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Family Satisfaction With Nursing Home Care: Findings and Implications From Two State Comparison

Tetyana P. Shippee[1], **Weiwen Ng**[1], **Amy Restorick Roberts**[2], **John R. Bowblis**[2]

[1]University of Minnesota, Minneapolis, USA

[2]Miami University, Oxford, OH, USA

Abstract

Family satisfaction, while recognized as important, is frequently missing from validated measures of long-term care quality. This is the first study to compare family satisfaction across two states using validated measures and to compare the organizational and structural factors associated with higher family satisfaction with nursing home care. Data sources are family satisfaction surveys from Minnesota (MN) and Ohio (OH), linked to facility characteristics from Certification and Survey Provider Enhanced Reports (CASPER) for both states (N = 378 facilities for MN; N = 926 facilities for OH). Activities and food were among lowest rated items in both states. Relationships with staff were the highest rated domain. Higher occupancy rates, smaller facility size, and non-profit ownership consistently predicted better satisfaction in both states. Our findings show consistent organizational factors associated with family satisfaction and provide further evidence to the validity of family satisfaction as a person-centered measure of quality. This lays the foundation for tool development on the national level.

Keywords

family satisfaction; nursing home care; organizational factors; measure development

Introduction

Much attention has been given to the quality of care provided to nursing home (NH) residents (Castle, 2008; Castle & Ferguson, 2010; Zimmerman, 2003), with a host of measures publically available on the NH Compare website to better inform consumers (Centers for Medicare and Medicaid Services, 2018). Yet, one area that has been lacking is the inclusion of validated measures of consumer and family satisfaction (Williams, Straker, & Applebaum, 2016). While quality of care is important, satisfaction is highly valued by consumers as a metric of quality (Shippee, 2012).

Corresponding Author: Tetyana P. Shippee, Division of Health Policy & Management, School of Public Health, University of Minnesota, MMC 729, 420 Delaware St. SE, Minneapolis, MN 55455, USA. tshippee@umn.edu.

Declaration of Conflicting Interests

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To address this gap, providers and payers have been urging for greater inclusion of validated measures of NH satisfaction, both in terms of resident and family satisfaction. Unlike other settings, there is no governing body repository of existing validated measures for NH family and resident satisfaction. Much of this work has been happening in individual states (with the National Quality Forum as an example), but the focus has not been on long-term care. It is essential that instruments that are used to assess patient-reported outcomes in long-term care are evaluated for their reliability and validity for relevant populations prior to their use as meaningful and trustworthy assessment tools.

Family members play a key role as consumers of long-term care and as an important source of information about quality in NHs (Frentzel et al., 2012). Previous work has shown that family and resident satisfaction are distinct concepts (Kane et al., 2005; Shippee, Henning-Smith, Gaugler, Held, & Kane, 2017), and that family satisfaction complements other measures of NH quality (Li, Li, & Tang, 2016). Therefore, understanding which facility factors influence family member satisfaction can guide performance improvement programs and promote efforts to include satisfaction along with other publically reported quality measures.

To broaden our understanding of organizational and structural factors that are associated with family satisfaction, this study examines family satisfaction from two states: Minnesota (MN) and Ohio (OH). Data from these two states are used because both states have been leading the national efforts in this area and, to our knowledge, are the only two states with validated measures of family satisfaction as demonstrated through peer review (Shippee et al., 2017; Straker, Chow, Kalaw, & Pan, 2013; Williams et al., 2016). This study addresses a gap in the literature on NH family satisfaction in several ways. First, we adapt Donabedian's conceptual model, which specifies that organizational and market structure should influence an NH's ability to engage in good processes of care, which themselves should contribute to better family satisfaction (Castle & Ferguson, 2010; Donabedian, 1988). Structural variables we analyze are staffing levels, ownership, and market characteristics. Second, we compare the role of the *same* facility-level factors on family satisfaction reports across two states, which is an important contribution missing from previous studies and an important analysis from the policy perspective. Third, we use validated tools to measure family satisfaction.

