

RESIDENT SATISFACTION INDICATORS IN LONG-TERM CARE SETTINGS

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Due to an increasingly aging population and long-term care available, the number of older adults seeking long-term care facilities is growing. Resident satisfaction indicators have become essential measurements of service quality. However, few studies have investigated the evidence on prevalent resident satisfaction indicators and associated factors. In order to understand what are the types of resident satisfaction measurements utilized in long-term care facilities in the United States and how these types of care services influence resident satisfaction, the researcher conducted the first study, which consists of a systematic scoping review by summarizing the evidence on the types of resident satisfaction indicators utilized in long-term care settings in the United States. The second study completed a further systematic review to summarize how nursing assistants impact resident satisfaction in long-term care settings. The third study aims to translate and validate a Chinese version of the resident satisfaction assessment based on the Ohio Long-term Care Resident Satisfaction Survey (OLCRSS). The fourth study will apply hierarchical regression to predict older adults' satisfaction with individual factors and care services factors in long-term care settings. The dissertation provided a holistic solution to measure resident satisfaction in long-term care settings, assist health providers in meeting the resident's needs and improve the quality of the care. These studies are significant because they provide fundamental data for using evidence-based indicators of resident satisfaction to enhance the residents' quality of life. Findings could also add to the existing literature regarding resident satisfaction indicators.

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BACKGROUND

Quality has remained a challenge for policy makers and others charged with providing, purchasing, and regulating long-term care. Since the 1970s or earlier, healthcare policymakers have noted that the quality of care in many US nursing homes is less than optimal. Hence, they have enacted various regulatory measures over the years to improve quality in nursing homes and other long-term care settings. It was through the Omnibus Budget Reconciliation Act (OBRA) of 1987 that the entire industry received a “top-to-bottom” reformation and revision of regulations and levels of care that could be provided and reimbursed (Sangl et al., 2007). Health Insurance Portability and Accountability Act (HIPAA) of 1996 and the 2002 Nursing Home Quality Initiative (NHQI) focused on identifying standards for quality care that included protecting the dignity of nursing home residents and recognizing the rights of the individuals that live there.

On the one hand, these policies have had some positive impact on improving nursing home quality. In many cases, however, these benefits proved to be short-lived, and quality problems in US nursing homes have persisted. These include the following: resident abuse and neglect, poor care quality, medication errors, and resident/family complaints of the care services continue to be reported (Castle, Ferguson, 2010). These adverse resident outcomes show that the quality of care in long-term care needs continuous regulations and improvement.

Resident satisfaction is an essential form of program evaluation that has long received a great deal of attention in social services (Royse et al., 2001). Resident satisfaction is a critical indicator of care quality in the long-term care field, although satisfaction alone cannot stand for the quality of care or services (Kwak, Kim 2017). So, I choose to research resident satisfaction with my dissertation to provide a solution for improving the quality of care in long-term care

settings. The types of long-term care settings covered in this dissertation include nursing home care, skilled home health care, memory care center, and supportive housing settings such as assisted living.

The Center for Medicare and Medicaid Service developed a Consumer Assessment of Healthcare Providers and Systems (CAHPS) to measure residents' experiences with quality of life in nursing homes. Resident and family satisfaction has become required for nursing homes to remain licensed and stay in business in many states (Lowe et al., 2003). The State of Ohio became the first state that had begun gathering consumer input about the quality of nursing homes in 2001 and then conducted resident satisfaction surveys annually through in-person interviews and mailed surveys. Other self-developed satisfaction instruments by health providers conduct satisfaction surveys quarterly or annually (Kwak, Lee, & Kim, 2017). It is easy to complete a satisfaction survey, but it is challenging to employ the standard instruments and improve the quality of care accurately.

Although resident satisfaction is widely accepted as a valuable component of quality measurement and a few satisfaction instruments have been developed, many of them adopted the ideas from the measurement tools of industrial service or hospital service, which may bias the measurement results when applied in long-term care services and facilities. One of the common issues in resident satisfaction measurements is that some survey items may not fully capture a typical resident's daily life in long-term care communities (Peak and Sinclair, 2002). For example, about one-third of the Nursing Home Resident Satisfaction Scale (NHRSS) items focus on the physician service, while the residents in long-term care are usually not patients in hospitals and have fewer interactions with the physicians. Satisfaction among older adults regarding their long-term care services tends to be a complicated concept that needs a

multidimensional structure (Stodel, Chambers, 2006). However, it is commonly seen in practices that satisfaction was measured by a one-item overall satisfaction question in long-term care facilities. Another problem of satisfaction measurement is the lack of validity and reliability, including the lack of standardized survey content, format, instrument design, and validity and reliability information (Feng et al., 2011).

Much of the previous research has focused on resident satisfaction, as this has proven to be a useful starting point. Whereas measures of resident satisfaction are now ubiquitous in US nursing homes, there are also several challenges and obstacles associated with the measurement of resident satisfaction. Hence the main focus of this dissertation will be on resident satisfaction and how this can lead to a renewed focus on quality improvement in long-term care. The research starts to identify the appropriate measurement to examine resident satisfaction accurately. The Ohio Long-term Care Resident Satisfaction Survey (OLCRSS) stood out as it meets all criteria I need. One hundred seventy-five thousand residents of long-term care facilities have provided input about the facilities where they received care. It is a multidimensional instrument and contains 46 items in 7 domains, including (1) Moving in (3 items), (2) Spending Time (8 items), (3) Care & Services (6 items), (4) Caregivers (9 items), (5) Meals & Dining (5 items), (6) Environment (7 items), (7) Facility Culture (8 items). Previous studies reported great validity and reliability of the original OLCRSS. This study aimed to translate the OLCRSS into the Chinese language and assess the validation and reliability of the Chinese version of OLCRSS among Chinese residents in Chinese long-term care facilities.

The literature also shows that 33 articles provided evidence about the determinants of resident satisfaction in different long-term care settings. The analysis yielded two groups of indicators of resident care satisfaction: multi-factor indicators spanning room, staff, food, care

services, activities, laundry, choice, and finances. Nursing Assistants (NA), as one of the indicators, caught my attention.

Due to an increasingly aging population and long-term care available, the number of older adults seeking long-term care facilities is growing. One particular challenge is the growing number of older adults seeking residential or supported care. As an example, in 2016, long-term care services in the United States were provided by 4600 adult day services centers, 12,200 home health agencies, 4300 hospices, 15,600 nursing homes, and 28,900 assisted living and similar residential care communities, serving more than 8.3 million people (Harris et al., 2019). Notably, the majority of these older adults have comorbid chronic conditions (e.g., vascular disease, dementia, arthritis) requiring specialist, on-site 24-hour health care support, including nursing homes, assisted living, continuing care retirement community, and residential aged care (Banerjee, 2007).

The number of nursing assistants (NAs) in the long-term care industry is on the rise, helping to serve the needs of an increasingly aging population. Moreover, it is estimated that nursing homes will have to fill 680,000 NA jobs between 2016 and 2026, providing critical support for more than 1.5 million residents who require 24-hour care (PHI, 2019). The findings of the studies highlight the complexity of the NAs role, one which extends beyond providing daily care and completing assigned tasks (such as toileting, bathing, or feeding) to relationship-based aspects such as communication, psychosocial support, and comfort. NAs were described as versatile, playing a central role in providing long-term care. Today, NAs represent the most significant component of the aged care workforce and are even considered the core of the long-term care system, accounting for 63.9% of nursing homes and 83.3% of residential care communities, respectively (CDC, 2018). Currently, the average hourly wage is \$14.5, and nearly

half (44percent) of NAs working in nursing homes earn a median income of \$22,200 per year and live-in low-income households (Ruggles Steven et al., 2019). Hence, workforce shortage remains a significant obstacle to the development of the long-term care industry. A need for nursing home administrators to better understand the value of NAs, and to cultivate avenues for growth and development in their work.

In conclusion, 55 million people 65 or older make up over 16 percent of the U.S. total population in 2021. By 2060, The number of Americans ages 65 and older is projected to be 95 million, and the 65-and-older age group's share of the total population will rise from 16.8 percent to 23 percent (Census Bureau, 2021). Every day, 10,000 "Baby Boomers" retire. The US will need a workforce of millions of nursing assistants to provide care for this elderly population. This situation has been made much worse by the recent pandemic. Resident satisfaction indicators have become essential measurements of service quality, and nursing assistants play a critical role in increasing resident satisfaction. However, few studies have investigated the evidence of prevalent resident satisfaction indicators and associated factors.

The dissertation aims to employ appropriate measurements to identify resident satisfaction indicators. Based on these indicators, health providers may improve the quality of care in long-term care facilities. My primary focus in this dissertation will be on the satisfaction instruments in long-term care facilities and indicators of resident satisfaction in United States. In addition, I will also focus on Chinese long-term care facilities because the development of such measurement in China is still in its initial stages. I intend to translate the best practice of U.S. into the Chinese society. The instrument needs a validated, reliable, and standardized measurement that could be utilized in the Chinese language and fit the characteristics of Chinese society and cultural contexts.

To understand what types of resident satisfaction measurements are utilized in long-term care facilities in the United States and how these types of care services influence resident satisfaction, the researcher conducted the first study, which consists of a systematic scoping review by summarizing the evidence on the types of resident satisfaction indicators utilized in long-term care settings in the United States. The first study's findings highlighted the important role of NAs in improving resident care in long-term care settings, and the researcher noted that nursing assistant is a critical indicator of resident satisfaction.

Hence, the second study completed a further systematic review to summarize how nursing assistants impact resident satisfaction in long-term care settings. A positive relationship between aged-care resident satisfaction and NAs job satisfaction was identified. Resident satisfaction was enhanced through NAs training programs, the quality of daily interaction with NAs, and the overall contribution of NAs in promoting residents' experiences.

While conducting these systematic reviews on resident satisfaction, the researcher realized that accurate measurements of resident satisfaction in long-term care settings could provide administrators with valuable information to improve the quality of care. However, such assessment has been insufficient in long-term care facilities in China due to limited validated measuring instruments. The third study aims to translate and validate a Chinese version of the resident satisfaction assessment based on the Ohio Long-term Care Resident Satisfaction Survey (OLCRSS). The third study utilized a cross-sectional survey to assess the validation of the Chinese version resident satisfaction instrument in long-term care facilities. A total of 172 older adults recruited from Shanghai, China, participated in this study. The study conducted an exploratory factor analysis to examine the structure of the Chinese version of OLCRSS. The results showed that the Chinese version of OLCRSS is a valid and potentially useful instrument

for assessing resident satisfaction in long-term care facilities among the older Chinese population and Chinese contexts.

The goal of the dissertation is to identify the indicators of resident satisfaction in extended -term care. Based on these indicators, some suggestions may be provided for long-term care administrations to improve the quality of care. I used systematic literature reviews to find and narrow the research questions. And then choosing the appropriate instrument to examine their validity and reliability. At last, doing prediction analysis to predict the most important indicators of resident satisfaction. The research findings added to the existing literature regarding resident satisfaction indicators for use consideration by long-term care quality improvement initiatives.

ESSAY 1

RESIDENT SATISFACTION INDICATORS IN LONG-TERM CARE SETTINGS IN THE UNITED STATES: A SCOPING REVIEW

1.1 Introduction

Due to an increasingly aging population and long-term care available, the number of older adults seeking long-term care is growing, and such increases also bring a fiercer competition in this industry [1]. In the United States, the costs of long-term care are carried by the federal and State governments. Long-term care providers are invested in meeting their resident's care needs, and to identify aspects of care where care needs to be improved for resident satisfaction [2]. Resident satisfaction is important to federal and state evaluation of the quality of care provided and for facility licensing purposes. Increasingly, residential care facilities employ person-centered care services, focusing on the value derived by residents rather than providers [3-4], involving residents in decisions that affect their wellbeing [5-6]. Person-centric indicators of resident care may cover the domains such as direct care and nurse aides; choice; autonomy and privacy; physical environment; safety and security; caregivers; meals and food; and general satisfaction. Use of person-centric measures is important to quality care improvement in long-term care [7-9]. Such measures are premised on understanding residents care needs from their perspective [10-11].

The United States government developed a Consumer Assessment of Healthcare Providers and Systems (CAHPS) to measure residents' experiences with quality of life in nursing homes [10], [12]. Those guidelines have been adopted for implementation by State and local government (see Ohio Nursing Home Resident Satisfaction Survey) [13-14]. Other self-developed satisfaction instruments by health providers covered autonomy and privacy, safety and

security, help and assistance, communication, staff, food, environment, activities, quality of care, dignity, trust, administration, entertainment, well-being, social engagement, and overall satisfaction [15-17]. The evidence of adoption use of these indicators is the basis for this scoping review.

Few systematic reviews have reviewed the evidence on resident care satisfaction in long-term care in the United States to inform providers on indicators they could adopt for the quality care improvement. This scoping review aimed to summarize the research evidence on the resident satisfaction indicators in long-term care settings in the United States. Our scoping review was guided by the following question: What are the types of resident care satisfaction utilized in nursing homes and in other long-term care facilities (such as assisted living, residential aged care institution, and continuing care retirement community (CCRC) in the United States? How does type of care provider influence the type of resident satisfaction used? Findings could add to the existing literature regarding resident satisfaction indicators for use consideration by nursing homes and long-term care quality care improvement initiatives.

1.2 Methods

1.2.1 Research Design

We carried out a scoping review [18] to determine the evidence on factors and resident satisfaction in long-term care facilities. A scoping review aims to clarify key concepts, report on the types of evidence that address practice in the field and identify gaps in the research knowledge base [19-20]. It was appropriate for this study as the study to examine resident satisfaction indicators used by nursing homes and long-term care facilities, mapping their implemented in long-term care settings, and identifying gaps to be addressed by future research.

The scoping review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA guidelines) [21].

