Assisted Living Report Card:
Factor Analysis for the 2023-2024 Resident Quality of Life and Family Satisfaction Surveys

A Report to the Minnesota Department of Human Services

Jack Wolf, PhD

Tetyana Shippee, PhD

Tricia Skarphol, MA

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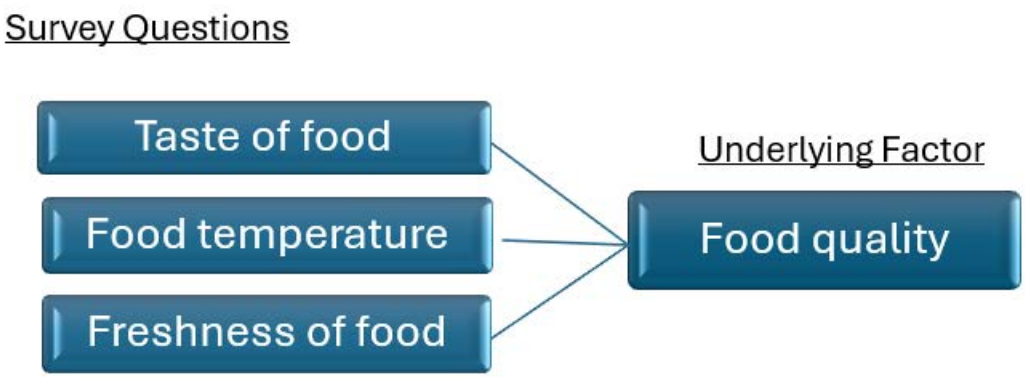
Introduction

In 2022, the University of Minnesota (UMN) submitted a report to the Minnesota Department of Human Services (DHS) detailing their analysis and recommendations for how resident quality of life and family satisfaction survey ratings should be calculated on the Assisted Living (AL) Report Card, which included a section on factor analysis. This report will provide updated factor analysis results from the most recent set of resident and family surveys and provide a plain language explanation of this statistical method.

What is factor analysis?

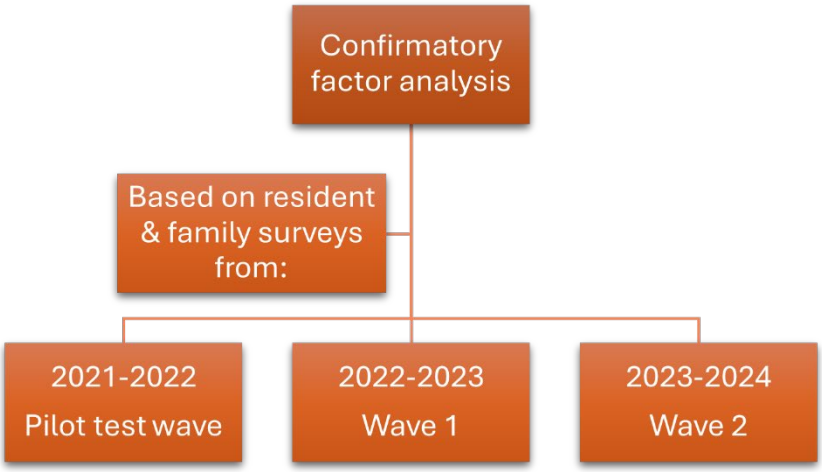
- Factor analysis helps to simplify complex data by reducing a set of variables or survey questions into their underlying commonalities producing a smaller number of factors (i.e. data reduction).
- When there are a larger number of interconnected variables, some common patterns emerge, which are known as factors (Figure 1 below). Factor analysis helps to understand the underlying patterns within a particular set of data, or is this case survey questions, offering more meaningful interpretations or understanding of the data.

Figure 1: Reducing variables into an underlying factor example



- There are two ways to reduce variables or find similarities in the data: 1) exploratory factor analysis (EFA) or 2) confirmatory factor analysis (CFA).
    1. Exploratory factor analysis uses results from the statistical analysis program to find patterns and it is used when there is not a clear idea of how many underlying factors there may be.
    2. In confirmatory factor analysis, the researcher uses prior exploratory analysis or existing literature to determine which variables or survey questions should be grouped into each factor. The statistical program then evaluates how well the data fit this predetermined structure.

Figure 2: Resident and family survey years analyzed using CFA



Confirmatory factor analysis (CFA) work was based on exploratory factory analysis. Factor analysis of resident and family surveys included three components:

1. Scale reliability

   The component shows how well a group of items measure the same concept — in other words, whether the scale is accurate and consistent. For example, in the resident survey, do the questions in the meaningful activities section seem related and focused on activities, without including questions that belong in other sections?