To our knowledge, this is the first effort to use data from two states to compare factors that are associated with family satisfaction in NHs. The two-state comparison is important from the stand-point of study design and policy. It is difficult to know the transferability of findings about particular aspects of family satisfaction when they are limited to one state and could be driven by the state's Medicaid reimbursement rates and other policies. For example, in our application, MN uses rate equalization to private pay rates whereas OH has now fully implemented a prospective payment system that resulted in lower average rates (Bowblis & Applebaum, 2017). The benefit of the comparative analysis is the ability to directly test whether factors that indicate higher family satisfaction in one state (MN) match factors associated with higher satisfaction in another state (OH). This approach moves the literature forward by improving the generalizability of findings to support consistent practice and policy implications.

We ask the following questions:

Research Question 1: What factors are associated with higher family satisfaction in MN and OH?

Research Question 2: Which factors are similar and different across these states and are these differences statistically significant?

Method

Data

Data for this study came from family satisfaction interviews conducted in MN in 2013 (Kane, 2008; Shippee et al., 2017; Vital Research, 2010) and OH in 2012 (Ejaz, Straker, Fox, & Swami, 2003; Straker et al., 2013). Both data sets reflect each NH's average score on each survey question[1] and were collected by third parties for each state, for the purposes of public reporting.[2] The survey scores were merged with facility-level data from the Certification and Survey Provider Enhanced Reports (CASPER). OH has an average of 28.6 respondents per facility, compared with 37.3 respondents in MN. We aggregated family satisfaction items to the facility level by obtaining the facility mean. This resulted in a sample of 378 facility-level observations for MN and 926 facility-level observations for OH, after excluding nine facilities for erroneous staffing data.[3]

Family Satisfaction Measures

We identified six questions in each state's survey that covered similar content, had similar wording, and measured a key domain of satisfaction. These six questions included perceived staff attitudes toward the resident,[4] food choices, activities, facility cleanliness, autonomy (if residents could make decisions regarding their care), and how strongly the respondent would recommend the facility to others. The specific wording of each question for each state is in Appendix B.

Organizational and structural factors.—Organization and structural factors are grouped into three categories: staffing, payer and case-mix, and facility/market characteristics. We include the level of *staffing* for various types of staff: registered nurses (RN), licensed practical nurses (LPN), certified nursing assistants (CNA), therapists, activities staff, and ancillary service staff (e.g., housekeeping, dietitians). Staffing variables are measured as hours per resident day (HPRD). *Payer-mix* variables include the percentage of residents covered by different payer sources (e.g., Medicare, Medicaid, and private pay). To measure residents' level of physical need, *case-mix* includes the facility acuity index (Feng, Grabowski, Intrator, & Mor, 2006) and prevalence of dementia, depression, and other

1. Ohio's are a raw mean, while Minnesota's are risk-adjusted with a hierarchical linear model.
2. In both states, report cards are publicly available (Minnesota Department of Human Services, n.d.; Ohio Department of Aging, n.d.) and the current year's summary scores for each nursing home (NH) are publicly reported. Individual data, and previous years of facility-level data, may be obtained from each state on a case-by-case basis.
3. Erroneous staffing levels were identified using the method described in Bowblis (2011).
4. In the case of perception of staff attitudes toward the resident, Minnesota asked a single question whereas Ohio asked three different questions which were specific to certain types of staff (e.g., "Do the nurse aides treat the resident with respect?" "Are the nurse aides gentle when they take care of the resident?" and "Does the activities staff treat the resident with respect?"). To make Ohio comparable with Minnesota, we calculated the mean of these three questions.

psychiatric conditions. *Facility structural variables* are size, occupancy rate, ownership (non-profit, for-profit, and government), presence of a dementia special care unit, and whether the NH is affiliated with a chain, hospital-based, or part of a continuing care retirement community. At a market level, we include geographic location (metropolitan, micropolitan, rural, or isolated) and indicator variables for the level of competitiveness in the county.[5]

Respondent characteristics.—Family member engagement and relationship to the resident are associated with family satisfaction scores (Shippee et al., 2017). We included facility-level measures for the following respondent characteristics which were common across both states: respondent relationship (e.g., spouse, child), gender of respondent, and frequency of responder visits.

Analytic Approach

We estimated separate ordinary least squares regression models for MN and OH to determine which organizational and structural factors influence family satisfaction. Our two primary outcome variables are a summary score—an average of all six questions, and if the respondent would recommend the facility, which we refer to as global satisfaction. As a robustness check, we also examined the five domain-specific questions.