1.2.2 Search Strategies

We searched PubMed, PsycInfo, Ageline, Medline, and Web of Science databases and hand searched relevant articles, published from inception to 2021. The first listed author performed the preliminary search strategy using the following keywords such as: “factors” OR “assessment” OR “influences” OR “determinants” OR “dimension” OR “impact” OR “effect” OR “measure” OR “measurement” OR “measuring” OR “predictors” OR “instrument” OR “development”), AND (“resident satisfaction” OR “consumer satisfaction” OR “user satisfaction”), AND (“nursing homes” OR “care homes” OR “long term care” OR “residential care” OR “aged care facility” OR “continuing care retirement community” OR “assisting living” OR “elderly care” OR “long-term care facility” OR “long-term care facilities” OR “nursing home care” OR “long-term care institution” OR “nursing home residents” OR “residential aged care” OR “long-term care institution” OR “Retirement village resident” OR “residential continuing care settings”. We manually searched reference lists and other relevant studies to identify additional studies.

1.2.3 Selection Criteria

The inclusion criteria prioritized studies on resident satisfaction measures within long-term care settings. The inclusion criteria were (1) participants: residents in long-term care setting without cognitive impairment were included; (2) measurement: studies that reported resident satisfaction- related factors were included; (3) study design: cross-sectional survey, longitudinal study, cohort study, and case-control study were included; (4) types of setting: studies from long-term care setting were included, these settings could also include nursing home, residential aged

care facilities, long-term care facilities, assisted living, continuing care retirement community, and other institutions; (5) others: studies published in American were included. We included all eligible studies with no limitation by year.

1.2.4 Data Extraction and Quality Control

Based on piloted template [22-23], we designed a data extraction form (Section 2.8, Table S1), including first author, published details, study design, sample size, settings, measures of satisfaction, associated factors, and results of study.

We adopted an inclusive study selection procedure for the quality control, consistent with the standard scoping review practice to include all relevant studies regardless of methodological rigor [24]. Two authors independently performed the extraction process (XL, YC). Each reviewer then made a list of eligible studies. If the necessary information was missing or unclear, we contacted the corresponding author for further details. The final study selection was by consensus between the first and third listed authors (XL, YC) in consultation with second listed author (EM).

1.2.5 Data Synthesis

We utilized The Weight of Evidence [25] framework for the analysis for included studies. This framework focuses on three dimensions of generic method, review specific method, and review specific context of the study. We have utilized the WoE approach has been applied to scoping reviews by previous studies [26-27]. and has the advantage of rapid consensus building without compromising quality in the synthesis of the evidence for the research question.

1.2.6 Studies Identified

Figure 1 outlines the study selection process. Our initial search yielded a total of 434

records from the database search, and an additional 76 records from other sources, including reference lists. After the removal of duplicates (n = 246), and a first screening for eligibility criteria on titles and abstracts, we excluded 107 records. We then carried out a full-text evaluation of the remaining 139 studies. On consideration of study design clarity, we excluded an additional 71 studies and another 35 studies which were not based on United States long-term care facilities. The final sample comprised 33 studies (see Figure 1.1).

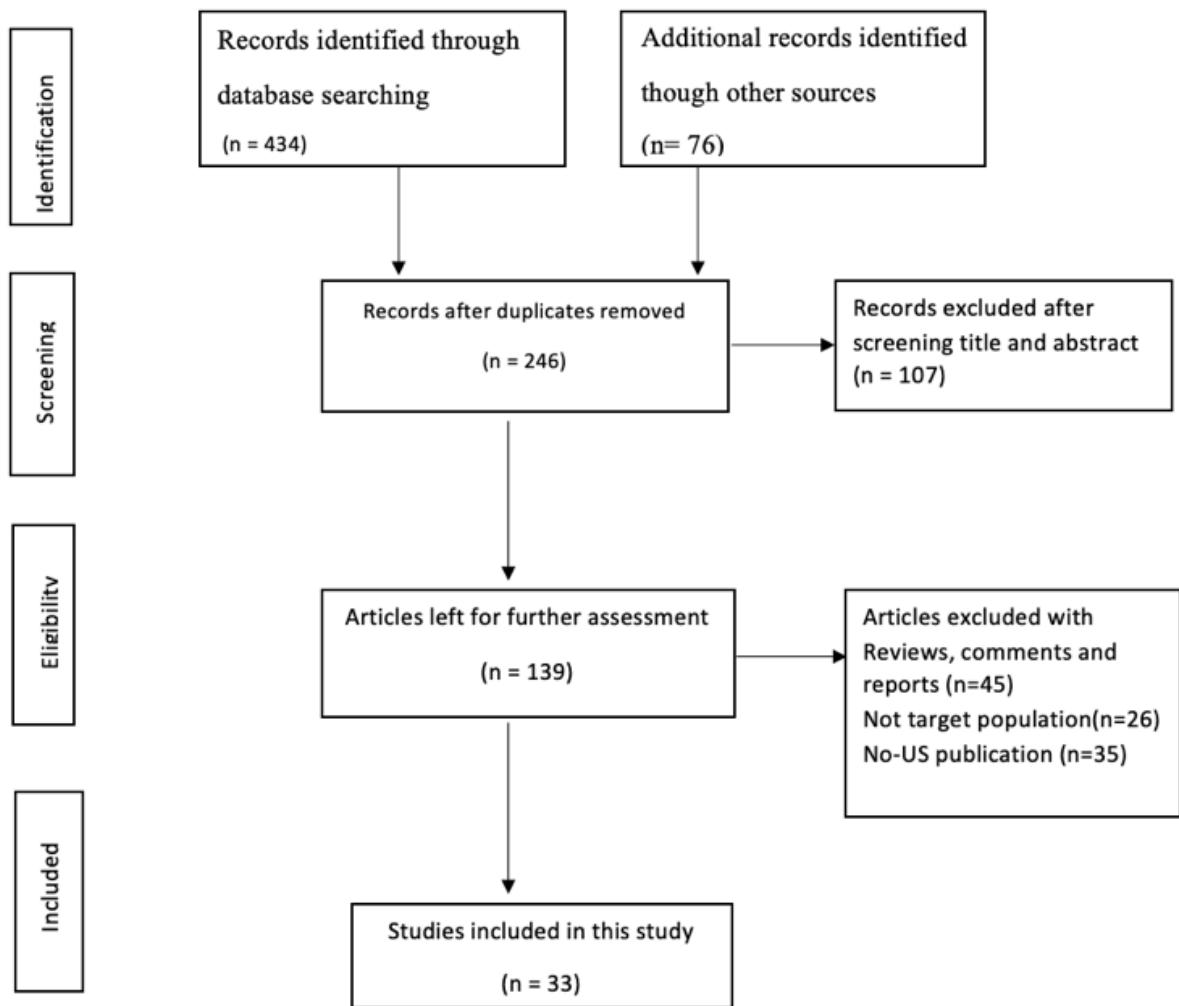


Figure 1. PRISMA flow diagram of study selection process.

Figure 1.1: PRISMA flow diagram of study selection process for Essay 1.

1.3 Results

1.3.1 Characteristics of Included Studies

The literature search identified 33 studies that provided evidence about indicators of resident satisfaction. Most of the studies (76%) was published between 2000 to 2020. Our study selected included studies across the full range of long-term care settings, from nursing home (20), to assisted living (6). The indicators of satisfaction varied, which can be classified into two categories: multiple factors associated with resident satisfaction (11) and single factors associated with resident satisfaction (22). Table 1.1 summaries the study parameters.

Table 1.1: USA resident satisfaction indicator studies date publication, setting, and factors.

Country or Regions		Date		Setting		Factors	
USA	33	Pre-1990	2	Nursing-home	20	Multi-factor	11
		1990-1999	6	Assisted-living	6	Single-factor	22
		2000-2005	12	CCRC	4	• Resident	10
		2006-2010	3	Long-term-care-facility	2	• Service program	10
		2011-2015	4	Residential-aged-care	1	• Staff	9
		2016-2020	6			• Facility	7
						• Food	6

This scoping review investigated the evidence examining the indicators associated with resident satisfaction of long-term care residents, analyzing data from 33 studies. Our findings highlight the complexity of a large number of indicators associated with resident satisfaction. Eleven studies out of 33 studies investigated multiple factors associated with satisfaction, mostly within the nursing home setting. The 22 studies examined single factor resident satisfaction indicators and mostly in assisted living, residential aged care facilities. Across studies, single factor was associated with resident factors, service program factors, staff factors, facility factors, and food service factors.

1.3.2 Multi-Factor Indicators of Resident Satisfaction

We identified 11 studies that examined the relationship between multi-factor and resident satisfaction in long-term care settings. The studies included cross-sectional, longitudinal and qualitative studies. They utilized a variety of data collection approaches on resident satisfaction: focus group (3 studies), in-depth interview (6 studies), and quantitative survey measures (17 studies). The main study features and findings are summarized in Table 1.2 in order of publication time.

Table 1.2 shows the content of instruments vary. The survey instruments have different names: Life Satisfaction Survey [28], Consumer Satisfaction Instrument [29], Nursing Home Resident Satisfaction Scale [30], Resident Satisfaction Index [31], Life Satisfaction Index [32], and Ohio Nursing Home Resident Satisfaction Survey [13]. The instruments cover almost all aspects of a resident`s experiences, such as room, staff, food, care services, activities, laundry, choice, finances, environment, engagement, administration overall rating, and so on. Across instruments, the number of factors or domains varied from as few as 4 [30], [33-36]. The median number of factors is six. The number of items or questions among the factors ranged from as few as 19 [37] to a many as 60 [38]. The median number of items was 34. Most studies (73%) included nursing home, whereas the rest were other assisted living and residential care facilities.

Table 1.2: Summary results of studies on resident satisfaction multi-factor indicators

First Author, Year, Country	Sample & Study Design	Instrument	Dimension/Factor	Results/Conclusion	Setting
Schwirian (1982)	84 residents Survey	Life Satisfaction Survey	4 factors: finances, satisfaction with financial status, perceived health status, and satisfaction with family relationships	Positive relationship between finances knowledges and life satisfaction for men. Women were opposite; the more satisfied with their health, the less life satisfaction; positive relationship between satisfaction with family relationships and life satisfaction.	Nursing home in U.S.
Kleinsorge et. al. (1991)	2 groups Focus group	Customer Satisfaction Instrument	35statement related to the 7 dimensions: nurse/aide; administration; empathy; housekeeping; home issues; and food	Six dimensions were identified, including Nurse and aides, administrators, dietary, housekeeping, empathy and staff	Nursing home in Oregon
Zinn et. al. (1993)	168 residents Survey	Nursing Home Resident Satisfaction Scale	Including 4 domains the physician and nursing services items, the environment items, global item	This instrument measures satisfaction reliably over time by different interviews.	4 nursing homes in Philadelphia
Uman et.al. (1997)	287residents Qualitative and quantitative	Consumer Satisfaction Questions	42 items: asking consumers what they consider to be the requirements of quality service.	It is possible to obtain satisfaction information from 79% of residents. Residents have a relatively low expectation for quality of life in the NH.	3 nursing home facilities
Mostyn et. al. (2000)	9503 residents Survey	Nursing Home Customer Satisfaction Survey	4 factors: comfort and cleanliness, nursing, food services, and facility care and services	Providing evidence for the construct validity of a multidimensional customer satisfaction scale with measured reliability and criterion-related validity.	159 facilities from 41 states
Gesell (2001)	825 participants Mail survey and telephone survey	Self-Administered Satisfaction Instrument	45 items including 6 key service dimensions: activities, personnel, dining, apartment, facility, and management.	Development and psychometric properties of a measure of satisfaction designed to meet the unique needs of the assisted-living industry. Residents appear to be significantly less satisfied than their families with assisted-living programs.	12 assisted-living facilities in 8 states
Sikorska-Simmons (2001)	156 residents Survey: 4-point scale	Resident Satisfaction Index (RSI)	27 items including 5 domains: health care, housekeeping service, physical environment, relationships with staff, and social life/activities	The instrument RSI could be used by policy makers and professionals interested in improving the quality of life for the frail elderly in assisted living.	13 assisted living facilities in Maryland
Duffy et. al. (2005)	307 Survey and one-to-one interviews	Life Satisfaction Index	5 factors: Meaning, Contacts, Finances, Health, and Goals	The results of this research suggest that five-dimensional construct is appropriate for both the US and GB samples	15 nursing home in England and 10 in US

(table continues)

First Author, Year, Country	Sample & Study Design	Instrument	Dimension/Factor	Results/Conclusion	Setting
Wheatley et. al. (2007)	20,859 A cross-sectional survey	Ohio Nursing Home Resident Satisfaction Survey	48 questions in 9 domains: (1) social service, (2) activities, (3) choice, (4) direct care/nurse assistants, (5) administration, (6) meals and dining, (7) environment, (8) laundry, and (9) overall satisfaction	Overall, residents were least satisfied with the handling of their laundry and meals/dining. Their highest satisfaction ratings were for social service and the environment.	Licensed Ohio nursing facilities
Cooke et. al. (2013)	10677 Survey	Ohio Department of Aging-Resident Satisfaction Survey (ODA-RSS)	42 questions in 10 domains (1) Activities. (2) Choice; (3) Care and Services; (4) Employee Relations; (5) Employee Responsiveness; (6) Communications; (7) Meals and Dining; (8) Laundry; (9) Facility Environment; (10) Resident Environment	Although the ODA-RSS appears well suited for assessing resident satisfaction in Ohio RCFs, it is less so in Canada. For all 8 measurable instrument domains in the Ohio sample, but only 4 (Care and Services, Employee Relations, Employee Responsiveness, and Communications) in Canada have adequate reliability and validity.	Residential care facility residents in U.S. and assisted-living residents in Canada
Castle et. al. (2020)	11324 Surveys	Short Stay Discharge Questionnaire	4 domains: 1 How would you rate the staff? 2 How would you rate the care you received 3 How would you rate how well your discharge needs 4 In recommending this facility to your friends and family, how would you rate it overall?	The questionnaire has four items that together represent overall satisfaction for the facility. The resulting measure may have significance for report cards and payment metrics, as it incorporates the consumers' opinion	Nursing facility in U.S.

