Measuring Consumer Food Service Satisfaction in Residential Aged Care Homes

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THESIS SUMMARY

Residential Aged Care Homes (RACHs), commonly known as nursing homes, are group living environments where older adults who can no longer live independently in the community can receive full-time care and support. In Australia there are over 2,700 RACHs housing more than 245,000 residents who are entirely dependent upon the food service for their daily nutrition and hydration requirements. The prevalence of malnutrition in RACHs is alarmingly high, with studies suggesting approximately 50% of residents are malnourished. Despite extensive research into strategies to prevent or reduce malnutrition, the prevalence has remained persistently high for decades.

Although many factors contribute to diminished appetite and reduced food consumption among older adults, the risk of malnutrition increases significantly when residents are dissatisfied with the meals and dining. Research suggests that when residents are dissatisfied with the food and food services, this can lead to unintentional weight loss, diminished nutritional status, and poor quality of life. This thesis explores how food service satisfaction can be measured in RACHs and presents a questionnaire that can be used by food services and dietary managers to measure resident food service satisfaction.

The methodology of scale design is described in **Chapter Two,** this was positioned at the beginning to familiarise the reader with the terminology and concepts used to describe and discuss psychometric testing. The construct of food service satisfaction is explored in more depth to include the unique conditions of institutionalised care. Additionally, item generation and appropriate response scales are discussed, and the steps required to establish content and face validity are explained. Lastly, the chapter also describes the statistical tests required to establish construct validity and measures of reliability.

The literature review and critical appraisal in **Chapter Three** present a summary of the ways RACHs measure food service satisfaction among organisational (staff) stakeholders and

consumers (residents and family members). In short, there are a small number of existing Food Service Satisfaction Questionnaires (FSSQs) available. However, some are more than a decade old, and others exhibit flaws in the psychometric testing processes, meaning they may not be valid or reliable. Additionally, no questionnaires were identified to measure family member satisfaction with the food services. Thus, the gap that this thesis addresses is the design and development of FSSQs for consumers.

The development of any new scale hinges on the assumption that it will be useful to the intended population. Consequently, **Chapter Four** discusses the results of a unique Aged Care Home Food Service Satisfaction Questionnaire that was completed by RACH food service managers (n=20). This study was undertaken to explore how RACHs gather satisfaction data from residents and how they share that information with other stakeholders. The findings suggest that RACHs routinely gather resident satisfaction data and use the intelligence for quality improvement and accreditation purposes. Unfortunately, most questionnaires used were created in-house or at a corporate level and therefore may not be valid or reliable. This demonstrated the need for quality questionnaires to be developed to measure food service satisfaction.

The design and development of the resident FSSQ is described in **Chapter Five.** The process of item generation is described, including data derived from qualitative interviews conducted with residents (n=13) together with a synthesis of qualitative and quantitative research identified during the literature review. The resulting 35-item FSSQ was reviewed by an expert panel and underwent preliminary testing to establish content and face value before being administered to residents.

The administration and psychometric testing of the resident FSSQ is described in **Chapters Six and Seven.** The newly developed FSSQ was interviewer administered to residents (n=387) living in RACHs (n=20) across South Australia. **Chapter Six** examines the participant responses and compares those to the examples of actions and evidence

contained within the Aged Care Quality Standards. The comparison suggests RACHs perform consistently well in areas of staff assistance and politeness; however, they are inconsistent in providing residents with choice and variety. Most RACHs were not providing flexible mealtimes or enabling resident participation in the food service.

Chapter Seven reports the results of psychometric testing of the FSSQ. Principal Components Analysis identified a 25-item questionnaire that met or exceeded tests for validity (structural validity, convergence validity) and reliability (internal consistency, temporal stability, intra-rater reliability). The result is a FSSQ that is simple to use and interpret, providing RACHs with an accurate and reliable measure that can be used for benchmarking, quality improvement, and accreditation.

The exploration of consumer perspectives continues in **Chapter Eight** with the design of a FSSQ intended for family members or proxies. Although residents are the primary consumers of the food service system, there are multiple reasons why residents may not be able to provide feedback directly to the home, thereby situating family members as proxies. The literature review demonstrated there were no questionnaires available to measure family member food service satisfaction highlighting another key gap this thesis addresses. Item generation is described using data obtained from interviews conducted with family members (n=10) and qualitative peer-reviewed literature exploring family members' experiences with the food services in RACHs. The result was a 35-item FSSQ that is ready to present to an expert panel for consideration.

