4-point Likert scale, where 4 = Yes, Always; 3 = Yes, Sometimes; 2 = No, Hardly Ever; and 1 = No, Never.

ODA-RSS = Ohio Department of Aging-Resident Satisfaction Survey. The General Satisfaction domain was excluded from the analysis as it was not included in the Fraser Health survey.

within the Ohio sample, the chi-square value is significant (likely due to the large sample size) and TLI is slightly below the suggested cutoff, other model fit indices suggest adequate fit in this complex model ( $\chi^2 [774] = 9,650$  [ $p < .001$ ]; TLI = .894; CFI = .909; RMSEA = .034). In comparison, overall model fit for the Fraser Health sample was inadequate ( $\chi^2 [774] = 2,862$  [ $p < .001$ ]; TLI = .828; CFI = .853; RMSEA = .054). The varying model fit between the two samples provided empirical justification for conducting CFA with the individual survey domains.

CFA was conducted for 8 of the 10 individual survey domains (model fit indices could not be estimated for Activities or Laundry as they have three or less indicator variables, which can lead to model under-identification and specification error; Bollen, 1989). For the Ohio sample, all eight domains demonstrated either good or adequate fit; however, only four domains demonstrated a good fit in the Fraser Health sample. As chi-square model fit is sensitive to large samples, only the TLI, CFI, and RMSEA indices are reported as follows: Care and Services, Employee Relations, Employee Responsiveness, and Communications proved to be a good fit for both the Ohio (TLI = .946–1.0; CFI = .982–1.0; RMSEA < .001–.046) and the Fraser Health sample (TLI = .932–1.0; CFI = .983–1.0; RMSEA < .001–.073). Facility Environment and Resident Environment showed adequate model fit for the Ohio data (TLI = .884 and .908; CFI = .969 and .961; RMSEA ≤ .054 and .072, respectively), but poor model fit in the Fraser Health data (TLI = .781 and .576; CFI = .927 and .859; RMSEA = .116 and .165, respectively). Poor model fit was also observed, within the Fraser Health sample, for Choice (TLI = .731; CFI = .910; RMSEA = .076), and Meals and Dining (TLI = .871; CFI = .957; RMSEA = .126). Table 3 presents the itemized model fit and Cronbach's alpha for each domain. Although most individual domains showed good reliability, the Care and Services and Laundry domains in the Ohio sample, and Choice in the Fraser Health sample displayed relatively lower reliability ( $\alpha = 0.56, 0.53,$  and  $0.52$ , respectively); however, it is generally difficult to achieve adequate reliability within a scale that has fewer items (e.g., two-item Laundry domain).

## Discussion

This study sought to further examine the psychometric properties of the ODA-RSS and its

(Vital Research, 2010). Such assistance typically included question interpretation, and/or reminders as to things the resident had said about the facility/their care. Family members did not serve as proxy respondents; if a resident was unable to answer, their family member did not answer for them.

Of the 1,317 surveys distributed in Fraser Health, 938 completed surveys were returned for a response rate of 71.2%. Two thirds of the surveys were received by the requested return date, with the remainder of the surveys received within a month of the requested return date. The majority of survey respondents were women (78.7%), and had a mean age of 84.1 years. On average, respondents had resided at their current site for 2.3 years. As the survey process was designed to be completely anonymous, it cannot be determined whether nonrespondents systematically differed from respondents.

Forty-one percent of respondents received some assistance completing the survey (36.1% from family/friend; 4.9% from staff). Although it could be argued that the provision of such assistance could bias responses, written notations next to this question overwhelmingly indicated that family members/friends' roles were primarily that of reader and/or scribe (functions similar to those played by an interviewer) as opposed to that of a proxy respondent.

## Descriptive Summary of ODA-RSS Responses

Summary statistics for each satisfaction domain were computed separately for Ohio and Fraser Health (Table 2). The vast majority of residents in both samples chose the positive response categories (i.e., Yes, Always & Yes, Sometimes) for all items, resulting in skewed distributions for all domains. Differences were observed with regards to the variability of the Choice ( $SD = 1.3$  in Ohio vs.  $0.8$  in Fraser Health) and Meals and Dining ( $SD = 1.6$  in Ohio vs.  $2.0$  in Fraser Health) domains. For example, the vast majority of responses to the Choice domain in Fraser Health were Yes, Always.