1.3.3 Single Factor Associated with Resident Satisfaction

We identified 22 studies that examined the relationship between single factor and resident satisfaction, including resident factor (8 studies), service program factor (5), staff factor (3), facility factor (3), and food service factor (3). Table 1.3 depicts the summary results of studies measuring single factors. The majority of the studies were cross-sectional design, and only four studies were quasi-experimental designs. The sample sizes ranged from 3 to 42524.

Table 1.3: Detailed results of studies measuring single factor (see also Section 2.8)

Resident Factor (8)	Program Factor (5)	Staff Factor (3)	Facility Factor (3)	Food Factor (3)
<ul style="list-style-type: none"> • Goodrow et.al (1979) • Draughn et. al. (2000) • Gueldner et. al. (2001) • Moen et. al. (2001) • Sasson (2001) • Bangerter et. al. (2017) • Resnick et. al. (2019) • Prawitz et. al. (2005) 	<ul style="list-style-type: none"> • Simmons et. al. (1999) • Casarett et. al. (2002) • Atherly et. al. (2004) • Grant et. al. (2015) • Poey et. al. (2017) 	<ul style="list-style-type: none"> • Garrard et. al. (1990) • Sikorska - Simmons (2006) • Plaku-Alakbarova et. al. (2018) 	<ul style="list-style-type: none"> • Sikorska et. al. (2005) • Lucas et. al. (2007) • Williams, et. al. (2016) 	<ul style="list-style-type: none"> • Crogan et. al. (2004) • Crogan et. al. (2013) • Goh et. al. (2013)

Satisfaction surveys typically make a distinction between the traditional nursing home and assisted living, residential aged care facilities, and continuing care retirement community. Multi-factor indicator studies tend to focus on assessing resident satisfaction and in the traditional nursing home, while single factor indicators tended to be utilized for to identify specific areas for quality-of-care improvement (Section 2.8, Table S2). Moreover, some resident satisfaction indicators are reported by both multi-and single factor indicators. Our presentation and discussion of findings to follow is with this understanding.

1.3.3.1 Resident Factors

Eight studies examined the individual factors associated with resident satisfaction. The evidence showed that higher self-reported health [39], more visits from friends and family [40], higher levels of ethnic identity [41], better planning for life arrangement [8], [42], and more choice [43] were positively associated with resident satisfaction in long-term care living. One study reported that higher satisfaction with life for female residents in long-term care [44]. Nursing home residents with low mentally health and ambulation had lower life satisfaction [45].

1.3.3.2 Service Program Factor

Five studies examined the service program indicators associated with resident satisfaction. Service programs that were inclusive [46] and person-centered [4] were associated with improved resident satisfaction. For residents with incontinence and residents with pain, their satisfaction indicators were higher with person-centered care [47-48]. In the digital age, telehealth services programs increased the probability that client's satisfaction with compared to without telehealth services [49].

1.3.3.3 Staff Factor

Three studies provided evidence to suggest that that staff satisfaction and staff working environment were reliable indicators of resident satisfaction. For instance, evidence from two studies suggested that higher staff satisfaction has a positive impact on all aspects of resident satisfaction [50]. A one-point increase in overall staff satisfaction was associated with an increase of 17.4 points in the satisfaction of residents and family members ([51]. One study showed that staff workplace environments satisfaction indicators such as safety, inclusiveness and engagement were associated with improved resident satisfaction [52].

1.3.3.4 Facility Factor

Three studies to investigate impact of organizational factor indicators on resident satisfaction. In this regard, nonprofit facilities were associated with higher resident satisfaction [53]. Similarly non-chain affiliation and certified nursing assistant staffing indicators had significant positive effects on total resident satisfaction [54]. Surprisingly, the evidence does not suggest the star rating system of long-term care facility to reliably predict resident satisfaction [14].

1.3.3.5 Food Service Factor

A total of three studies examined the food service factor associated with resident satisfaction. Residents expressed a high level of food service satisfaction with food variety, quality, taste, flavor, and menus; in the meantime, residents were less satisfied with their autonomy such as food choice and snack availability [55-56].). In study of Goh et. al [57], the author measured resident satisfaction with food service confirmed that Tangibles (physical facility, equipment, and personnel) and reliability (the personnel` ability to perform promised service) significantly impacted the residents` satisfaction levels.

1.4 Discussion

The development of a person-centered care in the long-term care system has focused attention on residents` perspectives of care [5]. This has become a trend among research throughout the last decade. Use of evidence-based indicators of resident satisfaction is important to older adults care services that aim to enhance the quality of life of the residents [58-59]. For a comprehensive picture of resident satisfaction with care, use of multi-factor indicators would assist providers with the evidence to better understand their residents` overall experience in long-term care facilities. Use of single factor indicators would assist older adults care facilities with a

clear picture of what specific changes should be made for care improvement interventions. One might assume also that selecting multiple factors indicators to guide quality care improvement would be advantageous in providing evidence on the possible interaction of indicators for intervention design. Another issue is the standardization of satisfaction instruments [10].

The standardization of resident satisfaction indicators through co-norming in user groups and settings would have the benefits enable comparison of provider qualities for targeted quality care improvement efforts [60], with the standardized measures as benchmarks for assessing resident satisfaction across facilities for public accountability and so that consumers can understand satisfaction easily and make the right decisions [61]. The core question of standardization is what are the most important common factors that affect resident satisfaction across different settings? This review might form the basis of future research to address this gap in knowledge.

1.5 Strengths and Limitation of the Review and Suggestions for Further Studies

Although we resulted with very informative findings of resident care satisfaction indicators and their correlates, our review was also with several limitations: First, our search strategy was restricted to the specific key words, which may have missed some studies. We also chose to focus on studies that implemented in the United States for the benefit of clarity of the jurisdiction to which the findings would apply. However, the choice to focus on studies that implemented in the USA limits generalizability of findings to other settings. Moreover, we elected to report on indicators by type and with less attention to specific provider settings to meet our goal to be inclusive and exploratory as befitting on a scoping review. However, there is room for study findings segmentation by specific care setting as the number of published studies increases making that approach viable for future studies.

1.6 Conclusion

We analyzed and summarized multi-factor and single factor associated with resident satisfaction in long-term care settings. Multi-factor measures would provide a comprehensive view about residents' overall experiences in their long-term care living. Single factors include the resident factor, the service program factor, the staff factor, the facility factor, and the food service factor. These multi- and single factor indicator types are important to resident care quality improvement initiatives, and especially with standardization of the indicators for transportability across care settings. We recommended use of both multi-factor and single factor indicators to best address the specific quality care improvement interventions for resident satisfaction and wellbeing.

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ESSAY 2

NURSING ASSISTANTS AND RESIDENT SATISFACTION IN LONG-TERM CARE: A SYSTEMATIC REVIEW*

2.1 Introduction

From a global perspective, the number of older adults is steadily increasing. By 2050, it is estimated that 1/6 of the global population will be over the age of 65 (up from 1 /11 in 2019) - or 1.5 billion older adults in the world.¹ All societies are in the transition of this aging revolution - some are in early stages whilst others are in a period of rapid development, however all will face multiple challenges. One particular challenge is the need for a sustainable, long-term care industry to cater for the growing number of older adults seeking residential or supported care. As an example, in 2016 long-term care services in the United States were provided by 4,600 adult day services centers, 12,200 home health agencies, 4,300 hospices, 15,600 nursing homes, and 28,900 assisted living and similar residential care communities, serving more than 8.3 million people.² Notably, the majority of these older adults have comorbid chronic conditions (e.g., vascular disease, dementia, arthritis) requiring specialist, on-site 24-hour health care support – including nursing home, assisted, living, continuing care retirement community, and residential aged care.³

In order to prepare for such a demand, society needs to invest in facility-based services for older adults and, in turn, the promotion of quality of care and life in residential nursing facilities. Since 1987, with the passage of the Omnibus Budget Reconciliation Act, the federal government has mandated new standards of care for licensed nursing homes which recognizes

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user satisfaction as a key quality indicator.⁴ Resident and family satisfaction has now become a requirement for nursing homes to remain licensed and stay in business in many states.⁵ This requirement aligns well with the person-centered care model, which emphasizes the importance of engaging and working with service users and consumers to better target their needs.⁶ Despite this new regulation, adverse resident outcomes such as resident abuse and neglect, poor care quality, medication errors, and resident/family complaints of the care services continue to be reported.⁴

Resident satisfaction reflects an individual's attitudes toward the health care system and, as such, offers a potential tool for improving service delivery.^{7,8} The complexity of operationalizing satisfaction, as a construct, is highlighted by the numerous survey instruments that are available at a federal, state, or local level consistently.^{9,10,11,12} In saying this, measures have consistently acknowledged the importance of nursing assistants (NAs) as a contributor to resident satisfaction with long-term care.^{13,14,15} The term NA comprises a broad range of non-professional workers - including nurse aides, care aides, frontline caregivers, and direct care workers - whose primary role is to help frail and disabled persons with daily care tasks (i.e., eating, dressing, bathing).¹⁶ In addition to intensive assistance, NAs help residents participate in social activities - such as classes, outings, and religious services, under the supervision of a licensed professional – typically a registered nurse or nurse practitioner.^{15, 17} Today, NAs represent the largest component of the aged care workforce and are even considered the core of the long-term care system, accounting for 63.9% in nursing homes and 83.3% in residential care communities, respectively.¹⁸ Moreover, it is estimated that nursing homes will have to fill 680,000 NA jobs between 2016 and 2026, providing critical support for more than 1.5 million residents who require 24-hour care.¹⁹

Given their frequent interactions with residents, NAs are well-positioned to observe changes in resident conditions and, in turn, impact resident satisfaction. To date, however, much of the research in this area has been quantitative. This includes available systematic and narrative reviews on the relationship between various aspects of the NA role with resident satisfaction.^{20,21,22} Yet, the accumulating research evidence on NA factors and resident satisfaction has yet to be aggregated to inform quality improvements in long-term care services. The present review consolidates and summarizes the quantitative and qualitative evidence in this area to provide an up-to date, holistic perspective of NA factors that impact on resident satisfaction in long term care settings. In doing so, we aim to improve current understanding of how NAs help to improve residents' satisfaction as well as identify gaps in existing knowledge that can be addressed in future research.

2.2 Methods

2.2.1 Research Design and Protocol Registration

We carried out a mixed-methods systematic review,²³ to determine the state of the evidence on NA factors and resident satisfaction in long-term care facilities. A mixed methods systematic review is an integrated approach, which combines quantitative and qualitative studies into a single synthesis.²⁴ It was appropriate for this study aim to examine and synthesize the evidence on NA factors and resident satisfaction across research paradigms for a comprehensive perspective. As part of our review study, we prospectively registered the protocol on the PROSPERO International Prospective Register of Systematic Reviews (CRD42021251015). The review adheres to the PRISMA guidelines.²⁵

2.2.2 Search Strategies

We conducted a systematic literature search to identify relevant articles from the

PubMed, PsycINFO, AgeLine, Medline, and Scopus databases, published from inception to 2021. For the search strategy, we utilized keywords focused on the population (i.e., NA and relevant synonyms), setting (i.e., supported care) and outcomes (i.e., resident satisfaction) of interest (see Table 2.1). The reference lists of included studies were also manually searched and the Google Scholar engine used to identify additional studies that may have been missed.

Table 2.1: Database search terms

“Nursing assistant factors” OR “nursing assistant satisfaction” OR “job satisfaction” OR “nursing assistants” OR “frontline caregiver” OR “nursing home employee” OR “direct care workers “ OR “ caregiver” OR “nursing assistants”
AND
“Resident satisfaction” OR “consumer satisfaction” OR “user satisfaction” OR “resident experience” OR “resident well-being” OR “ resident outcome”
AND
“Nursing homes” OR “long term care” OR “aged care facility” OR “continuing care retirement community” OR “assisted living” OR “elderly care” OR “long-term care facility” OR “long-term care facilities” OR “nursing home care” OR “long-term care institution” OR “residential aged care”

2.2.3 Selection Procedure

Following the removal of duplicates, titles and abstracts of records were imported into Microsoft Excel. Two authors (XL, QL) screened each record against the exclusion criteria (see Table 2.2) with full texts then obtained with the assistance of a research librarian. A full text was not available, or could not be located, for two records despite an exhaustive online search. The abstracts of potentially relevant articles were subsequently re-screened for eligibility.

Table 2.2: Article inclusion and exclusion criteria

Inclusion Criteria	<ul style="list-style-type: none"> • Participants: residents in long-term care setting. NAs, frontline caregiver, nursing home employee, direct care workers, caregivers, nursing aides. • Study aim: reported a relationship between NA-related factors and resident. • Study design: cross-sectional survey, longitudinal study, experimental study, or qualitative. • Setting: long-term care settings, including nursing home, residential aged care facilities, long-term care facilities, assisted living, continuing care retirement community, and other elder care institutions. • Other: studies published in English. No date limits set.
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(table continues)

Exclusion Criteria	<ul style="list-style-type: none"> • Participants: nurse practitioners, licensed practical/vocational nurses, registered nurses. • Study aim: did not specifically investigate resident satisfaction and related NA factors • Study design: reviews, commentaries, editorials, opinion pieces, conference abstracts. • Other: studies with duplicate data, or full text unavailable (on request).
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2.2.4 Data Extraction

We utilized a data extraction form, derived from piloted templates,^{26,27} (see Section 2.8, Table S1). This data extraction form included details related to the study design and methodology (e.g., publication details, study design, satisfaction instruments). We adapted this form for qualitative studies, by using `observational tools and themes` in place of `instruments and dimensions`. Two authors (XL, QL) independently performed the extraction process. Where information was missing or unclear, we contacted the corresponding author for further details. We then compared the extraction forms with consensus discussion with two additional researchers (CHZH, LO).