The key findings, strengths and limitations, implications for practice, and areas for future research are summarised in **Chapter Nine.** In brief, this thesis presents a newly developed 25-item FSSQ that is a valid and reliable tool for measuring resident satisfaction with the food and food service in RACHs. The FSSQ is quick to administer, simple to use, and can provide food services managers in RACHs with accurate and effective measures of resident

satisfaction with the meals and dining. This thesis also presents a newly developed 35-item FSSQ intended to measure family member satisfaction with the food services.

The Aged Care Quality Standards require RACHs to implement accessible and confidential methods of gathering stakeholder feedback as part of their accreditation process and to inform quality improvement activities. The two questionnaires are original contributions to knowledge and fill important gaps in the field of consumer satisfaction with the food services in RACHs.

Future directions for the resident questionnaire include working collaboratively with aged care partners to translate the resident questionnaire into a digital platform. This will allow the questionnaire to be freely distributed into RACHs across Australia as a benchmarking platform and quality performance index. Future directions for the family questionnaire include establishing content and face validity before pilot testing among family members who have a loved one living in a RACH and using the data to conduct psychometric testing.

PUBLICATIONS ARISING FROM THIS RESEARCH

Refereed Manuscripts (Published)

Pankhurst M, Yaxley A, Miller M. Identification and Critical Appraisal of Food Service Satisfaction Questionnaires for Use in Nursing Homes: A Systematic Review. *J Acad Nutr Diet*. 2021;121(9):1793-1812.e1. doi:10.1016/j.jand.2021.05.017

Available from: https://www.jandonline.org/article/S2212-2672(21)00342-7/pdf

Conference Abstracts

Pankhurst M, Yaxley A, Miller M. A snapshot of food service in aged care homes under the new standards. *Nutr Diet*. 2020;77(S1):83. doi:10.1111/1747-0080.12627

Available from: https://onlinelibrary.wiley.com/doi/10.1111/1747-0080.12627

Oral Presentations

Pankhurst M, Yaxley A, Miller M. A snapshot of food services in aged care homes under the new standards. Australian Association of Gerontology; 2020:211.

Available from: https://www.aag.asn.au/documents/item/4606

Other Articles

HelloCare. One third of aged care residents aren’t given a choice of meals. HelloCare Pty Ltd. Accessed Nov 17, 2020. https://hellocare.com.au/one-third-aged-care-residents-arent-given-choice-meals/

Cheu S. Study shows need to work with residents to understand food preferences. Australian Ageing Agenda. Accessed Nov 11, 2020. https://www.australianageingagenda.com.au/facility-operations/food-services/study-shows-need-to-work-with-residents-to-understand-food-preferences/

DECLARATION

I certify that this thesis:

1. does not incorporate without acknowledgment any material previously submitted for a degree or diploma in any university; and

2. the research within will not be submitted for any other future degree or diploma without the permission of Flinders University; and

3. to the best of my knowledge and belief, does not contain any material previously published or written by another person except where due reference is made in the text.

Signed: Morgan Pankhurst

Date: 29/07/2022

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I have been blessed with supervisors who have the ability to identify my strengths and limitations and then skilfully challenge both to foster growth. They have encouraged me to extend beyond my comfort zone, professionally and personally, and I know I am a better person because of it.

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To all the residents who agreed to be interviewed as part of this project, this research was for you and all those who enter residential aged care after you. I had the enormous privilege of interviewing more than 400 residents living in aged care homes in South Australia. Many of the individuals who agreed to participate will never see the rewards of their contribution, I cannot think of a higher form of altruism. Please know that you have made a difference, not just to me, but to the larger landscape of food service in aged care.