## Confirmatory Factor Analysis

The measurement model consisted of 10 correlated factors of resident satisfaction: Activities (three items); Choice (five items); Care and Services (four items); Employee Relations (four items); Employee Responsiveness (four items); Communications (five items); Meals and Dining (five items); Laundry (two items); Facility Environment (five items); and Resident Environment (five items). Although,

applicability for use with assisted living residents outside of the United States. To date, few published articles have examined the psychometric properties of existing resident satisfaction tools in assisted living, and to our knowledge none have explored the use of the tools outside of their country of origin.

As evidenced by overall model fit, the ODA-RSS appears well suited for assessing resident satisfaction in Ohio RCFs, but less so in British Columbia assisted living settings, a finding which is contrary to that hypothesized. Four of the eight domains for which model fit could be determined, Care and Services, Employee Relations, Employee Responsiveness, and Communications, performed well in both Ohio and Fraser Health samples. These domains include such topics as access to snacks and drinks, courteous, respectful, friendly and dependable staff, and management's ability to resolve problems. These items, which are indicative of quality of life issues, appear to resonate in similar ways with older adults in both Fraser Health and the wide range of Ohio settings. Similar items are found on the Ohio nursing home satisfaction surveys, as well as on other tools measuring nursing home culture change. Our findings provide further evidence that quality-of-life issues cross multiple settings (and health care contexts) and offer important information about overall well-being that may provide an important starting point for assessing satisfaction, regardless of the service or setting.

The wide relevance of these domains also provides advice for practice. Satisfaction information provides, first and foremost, important information that facilities can use to improve the experience of their residents. The importance of areas such as problem-solving, courteous and respectful treatment, and friendliness, among others, illustrates the importance of interpersonal aspects of care. Facility management and staffing practices that allow time for staff and residents to develop relationships and for staff to treat residents as individuals would be relevant to resident satisfaction, regardless of the setting.

The remaining four domains (Choice, Meals and Dining, Facility Environment, and Resident Environment) do not appear to capture the nuances of the assisted living context in Fraser Health as well as they do in Ohio. One of the hallmarks of the Fraser Health assisted living program is respect for, and provision of, resident choice—residents are able to choose how, where, and with whom they spend their time. Also, in contrast to Ohio RCFs, the preponderance of Fraser Health residents exhibits little or no cognitive impairment, giving them the ability to make decisions and communicate their choices. Although the predominance of Yes, Always responses within the Choice domain reflects this emphasis, it suggests that existing survey items may be insufficiently sensitive to capture the variation in Choice that potentially exists across Fraser Health assisted living sites. The use of satisfaction measures for comparative performance evaluation requires instruments to detect the variation or differences between sites; yet, lack of response variability is one of the most common challenges associated with the assessment

Table 3. Model Fit Indices and Standardized Regression Weights of Confirmatory Factor Analysis for the Ohio Department of Aging-Resident Satisfaction Survey Data for Ohio and British Columbia (Fraser Health)

Domains	Activities (three questions)			Choice (five questions)			Care and services (four questions)			Employees relations (four questions)			Employees responsiveness (four questions)		
	Ohio	BC	Item	Ohio	BC	Item	Ohio	BC	Item	Ohio	BC	Item	Ohio	BC	Item
Model fit	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Overall $\chi^2$ (DF)	—	—	—	116.7 (5) <sup>***</sup>	32.1 (5) <sup>***</sup>	—	0.37 (2)	2.96 (2)	—	30.3 (2) <sup>***</sup>	22.3 (2) <sup>***</sup>	—	4.6 (2)	—	12.1 (2) <sup>**</sup>
TLI	—	—	—	.920	.731	—	1.00	1.00	—	.985	.982	—	.999	—	.960
CFI	—	—	—	.977	.786	—	1.00	1.00	—	.996	.996	—	1.00	—	.972
RMSEA	—	—	—	.048	.076	—	<.001	<.001	—	.038	.024	—	.012	—	.073
Gronbach's alpha	.708	.785	—	.602	.515	—	.559	.626	—	.746	.811	—	.781	—	.826
Standardized regression weights	Ohio	BC	Item	Ohio	BC	Item	Ohio	BC	Item	Ohio	BC	Item	Ohio	BC	Item
Q1	.699	.695	Q4	.444	.274	Q9	.421	.548	Q13	.717	.792	Q17	.768	—	.750
Q2	.517	.638	Q5	.498	.433	Q10	.339	.427	Q14	.527	.531	Q18	.800	—	.825
Q3	.821	.892	Q6	.585	.521	Q11	.643	.601	Q15	.685	.839	Q19	.750	—	.745
			Q7	.338	.353	Q12	.553	.692	Q16	.760	.806	Q20	.478	—	.463
			Q8	.520	.442	Q8	.520	.442							