MN and OH used slightly different scales to measure family satisfaction (1 through 5 in MN and 1 through 4 in OH). To make both states comparable, we transformed satisfaction scores by calculating a Z-score for each facility within each state, that is, we measured the effect of all variables of interest on the standard deviation from each state's grand mean. We then performed Chow (1960) tests to determine if the factors that predict family satisfaction in MN are statistically different from OH. As a robustness test, we estimated an additional model with an interaction term for OH with every variable, and obtained equivalent results.

Findings

Table 1 provides descriptive statistics with unstandardized satisfaction scores. While we cannot directly compare satisfaction scores across the two states in part due to different scales, we find similar patterns *across domains* within both states: family members' satisfaction with staff attitudes toward the resident was rated the highest, but satisfaction with food and with activity choices were rated the lowest in both states.

There are significant differences between MN and OH in terms of organizational and structural factors. OH has lower staffing levels for RNs, therapists, and activities and ancillary service staff, but higher staffing levels for LPNs and CNAs. OH NHs have more residents on government programs, have greater physical need, and are more likely to have depression or a major psychiatric illness compared with MN NHs. In terms of facility structural characteristics, OH NHs have more beds, and are more likely to be chain-affiliated, for-profit owned, and freestanding. OH NHs are also more likely to be in urban and more competitive markets than MN NHs.

[5]We calculated Herfindahl-Hirschman Indices (HHI) for each county and categorized each county into a level of competition based on the FTC/DOJ Horizontal Merger Guidelines.

Table 2 reports the regression results for the two outcomes of family satisfaction: the summary score of six items and global satisfaction item. These measures are converted to *Z*-scores to allow for comparisons.

Across these two measures of satisfaction and for both states, family members in NHs that have fewer beds, have higher occupancy rates, are operated by a not-for-profit, and are in isolated areas reported higher satisfaction compared with their peers. Family members in MN NHs report higher satisfaction for both measures in facilities that have higher level of activities staff whereas higher levels of RN and CNA staffing are positively associated with at least one satisfaction measure in OH. Family members in OH NHs report higher satisfaction if the NH has fewer Medicaid residents, lower average physical acuity, and greater prevalence of dementia, and is located in a less competitive market. While we identify some differences in factors that are associated with higher satisfaction in each state, most of the coefficient estimates for MN and OH are consistent, indicating that some of the lack of statistical significance in MN may be due to smaller sample size.

As a robustness check, we also examined the five individual domain questions. These results are reported in Table A1 (see Appendix A). While we do find some differences between the two states for some questions,[6] most organizational and structural factors associated with higher satisfaction are not statistically different across the two states.

Discussion

This is the first study that uses validated measures of family satisfaction and compares them across two states to identify organizational, payer, and structural factors associated with higher satisfaction. This work is important because payers, policy makers, and providers have called for better measures of consumer satisfaction but research has been lagging in validating and comparing these measures. Our findings move beyond single-state studies of family satisfaction to identify factors that are similar *across* states. Although our comparison between OH and MN is still limited based on the profiles of these two states, this is the first such examination to date. The use of family satisfaction instruments is highly fragmented (Castle, 2007). Many facilities use their own surveys, yet Maryland and Rhode Island are the only other states that we are aware of that field a statewide survey (Castle, Diesel, & Ferguson-Rome, 2010; Li et al., 2016). The American Health Care Association has sponsored a very short (three-item) satisfaction instrument (National Quality Forum, 2017). Thus, our comparison of MN's and OH's measures of multiple domains of family satisfaction adds to the existing literature.

MN and OH are the two states that have led national efforts to measure and report family satisfaction of NHs and are uniquely positioned to inform this work. Our results indicate the consistency of most organizational and structural factors associated with family satisfaction across these two states, supporting previous state-specific findings (Shippee et al., 2017).

6. Differences include Perceived Staff Attitudes/Respect (% Medicare residents and level of competition), Food Choices (RNs), and Facility Cleanliness (CNAs and therapists).

This is an important contribution to the literature, demonstrating the construct validity of these two family satisfaction measures.

Staffing was a consistent organizational factor associated with higher family satisfaction, with families more satisfied in facilities that have higher RN, CNA, and activities staffing. Higher Medicare payer-mix and lower acuity levels were also associated with higher satisfaction. Structural characteristics were also associated with higher satisfaction, and included smaller size, higher occupancy, not being owned by a for-profit, or being affiliated with a chain, and rural location.