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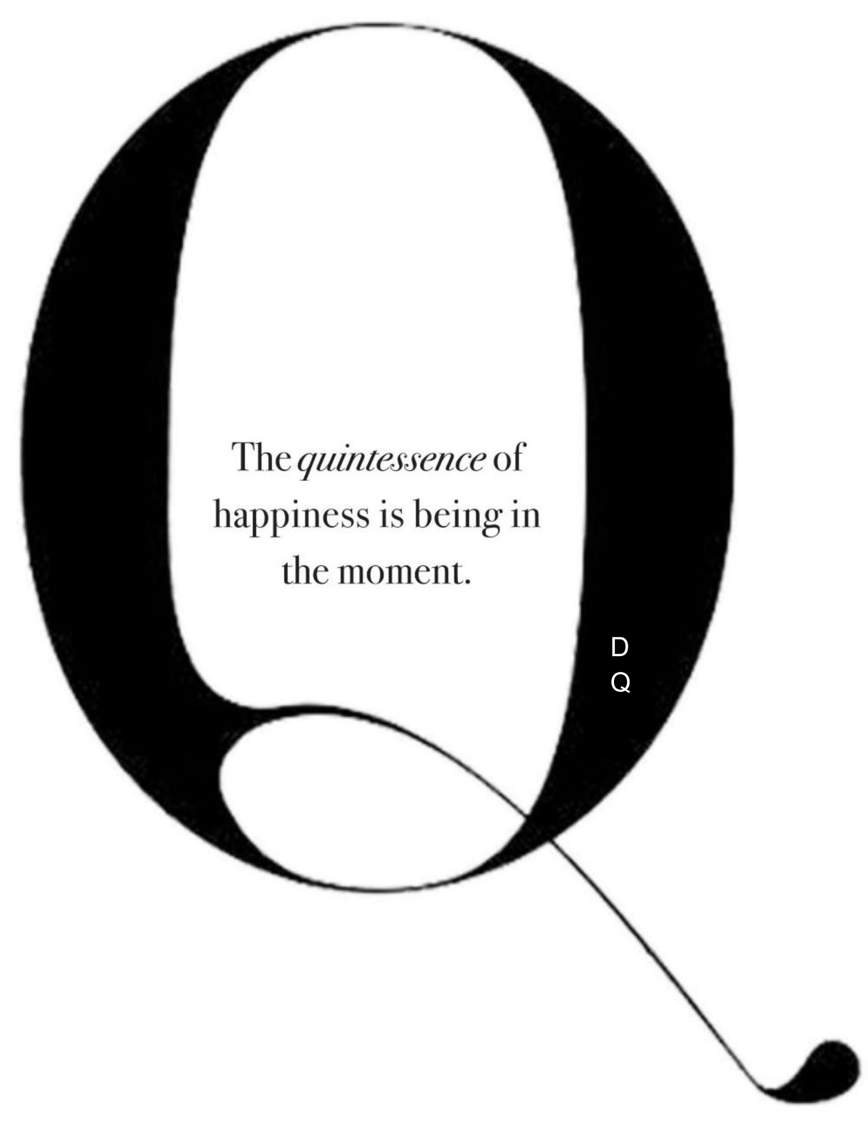
This endeavour would not have been possible without my big, quirky, and amazing blended family. What a long, strange trip it's been! I was the first in my family to enter University, I did so because I wanted to show my children that anything was possible. I hope they read this and know that it doesn't matter where you came from; all that matters is where you are going. Lastly, I want to dedicate this thesis to my Mum, who still doesn't quite understand what I have been doing for the past four years!

I would be remiss if I only discussed the ways in which contributors to this project enhanced my professional career because this project has also been a journey of incredible personal growth. Whenever I had the privilege of speaking to stakeholders about this research, I would begin by explaining I was conducting a PhD in happiness. It is our fundamental human right to have access to adequate nutrition and hydration; yet this clinical lens is a poor reflection of the importance of food to our wellbeing. We all deserve access to meals that are delicious, that connect us to our history and culture and, above all, makes us happy.



The *quintessence* of
happiness is being in
the moment.
D
Q

ABBREVIATIONS

ADL	Activities of Daily Living
ALF	Assisted Living Facility
ACQA	Aged Care Quality Agency
ACSQHC	Australian Commission on Safety and Quality in Health Care
ACSI	American Customer Satisfaction Index
CN	Clinical Nurse
CMS	Centers for Medicare and Medicaid
COSMIN®	Consensus-Based Standards for the Selection of Health Measurement Instruments
CINAHL	Cumulative Index of Nursing and Allied Health Literature
DCW	Direct Care Worker
EDP	Expectancy-Disconfirmation Paradigm
EFA	Exploratory Factor Analysis
FSSM	Food Service Systems Model
FSSQ	Food Service Satisfaction Questionnaire
FSSQFSAC	Food Service Satisfaction Questionnaire Food Service Aged Care
ICC	Intraclass Correlation Coefficient

IPM	Importance-Performance Model
IQR	Interquartile Range
KMO	Kaiser-Meyer-Olkin
LTC	Long Term Care
MAP	Minimum Average Partial
MAR	Missing At Random
MCAR	Missing Completely At Random
MNAR	Missing Not At Random
MSA	Measures of Sampling Adequacy
PCA	Principal Components Analysis
PROM	Patient Reported Outcome Measure
QHOM	Quality Health Outcome Model
QNO-LTC	Quality Nutritional Outcomes Model-Long Term Care
QOL	Quality of Life
RACH	Residential Aged Care Home
RF&FSSS	Resident Food and Food Service Satisfaction Survey
RFSQ	Resident Foodservice Satisfaction Questionnaire
SCSB	Swedish Customer Loyalty Barometer

SEIFA	Socio-Economic Indices for Areas
STAT	Special Tertiary Admissions Test
SD	Standard Deviation
TMEQ	Team Member Mealtime Experience Questionnaire
WHO	World Health Organization

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CHAPTER 1: INTRODUCTION AND BACKGROUND

This chapter begins by describing ageing and aged care with the goal of understanding residential aged care in Australia. The construct of satisfaction is explored using conceptual frameworks and theories that underpin this project, and the methods used to measure stakeholder satisfaction with the food services are discussed. The stakeholders involved with the food service systems in residential aged care homes are identified and the complexities of food service systems are explored. Finally, the chapter concludes with a problem statement and a formulation of the aims, which this thesis will address.