(Table continues on next page)

Table 3 (continued)

Domains	Communications (five questions)			Meals and dining (five questions)			Laundry (two questions)			Facility environment (five questions)			Resident environment (five questions)		
	Ohio	BC	Item	Ohio	BC	Item	Ohio	BC	Item	Ohio	BC	Item	Ohio	BC	Item
Model fit	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Overall $\chi^2$ (DF)	106.6 (5) <sup>***</sup>	26.4 (5) <sup>***</sup>	—	156.1 (5) <sup>***</sup>	79.4 (5) <sup>***</sup>	—	—	—	—	—	—	—	260.3 (5) <sup>***</sup>	131.8 (5) <sup>***</sup>	—
TLI	.946	.949	—	.953	.871	—	—	—	—	—	—	—	.884	.884	—
CFI	.982	.983	—	.984	.957	—	—	—	—	—	—	—	.981	.981	—
RMSEA	.046	.068	—	.036	.026	—	—	—	—	—	—	—	.072	.072	—
Gronbach's alpha	.656	.785	—	.749	.836	—	.529	.710	—	.616	.714	—	.665	.665	—
Standardized regression weights	Ohio	BC	Item	Ohio	BC	Item	Ohio	BC	Item	Ohio	BC	Item	Ohio	BC	Item
Q21	.638	.678	Q26	.439	.534	Q31	.605	.772	Q33	.484	.479	Q38	.584	—	.552
Q22	.609	.705	Q27	.750	.835	Q32	.606	.740	Q34	.588	.671	Q39	.568	—	.485
Q23	.478	.614	Q28	.666	.807	Q35	.689	.781	Q40	.689	.781	Q40	.611	—	.693
Q24	.431	.653	Q29	.619	.686	Q36	.441	.583	Q41	.583	.441	Q41	.556	—	.706
Q25	.648	.772	Q30	.393	.673	Q37	.581	.451	Q42	.581	.451	Q42	.524	—	.504

Notes: Sample size: United States ( $n = 9,781$ ) and Canada ( $n = 938$ ).  
 The symbol "—" indicates no model fit indices due to issue/under-identified model.  
 Abbreviations: BC = British Columbia;  $\chi^2$  = chi-square; DF = degrees of freedom; TLI = Tucker-Lewis index; CFI = comparative fit index; RMSEA = root mean square error of approximation; Q = questionnaire item; Ohio = Ohio; BC = British Columbia; Item = item; Item = item.  
 Model fit indices: TLI > .95 = good; CFI > .95 = good; RMSEA < .06 = good; < .08 = adequate; > .08 = poor.  
 Cronbach's alpha: indicator of reliability or internal consistency.  
 \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

policy are likely to change with time. Periodic examination of the instrument's psychometric properties and calibration of survey items, adjusting for demographic and social changes, is therefore recommended (Feldman et al., 2006).

In conclusion, study findings provide further support for the ODA-RSS as a psychometrically valid and reliable instrument for assessing resident satisfaction within Ohio RCFs. Recently conducted focus groups and cognitive interviews with Fraser Health residents have resulted in further modifications to the Choice, Meals and Dining, Facility Environment, and Resident Environment domains, the validity and reliability of which will be examined following the next administration of the Fraser Health survey. It is anticipated that these modifications will ensure its appropriateness for use within the other British Columbia health authorities that have expressed interest in utilizing the instrument.

This research makes an important contribution to the satisfaction literature, particularly given the dearth of psychometrically sound instruments for use in quality improvement programs, and/or comparative performance evaluation. Continuous efforts to ensure the adequate psychometric properties of resident satisfaction measurement tools are critical given their potential role in the development of long-term care policy and systems, and in turn, residents' quality of life.

#### Acknowledgments

The authors extend their thanks to the Ohio Department of Aging and Fraser Health Authority for the use of the data.