2.2.5 Assessment of Study Reporting Quality

The methodological quality of included articles was examined independently by two authors (XL, CHZH), with excellent (80 %) inter-rater agreement. For the study reporting quality, we utilized three validated assessment tools as follows. First, the 8-item Joanna Briggs Institute (JBI) Critical Appraisal Checklist – a recommended tool for cross-sectional studies.^{28,29} Each item is scored as ‘0, 0, 1’, corresponding to the answers ‘No, Unclear, and Yes’ respectively. Then, we calculated the overall quality score, by dividing points scored by the total amount of points, with scores of > 0.8, 0.6 and < 0.6 representing high, moderate, and low ratings.^{30,31,32}

We utilized the same scoring criteria for the remaining quality assessments. This included the JBI Critical Appraisal Checklist, which assesses the trustworthiness and relevance of the

results from Quasi-Experimental Studies,³³ and the 10-item Critical Appraisal Skills Program (CASP) qualitative research checklist - a well-established tool in health research.^{29,34}

2.2.6 Data Synthesis

A meta-analysis was not possible in this review, due to marked heterogeneity in study designs and outcomes. Instead, data were summarized in a narrative form. For quantitative studies, statistically significant associations between NA-related factors and resident satisfaction were reported and results grouped according to four broad categories: NA job satisfaction, NA interventions, NA-resident interactions, and the NA's role in general. Qualitative findings were assessed by the research team and structured into the same aforementioned categories. Two investigators [EM, DD] advised the research writing and data synthesis procedures.

2.3 Results

2.3.1 Studies Identified

As seen in Figure 2.1,³⁵ a total of 330 records were yielded in the database search, with 31 additional records sourced from reference lists. Following the removal of duplicates, and initial screening based on titles and abstracts, 90 records were retained for full-text evaluation. A further 65 records were subsequently excluded based on study design ($n = 47$), unavailability of full text or a non-English publication ($n = 3$) and non-target population ($n = 15$), resulting in a final sample of 25 independent studies.

2.3.2 Study Characteristics

The 25 studies included in this review spanned 30 years (1992-2021), with the majority (60%) published in the last decade. These studies were conducted in 9 counties and regions, including 11 from the USA, 4 from Australia, 2 studies each for Sweden, UK, and Taiwan, and

single studies from Canada, Hong Kong, the Netherlands, and Belgium (see Table 2.3). A range of long-term, aged care settings was represented, from nursing homes (n = 14), to assisted living (n = 2).

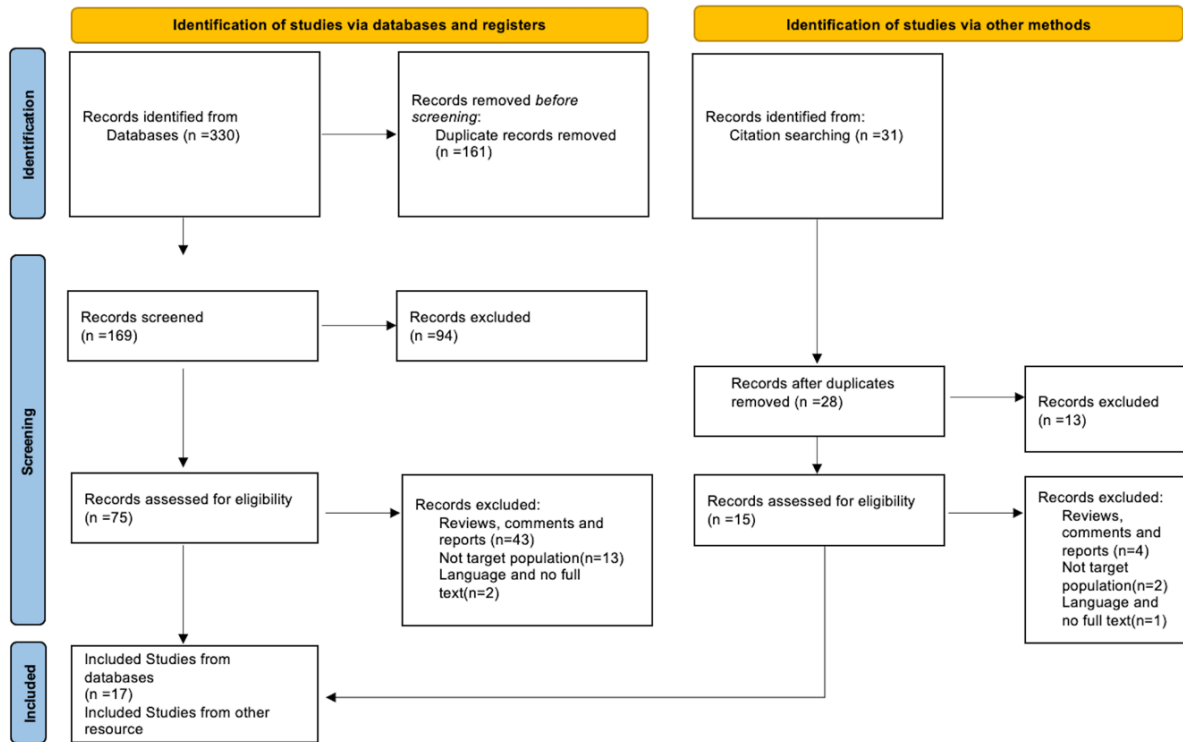


Figure 2.1: PRISMA flow diagram of study selection process for Essay 2.

Table 2.3: Key study characteristics (N = 25)

Country or Region		Publication Date		Setting	
USA	11	Pre-2000	2	Nursing home	14
Australia	4	2000-2005	3	Long-term care facility	5
Sweden	2	2006-2010	5	Residential aged care	2
UK	2	2011-2015	5	Care homes	2
Taiwan	2	2016-2021	10	Assisted living	2
Canada	1				
Hong Kong	1				
Netherland	1				
Belgium	1				

Table 2.4: Detailed results of included studies.

First Author, Year, Country	Sample & Study Design	Instrument	Dimension/Factor	Results/Conclusion	Setting
Kruzich (1992), USA	289 residents cross-sectional study	Nursing home satisfaction NA questionnaire	17 items designed to measure resident satisfaction with issues directly related to the environment & caregivers	Length of employment, level of benefits, wages for NAs and their perception of the charge nurse's fairness and competence were all related to residents' satisfaction with the nursing home.	51 nursing homes
Teresi (1993), USA	74 aides 318 residents experimental study	NA morale NA attitude Resident satisfaction	Measures of NA morale, attitudes toward primary care, & resident satisfaction.	NA organization citizenship training was associated with an increase in resident satisfaction in comparison to non-intervention	19 nursing homes in New York
Chou (2003), Australia	996 residents 895 NAs cross-sectional study	Resident Satisfaction Questionnaire Measure of Job Satisfaction	Resident satisfaction: room, home, interaction, meals, NA care, and involvement. NA job satisfaction: personal, workload, team, training, support	NA job satisfaction plays a crucial and central role in determining resident satisfaction in nursing homes, whereas it has less impact in hostels.	62 facilities (36 hostels, 26 nursing homes)
Boldy (2004), Australia	1446 residents 983 NAs cross-sectional study	Resident Satisfaction	24 items including 6 dimensions: room, home, social interaction, meals service, NA care & resident involvement.	NA job satisfaction was associated with resident satisfaction more than actual care hours they provided.	70 aged care facilities
Barry (2005), USA	586 nurse aide NAs cross-sectional study	Minimum Data Set	Facility risk adjusted pressure ulcer incidence rates & social engagement scores served as resident outcome measures.	Low turnover and high retention of NA were associated with lower pressure ulcer incidence among residents. High turnover and high retention were associated with higher social engagement scores.	Nursing facilities in Maine, Mississippi, New York, Ohio
Sikorska-Simmons (2006 b), USA	335 residents 298 NAs cross-sectional study	Resident Satisfaction Index NAs Job Satisfaction	6 items that focus on resident perceptions of services, of NA, & of facility's social environment.	Greater resident satisfaction in the facility was associated with higher NA job satisfaction and more positive NA views of organizational culture.	43 assisted living facilities
Rondeau (2006), Canada	300 nursing homes cross-sectional study	Nurse Satisfaction and Resident Satisfaction employer-of-choice (magnet) strength	3-item Resident satisfaction: care quality, satisfaction, reputation. 3-item Nurse satisfaction: morale, job satisfaction, rate of grievances.	NA with strong magnet (employer-of-choice) characteristics had higher levels of nurse and patient satisfaction, even after controlling for several significant factors at the establishment level.	300 nursing homes in western Canada

(table continues)

First Author, Year, Country	Sample & Study Design	Instrument	Dimension/Factor	Results/Conclusion	Setting
Carpaci-Claver (2007), USA	23 nurse aides qualitative study	Verbal & nonverbal communication from videos of nurse aides & residents were transcribed	Four forms of verbal communication identified: personal conversation, addressing the resident, checking in, & emotional support/praise	NA affective communication qualities were associated with training programs to improve resident satisfaction.	2 skilled nursing facilities & 1 assisted living facility
Liu (2007), Taiwan	392 residents 244 certified-NAs cross-sectional study	Job Satisfaction of Certified-NAs General Satisfaction of the Residents	10 items focused on 2 aspects: perceptions of the NAs' attitudes toward their work & perceptions of content, duration, and skill of the services that residents received.	Residents' satisfaction was found to increase consistently with the job satisfaction of NAs.	56 nursing homes in southern Taiwan
Bishop (2008), USA	255 certified NAs 105 residents cross-sectional study	NAs' views of their jobs survey Quality-of-life questionnaire	NA survey (82 items): workplace relationships, job satisfaction, & resident care. Resident survey (38 items), relevance to quality of life & relationships with NAs	Higher NA job commitment was associated with residents' satisfaction and quality of life.	18 nursing homes in Massachusetts
Clare (2013), UK	32 care NAs received training vs. 33 NAs had no training. experimental study	Aware-Care measure, Quality of Life in Late-stage Dementia scale	Quality of life rated independently by a family member and by care NAs.	Awareness training for NAs resulted in more satisfied residents and their families than a comparison group with no training	8 care homes in UK
Coleman (2013), USA	19 residents/aide dyads experimental design	Resident Satisfaction Index Person-centered training intervention	The RSI includes five subscales: health care, housekeeping, physical environment, relationships with NAs, & social life/activities	Residents' perceptions of relationship closeness with NA was associated with higher satisfaction.	NH1 had 160 residents and NH2 had 92 residents.
Liu (2014), Hong Kong	49 NAs qualitative study	semi-structured individual interviews, group discussion	Four themes identified: pain assessor. reporter; prescribed interventions. & Instigator implementing non-pharmacological interventions.	NAs are perceived to be undervalued in their job roles.	12 nursing homes
Simmons (2014), USA	17 nurse aide & 15 family cross-sectional study	video vignettes of care interactions	Participants were asked to rate their preferred care vignette using a standardized forced-choice questionnaire	Both families of residents and NAs strongly preferred NA-resident interactions in which choice was offered for specific aspects of care.	2 long-term care community

(table continues)

First Author, Year, Country	Sample & Study Design	Instrument	Dimension/Factor	Results/Conclusion	Setting
Willemse (2015), Australia	51 residents qualitative study	dementia care mapping	NAs resident interactions that either address (personal enhancers PEs) or undermine (personal detractors PDs) and scores for resident's mood and engagement (ME-value).	NA interactions which address residents' need for attachment, identity and inclusion and eliminate interactions which undermine residents' need for comfort can increase residents' well-being.	9 long-term care settings
Verleye (2016), Belgium	279 frontline employees cross-sectional study	customer engagement behaviors measure Role stress measure	Role stress consists of 3 role stressors: role ambiguity, role conflict, & role overload. 4 forms of customer engagement: cooperation, giving feedback, helping other customers, & spreading positive word of mouth.	NA role stress and job strain were mitigated with more positive customer feedback by word of mouth about the nursing home.	20 nursing home teams in Belgium
Boakye-Dankwa (2017), Australia	203 skilled nursing facilities cross-sectional study	My Inner View Job Satisfaction Survey	Items of resident satisfaction: activities, food, laundry, community life; transportation; amenities; personal assistance needs.	Investments in workplace safety, higher NA staffing levels, and employee engagement programs were associated with improving employee retention, resident satisfaction, and better quality of care.	203 skilled nursing facilities in 13 states in the eastern United States
Kusmaul (2017), USA	23 Certified NAs qualitative study	NAs were asked to identify factors they felt were components of good care	3 themes emerged: technical aspects of care; care of the environment; & a little bit more.	NAs reported a need for assessments of quality care that incorporated their voices.	8 New York State nursing homes
Plaku-Alakbarova (2018), USA	52300 residents 175 skilled nursing facilities cross-sectional study	My Inner View An Annual Satisfaction Survey	24 items, categorized into 4 subdomains: quality of life (10 items), quality of care (8 items), quality of service (4 items), & global satisfaction (2 items).	Increase in NA employee satisfaction was associated with an increase in the satisfaction of residents and family members.	175 skilled nursing facilities in the eastern United States
Chao (2019), Taiwan	590 residents 315 geriatric nursing NAs cross-sectional study	Maslach Burnout Inventory Residential satisfaction	22 items (9 items emotional exhaustion, 5 items depersonalization, 8 items personal accomplishment)	Higher depersonalization among NAs associated with lower residential satisfaction and perceived quality-of-life, as well as more depressive symptoms among residents.	172 long-term care facilities in Taiwan

(table continues)

First Author, Year, Country	Sample & Study Design	Instrument	Dimension/Factor	Results/Conclusion	Setting
Gerritsen (2019), Netherlands	291 Care NAs 239 residents cross-sectional study	Dementia Questionnaire Social Wellbeing of Nursing home residents	The Approaches to Dementia Questionnaire includes 19 items The Social Well-being of Nursing home residents scale has 9-items	Care processes may be improved by focusing on NAs' attitudes of care, with important benefits for the well-being of residents with dementia.	15 long-term care facilities in the Netherlands
Surr (2019), UK	3 care homes qualitative study	Training program Dementia Care Mapping	Training was said to improve empathy, knowledge about the lived experience of dementia and the importance of meeting individual needs.	Empathy training for NAs increased resident well-being, although the results varied by facility.	3 care home provider organizations
Abrahamson (2020), USA	25 NAs qualitative study	10 questions addressed NA perceptions	4 themes identified: communicating, protecting, cooperating, & caring.	Increased NA input into programs and policies would not only improve the resident experience but is warranted.	17 organizations and seven states
Lood (2020), Sweden	459 resident and NAs experimental study	Pyramid Questionnaire	31 questions on: information, nursing NAs, caring processes, activity, contact, social support, participation, and work environment.	NA services were associated with care satisfaction among residents and family of residents.	2 nursing home in each site in Australia, Norway, and Sweden
Lamppu (2021), Finland	324 residents experimental study	4-hour education Edmonton Symptom Assessment Scale	workshops on advance care planning, adverse effects of hospitalizations, symptom management, communication, supporting proxies, challenging situations.	NA training in managing hospitalization improved changes in symptom scores although pain, well-being, and satisfaction remained unaffected by the intervention.	20 long-term facility wards in Finland

2.3.3 Sample Characteristics

Studies typically recruited residents from multiple sites, ranging from two long-term care facilities to as many as 300.^{36,37} Sample sizes varied accordingly, from 51 to 52300 individual residents,^{36,37} and from 17 to 983 NAs - including certified and non-certified NAs.^{34,14} These key sample parameters were, however, inconsistently reported across the 25 studies (see Table 2.4).