2. Content validity

   - Do the questions measure what they are designed to measure and for the population they intend to measure? This analysis evaluates if the items adequately measure quality of life for assisted living residents and how satisfied families are with the care their resident receives in the AL facility.

3. Concurrent validity

   - This component asks if there is agreement between different assessments. Typically, this is between a new assessment and an older assessment, however we are using this to see if there is agreement between the different survey years.

Once this analysis is complete, final domains and questions within each domain are finalized. The finalized domains for the resident quality of life survey and family satisfaction survey are listed below, along with the total number of questions comprising each domain.

Resident and family survey domains

Resident quality of life domains are listed as they appear on the Assisted Living Report Card website (Table 1).

Resident Quality of Life Domain Names	Number of Questions in Each Domain
People Who Work Here	8
Physical Environment	3
Food	6
Meaningful Activities	8
Choice and Autonomy	5
Religion and Spirituality	3
Safety and Privacy	6
Finances*	3

*Finances domain is listed and scored on the Assisted Living Report Card (ALRC) website. It is not included in factor analysis. Factor analysis requires three or more questions to estimate a CFA model. This section only has two questions that assess finances (the first question asks if the resident is involved with their finances - yes or no – and does not assess quality).

The ALRC website also includes a score for overall satisfaction. This is based on one question from the resident survey and is not included in factor analysis.

Questions are measured using a 4-category response scale (except overall question):

- Always/most of the time
- Some of the time
- Rarely/never
- Do not know/not applicable/refused

See Appendix A for Resident Quality of Life survey questions

Family satisfaction domains are listed as they appear on the Assisted Living Report Card website (Table 2).

Family Satisfaction Domain Names	Number of Questions in Each Domain
Care Experience	9
Choice and Preferences	5
Personal Care Needs	7
Housekeeping	4
Meals	3
Physical Environment	3
Staff Care	7
Cost of Care*	3

* Cost of care domain is listed and scored on the Assisted Living Report Card (ALRC) website. It is not included in factor analysis. Factor analysis requires three or more questions to estimate a CFA model. This section only has two questions that assess the cost of care (the first question asks if the interviewee is involved in their resident's finances – yes or no- and does not assess quality or satisfaction).

The ALRC website also includes a score for overall satisfaction. This is based on three questions from the family survey and is not included in factor analysis.

Questions are measured using a 5-category scale (except overall domain):

- Strongly agree
- Agree
- Disagree
- Strongly disagree
- Not applicable/don't know

See Appendix B for Family Satisfaction Survey questions.

General overview of factor analysis results

Previous results

Analysis from our 2022 report to DHS included confirmatory factor analysis (CFA) on the 2021-2022 and 2022-2023 resident and family surveys.

Recommendations at that time concluded that no changes are needed to either survey, however, UMN was not able to determine if the domains of "choice and autonomy" and "physical environment" on the resident quality of life survey should be combined for future surveys due to small sample sizes. Based on this, UMN recommended factor analysis on the 2024 resident and family surveys.

Confirmatory factor analysis was conducted on the 2023-2023 resident and family surveys.

Updated resident survey recommendations

1. There are no recommended changes to the Resident Quality of Life Survey. The questions asked in each of the 7 domains measure their intended outcomes and the domains of "choice and autonomy" and "physical environment" do not need to be combined.

2. If warranted, a one-factor model, where all the domains are combined into one score, shows good reliability. This may be useful if circumstances such as resources do not support the reporting of individual domains.

Updated family survey recommendations

Responses of “strongly disagree” and “disagree” were collapsed due to sample size concerns.

1. There are no recommended changes to the Family Satisfaction Survey. The questions asked in each of the seven domains measure their intended outcomes.

2. The 7-factor model, which includes each of the 7 domains separately, provides a better fit and more detailed information. However, a one-factor model could be used for the family survey with only a small loss of information. This simpler option may be appropriate if resources or other circumstances make it difficult to report on individual domains.

General overview summary

Overall, our analyses showed that our findings are stable over time and have a high degree of precision for both resident and family surveys. We recommend that the state continue using current tools for future waves of data collection.

Factor analysis technical section

Resident Quality of Life Surveys: Updated factor analysis

The domains listed in the beginning of this report are the categories listed on the Assisted Living Report Card website. This portion of the report lists slightly different domain names, however they still represent the same concepts (e.g. “autonomy” is the same as “choice and preferences”). Table 13, located in Appendix C, lists the number and percentage of residents responding “most of the time” to survey questions.