#### References

- Appelbaum, R., Straker, J. K., & Geom, S. M. (2000). *Assessing satisfaction in health and long-term care: Practical approaches to bearing the voices of consumers*. New York, NY: Springer.
- Arbuckle, J. L. (1996). Full information estimation in the presence of incomplete data. In G. A. Marcoulides & R. E. Schumacker (Eds.), *Advanced structural equation modeling: Issues and techniques* (pp. 243-277). Mahwah, NJ: Erlbaum.
- Arbuckle, J. L. (2009). *Amos 18.0.0*. Crawfordville, FL: Amos Development.
- Benfer, P. M. (1999). Comparative fit indexes in structural models. *Psychological Bulletin*, 125(2), 238-246. doi:10.1037/0033-2909.127.2.238
- Bollen, K. A. (1989). *Structural equations with latent variables*. New York, NY: Wiley.
- Brown, T. A. (2006). *Confirmatory factor analysis for applied research*. New York, NY: The Guilford Press.
- Caffrey, C., Senigapala, M., Park-Lee, E., Moss, A., Rosenoff, E., & Harris-Kojetin, L. D. (2012). *Residents living in residential care facilities: United States, 2010*. Hyattsville, MD: National Center for Health Statistics.
- Carpenner, D., Sheridan, S., Haenlein, K., & Dean, D. (2006). *Environmental scan of instruments to inform consumer choice in assisted living facilities*. AHRQ Publication N. 07-0002-EE. Rockville, MD: Agency for Healthcare Research and Quality.

of RCF types. Although existing survey items are sufficiently broad to capture this range, settings which entail greater uniformity and standardization likely require more nuanced questions. This issue may also arise in several U.S. states (e.g., Oregon) in which assisted living is a distinct category, with facility characteristics encompassing levels of privacy and choice similar to the facilities found in Fraser Health.

An interesting avenue for further research would be to compare model fits among a subset of Ohio providers with those in British Columbia. For example, facilities certified for the Ohio Medicaid Assisted Living waiver have private, lockable units, in-unit bathrooms and cooking areas and have an infrastructure similar to facilities in Fraser Health. The model fit in these facilities may be more similar to Fraser Health than to other very different Ohio RCFs. Alternatively, the differences among resident cognitive impairment in Ohio and British Columbia may be driving some of the discrepancies between model fits. Additional work to untangle the discrepancies observed, other than those imposed by two different care systems, would assist greatly in understanding the challenges in developing and using satisfaction tools across a wide range of settings both in the United States and internationally. Finally, although we attributed the observed discrepancies to characteristics of the assisted living settings in general, it is possible that such discrepancies could be attributed to differences in the concept of assisted living between Ohio and British Columbia. Consequently, future research should attend closely to how assisted living is conceptualized in differing geographic locations.

This study is not without limitations. Given that Fraser Health is only one of five health authorities within British Columbia, findings cannot be assumed to be representative of all assisted living residents within the province. However, as the assisted living model is standardized across all health authorities, in regards to the facility environment and service delivery, and administrative data indicate that resident demographics are similar across authorities, there is little reason to think that the results would be substantively different from those observed here. On a related note, Ohio (i.e., interview) and British Columbia (mail) adopted different survey modes, and therefore, the interpretation/comparison of response rates may require caution (Miller & Salkind, 2002). Also, while this study utilized cross-sectional data, resident characteristics, facility infrastructure, and

outdoor space for residents to access. Such variation contrasts starkly with the more standardized physical environments of Fraser Health sites, the majority of which were purpose built within the last decade with readily accessible outdoor space/grounds. Facilities tend to be situated close to amenities in relatively safe, suburban neighborhoods. Accordingly, questions regarding the maintenance, attractiveness, and cleanliness of the facility environment may not be as salient for Fraser Health residents. Similarly, as all Fraser Health facilities were built within a similar time period, they would have been subject to the same building code.

Over time, Fraser Health facilities may well "age into" the questions within the Facility Environment domain. Interestingly, an increasing number of comments were observed with regards to the cleanliness of both residents' suites and common areas in the 2010 survey compared with the 2008 survey (e.g., residents noted that carpets were becoming increasingly worn and stained). This is not surprising given that facilities are gradually aging—it is much easier to keep a new facility clean and shining than an older one.