2.3.4 Study Reporting Quality

The 25 quality assessments included 14 cross-sectional, 5 experimental, and 6 qualitative studies. Results are tabulated in Table S2 (Section 2.8). Overall, methodological quality across the studies was moderate (n = 14) to high (n = 11).

2.3.5 NA Factors and Resident Satisfaction

NA factors identified as contributing to resident satisfaction with ongoing care provision were categorized according to the context of care, namely NA job satisfaction (n = 8), the scope of NAs interventions (n = 7), the ways in which NAs interacted with residents during daily care (n = 6), and the NAs role in improving residents' experiences in general (n = 4). Each category is described in more detail below.

2.3.5.1 Job Satisfaction

That job satisfaction among NAs likely contributed to resident satisfaction was identified by eight studies. Chou et al.,¹³ in their cross-sectional study, found that NA's job satisfaction (operationalized with the Measure of Job Satisfaction) played a crucial and central role in determining resident satisfaction in nursing homes, although had less impact among those in assisted living. Similarly, Boldy et al.¹⁴ using a Resident Satisfaction survey with 1446 residents

and 983 NAs, identified job satisfaction as having a greater influence on resident satisfaction than actual care hours provided. The remaining studies also identified a positive correlation between NA's job satisfaction and resident satisfaction within a facility, regardless of measurement (e.g., Minimum Data Set ⁴⁰, a job survey for NAs, ⁴¹ a survey for resident quality of life, ⁴¹ questionnaires focusing on Resident Satisfaction and Job Satisfaction. ⁴²) Plaku-Alakbarova et al.³⁹ presented quantitative evidence to prove that a 1-point increase in overall satisfaction among NAs was associated with a marked increase of 17.4 points in the satisfaction of residents and their family members also. In this same study, NA satisfaction correlated with a 19% decrease in the incidence of resident falls, weight loss, and pressure ulcers combined – highlighting the key contribution of NAs job satisfaction to different facets of residents` quality of life.

The consequences of NAs being dissatisfied with their jobs was also explored. Kruzich et al. ⁴³ and Barry,⁴⁴ reported that low salaries and poor job benefits were associated with high staff turnover and, subsequently, poorer quality of care. Both studies also linked higher NA turnover to a greater incidence of pressure ulcers and dissatisfaction amongst residents with their care. The authors ^{43,44} emphasized the need for nursing home administrators to attend to the job satisfaction of NAs, given the potential impacts on not only NAs but also for the residents and the facilities.

2.3.5.2 Interventions

Seven studies identified the importance of having NAs undertake different interventions, in addition to a need to change current NA practices in long-term care - through additional training and professional development. Findings varied. Specifically, Teresi et al. ⁴⁵ investigated the primary care model, which focuses on fostering feelings of direct responsibility for individual resident care, enhancing socioemotional interactions between NAs and residents, and allowing

residents greater autonomy in their care. The authors concluded that residents within this model, which involved NAs providing long-term care and working in teams of two to share work tasks, were very satisfied with this intervention. A further intervention program, titled the 'strong magnet' (reflecting the high involvement of NAs), also contributed to high levels of satisfaction amongst both NAs and residents.³⁷ Two studies evaluated intervention programs for residents with dementia. Clare et al,⁴⁶ introduced an AwareCare program which required NAs to undergo training in identifying signs of awareness and responsiveness in residents. Residents under the care of these NAs experienced significantly better quality of life, as rated by their family members, than a comparison group of NAs that did not received this targeted training. Surr et al⁴⁷ interviewed NAs and residents to assess the impact of another dementia training program which focused on improved communication, increased activity, and resident well-being. Results were mixed - with observations of positive well-being and engagement not consistently identified by residents that they surveyed across eight different sites. Coleman et al.⁴⁸ and Lood et al.¹⁵ reported the positive impacts of a staff education program about person-centered care on residents' perceptions of closeness and relatives' general satisfaction with the quality of care, respectively. However, Lood et al,¹⁵ observed no statistically significant between-group-effects when they compared their 14-month training to a 1-hour lecture on this same topic. Finally, Lamppu et al.⁴⁹ compared pre-and post-data related to a workshop on palliative care principles. They identified a change in psychological well-being of residents from baseline to 6 months in favor of the intervention group. However, the findings were diluted at 12 months.

2.3.5.3 Interactions with Residents

The relationship and interactions between NAs and residents in long-term care were identified as critical to successful care outcomes.⁵⁰ Carpiac-Claver,⁵¹ Kusmaul,⁵² and Gerritsen⁵³

found that affective communication, love, and empathy, beyond the physical tasks of caring, improved the care process. Simmons³⁶ and Willemse³⁸ also revealed the importance of increasing NA-resident interactions to foster residents' need for attachment, identity and inclusion and, ultimately, achieve residents' well-being. Here, families of residents as well as NAs both preferred NA-resident interactions when the resident was given more scope and choice in the health services that they would like to receive, along with the activities that they could participate in.^{36,38} The buffering effect of positive customer feedback on job stress was also noted, particularly the importance of staff spreading a positive word of mouth about the nursing home in which they worked.⁵⁴

2.3.5.4 Job Role

Nursing care within long-term care facilities was seen to be comprehensive and personal, encompassing many aspects of a resident's life - including medical, psychosocial, and spiritual needs, as well as maintenance of the living environment. NAs were described as versatile, playing a central role in the provision of long-term care. In particular, Boakye-Dankwa⁵⁵ and Abrahamson⁵⁶ highlighted the importance of increased NA input into programs and policies in order to improve the resident experience. Liu⁵⁷ identified NAs as having a supporting role in pain management. However, their role in resident care was also, reportedly, undervalued by other healthcare professionals. Finally, in their survey of burnout among NAs, Chao⁵⁸ found significant negative relationships between higher levels of depersonalization and poorer resident outcomes - including lower residential satisfaction, lower perceived quality-of-life, and more severe depressive symptoms.

2.4 Discussion

This systematic review investigated the available evidence examining the association

between satisfaction of aged-care residents and NA factors. Data from 25 studies spanning 9 countries and regions, were analyzed. We proposed that NAs play a major role in residential services given their unique insight into the experiences of residents. This was confirmed by our data, which included responses from NAs themselves, residents, and their families.

Our findings highlight the complexity of the NAs role, one which extends beyond providing daily care and completing assigned tasks (such as toileting, bathing, or feeding) to relationship-based aspects such as communication, psychosocial support and comfort. As with any health care professional, communication skills are equally critical to clinical skills for NAs. These findings point to a need to develop effective, diverse ways to recognize the contribution of NAs, potentially by redesigning NA job descriptions in long-term care to better fit their multi-faceted role.^{59,60,61} Left unaddressed, increasing numbers of NAs will likely show their dissatisfaction through poorer performance, burnout, work absences, and high rates of turnover.⁶²

Workforce shortage remains a significant obstacle to the development of the long-term care industry – an industry facing a rapidly expanding population of older adults which require life-long care.³ Current problems with recruitment and retention of NAs within aged care may, in part, reflect wage parity issues. Despite NAs providing around 80% of the workload in nursing homes in the United States,⁶³ nurse aides, care aides, frontline caregivers, and direct care workers remain significantly underpaid.^{64,65} Concerningly, nearly half (44 percent) of NAs working in nursing homes earn a median income of \$22,200 per year⁶⁵ and live-in low-income households.⁶⁶

The importance of wages and financial benefits to NA's job satisfaction has previously been established.^{67,68} In saying this, we recognize that job satisfaction does not only stem from monetary needs. A job needs to be meaningful to an employee as well as motivate them. For this

reason, it is critical for service providers to provide sufficient support, resources, and training to develop and expand the skills set of their NAs, helping to foster growth and development in their work.^{69,70} As identified in this review, enhancing job satisfaction can have equally positive impacts on resident satisfaction. The existing literature suggests that effective intervention and training programs can lower the level of employee turnover, helping to ensure a consistent workforce and, ultimately, contribute to increased resident satisfaction.^{35,43} Notably, only three of the seven intervention studies examined in the current review reported significant impacts on resident satisfaction, including learning and behavioral changes, through positive NA reactions.^{37,45,46} These programs focused on key topics: NA high-level involvement, skills training in primary care, and an awareness-based intervention to help care for residents with dementia. Coleman et al,⁴⁸ Surr et al,⁴⁷ Lood et al,¹⁵ and Lamppu et al.⁴⁹ suggested that intervention programs which are tailored to NAs needs are more likely to lead to positive outcomes among older adults in long-term care. Future research should consider effective ways to develop and improve intervention and training programs tailored to NA working in long-term care.

2.5 Limitations

Although we used rigorous methods in this review, a number of limitations need to be considered. First, whilst we adopted several search strategies, including both recommended and specialized databases (e.g., PsycINFO, AgeLine;) and Google Scholar for completeness,⁷¹ we may not have captured all relevant studies in our search. Similarly, our search strategy was restricted to key words. Given that the term `satisfaction` is a heterogeneous construct, in addition to the broad range of synonyms that the terms `NAs` and `long-term care` encompass, some studies may have been inadvertently missed. Language limitations are another issue in search processing. As we only chose English studies, albeit global publications, our findings cannot be

generalized to the broader residential care population – particularly in developing countries. Lastly, due to the differing long-term care settings, services in these settings, and research methods that characterized included studies, the identified NA factors associated with resident satisfaction were quite diverse, making it difficult to precisely operationalize the examined NA factors, particularly a crucial construct such as job satisfaction.

2.6 Conclusion

In this review we analyzed and summarized available evidence regarding the relationship between NA factors and resident satisfaction across different long-term care settings. Four key factors contributing to resident satisfaction were identified: NAs' job satisfaction, the particular interventions that they undertake, their interaction with residents, as well as their roles and responsibilities. The findings highlight the comprehensive and important role that NAs serve in improving the long-term care of aged residents. A need for nursing home administrators to better understand the value of NAs, and to cultivate avenues for growth and development in their work, is suggested. Such growth will not only benefit NAs but can have broader benefits for the residents and the organization.

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2.8 Supplemental Material

Table S1. Example data extraction form

Reviewer: XL	Review date: 04/05/21	Study No: 3
Paper title: Assessing resident satisfaction and its relationship to NAs satisfaction in residential aged care		
Year published: 2004	Country: Australia	First author: Boldy et al.
Publication title: The Gerontologist		
Study design	Cross sectional survey	
Sample size / data (n)	1446 residents, 983 NAs	
Setting	70 aged care facilities in Australia.	
Instrument/measurement (quantitative study) OR Observational tool (qualitative study)	Resident Satisfaction Questionnaire	
Dimension/Area (quantitative study) OR Themes/concepts (qualitative study)	24 items including 6 dimensions: room, home, social interaction, meals service, NAs care, resident involvement.	
Results	Satisfaction with NAs care was found to have a significant, positive impact on all aspects of resident satisfaction, NA satisfaction had more influence on resident satisfaction than actual care hours provided	

Table S2. Quality assessment of included cross-sectional studies based on the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for analytical cross-sectional study (n = 14 studies)

Lead author (date) Country	Were the criteria for inclusion in the sample clearly defined?	Were the study subjects and the setting described in detail?	Was the exposure measured in a valid and reliable way?	Were objective, standard criteria used for measurement of the condition?	Were confounding factors identified?	Were strategies to deal with confounding factors stated?	Were the outcomes measured in a valid and reliable way?	Was appropriate statistical analysis used?	Overall/Possible Score
Kruzich(1992) USA	Y (1)	Y (1)	U (0)	Y (1)	N (0)	U (0)	Y (1)	Y (1)	5/8 0.63
Chou (2003) Australia	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	U (0)	Y (1)	Y (1)	7/8 0.88
Boldy (2004) Australia	N (0)	Y (1)	Y (1)	Y (1)	Y (1)	U (0)	Y (1)	Y (1)	6/8 0.75
Barry (2005) USA	U (0)	Y (1)	Y (1)	Y (1)	Y (1)	U (0)	Y (1)	Y (1)	6/8 0.75
Sikorska-Simmons (2006 b) USA	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	1 (1)	Y (1)	Y (1)	8/8 1
Rondeau (2006) Canada	U (0)	Y (1)	Y (1)	Y (1)	Y (1)	N (0)	U (0)	Y (1)	5/8 0.63
Liu (2007) Taiwan	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	N (0)	Y (1)	Y (1)	7/8 0.88
Bishop (2008) USA	U (0)	Y (1)	Y (1)	Y (1)	N (0)	U (0)	Y (1)	Y (1)	5/8 0.63
Simmons (2014) USA	Y (1)	Y (1)	Y (1)	U (0)	N (0)	N (0)	Y (1)	Y (1)	5/8 0.63
Verleye (2016) Belgium.	N (0)	Y (1)	Y (1)	Y (1)	Y (1)	U (0)	Y (1)	Y (1)	6/8 0.75
Boakye-Dankwa (2017); Australia	Y (1)	Y (1)	Y (1)	N (0)	N (0)	U (0)	Y (1)	Y (1)	5/8 0.63
Plaku-Alakbarova (2018); USA	N (0)	N (0)	Y (1)	U (0)	Y (1)	Y (1)	Y (1)	Y (1)	5/8 0.63
Chao (2019) Taiwan	Y (1)	Y (1)	Y (1)	U (0)	N (0)	Y (1)	Y (1)	Y (1)	6/8 0.75
Gerritsen (2019) Netherlands	Y (1)	Y (1)	Y (1)	Y (1)	N (0)	Y (1)	Y (1)	Y (1)	7/8 0.88

Response options: Y (Yes), N (No), U (Unclear), NOT (Not applicable).