The few factors that were statistically different for MN and OH relate to the role of LPN staffing levels and prevalence of depression, partially reflecting the organizational differences between the two states. We also found that the effect of occupancy rate was larger in MN compared with OH, though the effect was positive in both states.

This study's limitations include the following: only a minority of questions that were similar across both states could be compared, different response scales required the use of *Z*-scores for our dependent variables, the surveys were administered in different years (2012 and 2013), and facilities in each state differ on a number of explanatory variables, such as staffing, payer-mix, and case-mix. Also, there may have been unobserved differences in how surveys were administered. In addition, we were not able to compare the relationships between family satisfaction and resident experience and the mediating or moderating roles of structural factors within or between both states. Nonetheless, our study makes an important contribution toward promotion of a publicly reported satisfaction measure on a national basis, such as the state-developed measures used in MN and OH or NH Consumer Assessment of Healthcare Providers and Systems (CAHPS) (Frentzel et al., 2012). Our results clearly show directly comparable factors associated with family satisfaction across these two states, even when these states are very different in terms of state-level NH policies.

Our findings show that family members are generally satisfied with NH quality and consistently rate satisfaction with the perceived attitudes of staff as the highest item across both states, with activities and food consistently lowest. Furthermore, we found consistent effect sizes for key organizational and structural factors associated with family satisfaction. Our comparative work shows the validity of family satisfaction measures and the key role that facility factors play in higher family satisfaction, laying the foundation for tool development on the national level. Indeed, family members are increasingly becoming the key consumers of long-term care for their loved ones and would value having these person-centered measures of satisfaction as metrics of quality.

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Appendix A

Table A1.

Standardized Coefficients and Chow Tests From Ordinary Least Squares Regression Modeling for Domain Specific Satisfaction.

	Staff attitudes/respect		Food choices		Activities are interesting		Facility cleanliness		Autonomy	
	MN[e]	OH[e]	MN[e]	OH[e]	MN[e]	OH[e]	MN[e]	OH[e]	MN[e]	OH
Staffing hours/ resident-day										
Registered nurse	0.100	−0.150	−0.286 **[a]	0.207[a]	0.168	−0.151	−0.234	0.103	−0.094	0.0
Licensed practical nurse	0.293[b]	−0.26[b]	0.234	−0.082	0.003	−0.207 *	0.234[c]	−0.124[c]	0.403 *[b]	−0.1
Certified nursing assistant	0.022	0.161 **	0.057	0.134 **	−0.004	0.115 **	−0.019[c]	0.180 **[c]	0.078	0.15
Physical, occupational, or speech therapist	0.181	0.294	0.052	−0.315 **	0.029	−0.223	0.134[c]	−0.238[c]	0.316 *	−0.0
Recreational therapy or activities	0.374	−0.133	0.607	0.557 *	1.610 ***	0.973 **	0.578	0.323	0.265	0.62
Dietitian, food service, and housekeeping	0.018	0.071	0.042	0.003	0.000	0.019	0.253 *	0.101	0.016	−0.
Payer- and case-mix										
Medicare patient days	−0.001[c]	−0.190 **[c]	0.088	−0.052	0.111	0.046	0.110 *	0.117 **	0.036	0.09
Medicaid patient days	−0.017	−0.089 **	−0.077 *	−0.114 ***	0.047	−0.013	−0.053	−0.046	−0.044	0.0
Acuity index	−0.083 **	−0.051 *	−0.003	−0.061 **	−0.04	0.007	−0.01	−0.02	−0.025	−0.09
Dementia prevalence	0.069 *	0.091 ***	−0.007	0.051 **	0.065	0.052 **	0.056	0.073 ***	0.071	0.0
Major psychiatric condition prevalence	0.038	0.011	0.042	0.044 **	0.05	0.005	0	−0.001	0.013	0.0
Depression prevalence	−0.041	−0.01	−0.050 *	−0.005	−0.026	0.031 *	−0.038[b]	0.022[b]	−0.036[b]	0.03
Facility and market characteristics										
Total beds, each 10	−0.038 **	−0.019 **	−0.028 **	−0.022 **	−0.002	−0.013 *	−0.034 **	−0.019 **	−0.037 **	−0.01
Occupancy ratio	0.164 **	0.064 *	0.145 **	0.079 **	0.234 **	0.104 **	0.269 ***[b]	0.098 ***[b]	0.204 **[b]	0.02
Dementia special care unit	−0.15	−0.004	−0.239 *[c]	0.037[c]	−0.183	−0.044	−0.174	−0.024	−0.225 *	−0.0