We began by mirroring the confirmatory factor analysis (CFA) used on the 2022-23 data. Several changes to the survey are of note for this analysis.

- “Staff” has one fewer item than in 2022-23 (8 vs 9) and “engagement” has one more item than in 2022-23 (7 vs 6). The item, “Do you have friends here?” moved from the “staff” domain to the “engagement” domain.

Individual Domain Models

We fit CFA models for each domain individually using complete-case subsets of the respondents without missing data on all items within the domain of interest. Models were estimated using diagonally weighted least squares (DWLS) with robust standard errors and mean- and variance-adjusted chi-squared statistics (the equivalent of “WLSMV” in Mplus). We report fit summaries (CFI, RMSE, SRMR) for each CFA model as well as reliability measures (Cronbach’s Alpha and McDonald’s Omega, calculated using the polychoric correlation).

All individual CFA models had good measures of fit (CFI > 0.95, RMSEA < 0.05, SRMR < 0.06); noting that fit cannot be assessed via these metrics for the three-item domains of “Environment” and “Culture”. However, “Environment” showed poor reliability (Omega < 0.8), as did “Autonomy” (Omega < 0.85).

Table 3: Individual CFA of hypothesized Resident Quality of Life (RQOL) domains (table has split and merged cells).

Domain	No. of observations used	No. of items in domain	No. of model parameters	CFA Fit CFI	CFA Fit RMSEA	CFA Fit SRMR	Reliability Alpha	Reliability Omega
Staff	8285	8	16	0.997	0.025 (0.020, 0.030)	0.031 (0.028, 0.034)	0.916	0.929
Environment	11792	3	6	x	x	x	0.713	0.715
Food	9581	6	12	0.998	0.029 (0.022, 0.036)	0.024 (0.021, 0.027)	0.891	0.948
Engagement	7077	7	14	0.994	0.033 (0.027, 0.040)	0.051 (0.045, 0.057)	0.863	0.899
Autonomy	10038	5	10	0.981	0.048 (0.039, 0.057)	0.059 (0.052, 0.065)	0.784	0.834
Culture	9831	3	6	x	x	x	0.877	0.889
Security	10514	6	12	0.997	0.016 (0.009, 0.023)	0.027 (0.021, 0.034)	0.678	0.883

Joint Models

We fit joint models for all items using a complete-case subset to compare the hypothesized seven-factor model versus more restrictive models. In joint modeling of all domains, we found that the seven-factor model with a separate latent variable for each domain has better fit than the one-factor model. We also tested the seven-factor model against a model that collapsed “Environment”, “Autonomy”, and “Culture” into one shared latent variable, which was hypothesized in the 2022-23 report. Our findings suggest that the seven-factor model fits better and that the items for “Environment”, “Autonomy”, and “Culture” measure different constructs.

Table 4: CFA of Full Models. P-values correspond to the hypothesis tests for the given model as the null model versus the alternative hypothesis of the full seven-factor model.

Model	No. of factors	No. of observations used	No. of model parameters	CFI	RMSEA	SRMR	P-Value
One Factor	1	3579	76	0.974	0.039	0.074	<0.001
Environment + Autonomy + Culture	5	3579	86	0.992	0.022	0.053	<0.001
Full	7	3579	97	0.994	0.019	0.050	1

When we consider a one-factor model, we have the following reliability versus the previous reliability measures for the individual items:

Table 5: Reliability measures for individual indices and the overall index computed.

Index	Alpha	Omega
One Factor	0.959	0.969
Staff	0.916	0.929
Environment	0.713	0.715
Food	0.891	0.948
Engagement	0.863	0.899
Autonomy	0.784	0.834
Culture	0.877	0.889
Security	0.678	0.883

Table 6: Estimated correlation of latent domains (resident survey)

	Security	Culture	Autonomy	Engagement	Food	Environment	Staff
Security	1	x	x	x	x	x	x
Culture	0.76	1	x	x	x	x	x
Autonomy	0.85	0.82	1	x	x	x	x
Engagement	0.69	0.66	0.85	1	x	x	x
Food	0.66	0.55	0.76	0.78	1	x	x
Environment	0.87	0.78	0.87	0.76	0.74	1	x
Staff	0.84	0.69	0.84	0.72	0.71	0.88	1

Recommendations for resident quality of life surveys

1. There are no recommended changes to the Resident Quality of Life Survey. The questions asked in each of the 7 domains measure their intended outcomes and the domains of “choice and autonomy” and “physical environment” do not need to be combined.