Table S2. Quality assessment of included experimental studies based on JBI Critical Appraisal Checklist for Quasi-Experimental Studies (n = 5 studies)

Lead author (date) Country	Is it clear in the study what is the ‘cause’ and what is the ‘effect’	Were the participants included in any comparisons similar?	Were the participants included in any comparisons receiving similar treatment/care, other than the exposure or intervention of interest?	Was there a control group?	Were there multiple measurements of the outcome both pre and post the intervention/ex posure?	Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed?	Were the outcomes of participants included in any comparisons measured in the same way?	Were outcomes measured in a reliable way?	Was appropriate statistical analysis used?	Overall/Possible Score
Teresi (1993) USA	Y (1)	Y (1)	U (0)	N (0)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	7/9 0.78
Clare (2013) UK	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	N (0)	Y (1)	Y (1)	Y (1)	8/9 0.89
Coleman (2013) USA	Y (1)	Y (1)	U (0)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	8/9 0.89
Lood (2020) Sweden	Y (1)	U (0)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	8/9 0.89
Lamppu (2021) Finland	Y (1)	N (0)	Y (1)	N (0)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	7/9 0.78

Response options: Yes (Y), No (N), Unclear (U), Not applicable (NOT).

Table S3. Quality assessment of included qualitative studies based on The Critical Appraisal Skills Programme (CASP) Checklist for Qualitative Research (n = 6 studies)

Lead author (date) Country	Was there a clear statement of the aims of the research?	Is a qualitative methodology appropriate? Is it worth continuing?	Was the research design appropriate to address the aims of the research?	Was the recruitment strategy appropriate to the aims of the research?	Was the data collected in a way that addressed the research issue?	Has the relationship between researcher and participants been adequately considered?	Have ethical issues been taken into consideration?	Was the data analysis sufficiently rigorous?	Is there a clear statement of findings?	How valuable is the research?	Overall/Possible Score
Carpniac-Claver (2007) USA	Y (1)	C (0)	Y (1)	Y (1)	Y (1)	N (0)	Y (1)	C (0)	Y (1)	Y (1)	7/10 0.7
Liu (2014) Hong Kong	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	N (0)	Y (1)	Y (1)	Y (1)	Y (1)	9/10 0.9
Willemse (2015) Australia	Y (1)	C (0)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	C (0)	8/10 0.8
Kusmaul (2017) USA	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	C (0)	N (0)	C (0)	Y (1)	Y (1)	7/10 0.7
Surr (2019) UK	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	C (0)	Y (1)	Y (1)	9/10 0.9
Abrahamson (2020) USA	Y (1)	Y (1)	Y (1)	Y (1)	Y (1)	N (0)	Y (1)	Y (1)	Y (1)	Y (1)	9/10 0.9

Response options: Y (Yes), N (No), C (Can't Tell).

ESSAY 3

VALIDATION OF THE CHINESE VERSION OF THE RESIDENT SATISFACTION IN LONG-TERM CARE FACILITIES*

3.1 Introduction

China is among the most rapidly aging countries and has the largest aging population in the world. In 2020, the number of Chinese older adults aged 60 and older had reached 264 million and accounted for 18.7% of the total Chinese population; a 5.44% percentage point jump from the percentage in 2010, and this percentage is projected to reach 26.9% by 2050.¹ The rapidly expanding aging population leads to increasing demand for long-term services and supports for older adults. Additionally, the number of traditional extended families has been declining and replaced by nuclear families due to the One-Child policy enacted in 1979. In China, a typical family now consists of four grandparents, two adults (married couple), and one grandchild, the 4:2:1 family structure.² These changes in the family structure pose challenges to the traditional elder care system in which adult children are obligated to care for older parents. The current generation of adult children has been overextended by their employment and parenting their children. Furthermore, due to extensive urbanization and centralization of employment opportunities in major cities, tens of millions of young adults have migrated from rural to urban areas, leaving their parents to age at home alone.^{3,4} As a result, long-term care services and facilities have emerged and rapidly developed across major cities in China.⁵

Conventionally, institutional long-term care in China has been under-developed and used

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almost exclusively by low-income older adults either with disabilities or having no relatives, a typical example of welfare facilities. With the social changes, the scope of aging care is shifting from “having a place to survive” to “having better care and freeing the children from caregiving burnout.” Recognizing such a change, the Chinese government encouraged the public and private sectors to invest and develop long-term care facilities by providing policy supports, including tax exemption, financial inducement, and operating subsidies.⁶ As a result, the number of long-term care facilities was reported to be over 30,000 across the country in 2019, compared to only 319 in Beijing and 358 in Shanghai, in 2001.^{7,8,9} Because the needs and expectations of long-term care facilities have been increasing and the development of such facilities have been thriving, the quality of care, services, and the facilities themselves become a focus in the eyes of residents, health service providers, and facility administrators.

Quality assessment and evaluation are keys to the successful future development of long-term care industry in China. It has become urgent to have a standardized measurement that could be generalized across China and fit in Chinese social contexts. However, the long-term care model design and development are still in the early stages.¹⁰ To date, only a few standardized assessment tools about residents’ satisfactions are being widely used,⁶ among which, most of them are focusing on physical features of facilities such as buildings, rooms, and exterior environment.¹¹ Hence, residents’ living experience and their satisfaction with health services were largely missing in studies, despite the recognition that the judgment or opinions given from residents’ perspective are critical in the assessment of the quality of service and service delivery improvement.¹²⁻¹⁵ Resident satisfaction stands out as it is assessed directly from the resident’s perspective rather than being inductively summarized from the service provider’s perspective. Resident satisfaction can also reflect the providers’ success in meeting residents’ values and

expectations.¹⁶ However, the development of such measurement in China is still in its initial stages. It needs a validated, reliable, and standardized measurement that could be utilized in the Chinese language and fit the characteristics of Chinese society and cultural contexts.

Although resident satisfaction is widely accepted as a valuable component of quality measurement and a few satisfaction instruments have been developed, many of them adopted the ideas from the measurement tools of industrial service or hospital service, which may bias the measurement results when applied in long-term care services and facilities. One of the common issues in resident satisfaction measurements is that some survey items may not fully capture a typical resident's daily life in long-term care communities.^{17,18} For example, about one-third of the Nursing Home Resident Satisfaction Scale (NHRSS) items focus on the physician service, while the residents in long-term care are usually not patients in hospitals and have fewer interactions with the physicians. There are studies that criticized the NHRSS as it did not cover items about residents themselves or questions about their values and opinions¹⁹.

Satisfaction among older adults regarding their long-term care services tends to be a complicated concept that needs a multidimensional structure.²⁰ However, it is commonly seen in practices that the satisfaction was measured by a one-item overall satisfaction question in long-term care facilities. Studies revealed that one-item satisfaction should be used to represent one's general satisfactory level at the time of measurement, rather than to measure satisfaction with specific services.²¹ Simply using overall satisfaction in long-term care facilities may confuse service providers as they may not know where the discrepancies between the general and the specific satisfaction come from.²² Another problem of satisfaction measurement is the lack of validity and reliability, including the lack of standardized survey content, format, instrument design, and validity and reliability information.^{23,24}

To narrow this gap, we have reviewed existing satisfaction instruments based on these criteria: standardized items, validated structure, reliable internal consistency, and multidimensional measures. For example, Nursing Home Resident Satisfaction Scale lacks standardized items, Global Satisfaction uses a single item for measurement, and Nursing Customer Satisfaction Survey has not been validated in scholarships. The Ohio Long-term Care Resident Satisfaction Survey (OLCRSS) stood out as it meets these criteria. The State of Ohio became the first state that had begun gathering consumer input about the quality of nursing homes in 2001. The State of Ohio further implemented a tool for residents in residential care facilities (RCFs, also known as assisted living) in 2007. Recently, the OLCRSS has become an indispensable piece in the long-term care system and has been conducted biennially through in-person interviews. Mailed surveys to family members occur in alternating years. About 175,000 residents of long-term care facilities have provided input about the facilities where they received care.²⁵ The original OLCRSS was revised in 2016 and is a multidimensional instrument and contains 46 items in 7 domains, including (1) Moving in (3 items), (2) Spending Time (8 items), (3) Care & Services (6 items), (4) Caregivers (9 items), (5) Meals & Dining (5 items), (6) Environment (7 items), (7) Facility Culture (8 items). Previous studies reported great validity and reliability of the original OLCRSS.^{26,27} This study aimed to translate the OLCRSS into the Chinese language and assess the validation, reliability, and structural validity of the Chinese version OLCRSS among Chinese residents in Chinese long-term care facilities.

3.2 Methods

3.2.1 Study Design

A cross-sectional survey was conducted to assess the validation of the Chinese version OLCRSS in long-term care facilities. The study was approved by institutional review boards

(IRB) of the University of North Texas.

3.2.2 Participants

The study enrolled a convenience sample of 200 residents of long-term care facilities in Shanghai, China, from March 2021 to July 2021. The inclusion criteria were age 65 and older, speaking and reading simplified Chinese Mandarin, having lived in long-term care facilities for one month or more, and being cognitively competent to understand the questionnaires. Participants who were diagnosed with dementia or Alzheimer`s disease were excluded from the study. We reached out to 200 residents who met the inclusion criteria and all of them provided informed consent to participate in the study. All data were collected without identifiable personal information, and data storage was Health Insurance Portability and Accountability Act compliant.

3.2.3 Procedure

Miami University initially developed the Ohio Long-term Care Resident Satisfaction Survey (OLCRSS), collaborated with the Ohio Department of Aging. The authors of this study contacted the Miami University researchers and obtained permission to use, translate, and reproduce the OLCRSS in China. The OLCRSS was translated from English to simplified Chinese Mandarin following Beaton`s model.²⁸ At the initial translation stage, two bilingual translators whose first language is Chinese translated the instrument from English to Chinese. The two translators reached a consensus to solve ambiguities or poor wording issues. Two additional translators then weighed in and translated the questionnaire back into English. To ensure cross-cultural equivalence, a professional team was invited to review all translated survey items. A professional team comprised of health professionals, long-term care providers, and language professionals evaluated the final version of the translated survey and reached a

consensus on any remaining discrepancies. According to professionals' suggestions, the translation was reviewed, and revisions were made for validation testing.

The instrument's content validity was evaluated by a professional panel of five experts who have experience in caring for residents of long-term care facilities, including one long-term care administrator, two nurses, and two caregivers in China. They were invited to rate the magnitude of relevance, clarity, and comprehensiveness of the items in the Chinese version OLCRSS.²⁹ As suggested by the expert panel, the original binary response options (yes or no) in the OLCRSS were extended to a five-point Likert scale ranging from 0-4 (0, *strong disagree*; 1, *disagree*; 2, *agree*; 3, *strong agree*; 4, *don't know*) to increase variance in satisfaction among Chinese older adults in long-term care facilities. According to Lynn,³⁰ an instrument with a high content validity index (CVI) is considered content validated. The CVI calculated from an expert panel with less than six experts should equal 1 to be regarded as good content validity and the CVI calculated by more than six experts could be lowered to .78 to be considered acceptable content validated.

The instrument's construct validity was evaluated by assessing the relationship between the Chinese version OLCRSS and other related measurements, including depression, quality of life, and global satisfaction. We expected that the correlation of resident satisfaction with depression would be negative, and that with the quality of life and the global satisfaction would be positive.

3.2.4 Measurements

Depression was measured using Patient Health Questionnaire (PHQ-9), in which participants were asked to rate how they felt in the past two weeks. The 9-items are scored 0 to 3

(0 = *not at all*, 1 = *several days*, 2 = *more than half the days*, and 3 = *nearly every day*).³¹ The internal consistency of questions of PHQ-9 was .85.³²

Quality of life was measured by EUROOLO (EQ-5D), which is widely used to measure health-related quality of life worldwide. The EQ-5D contains five dimensions: mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. The internal consistency reliability of the EQ-5D was .74.³³ The EQ-5D also demonstrated moderate to high correlations with measures of impairment and high correlations with disability measures among the older adults.³⁴

Global satisfaction was assessed by global resident satisfaction in long-term care facilities. The question in this study was addressed “Overall, how satisfied are you with the services you are receiving?”¹⁶

The OLCRSS is a multidimensional instrument that contains 46 items in 7 domains. The scales had good internal reliability ($\alpha = .76$ and above), test-retest reliability ranged from .49 to .88, indicating good reliability of the OLCRSS.²¹

3.2.5 Data Collection

Researchers contacted nursing home administrators and obtained their permission to conduct the survey. The comprehensive survey questionnaire was administered to participants, along with the Chinese version OLCRSS, Patient Health Questionnaire (PHQ-9), EQ-5D Health Questionnaire, and the Global satisfaction question. The survey and additional questionnaires took about 20 minutes to complete, most of the questionnaires were answered by participants themselves and nurses provided helps when residents needed support. Two weeks after the initial resident data collection, participants were asked to respond to the Chinese version of OLCRSS again to test the stability of the Chinese version OLCRSS. Meanwhile, demographic information

such as age, gender, education level, marital status, health status, and length of stay in the long-term care facilities was obtained from residents themselves.