	Staff attitudes/respect		Food choices		Activities are interesting		Facility cleanliness		Autonomy	
	MN[e]	OH[e]	MN[e]	OH[e]	MN[e]	OH[e]	MN[e]	OH[e]	MN[e]	OH
Chain affiliation	−0.087	−0.213**	0.064[a]	−0.364***[a]	−0.114	−0.267***	−0.224**	−0.249***	−0.091	−0.23
Hospital affiliation	0.084	0.140	0.197	−0.205	0.040	−0.349	0.069	−0.57	0.037	0.0
Continuing care retirement community affiliation	−0.005	−0.042	−0.166	−0.027	−0.239	−0.144	0.166[b]	−0.215**[b]	−0.06	−0.1
Ownership, ref. non-profit										
For-profit	−0.310**	−0.250**	−0.227	−0.306***	−0.083[b]	−0.423***[b]	−0.421**	−0.281***	−0.159	−0.36
Government	0.170	−0.05	0.177	−0.097	0.281*	0.130	0.073	0.248*	0.194	0.1
Market competition, ref. very competitive										
Competitive	−0.062	0.251***	−0.163	0.161**	0.145	0.083	0.034	0.200**	−0.186	0.13
Moderate concentration	0.148[c]	0.506***[c]	0.189	0.355**	0.403**	0.259**	0.308*	0.357**	0.060	0.1
High concentration or monopoly	0.043	0.324	−0.089	0.092	0.203	0.159	0.076	0.389*	−0.196	−0.1
Location, ref. metropolitan										
Micropolitan	−0.032	0.141	0.014	0.277***	0.142	0.105	−0.048	0.168**	0.082	0.0
Rural	−0.075	0.133	0.157	0.201*	0.134	0.050	0.025	0.159	0.078	0.0
Isolated	−0.004	0.086	0.279	0.521**	0.313*	0.308	0.292*	0.247	0.286	0.45
Respondent characteristics[d]										
Children	0.208***[b]	0.056*[b]	0.087	0.046	0.127**	0.022	0.119**	0.073**	0.069	0.0
Spouses	0.174**[c]	0.023[c]	−0.088	0.018	−0.067	−0.038	0.107	−0.002	−0.156	−0.0
Female	−0.086	−0.047	−0.032	−0.014	−0.058	−0.015	−0.055	−0.025	0.008	−0.0
Visit at least weekly	−0.107	−0.034	−0.128	0.008	0.040	0.023	−0.075	0.014	−0.052	0.0
Visit at least monthly	−0.065	0.035	−0.154	−0.007	0.014	−0.001	−0.057	−0.01	−0.127	0.0
Intercept	−0.873	0.601	0.171	0.327	−3.634***	−1.079	−2.197**	−1.266**	−1.308	−0.0

Note. Minnesota $N = 378$, Ohio $N = 926$.

[a] Chow test for difference in coefficients between states <.01.

[b] Chow test for difference in coefficients between states <.05.

[c] Chow test for difference in coefficients between states <.1.

[d] All respondent characteristics are the proportion of the respondents who have each characteristic. Betas for effect of each 10 percentage points.

[e] Betas for effect of each 10 percentage points. For respondent characteristics, applies to all betas.

For individual states' coefficients:
*
$p < .1$.
**
$p < .05$.
***
$p < .01$.

Appendix B

Minnesota 2013 Family Satisfaction Survey, Selected Questions and Response Options.

Instructions to respondent: Please tell us about your experiences with the nursing facility and the care given there. Please grade each of the following items where A = excellent; B = very good; C = average; D = below average; and F = failing.

Domains of family satisfaction and item description	Excellent A	Very good B	Average C	Below average D	Failing F	Don't know/not applicable N/A
Staff attitudes/respect: Item 7: Staff's attitude toward the resident (respect, concern, caring)						
Food choices: Item 9: Menu choice of food available to the resident						
Activities are interesting: Item 12: Offering activities that are interesting to the resident						
Facility cleanliness: Item 20: Cleanliness of the facility						
Autonomy: Item 31; Allowing the resident to choose to receive or refuse care						

	Extremely high 5	4	3	2	Extremely low 1
Would recommend facility: Item 37: Rating the nursing facility on a scale where **5 = extremely high and 1 = extremely low**, how enthusiastically would you recommend this nursing facility to another family					