2. If warranted, a one-factor model, where all domains are combined into 1 score, shows good reliability. This may be useful if circumstances such as resources don’t support the reporting of individual domains.

Family Satisfaction Survey: Updated factor analysis

The domains listed in the beginning of this report are the categories listed on the Assisted Living Report Card website. This portion of the report lists slightly different domain names;

however, they still represent the same concepts (e.g. “experience” is the same as “care experience”).

- Of note, for family surveys, we collapsed responses of “Strongly Disagree” and “Disagree” to each time because of sample size concerns. Each item is treated as a three-level ordinal value. Table 14, located in Appendix D, details the responses for each question.

Individual CFA

Individual CFA of each hypothesized domain suggests good fit for “Choice”, “Housekeeping”, and “Staff”, but potential lack of fit for “Experience” and “Needs.”

Table 7: Individual CFA of hypothesized Family Satisfaction Survey (FSS) domains.

Domain	No. of observations used	No. or items in domain	No. of model parameters	CFA Fit CFI	CFA Fit RMSEA	CFA Fit SRMR	Reliability Alpha	Reliability Omega
Experience	12246	8	24	0.990	0.125 (0.121, 0.129)	0.075 (0.073, 0.076)	0.940	0.964
Choice	11703	5	15	0.998	0.136 (0.128, 0.144)	0.037 (0.035, 0.038)	0.954	0.969
Needs	9736	7	21	0.995	0.183 (0.177, 0.188)	0.069 (0.067, 0.071)	0.958	0.978
Housekeeping	15923	4	12	1.000	0.029 (0.019, 0.041)	0.007 (0.006, 0.008)	0.952	0.839
Environment	15849	3	9				0.936	0.939
Staff	12031	7	21	0.999	0.081 (0.076, 0.086)	0.022 (0.022, 0.023)	0.975	0.983

Parallel analyses suggest that both “experience” and “needs” might be better modeled via multiple factors. However, when we analyze a factor with good fit such as “Staff” using similar approaches, we also reach the same conclusion that additional factors may be beneficial.

However, EFA models with multiple factors using varimax rotations show no clear separation of individual items into distinct factors as many items cross-loaded.

Table 8: Posthoc EFA of experience with one, two, and three factors. Factor loadings <0.35 are omitted.

Item	One Factor (F1)	Two Factor (F1)	Two Factor (F2)	Three Factor (F1)	Three Factor (F2)	Three Factor (F3)
experience_q1*	0.82	0.73	0.38	0.65	x	0.39
experience_q3*	0.83	0.84	x	0.86	x	x
experience_q4*	0.83	0.82	x	0.80	x	x
experience_q5*	0.88	0.84	0.36	0.76	x	0.37
experience_q6*	0.90	0.73	0.51	0.57	0.41	0.67
experience_q7*	0.79	0.45	0.73	0.41	0.68	x
experience_q8*	0.65	x	0.82	x	0.88	x
experience_q9*	0.82	0.48	0.73	0.40	0.67	0.38
SS loadings	5.34	3.62	2.45	3.08	2.23	1.05
Proportion Var	0.67	0.45	0.31	0.38	0.28	0.13
Cumulative Var	x	0.45	0.76	0.38	0.66	0.79
Proportion Explained	x	0.6	0.4	0.48	0.35	0.17
Cumulative Proportion	x	0.6	1	0.48	0.83	1

*Experience questions in this table correspond to questions in Appendix B: Family Satisfaction Survey Questions, category Care Experience, questions 1-9.

Table 9: Posthoc EFA of needs with one, two, and three factors. Factor loadings <0.35 are omitted.

Item	One Factor (F1)	Two Factor (F1)	Two Factor (F2)	Three Factor (F1)	Three Factor (F2)	Three Factor (F3)
needs_q15*	0.89	0.85	0.39	0.78	x	0.41
needs_q16*	0.91	0.87	0.41	0.84	0.36	0.39
needs_q17*	0.83	0.69	0.47	0.48	x	0.62
needs_q18*	0.93	0.72	0.57	0.48	0.44	0.68
needs_q19*	0.86	0.64	0.57	0.41	0.44	0.65
needs_q20*	0.86	0.42	0.86	0.35	0.73	0.42
needs_q21*	0.84	0.42	0.82	x	0.89	x
SS loadings	5.37	3.24	2.6	2.19	2.08	1.86
Proportion Var	0.77	0.46	0.37	0.31	0.3	0.27
Cumulative Var	x	0.46	0.83	0.31	0.61	0.88
Proportion Explained	x	0.56	0.44	0.36	0.34	0.3
Cumulative Proportion	x	0.56	1	0.36	0.7	1

* Needs questions in this table correspond to questions in Appendix B: Family Satisfaction Survey questions, category Personal Care Needs, Questions 15-21.