Focus groups conducted during the initial survey development in Ohio indicated that safety issues often stemmed from having potential strangers (e.g., roommate's visitors) in their room. Within Fraser Health, however, all assisted living suites are private; facilities function much the same as a regular apartment building in that visitors need to be "buzzed" inside the building. Written comments on the Fraser Health surveys suggest that residents perceive safety threats as originating from outside the building (e.g., other residents admitting strangers into the building). Residents may therefore not have interpreted the questions in the same way as some of the Ohio residents.

Study findings illustrate the danger in assuming that rigorous development and empirical testing of a measurement tool ensures its applicability in states or countries other than that in which it was initially developed and speak to the importance of establishing the similarity or differences in care settings (e.g., policy, services, infrastructure) prior to the instrument's use. For example, in this study, the differences outlined previously were not ascertained until after the analyses were conducted.

It is important to note that the ODA-RSS was sensitive enough to pick up the differences in infrastructure that existed between the two samples. It appears that the ODA-RSS performs best in an environment that encompasses an expansive range

of resident satisfaction (Castle, 2007; Moran et al., 2002). Often-suggested reasons for a positive resident bias include fear of retribution from the facility, very low expectations that are far exceeded by the actual care experience, or an inability to critically evaluate care because residents lack knowledge about other facilities for comparison. Although the predominance of positive responses may please assisted living providers, it potentially creates a false impression in which providers believe they are doing a stellar job when this may not be the case (Castle, 2007), thus hindering changes with the potential to improve care quality. Examples of additional areas for resident choice that might differentiate among Fraser Health facilities include choice of staff to provide their care, choice in timing of assistance with ADLs, having choice in the activities that are offered to them, and having choice or input into facility-level decisions such as laundry hours or decorating (Miller et al., 2011).

Questions within Meals and Dining were designed to tap into aspects that were relevant across wide variation in meal service in Ohio RCFs, that is, restaurant style (preplated), buffet style, or family style (residents serve themselves from dishes on table). Far less variation is observed within Fraser Health in which all meals are served restaurant style. Consequently, the survey questions may not be capturing the most relevant aspects of the Meals and Dining context for Fraser Health residents. Judging from written feedback included in the additional comments section of the Fraser Health surveys, the type of food served, greater menu variation, appropriateness of menu items for those with special diets, and alternative meal options appear more pressing issues for residents. In addition, considerable diversity exists with regards to the kitchen amenities found in Ohio RCFs (e.g., from none, to refrigerators or microwave ovens, to a full stove and refrigerator). Far more uniformity exists in Fraser Health, where all suites are required to have a refrigerator, sink, and space for a microwave, thus potentially offering additional choice and autonomy in meal and dining options.

As previously described, substantial diversity also exists in the physical environments of Ohio RCFs. Facilities may be purpose built or converted old houses, situated in inner city, urban, or suburban neighborhoods. Some facilities are situated on park-like grounds (with no amenities nearby), whereas others have no surrounding grounds/safe