Domains of family satisfaction and item description	Yes, always	Yes, sometimes	No, hardly ever	No, never	Don't know/not applicable N/A
Staff Attitudes/Respect: Averaged across Items 9, 20, and 21.					
Question 9: Does the activities staff treat the resident with respect?					
Question 20: Are the nurse aides gentle when they take care of the resident? and					

Domains of family satisfaction and item description	Yes, always	Yes, sometimes	No, hardly ever	No, never	Don't know/not applicable N/A
Question 21: Do the nurse aides treat the resident with respect?					
Food Choices: Item 29: Can the resident get the foods he or she likes?					
Activities are interesting: Item 7: Are the facility activities things that the resident likes to do?					
Facility cleanliness: Item 39: Is the facility clean enough?					
Autonomy: Item 16: Is the resident encouraged to make decisions about his or her personal care routine?					
Would recommend facility: Item 47: Would you recommend this facility to a family member or friend?					

References

Bowblis JR (2011). Staffing ratios and quality: An analysis of minimum direct care staffing requirements for nursing homes. Health Services Research, 46, 1495–1516. doi:10.1111/j.1475-6773.2011.01274.x [PubMed: 21609329]

Bowblis JR, & Applebaum R (2017). How does Medicaid reimbursement impact nursing home quality? The effects of small anticipatory changes. Health Services Research, 52, 1729–1748. [PubMed: 27581748]

Castle NG (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 NG (2008). Nursing home caregiver staffing levels and quality of care: A literature review. Journal of Applied Gerontology, 27, 375–405. doi:10.1177/0733464808321596

Castle NG, Diesel J, & Ferguson-Rome JC (2010). The evolution of nursing home report cards. Journal of Applied Gerontology, 30, 744–778. doi:10.1177/0733464810378263

Castle NG, & Ferguson JC (2010). What is nursing home quality and how is it measured? The Gerontologist, 50, 426–442. doi:10.1093/geront/gnq052 [PubMed: 20631035]

Centers for Medicare and Medicaid Services. (2018). Nursing home compare. Retrieved from https://www.medicare.gov/nursinghomecompare/search.html

Chow Gregory C. 1960. Tests of Equality between Sets of Coefficients in Two Linear Regressions. Econometrica 28(3), 591–605.

Donabedian A (1988). The quality of care: How can it be assessed? Journal of the American Medical Association, 260, 1743–1748. doi:10.1001/jama.1988.03410120089033 [PubMed: 3045356]

Ejaz FK, Straker JK, Fox K, & Swami S (2003). Developing a satisfaction survey for families of Ohio's nursing home residents. The Gerontologist, 43, 447–458. [PubMed: 12937324]

Feng Z, Grabowski DC, Intrator O, & Mor V (2006). The effect of state Medicaid case-mix payment on nursing home resident acuity. Health Services Research, 41(4 Pt 1), 1317–1336. doi:10.1111/j.1475-6773.2006.00545.x [PubMed: 16899009]

Frentzel EM, Sangl JA, Evensen CT, Cosenza C, Brown JA, Keller S, & Garfinkel SA (2012). Giving voice to the vulnerable: The development of a CAHPS nursing home survey measuring family members' experiences. Medical Care, 50, S20–S27. doi:10.1097/MLR.0b013e31826b1068 [PubMed: 23064273]

Kane RL (2008). Report on preliminary study of satisfaction among family members of nursing home residents: Prepared for the Minnesota Department of Human Services. Minneapolis, MN: University of Minnesota.

Kane RL, Kane RA, Bershadsky B, Degenholtz H, Kling K, Totten A, & Jung K (2005). Proxy sources for information on nursing home residents' quality of life. The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 60(6), S318–S325. [PubMed: 16260714]

Li Y, Li Q, & Tang Y (2016). Associations between family ratings on experience with care and clinical quality-of-care measures for nursing home residents. Medical Care Research and Review, 73, 62–84. doi:10.1177/1077558715596470 [PubMed: 26199288]

Minnesota Department of Human Services. (n.d.). Minnesota nursing home report card. Retrieved from http://nhreportcard.dhs.mn.gov/

National Quality Forum. (2017). Person- and family-centered care 2015–2016: Technical report. Retrieved from http://www.qualityforum.org/Projects/n-r/Person_and_Family_Centered_Care_Project_2015-2017/Final_Report.aspx

Ohio Department of Aging. (n.d.). Long-term care consumer guide. Retrieved from https://ltc.ohio.gov/NursingHomes.aspx

Shippee TP (2012). On the edge: Balancing health, participation, and autonomy to maintain active independent living in two retirement facilities. Journal of Aging Studies, 26, 1–15.