Although the domains of “Experience” and “Needs” showed possible lack of fit as measured by SRMR and RMSEA, they both had acceptable CFI. Secondary exploratory analyses failed to reveal any underlying structure to suggest that these factors should be broken into more granular domains. Given the strong reliability measurements for these domains, we suggest keeping them as-is.

Full models

Table 10: CFA of Full Models. P-values correspond to hypothesis tests for the given model as the null model versus the alternative hypothesis of the full seven-factor model.

Model	No. of factors	No. of observations used	No. of model parameters	CFI	RMSEA	SRMR	P-Value
One Factor	1	5804	111	0.992	0.128	0.072	<0.001
Staff + Experience + Choice	5	5804	121	0.998	0.069	0.035	<0.001
Full	7	5804	132	0.998	0.064	0.033	1

When we consider a one-factor model, we have the following reliability versus the previous reliability measures for the individual items:

Table 11: Reliability measures for individual indices and the overall index computed.

Index	Alpha	Omega
One Factor	0.988	0.991
Experience	0.940	0.964
Choice	0.954	0.969
Needs	0.958	0.978
Housekeeping	0.952	0.839
Environment	0.936	0.939
Staff	0.975	0.983

Table 12: Estimated correlation of latent domains (Family survey)

Domain	Staff	Environment	Food	Housekeeping	Needs	Choice	Experience
Staff	1	x	x	x	x	x	x
Environment	0.92	1	x	x	x	x	x
Food	0.71	0.71	1	x	x	x	x
Housekeeping	0.85	0.88	0.67	1	x	x	x
Needs	0.92	0.88	0.69	0.81	1	x	x
Choice	0.93	0.89	0.68	0.81	0.91	1	x
Experience	0.95	0.88	0.72	0.82	0.92	0.94	1

Recommendations for family satisfaction surveys:

1. There are no recommended changes to the Family Satisfaction Survey. The questions asked in each of the seven domains measure their intended outcomes.

2. There is better fit, and we gain more nuance by using the 7-factor model (i.e. including each of the 7 domains separately), however a one-factor model could be used for the family survey. By using a one-factor model, minimal loss of information may occur. This option can be used if circumstances such as resources don't support the reporting of individual domains.

Appendix

Appendix A: Resident Quality of Life Survey Questions

THE PEOPLE WHO WORK HERE

1. Do the people who work here try to get to know you?
2. Do the people who work here treat you with respect?
3. Do you feel comfortable asking for help when you need it?
4. Do the people who work here come quickly when you need help?
5. Do the people who work here follow through when you have a complaint or problem?
6. Do you get enough help with your everyday activities if you need it? (Probe: For example, do you get enough help caring for and cleaning your room, getting dressed if you need help, etc.?)
7. Are you confident the people who work here can address your healthcare needs?
8. Are you confident the people who work here know what to do if you have a medical emergency?

PHYSICAL ENVIRONMENT

9. Are the common areas well maintained? (Probe: For example, are the dining areas clean, visiting areas in good condition, etc.?)
10. Is it quiet enough for you to sleep here?
11. Are there places for residents to socialize with other residents? (Probe: For example, spend time together?)

FOOD

12. Does [insert facility name] offer access to healthy foods, like fruits and vegetables, if you want them?
13. Do you like the food served here?
14. Do you have enough choice in the meals offered here?
15. Do you look forward to mealtimes here?
16. Is there enough variety in the meals offered here?
17. Can you eat your meals when you want to? (Probe: For example, are meal schedules at appropriate times, can you eat outside of the schedule if you want to?)

MEANINGFUL ACTIVITIES/SOCIAL ENGAGEMENT

18. Do you participate in activities here?
19. Do you like the activities here?
20. Is there enough variety in the activities here?
21. Does [name of facility] provide enough activities to keep your mind active? (Probe: For example, are there reading materials, puzzles, games, etc.?)

22. Are there things to do on the weekends that you enjoy?
23. Do you enjoy the way you spend your time?
24. Have you made friends here?
25. Do you feel included in things that are happening here? (Probe: For example, do you know about things that are happening, receive a calendar of events, etc.?)