3.2.6 Statistical Analysis

Missing values were checked. The number of missing values ranged from zero to 50. Four items have the most missing values: care 3, 4, 5, and 6, which all related to therapy service programs. The residents may not have therapy experiences in Chinese long-term care facilities as they need pay for it out of pocket. Other variables had missing values ranging from zero to 6, not exceeding 10% of the total observations, and were imputed with mode substitution.³⁷ In EFA, the missing value of the items Care 3- 6 were imputed using the full information maximum likelihood.

Descriptive statistics were conducted to summarize the characteristics of the study participants. Content validity (CVI) was reviewed by a panel of experts who rated the translated OLCRSS item by item. We examined Cronbach's alpha of all scale items and subscales to evaluate the internal consistency of the Chinese version OLCRSS. To determine the intra-measurement reliability, we also calculated the intraclass correlation coefficient (ICC)³⁵ and coefficient of variation.³⁶ For structure validity of the Chinese version OLCRSS, we performed an exploratory factor analysis using principal components analysis given the difference between social context, health services delivery system, and cultural influence. The number of factors to be pulled was gauged by eigenvalues, parallel analysis, and scree plot test. We further examined the global validity of the Chinese version OLCRSS by Pearson correlation. All statistical analyses described above were performed in R (ver. 4.1.0) using RStudio (Ver 1.4.1717) with base packages for descriptive and internal consistency check, and Lavaan package for structure analysis.

3.3 Results: Demographic Characteristics

A total of 200 residents provided their consent and agreed to participate in the study, of which 87% completed the comprehensive survey. The final sample consisted of 172 older adults (126 females, 44 males). Over half of the study participants were between 81 and 90 years of age. Approximately 46% have a secondary school degree, about 35% have a high school degree, and 16% have a bachelor's or above. Of the sample, 48% were married, 70% shared a room with others. Eighty-six percent of people have at least two chronic diseases. Most of the respondents had lived in the long-term care facility for one to three years. Table 3.1 presents the characteristics of the sample.

Table 3.1: Characteristics of the research sample (N = 172)

		n	%
Age	60-70	3	1.7
	71-80	26	15.1
	81-90	98	57.0
	90+	44	25.6
Gender	Male	44	25.6
	Female	126	73.3
Education	Secondary school	81	47.1
	High school	62	36.0
	College and above	25	14.5
Marital Status	Married	83	48.3
	Widowed	11	6.4
	Separated	34	19.8
	Unmarried	41	23.8
Living Status	Single room	2	1.2
	Double room	45	26.2
	Triple room	120	69.8
Health Status	Independent living	68	39.5
	Assisted care	86	50.0
	Nursing care	16	9.3
	Chronic Conditions	111	64.7

The internal consistency validity across all items of the Chinese version of OLCRSS was .96, indicating an excellent internal validity. The internal validity of the subscales was .91, .83, .82, .89, .90, .84, and .94 for subscales Move-in, Spending Time, Care and Services Caregivers, Meals and Dining, Environment, and Facility Culture, respectively. Table 2 presents the ICC and alpha calculated from the items of the Chinese version of OLCRSS.

The content validity index (CVI) was calculated by putting the numbers of experts who selected 3 (good) and 4 (excellent) over the total number of experts. The CVI in this study was 1.0, indicating that all experts in the advisory panel recognized the content validity, and all experts agreed that the contents were relevant.

The test and re-test reliability was tested by intraclass correlation coefficients (ICC). The ICC for all times together was .96, which was considered excellent reliability, indicating reliable test and re-test validity. The construct validity of the Chinese version of OLCRSS was determined by its good correlation with the PHQ-9 ($r = .267, P < 0.01$), with EQ-5D ($r = -.044, P = .498$), and with Global satisfaction ($r = .309, P < 0.01$). Combining the results of Cronbach alpha and ICC, the item validity and reliability have been supported (Table 3.2).

Table 3.2: ICC and Cronbach alpha of the Chinese version OLCRSS.

	ICC	α
Moving In	0.91	0.91
Spending Time	0.83	0.83
Care and Services	0.82	0.82
Caregivers	0.89	0.89
Meals and Dining	0.90	0.90
Environment	0.84	0.84
Facility Culture	0.94	0.94

We conducted an exploratory factor analysis (EFA) using principal components analysis (PCA). Parallel analysis with 1000 iterations suggested a five-factor solution as the top five

eigenvalues were greater than that of parallel estimation. The suggested factors were rotated using the orthogonal (Varimax) approach. The cumulative proportion of variance explained of the five-factor solution was 61%. We selected the cutoff point of loading at .5.

According to item loadings, the first factor was consisted of spending time items 3,4,5,8, cares services items 1,2, caregivers 2,4, and facility culture 2,8; the second factor with caregivers items 1, 3, 5, 8, and meals items 1, 2, 4, 5; the third factor with environmental items 2,3,4,5 and culture items 1,3, 4,5, 6,7; care services items 3,4,5,6 for the fourth factor; and move-in items 1,2,3 for factor 5. The major differences between the original scale and the new five-factor solution are 1) meals and caregivers are integrated into one factor, and 2) environmental and facility cultural items are heading in the same direction. From factor 1 to 5, the proportions of variance explained were 16.7%, 15.2%, 14.4%, 8.2%, and 6.4%. Table 3.3 presents the outcome of factor analysis.

Table 3.3: Outcome of factor analysis.

	Factor1	Factor2	Factor3	Factor4	Factor5
Care and Services					
1 follow your references	0.551				
2 living arrangement	0.564				
Caregivers					
2 keep the way you want	0.681				
4 encourage your independence	0.517				
Facility Culture					
2 timely services	0.521				
8 recommend here to others	0.558				
Spending Time					
3 keep you connected	0.743				
4 meaningful activities	0.738				
5 special events	0.650				
8 enjoyable things	0.692				

(table continues)

	Factor1	Factor2	Factor3	Factor4	Factor5
Caregivers					
1 know your conditions		0.643			
3 check you often		0.714			
5 activity engagement		0.668			
8 explain your services		0.636			
9 same staff take care of you			0.545		
Meals and Dining					
1 get favorite food		0.715			
2 menus change often		0.615			
4 like the food		0.776			
5 look forward to mealtime		0.737			
Facility Culture					
1 Encouraged to speak up			0.56		
3 Involved in care decisions			0.609		
4 staff happy to work here			0.656		
5 provide extra things			0.567		
6 feel parts of a community			0.666		
7 have friends			0.507		
Environment					
2 easy to get around			0.578		
3 enjoy outdoor			0.673		
4 have privacy			0.702		
5 have a private place			0.687		
Care and Services					
4 therapists set goals				0.857	
5 therapy meet goals				0.818	
6 know therapy progress				0.757	
3 special therapies				0.660	
Spending Time					
7 waiting for things				0.523	
Moving in					
1 first impression					0.730
2 get enough information					0.774
3 feel welcomed					0.794

3.4 Discussion

The increasing aging population and the social changes in both family structures and caregiving culture have created a demand for long-term care services and facilities in China. In addition to the physical development such as buildings and furniture, the quality of care and the satisfaction among older adults toward the care and services have come under the spotlight. This study proposed the Chinese version OLCRSS as a standardized multidimensional measurement tool to gauge Chinese resident satisfaction and bridge the gap in the system that would provide information to assist facilities in proving care quality.

We examined the validity of the Chinese version OLCRSS as a tool for measuring resident satisfaction among Chinese long-term care facilities. The psychometric findings provide support for the validation of the Chinese version of OLCRSS. Good content validity, high construct validity, and satisfactory reliability are consistent with those of the English version OLCRSS.^{27,38} The results indicate that the Chinese version OLCRSS is a reliable tool for measuring resident satisfaction at long-term care facilities in China.

However, the factor structure of the Chinese version OLCRSS is not the same as its English version. The original OLCRSS includes seven domains, while the current exploratory factor analysis suggests the presence of 5 factors: Moving In, Care and Services, Caregivers, Spending Time, and Facility Environment. The major differences between the original scale and the new five-factor solution are (1) Meals, and Dining and Caregivers are integrated into one factor, named Caregivers, and (2) Environmental and Facility Cultural items are heading in the same direction, formed a factor of Facility Environment. Given the different kinds of services and different understanding of the environment and culture between the U.S. and China, Chinese residents might think of the meals items as the caregivers' items and treat the environment and

facility culture as the same factor. The findings are particularly important in interpreting the survey. Generally speaking, the survey results are valid as a higher score stands for a higher level of satisfaction among older adults living in long-term care facilities in China and Chinese society. However, when it comes to specific areas, the same item may represent a different idea when posed to U.S. or Chinese older adults. For example, having a meal with family members and friends in China is somewhat a sense of ceremony. The dining time is not only a period for eating foods but also a gesture of companionship. Therefore, some meal items may equate to some type of caregivers from this point of view, such as “your favorite food”, “Menu change often”, “like the food”, and “looking forward to mealtime” are grouped into Caregivers factor. In literature, it is common that the factor structure was not fully confirmed when the measurement tools were adapted from the original version.^{32,39,40} Even though the loading factors are grouped differently, using the Chinese version OLCRSS to measure resident satisfaction as a whole construct is still confirmed. Further research on the factor structure of the Chinese version OLCRSS will explore more about the structural constructs.

Compared to the original instrument developed by the Scripps Gerontology Center at Miami University, the current questionnaire uses a five-point Likert scale instead of the “yes or no” response format. It helps researchers and health providers to identify the fine discrimination and the degree of satisfaction or dissatisfaction within factors and items. By doing so, the service items with lower scores were more easily identified. Improvements could be carried right on the spot.

The mean satisfaction score on the Chinese version of OLCRSS was 3.61 out of 4. This is a high level (i.e., over 90%) of satisfaction considering a maximum satisfaction score of 4. This phenomenon is consistent with other satisfaction studies.^{29,41,42} In Chong’s study, the author

provided three explanations to account for a positive bias in the satisfaction measure: consumer factors, the service nature of residential aged care, and methodological pitfalls. It is possible that dependent residents in the long-term care facilities who need help from staff may not be willing to report their dissatisfaction.⁴³ In addition to the above explanations, cultural factors may also play a role in the subjects' high level of satisfaction. For example, Chinese older adults tend to respect formal authorities and are unwilling to criticize them, and with their hard life in the past, many of them may hold positive attitudes about themselves and their current lives.^{7,41} To mitigate these issues, the research team explained to the resident and staff that the aims of the study are to assess validation of resident satisfaction instruments and would help improve the quality of care. The participants got a guarantee of confidentiality so that they may express themselves honestly. In addition, the research team implemented a five-point Likert scale to improve variation in residents' responses. Hence, the Chinese version OLCRSS is discriminatory.

China's long-term care system is still in its early stages of development, so residents need to provide their input about the facilities where they receive care. By using the Chinese version OLCRSS periodically, service providers and caregivers can identify the areas for improvement early and make those improvements early. The information collected through periodic assessments can serve as a valuable reference when administrators evaluate operational policies and staff performance. From a long-term perspective, the Chinese version OLCRSS will be implemented across various types of long-term care settings and different areas, which may help establish a database to compare the different satisfaction levels and benchmark the quality of long-term care for Chinese older adults.

3.5 Limitation

The current study was conducted in Shanghai, where long-term care services are more advanced in development, compared to other places, especially rural areas, in China. Therefore, the findings may not apply to other long-term care facilities that are different in locations. Furthermore, the validation of the Chinese version OLCRSS was confirmed by results from a convenience sample that are cognitively intact. Older residents with dementia or Alzheimer's disease were excluded. Thus, the results are not generalizable to the general population of older residents in China. This study is the first step towards demonstrating the validity of the Chinese version OLCRSS in Chinese long-term care facilities from the perspective of residents. Future studies are needed with more extensive and more diverse resident samples to further test the validity and reliability of these measures, as well as the ability of the instrument to assess differences in quality among different facilities. Future researchers have access to the Chinese version OLCRSS available in Section 3.8.

3.6 Conclusion

The results reported here suggest that the Chinese version OLCRSS is easy to administer and easily understood by Chinese elders regardless of their education level and health status. It provides health service administrators with a validated instrument targeted at the residents' satisfaction with long-term care in China. More studies are needed to demonstrate the generalizability of the scale of the translated local language versions of this instrument amongst the long-term care community in China.