- Castle, N. G. (2007). A review of satisfaction instruments used in long-term care settings. *Journal of Aging & Social Policy*, 19(2), 9-41. doi:10.1300/J031v19n02\_02
- Castle, N. G., Lowe, T. J., Lucas, J. A., Robinson, J. P., & Crystal, S. (2004). Use of resident satisfaction surveys in New Jersey nursing homes and assisted living facilities. *Journal of Applied Gerontology*, 23(2), 136-171. doi:10.1177/0733464804265584
- Chou, S. C., Boldy, D. P., & Lee, A. H. (2001). Measuring resident satisfaction in residential aged care. *The Gerontologist*, 41(5), 623-631. doi:10.1093/geront/41.5.623
- Chou, S. C., Boldy, D. P., & Lee, A. H. (2002). Resident satisfaction and its components in residential aged care. *The Gerontologist*, 42(2), 188-198. doi:10.1093/geront/42.2.188
- Cohen-Mansfield, J. (2000). Introduction. In J. Cohen-Mansfield, F. K. Ejaz, & P. Werner (Eds.), *Satisfaction surveys in long-term care* (pp. 1-9). New York, NY: Springer.
- Dillman, D. A. (2000). *Mail and internet surveys: The Tailored Design Method* (2nd ed.). New York, NY: John Wiley & Sons.
- Eckert, J. K., Garder, P. C., Morgan, L. A., Frankowski, A. C., & Roth, E. G. (2009). *Inside assisted living: The search for home*. Baltimore, MD: The Johns Hopkins University Press.
- Eddiman, P., Guibhan, M., Bryant, F. B., & Munroe, D. J. (2006). Measuring resident and family member determinants of satisfaction with assisted living. *The Gerontologist*, 46(5), 599-608. doi:10.1093/geront/46.5.599
- Ejaz, F. K., & Castle, N. G. (2007). Resident satisfaction with long-term care services. *Journal of Aging & Social Policy*, 19(2), 1-8. doi:10.1300/J031v19n02\_01
- Geron, S. M. (1998). Assessing the satisfaction of older adults with long-term care services: Measurement and design challenges for social work. *Research on Social Work Practice*, 8(1), 103-119. doi:10.1177/1049731598080108
- Gesell, S. B. (2001). A measure of satisfaction for the assisted-living industry. *Journal for Healthcare Quality*, 23(2), 16-25. doi:10.1111/j.1945-4774.2001.tb00334.x
- Harris-Kojetin, L. D., & Stone, R. I. (2007). The role of consumer satisfaction in ensuring quality long-term care: Opportunities and challenges. *Journal of Aging & Social Policy*, 19(2), 4-31.
- Hawes, C., Phillips, C. D., Rose, M., Holan, S., & Sherman, M. (2003). A national survey of assisted living facilities. *The Gerontologist*, 43(6), 875-882. doi:10.1093/geront/43.6.875
- Kline, R. B. (2011). *Principals and practice of structural equation modeling* (3rd ed.). New York, NY: The Guilford Press.
- Loehlin, J. C. (2004). *Latent variable models: An introduction to factor, path, and structural equation analysis*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Low, T. J., Lucas, J. A., Castle, N. G., Robinson, J. P., & Crystal, S. (2003). Consumer satisfaction in long-term care: State initiatives in nursing homes and assisted living facilities. *The Gerontologist*, 43(6), 883-896. doi:10.1093/geront/43.6.883
- Mehzadeh, S., Applebaum, R., Nelson, I. M., & Straker, J. K. (2011). *Coming of age: Tracking the progress and challenges of delivering long-term services and supports in Ohio*. Oxford, OH: Scripps Gerontology Center.
- Miller, D. C., & Salkind, N. J. (2002). *Handbook of research design and social measurement* (6th ed.). Thousand Oaks, CA: Sage.
- Miller, S. C., Shiel, R., Looze, J., Tyler, D., Lepore, M., & Bishop, C. (2011). *Understanding adoption of culture change practices in U.S. nursing homes: A mixed-methods approach*. Paper presented at the 64th Annual Meeting of the Gerontological Society of America, Boston, MA.
- Moran, L., White, E., Eales, J., Fast, J., & Keating, N. (2002). Evaluating consumer satisfaction in residential continuing care settings. *Journal of Aging & Social Policy*, 14(2), 85-109.
- Schreibert, J. F., Nora, A., Stage, F. K., Barlow, E. A., & King, J. (2006). Reporting structural equation modeling and confirmatory factor analysis results: A review. *The Journal of Educational Research*, 99(6), 323-338. doi:10.3200/JOER.99.6.323-338
- Scripps Gerontology Center, & Benjamin Rose Institute & Jesse Richard Foundation. (2009). *An evaluation of the Assisted Living Medicaid Waiver Program*. Oxford, OH: Scripps Gerontology Center.
- Sikorska-Simmons, E. (2001). Development of an instrument to measure resident satisfaction with assisted living. *Journal of Applied Gerontology*, 20(1), 57-73. doi:10.1177/073346480102000104
- Steiger, J. H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate Behavioral Research*, 25(2), 173-180. doi:10.1207/s15327906mb2502\_4
- Straker, J. K., & Brown, J. S. (2008). *2007 Ohio residential care facility resident satisfaction survey: Instrument refinements*. Oxford, OH: Scripps Gerontology Center.
- Straker, J. K., Leek, J. A., McGrew, K. B., Ejaz, F. K., & Peters, B. (2007). *Development and testing of a resident satisfaction survey for Ohio's residential care facilities*. Oxford, OH: Scripps Gerontology Center.
- Vital Research. (2010). *Implementation of the 2009 long-term care resident satisfaction survey: Final report*. Los Angeles, CA: Vital Research.
- Vital Research. (2012). *2011 Ohio long-term care resident satisfaction survey: Survey findings report*. Los Angeles, CA: Vital Research.