Shippee TP, Henning-Smith C, Gaugler JE, Held R, & Kane RL (2017). Family satisfaction with nursing home care: The role of facility characteristics and resident quality-of-life scores. Research on Aging, 39, 418–442. doi:10.1177/0164027515615182 [PubMed: 26534835]

Straker JK, Chow K, Kalaw K, & Pan X (2013). Implementation of the 2012 Ohio Nursing Home Family Satisfaction Survey: Final report. Retrieved from http://miamioh.edu/cas/academics/centers/scripps/research/publications/2013/03/Implementation-2012-Ohio-Nursing-Home-Family-Satisfaction-Survey_2013.html

Vital Research. (2010). Implementation of the 2010 consumer satisfaction and quality of life survey in Minnesota nursing homes and satisfaction survey of family members of residents in Minnesota nursing homes, Saint Paul, MN: Final report prepared for the Minnesota Department of Human Services.

Williams A, Straker JK, & Applebaum R (2016). The nursing home five star rating: How does it compare to resident and family views of care? The Gerontologist, 56, 234–242. doi:10.1093/geront/gnu043 [PubMed: 24847846]

Zimmerman DR (2003). Improving nursing home quality of care through outcomes data: The MDS quality indicators. International Journal of Geriatric Psychiatry, 18, 250–257. [PubMed: 12642895]

Table 1.

Descriptive Statistics for MN and OH Family Satisfaction Measures and Facility Characteristics.

	Minnesota (*N* = 378)		Ohio (*N* = 926)		
	M	***SD***	***M***	***SD***	
Dependent variables (mean scores)	**Range = 1–5**		**Range = 1–4**		***p* value**
Perception of staff attitudes/respect	4.229	0.245	3.755	0.130	
Food choices	3.668	0.290	3.200	0.288	
Activities are interesting	3.834	0.292	3.145	0.242	
Facility cleanliness	4.086	0.353	3.604	0.243	
Autonomy	4.089	0.235	3.419	0.235	
Would recommend facility	4.159	0.401	3.522	0.325	
Mean of 6 comparable questions	4.011	0.260	3.441	0.201	
Staffing direct care hours per resident-day					
Registered nurse	0.520	0.434	0.431	0.362	.000
Licensed practical nurse	0.747	0.278	0.888	0.304	.000
Certified nursing assistant	2.203	0.593	2.274	0.645	.066
Physical, occupational, or speech therapist	0.358	0.395	0.448	0.336	.000
Recreational therapy or activities	0.252	0.112	0.210	0.107	.000
Dietitian, food service, and housekeeping	1.355	0.454	1.280	0.544	.019
Payer- and case-mix					
Medicare patient days	0.107	0.113	0.131	0.108	.000
Medicaid patient days	0.542	0.180	0.622	0.186	.000
Private pay patient days	0.351	0.148	0.248	0.133	.000
Acuity index	9.070	1.368	9.685	1.248	.000
Dementia prevalence	0.468	0.152	0.470	0.172	.840
Major psychiatric condition prevalence	0.290	0.175	0.340	0.187	.000
Depression prevalence	0.534	0.193	0.592	0.203	.000
Facility and market characteristics					
Total beds	80.315	47.153	97.297	45.268	.000
Occupancy ratio	0.890	0.090	0.850	0.110	.000
Dementia special care unit	0.254	0.436	0.188	0.391	.008