CHOICE/AUTONOMY

26. Can you decide how to spend your time each day?
27. Weather permitting, do you spend as much time outdoors as you would like?
28. Are you allowed to personalize your room? (Probe: For example, display photos.)
29. Are the services you receive here provided the way you want? (Probe: For example, the help you get with bathing or dressing, help with cleaning your room, etc.)
30. Are you as involved in decisions about the services you receive here as you would like?

RELIGION/SPIRITUALITY

31. Are there opportunities for you to practice your religious or spiritual beliefs here?
32. Are the people who work here respectful of your religious or spiritual practices?
33. Are the people who work here understanding of your culture? (Probe: For example, do the people who work here respect your traditions, language, and way of dressing?)

SECURITY, SAFETY & PRIVACY

34. Are your personal belongings safe here?
35. Do you feel safe here?
36. Do the people who work here ever get angry at you?*
37. Do you feel comfortable voicing a complaint or concern?
38. Do you feel you have enough privacy here?
39. Do the people who work here ask to come in before entering your room?

FINANCES (not included in factor analysis)

40. Are you involved with your finances here? If yes, ask the next two questions.
41. Do you understand what is included in monthly fees here?
42. Do you believe you are getting value for your money here?

OVERALL (not included in factor analysis)

43. Overall, what grade would you give [Name of Facility], where A is the best it could be, and F is the worst it could be?

Appendix B: Family Satisfaction Survey Questions

CARE EXPERIENCE

1. I feel welcome when I visit.
2. People who work here try to get to know me.
3. The leaders of this facility are available to speak with me, if needed.
4. I am comfortable voicing a complaint or concern.
5. People who work here respond promptly to my concerns.
6. I am pleased with how the people who work here treat my resident.
7. This facility offers enough meaningful activities my resident enjoys.
8. My resident looks forward to participating in activities.
9. My resident seems happy at this facility.

CHOICE/PREFERENCE

10. I have enough opportunities to provide input into decisions about my resident's care.
11. My resident's spiritual beliefs are respected.
12. People who work here respect my resident's culture.
13. People who work here care about my resident.
14. My resident has a choice in the care they receive.

PERSONAL CARE NEEDS

15. I receive timely updates about changes in my resident's status.
16. I am satisfied with the amount of information I receive about my resident.
17. My resident is given the opportunity to be as independent as they can be.
18. I am confident that my resident's service plan is being delivered as promised.
19. I am satisfied with how staff manages my resident's medication.
20. There is enough staff during weekdays.
21. There is enough staff on weekends.

COST OF CARE (not included in factor analysis)

22. Are you involved in your resident's finances? If yes, ask the next two questions.
23. I understand what is covered in my resident's monthly fees.
24. Monthly fees are appropriate for the quality of services provided.

HOUSEKEEPING

25. My resident's living unit/personal space is well maintained. (e.g., the living unit is kept in good condition)
26. The common areas in and around the facility are well maintained. (e.g., kept in good condition)
27. The facility is clean.

28. The facility is free of offensive odors.

MEALS

29. There is enough variety in the meals.
30. My resident looks forward to mealtimes.
31. My resident likes the food served here.

PHYSICAL ENVIRONMENT

32. This facility has accommodations to ensure my resident's physical safety. (e.g., like hand railings, no area rugs)
33. I feel confident my resident is safe.
34. My resident's belongings are safe.

QUALITY OF STAFF CARE

35. People who work here seem happy to work here.
36. There is a sense of community among the people who live and work at this facility.
37. I have peace of mind about the care my resident is getting.
38. People who work here treat my resident with respect.
39. People who work here take the time to get to know my resident.
40. People who work here are knowledgeable about my resident's service plan.
41. Management responds to my questions and concerns well.

OVERALL (not included in factor analysis)

42. On a scale where A=excellent, B=very good, C=average, D=below average, and F=failing, how would you grade the quality of this facility as a place to live?
43. On a scale where 5=extremely confident and 1=not at all confident, how confident are you that your resident is well cared for whether you are present or not?
44. On a scale where 5=extremely high and 1=extremely low, how enthusiastically would you recommend this facility to another family?