3.7 References

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- 3.8 Supplemental Material: Chinese Version of Ohio Long-term Care Resident Satisfaction Survey (OLCRSS)

新入住	不是	可能不是	可能是	是	不知道
1 您对刚入住时机构的准备工作满意吗？	0	0	0	0	0
2 有人告诉您机构为您提供的内容吗？（哪里吃饭，怎么参加活动）	0	0	0	0	0
3 作为新住户是否受到热情欢迎	0	0	0	0	0
日程安排					
4 您享受您的日常生活安排吗	0	0	0	0	0
5 您对日常生活有期待吗（参加活动或保健服务）	0	0	0	0	0
6 这儿的工作人员能帮您保持与社区的联系吗（知道机构内外发生的事情）	0	0	0	0	0
7 您有机会去做你认为有意义的、重要的事吗	0	0	0	0	0
8 这个机构给您足够的机会参与外部活动吗	0	0	0	0	0
9 您喜欢这里安排的活动吗（游戏、娱乐、电影或聚会）	0	0	0	0	0
10 您等待活动开始或餐厅服务的时间长吗	0	0	0	0	0
11 这个机构周六日安排的活动有吸引力吗（游戏、娱乐、电影或聚会）	0	0	0	0	0
服务与照护					
12 这里的日常服务是按照您的喜好安排的吗（吃饭或洗澡的时间）	0	0	0	0	0
13 这里的服务是尽量保持您想要的生活独立性吗	0	0	0	0	0
14 住在这里会有专项护理服务吗，比如物理理疗、功能理疗，心理支持或语言障碍理疗	0	0	0	0	0
15 这些医疗护理会帮助您设定恢复目标吗	0	0	0	0	0
16 这些医疗护理会对身体健康有帮助吗	0	0	0	0	0
17 您知道和谁沟通您的健康服务效果吗	0	0	0	0	0
照护人员					
18 照护人员对您的身体健康状态了解吗	0	0	0	0	0
19 照护人员是按照您的喜好来提供服务吗（清洁房间，为您准备茶水或者您喜欢的音乐）	0	0	0	0	0
20 照护人员会经常询问您需要什么吗	0	0	0	0	0
21 照护人员会鼓励您尽量保持您的生活独立性吗（自己可以做的事尽量自己做）	0	0	0	0	0

22 您的照护计划会根据您的需求调整吗?	0	0	0	0	0
23 当您需要帮助时, 您认为照护人员会快速来到您身边吗	0	0	0	0	0
24 照护人员对您发过火吗	0	0	0	0	0
25 照护人员在照护您时会跟您解释照护步骤吗(解释正在做什么, 下一步是什么)	0	0	0	0	0
26 多数情况下, 照护您的是同一个护理员或护理团队吗	0	0	0	0	0
餐饮					
27 这里您能吃到您喜欢的食物吗	0	0	0	0	0
28 菜单变化频率够吗	0	0	0	0	0
29 对餐厅食物您提过建议吗? 您提出的餐饮建议有反馈改进吗?	0	0	0	0	0
30 您喜欢这里的饮食吗(口味, 冷热)	0	0	0	0	0
31 您盼着每日的用餐时光吗	0	0	0	0	0
环境					
32 这里干净吗	0	0	0	0	0
33 您很容易进出房间和公寓吗	0	0	0	0	0
34 当您想去户外时, 容易实现吗	0	0	0	0	0
35 您有足够的隐私权吗(谈话、访客或自己独处)	0	0	0	0	0
36 当您想独处时, 容易找到合适的地方吗	0	0	0	0	0
37 您的私人物品在这里安全吗(丢失或被损坏)	0	0	0	0	0
38 您在这里感觉安全吗	0	0	0	0	0
机构环境					
39 您在这里会被鼓励说出您不喜欢的事情吗(洗澡时间, 食物或您的房间)	0	0	0	0	0
40 您会在意服务的及时性吗	0	0	0	0	0
41 您的意见、建议是否能得到及时回应?	0	0	0	0	0
42 这里的工作人员看起来开心吗	0	0	0	0	0
43 这里的工作人员尽一切可能给您最好的服务吗	0	0	0	0	0
44 您感到完全融入这个环境中吗	0	0	0	0	0
45 您在这里交到朋友了吗	0	0	0	0	0
46 您会向家人朋友推荐这个养老机构吗	0	0	0	0	0
总体满意度					
47 总的来说, 你对这家机构满意吗	0	0	0	0	0

SUMMARY

Due to an increasingly aging population and long-term care available, the number of older adults seeking long-term care facilities in the US is growing rapidly. In light of the recent pandemic, quality of care at long-term care facilities has come under intense scrutiny. Healthcare policymakers have enacted various regulatory measures over the years to improve quality in long-term care settings, and providers have also developed multiple metrics to evaluate the quality of the care. On the one hand, these policies have had some positive impact on improving quality in long-term care facilities. In many cases, however, these benefits proved to be insufficient, and quality problems in US long-term care have persisted. The recent pandemic has exposed numerous quality problems in U.S. nursing homes and other settings. These include the following: resident abuse and neglect, medication errors, and numerous complaints by residents and family members. These adverse resident outcomes show that the quality of care in long-term care settings still needs substantial improvement.

This dissertation addressed the quality of care in long-term care from the perspective of resident satisfaction. Resident satisfaction is an essential component of quality that has been studied extensively in the service sector. Resident satisfaction is a critical indicator of care quality in the long-term care field, although satisfaction by itself is only one dimension of the broad concept of quality. This dissertation focused on resident satisfaction and may provide some solutions for today's managers who seek to improve the quality of care in long-term care settings.

The dissertation employed various survey instruments to identify and validate numerous indicators of resident satisfaction. Using these validated instruments and indicators, health care managers can diagnose potential problems and thereby improve the quality of care in their

facilities. In this dissertation, the primary focus is on the satisfaction instruments in long-term care facilities and indicators of resident satisfaction in US. In addition, the dissertation is also focused on the development of survey instruments for Chinese long-term care facilities because the use of such measures in China is still in its infancy. The dissertation has adopted and translated the best practices of U.S. long-term care in order to improve the quality of care in Chinese long-term care facilities. Using these validated, reliable, and standardized survey instruments, Chinese long-term care facilities can also improve the quality of care being delivered.

The first study in this dissertation consisted of a systematic scoping review of the different types of resident satisfaction indicators utilized in long-term care settings in the US. The purpose of the study was to identify the different types of resident satisfaction measures currently in use and how these various measures can identify potential problems and improve resident satisfaction.

The study suggested that it would be recommended to use multi-factor indicators to assist health managers with the evidence to better understand their residents' overall experience in long-term care facilities. It also provided healthcare administrators with a comprehensive picture of resident satisfaction. Use of single factor indicators could assist older adult care facilities with a clearer picture of what specific changes and interventions should be made for care improvement. One might assume also that selecting multiple factors indicators to guide quality care improvement would be advantageous in providing evidence of the potential interactions of indicators for intervention design. Another important issue is the standardization of satisfaction instruments.

The standardization of resident satisfaction indicators in user groups and settings would also have the benefits of enabling the comparison of provider qualities for targeted quality care improvement efforts, with the standardized measures providing benchmarks for assessing resident satisfaction across facilities. This would ensure both transparency and public accountability, so that consumers have more information regarding their choice of long-term care facilities. The core research question pertaining to standardization is: what are the most important factors that affect resident satisfaction across different settings? This review formed the foundation for future research to address this gap in knowledge. There is also a need for future studies that are focused on specific care settings, such as nursing homes, assisted living facilities, and so forth.

The second study completed another systematic review to determine how nursing assistants (NAs) impact resident satisfaction in long-term care settings. This systematic review investigated the available evidence examining the association between satisfaction of aged-care residents and NA attributes. Data from 25 studies spanning 9 countries and regions were analyzed. The evidence showed that NAs play a major role in residential services, given their unique insight into the experiences of residents. This was confirmed through statistical analysis of survey data, which included responses from NAs themselves, residents, and their families. Four key factors that contribute to resident satisfaction were identified: NAs' job satisfaction, the particular interventions that they undertake, their interaction with residents, as well as their roles and responsibilities.

Our findings highlight the complexity of the NAs role, one which extends beyond providing daily care and completing assigned tasks (such as toileting, bathing, or feeding) to relationship-based aspects such as communication, psychosocial support, and comfort. As with

any health care professional, communication skills are no less important than clinical skills for NAs. These findings point to the need to develop effective, diverse ways to recognize the contribution of NAs, potentially by redesigning the NA job descriptions in long-term care to better fit their multi-faceted role. Left unaddressed, increasing numbers of NAs will likely show their dissatisfaction through poor performance, burnout, work absences, high rates of turnover, or simply by leaving the profession.

Workforce shortages remains a significant obstacle to the development of the long-term care industry – an industry facing a rapidly expanding population of older adults who require life-long care.³ Current problems with recruitment and retention of NAs within aged care may, in part, be due to low wages and inadequate benefits. Despite NAs providing around 80% of the workload in nursing homes in the US, nurse aides, care aides, frontline caregivers, and direct care workers remain significantly underpaid. Concerningly, nearly half (44 percent) of NAs working in nursing homes earn a median income below the Federal poverty line (\$26,500 for family with three persons) and live-in low-income households.

The importance of wages and financial benefits to NA's job satisfaction has previously been established. In saying this, we recognize that job satisfaction does not only stem from monetary needs. The job needs to be meaningful and to provide for an employee's higher needs, such as motivation and self-actualization, as defined by Maslow's hierarchy. For this reason, it is critical for service providers to provide sufficient support, resources, and training to develop and expand the skill set of their NAs, helping to foster growth and development in their work. As identified in this research, enhancing employee satisfaction can have equally positive impacts on resident satisfaction. The existing literature suggests that effective intervention and training programs can lower the level of employee turnover, helping to ensure a consistent workforce

and, ultimately, contribute to increased resident satisfaction. Notably, only three of the seven intervention studies examined in the current review reported significant impacts on resident satisfaction, including learning and behavioral changes, through positive NA reactions. These programs focused on key topics: NA high-level involvement, skills training in primary care, and an awareness-based intervention to help care for residents with dementia. Researchers suggested that intervention programs which are tailored to NAs needs are more likely to lead to positive outcomes among older adults in long-term care. Future research should consider effective ways to develop and improve intervention and training programs tailored to NAs working in long-term care. A critical need was identified for nursing home managers to better understand the value of NAs, and to cultivate opportunities for growth and development in their work. Such growth will not only benefit NAs but should have broader organizational benefits, including increased resident satisfaction.

The third study focused on demonstrating how a method for measuring and improving resident satisfaction in the US can be adapted and implemented to long-term care facilities in China. The first step in the process was to develop the “Chinese version” of the Ohio Long-term Care Resident Satisfaction Survey (OLCRSS).

Rapid demographic changes have occurred in China in recent years that have led to an increased focus on long-term care. These include both an increase in the elderly population and social changes in both family structures and the caregiving culture. This has caused a surge in the demand for long-term care services and facilities in China. In addition to the physical development such as buildings and furniture, the quality of care and the satisfaction among older adults toward the care and services have come under scrutiny. This study proposed the Chinese version OLCRSS as a standardized multidimensional measurement tool to gauge Chinese

resident satisfaction and to bridge the gap in the system that would provide information to assist facilities in proving care quality.

We examined the validity of the Chinese version OLCRSS as a tool for measuring resident satisfaction among Chinese long-term care facilities. The psychometric findings provide support for the validation of the Chinese version of OLCRSS. Good content validity, high construct validity, and satisfactory reliability are consistent with those of the English version OLCRSS.^{27,38} These results indicate that the Chinese version OLCRSS is a reliable tool for measuring resident satisfaction at long-term care facilities in China.

However, the factor structure of the Chinese version OLCRSS differs in important ways compared to the US version. The original OLCRSS includes seven domains, while the current exploratory factor analysis suggests the presence of only five factors: Moving In, Care and Services, Caregivers, Spending Time, and Facility Environment. The major differences between the original scale and the new five-factor solution are (1) Meals, and Dining and Caregivers are integrated into one factor, named Caregivers, and (2) Environmental and Facility Cultural items are heading in the same direction, formed a factor of Facility Environment. Given the different kinds of services offered and different understanding of the environment and culture between the U.S. and China, Chinese residents might think of the meals items as the caregivers' items and treat the environment and facility culture as the same factor. The findings are particularly important in interpreting the survey. The survey results are valid as a higher score stands for a higher level of satisfaction among older adults living in long-term care facilities in China and Chinese society. However, when it comes to specific areas, the same item may represent a different concept when posed to U.S. or Chinese older adults. For example, having a meal with family members and friends in China typically involves established rituals and a sense of

ceremony. The dining time is not only a period for consuming foods but is also a gesture of companionship. Therefore, some meal items may equate to some type of caregivers from this point of view, such as “your favorite food”, “Menu change often”, “like the food”, and “looking forward to mealtime” were found to overlap with the Caregiver’s factor. In literature, it is common that the factor structure was not fully confirmed when the measurement tools were adapted from the original version. Even though the loading factors are grouped differently, using the Chinese version OLCRSS to measure resident satisfaction as a whole construct was still confirmed as a valid survey instrument. Further research on the factor structure of the Chinese version OLCRSS will explore more about these structural constructs.

China’s long-term care system is still in its early stages of development, so residents need to provide their input about the facilities where they receive care. By using the Chinese version OLCRSS periodically, service providers and caregivers can identify the areas for improvement early and make those improvements early. The information collected through periodic assessments can serve as a valuable reference when senior managers seek to evaluate operational policies and staff performance. From a long-term perspective, the Chinese version OLCRSS will be implemented across various types of long-term care settings and different areas, which may help establish a database to compare the different satisfaction levels and benchmark the quality of long-term care for Chinese older adults.

The results reported here suggest that the Chinese version OLCRSS is easy to administer and is easily understood by Chinese elders regardless of their education level and health status. It provides health service managers with a validated instrument targeted at the residents’ satisfaction with long-term care in China. More studies are needed to demonstrate the

generalizability of the scale of the translated local language versions of this instrument amongst the long-term care community in China.

The dissertation (including the three studies) is significant because it provided fundamental data for using evidence-based indicators of resident satisfaction to enhance the residents' quality of life. These findings will also add to the existing literature regarding resident satisfaction indicators.

However, this dissertation is only the first step towards identifying resident satisfaction indicators and to assist health care managers with respect to their nursing home and long-term care quality care improvement initiatives. There remains a need for further studies that are segmented by specific care settings. Future research is also needed to identify additional NA factors associated with resident satisfaction and employee satisfaction. In addition to further explore the indicators of resident satisfaction in long-term care settings, it is essential to demonstrate and apply the validity of the Chinese version OLCRSS in Chinese long-term care facilities from the perspective of its residents. Future studies are needed with more extensive and more diverse resident samples to further test the validity and reliability of these measures, as well as the various survey instruments that have been covered previously. Future researchers who seek to address these questions can access the Chinese version of OLCRSS in Section 3.8. We are looking forward to future studies that extend the current research on resident satisfaction in order to improve the quality of care for older adults in long-term care settings.