Dependent variables (mean scores)	Minnesota (*N* = 378)		Ohio (*N* = 926)		*p* value
	M	*SD*	*M*	*SD*	
	Range = 1–5		Range = 1–4		
Chain affiliation	0.537	0.499	0.640	0.480	.001
Hospital affiliation	0.122	0.327	0.016	0.126	.000
Continuing Care Retirement Community affiliation	0.074	0.262	0.140	0.348	.001
Ownership					
Non-profit	0.616	0.486	0.190	0.392	
For-profit	0.296	0.457	0.790	0.407	
Government	0.087	0.282	0.019	0.138	.000
Market concentration					
Highly competitive	0.222	0.416	0.496	0.500	
Competitive	0.119	0.324	0.409	0.492	
Moderate concentration	0.220	0.414	0.079	0.269	
High concentration or monopoly	0.439	0.496	0.016	0.126	.000
Geographic location					
Metropolitan	0.431	0.495	0.717	0.450	
Micropolitan	0.159	0.365	0.184	0.387	
Rural	0.143	0.350	0.073	0.261	
Isolated	0.267	0.442	0.026	0.159	.000
Family member characteristics (%)					
Children	0.549	0.142	0.507	0.192	.000
Spouses	0.155	0.082	0.134	0.099	.000
All other relatives	0.287	0.156	0.360	0.195	.000
Female	0.656	0.099	0.690	0.111	.000
Visit at least weekly	0.683	0.151	0.753	0.165	.000
Visit at least monthly	0.226	0.123	0.186	0.130	.000
Visit less than monthly	0.083	0.077	0.061	0.083	.000

Table 2.

Standardized Coefficients and Chow Tests From OLS Regression Modeling for Overall Satisfaction.

	Mean of six comparable questions		Would recommend facility	
	Minnesota	**Ohio**	**Minnesota**	**Ohio**
Staffing hours/resident-day				
Registered nurse	−0.033	0.105	0.179	0.214*
Licensed practical nurse	0.266[a]	−0.181[a]	0.16	−0.163
Certified nursing assistant	0.034	0.178***	0.033	0.189***
Physical, occupational, or speech therapist	0.138	−0.128	−0.022	−0.205
Recreational therapy or activities	0.860**	0.489	0.858**	0.208
Dietitian, food service, and housekeeping	0.071	0.029	0.024	−0.004
Payer- and case-mix				
Medicare patient days[b]	0.073	0.011	0.018	0.012
Medicaid patient days[b]	−0.04	−0.055*	−0.058	−0.045
Acuity index	−0.039	−0.050**	−0.034	−0.042*
Dementia prevalence[b]	0.06	0.075***	0.046	0.084***
Major psychiatric condition prevalence[b]	0.035	0.019	0.035	0.012
Depression prevalence[b]	−0.043[c]	0.018[c]	−0.021	0.015
Facility and market characteristics				
Total beds, each 10	−0.031**	−0.021**	−0.017	−0.018**
Occupancy ratio[b]	0.252***[a]	0.097***[a]	0.244***[c]	0.126***[c]
Dementia special care unit	−0.220*	−0.021	−0.123	−0.01
Chain affiliation	−0.123	−0.307***	−0.159*	−0.194**
Hospital affiliation	0.116	−0.222	0.149	−0.15
Continuing care retirement community affiliation	−0.046	−0.129	0.076	−0.072
Ownership, ref. non-profit				
For-profit	−0.342**	−0.412***	−0.507***	−0.408***

	Mean of six comparable questions		Would recommend facility	
	Minnesota	Ohio	Minnesota	Ohio
Government	0.209	0.1	0.146	0.13
Market competition, ref. very competitive				
Competitive	−0.05	0.218**	−0.019	0.237***
Moderate concentration	0.27	0.411***	0.237	0.390***
High concentration or monopoly	0.033	0.245	0.126	0.450**
Location, ref. metropolitan				
Micropolitan	0.055	0.196**	0.119	0.200**
Rural	0.063	0.143	−0.003	0.138
Isolated	0.287*	0.364**	0.264*	0.199
Respondent characteristics[d]				
Children	0.153**	0.071**	0.150**	0.100***
Spouses	0.007	−0.009	0.062	0
Female	−0.046	−0.028	−0.007	−0.047
Visit at least weekly	−0.066	0.006	−0.009	0.004
Visit at least monthly	−0.095	0.013	−0.087	−0.015
Intercept	−2.124*	−0.571	−2.749**	−0.999
N	378		926	

Note. Minnesota *N* = 378, Ohio *N* = 926. OLS = ordinary least squares.

[a] Chow test for difference in coefficients between states <.05.

[b] Betas for effect of each 10 percentage points. For respondent characteristics, applies to all betas.

[c] Chow test for difference in coefficients between states <.1.

[d] All respondent characteristics are the proportion of the respondents who have each characteristic.

For individual states' coefficients:

* $p < .1$.

** $p < .05$.

*** $p < .01$.

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