Appendix C: Select responses to resident survey questions

Table 13: N (%) responding “Most of the time” to each item and N with non-missing data for resident quality of life survey. Of note, the domains and questions listed here follow the exact same order of domains and questions listed in Appendix A: Resident Quality of Life Survey questions (the domains in this section have slightly different names)

Characteristic	N	N = 16,806*
staff_q01	12,339	9,523 (77%)
staff_q02	12,600	11,418 (91%)
staff_q03	12,194	10,272 (84%)
staff_q04	11,310	8,397 (74%)
staff_q05	10,928	8,341 (76%)
staff_q06	11,335	10,163 (90%)
staff_q07	11,678	9,676 (83%)
staff_q08	11,506	9,710 (84%)
environment_q09	12,393	11,617 (94%)
environment_q10	12,586	11,918 (95%)
environment_q11	12,065	11,111 (92%)
food_q12	11,707	9,988 (85%)
food_q13	12,006	8,339 (69%)
food_q14	11,594	7,975 (69%)
food_q15	11,806	8,482 (72%)
food_q16	11,773	8,569 (73%)
food_q17	11,141	6,432 (58%)
engagement_q18	12,675	8,554 (67%)
engagement_q19	8,396	6,398 (76%)
engagement_q20	8,173	5,962 (73%)
engagement_q21	8,142	6,219 (76%)
engagement_q22	11,204	4,511 (40%)

Characteristic	N	N = 16,806*
engagement_q23	12,348	9,799 (79%)
engagement_q24	12,658	11,197 (88%)
engagement_q25	12,177	9,497 (78%)
autonomy_q26	12,309	10,934 (89%)
autonomy_q27	12,018	6,800 (57%)
autonomy_q28	12,231	11,641 (95%)
autonomy_q29	11,860	9,955 (84%)
autonomy_q30	11,222	7,475 (67%)
culture_q31	11,399	9,187 (81%)
culture_q32	11,108	10,300 (93%)
culture_q33	11,117	10,076 (91%)
security_q34	12,332	11,140 (90%)
security_q35	12,551	11,938 (95%)
security_q36	12,009	637 (5.3%)
security_q37	11,718	9,315 (79%)
security_q38	12,484	11,311 (91%)
security_q39	12,026	9,913 (82%)

*n (%)

Appendix D: Responses to family survey questions

Table 14: Summary of each item and N with non-missing data for Family Satisfaction Survey. Of note, the domains and questions listed here follow the exact same order of domains and questions listed in Appendix B: Family Satisfaction Survey questions (the domains in this section have slightly different names). **N = 16,704**

experience_q1	**N = 16,493**
Disagree/Strongly Disagree	376 (2.3%)
Agree	5,578 (34%)
Strongly Agree	10,539 (64%)
experience_q2	**N = 15,896**
Disagree/Strongly Disagree	2,044 (13%)
Agree	7,937 (50%)
Strongly Agree	5,915 (37%)
experience_q3	**N = 16,065**
Disagree/Strongly Disagree	1,331 (8.3%)
Agree	7,252 (45%)
Strongly Agree	7,482 (47%)
experience_q4	**N = 15,943**
Disagree/Strongly Disagree	1,059 (6.6%)
Agree	7,305 (46%)
Strongly Agree	7,579 (48%)
experience_q5	**N = 15,583**
Disagree/Strongly Disagree	1,843 (12%)
Agree	7,476 (48%)
Strongly Agree	6,264 (40%)
experience_q6	**N = 16,413**
Disagree/Strongly Disagree	876 (5.3%)
Agree	7,089 (43%)
Strongly Agree	8,448 (51%)
experience_q7	**N = 15,377**
Disagree/Strongly Disagree	2,156 (14%)
Agree	7,021 (46%)
Strongly Agree	6,200 (40%)
experience_q8	**N = 14,250**
Disagree/Strongly Disagree	2,909 (20%)
Agree	6,923 (49%)
Strongly Agree	4,418 (31%)
experience_q9	**N = 16,229**
Disagree/Strongly Disagree	1,506 (9.3%)
Agree	8,293 (51%)
Strongly Agree	6,430 (40%)
choice_q10	**N = 15,457**
Disagree/Strongly Disagree	1,438 (9.3%)
Agree	7,604 (49%)

Strongly Agree	6,415 (42%)
choice_q11	**N = 14,209**
Disagree/Strongly Disagree	212 (1.5%)
Agree	7,096 (50%)
Strongly Agree	6,901 (49%)
choice_q12	**N = 14,492**
Disagree/Strongly Disagree	144 (1.0%)
Agree	7,416 (51%)
Strongly Agree	6,932 (48%)
choice_q13	**N = 16,262**
Disagree/Strongly Disagree	546 (3.4%)
Agree	7,481 (46%)
Strongly Agree	8,235 (51%)
choice_q14	**N = 14,962**
Disagree/Strongly Disagree	994 (6.6%)
Agree	7,976 (53%)
Strongly Agree	5,992 (40%)
needs_q15	**N = 14,776**
Disagree/Strongly Disagree	2,270 (15%)
Agree	6,906 (47%)
Strongly Agree	5,600 (38%)
needs_q16	**N = 15,458**
Disagree/Strongly Disagree	2,477 (16%)
Agree	7,552 (49%)
Strongly Agree	5,429 (35%)
needs_q17	**N = 16,045**
Disagree/Strongly Disagree	392 (2.4%)
Agree	8,017 (50%)
Strongly Agree	7,636 (48%)
needs_q18	**N = 15,067**
Disagree/Strongly Disagree	2,197 (15%)
Agree	7,291 (48%)
Strongly Agree	5,579 (37%)
needs_q19	**N = 12,155**
Disagree/Strongly Disagree	976 (8.0%)
Agree	5,745 (47%)
Strongly Agree	5,434 (45%)
needs_q20	**N = 14,392**
Disagree/Strongly Disagree	2,307 (16%)
Agree	7,569 (53%)
Strongly Agree	4,516 (31%)
needs_q21	**N = 13,850**
Disagree/Strongly Disagree	4,500 (32%)
Agree	6,330 (46%)
Strongly Agree	3,020 (22%)
finances_q22	**N = 16,623**

Disagree/Strongly Disagree	0 (0%)
Agree	2,923 (18%)
Strongly Agree	13,700 (82%)
finances_q23	**N = 13,502**
Disagree/Strongly Disagree	696 (5.2%)
Agree	7,043 (52%)
Strongly Agree	5,763 (43%)
finances_q24	**N = 12,877**
Disagree/Strongly Disagree	2,806 (22%)
Agree	6,579 (51%)
Strongly Agree	3,492 (27%)
housekeeping_q25	**N = 16,146**
Disagree/Strongly Disagree	1,688 (10%)
Agree	8,452 (52%)
Strongly Agree	6,006 (37%)
housekeeping_q26	**N = 16,533**
Disagree/Strongly Disagree	455 (2.8%)
Agree	7,719 (47%)
Strongly Agree	8,359 (51%)
housekeeping_q27	**N = 16,542**
Disagree/Strongly Disagree	379 (2.3%)
Agree	7,733 (47%)
Strongly Agree	8,430 (51%)
housekeeping_q28	**N = 16,459**
Disagree/Strongly Disagree	992 (6.0%)
Agree	7,741 (47%)
Strongly Agree	7,726 (47%)
food_q29	**N = 14,165**
Disagree/Strongly Disagree	2,413 (17%)
Agree	7,494 (53%)
Strongly Agree	4,258 (30%)
food_q30	**N = 14,376**
Disagree/Strongly Disagree	2,875 (20%)
Agree	7,420 (52%)
Strongly Agree	4,081 (28%)
food_q31	**N = 14,826**
Disagree/Strongly Disagree	3,415 (23%)
Agree	7,805 (53%)
Strongly Agree	3,606 (24%)
environment_q32	**N = 16,345**
Disagree/Strongly Disagree	276 (1.7%)
Agree	8,046 (49%)
Strongly Agree	8,023 (49%)
environment_q33	**N = 16,459**
Disagree/Strongly Disagree	657 (4.0%)
Agree	7,541 (46%)

Strongly Agree	8,261 (50%)
environment_q34	**N = 16,107**
Disagree/Strongly Disagree	994 (6.2%)
Agree	8,212 (51%)
Strongly Agree	6,901 (43%)
staff_q35	**N = 15,428**
Disagree/Strongly Disagree	1,143 (7.4%)
Agree	8,798 (57%)
Strongly Agree	5,487 (36%)
staff_q36	**N = 14,883**
Disagree/Strongly Disagree	1,079 (7.2%)
Agree	7,886 (53%)
Strongly Agree	5,918 (40%)
staff_q37	**N = 15,997**
Disagree/Strongly Disagree	1,315 (8.2%)
Agree	7,703 (48%)
Strongly Agree	6,979 (44%)
staff_q38	**N = 16,156**
Disagree/Strongly Disagree	449 (2.8%)
Agree	7,734 (48%)
Strongly Agree	7,973 (49%)
staff_q39	**N = 15,526**
Disagree/Strongly Disagree	920 (5.9%)
Agree	7,447 (48%)
Strongly Agree	7,159 (46%)
staff_q40	**N = 14,015**
Disagree/Strongly Disagree	1,467 (10%)
Agree	7,387 (53%)
Strongly Agree	5,161 (37%)
staff_q41	**N = 15,394**
Disagree/Strongly Disagree	1,587 (10%)
Agree	7,275 (47%)
Strongly Agree	6,532 (42%)

*n (%)