1.1 AGEING AND AGED CARE

The World Health Organization uses the term “elderly” or “older person” to describe adults aged 65 years or older.[1] In Australia, as in most developed countries, this coincides with the expected age of retirement and eligibility for aged pension payments.[2] Globally, the population is ageing. In 2019, one in eleven adults (9%) were aged ≥ 65 years, with this number expected to rise to one in six (16%) by 2050.[3] In Australia, the current (2020) figure of 4.2 million adults (16%) aged ≥ 65 years is expected to rise to 8.7 million (22%) by 2056.[4]

Concurrent with a rise in the number of older adults is a change in the age profile, with a threefold increase in the number of people aged ≥ 80 years predicted by 2050. In 2007 only 1.6% of the Australian population was aged ≥ 85 years; this increased to 484,600 (3.2%) in 2016 and is projected to increase to between 1.7 million (5%) to 3.1 million (7%) by 2056.[5]

Although the expected life span is increasing, the final 10 years may be accompanied by illness and disability, which can require additional support and assistance.[6] Globally, aged care support systems have different names and meanings; however, it can usually be categorised as home care, low care, or high care. Home care allows older adults to choose third-party agencies to provide assistance with activities of daily living (ADLs) in their own

home.[7] Older adults who can no longer be supported to live independently in the community may require residency in a low or high care facility.[8]

Low care homes, often called Assisted Living Facilities (ALFs) or retirement villages, are a step between living independently and admission to a high care home.[9] These facilities operate with a social model and vary in the services they offer. Some provide a basic package of room and board, minimal personal assistance, and no meals, whereas others may offer limited clinical support services and up to three meals a day.[10]

In Australia, high care facilities are known as Residential Aged Care Homes (RACHs); other countries refer to them as Long-Term Care Homes, Care Homes, Nursing Homes or Skilled Nursing Facilities. The RACH, historically referred to as a nursing home, offers temporary accommodation for individuals who require respite from their usual living arrangements or permanent accommodation for individuals who require a higher level of constant care.[4]

Residential Aged Care Homes traditionally operate on a medical model and provide both clinical and hospitality services for residents in their care.[11] Clinical care services attend to residents' medical and health-related needs such as medication, pain management, and pressure sores. Hospitality services attend to other aspects involved in resident care, such as laundry services, activities, and meals.

Due to the focus on clinical care outcomes in accreditation surveys, it is common for more attention to be given to this aspect of resident care compared to hospitality services.[8] Conversely, resident satisfaction tools often focus on hospitality services (e.g., activities, meals and dining, laundry).[12] This highlights the different drivers that are in operation between service providers (RACHs and governing agencies) and service receivers (residents and their family/proxies).

In 2012 over 2,700 Australian RACHs were providing 185,482 places, an increase of 11.5% (166,291 places) compared to 2006.[13] This figure rose again in 2019 when there were

213,397 places, an increase of 14.5% compared to 2012.[4] The allocation for new places is competitive, and 2015 saw more than a 50% increase in applications compared to the previous year.[13,14] The average age of entry into permanent residential aged care is 84.5 years for women and 82 years for men.[14] On average, the length of stay is 2.8 years and death is the most common reason for discharge (91%).[13] For the majority of older adults who enter these facilities, the RACH is the last home they will live in.[15]

1.2 PERSON-CENTRED AGED CARE

In many countries residential aged care is undergoing a culture change, moving away from a medical model and towards a person-centred approach. In the United States, the person-centred movement began during the early 1980s with the Centers for Medicare and Medicaid (CMS). They formed a coalition with the American Association of Retired Persons and the Robert Wood Johnson Association to explore the resident's perspective of quality in aged care. In 1997 industry leaders, regulatory agencies, and consumer advocates founded the Pioneer Network who partnered with CMS to create organisational ideals for achieving person-centred care. These five ideals include (1) placing the resident at the centre of care; (2) creating a home-like atmosphere; (3) facilitating relationships between stakeholders; (4) empowering staff and (5) instituting systematic quality improvement processes.[16]

In Australia, the person-centred approach has been adopted by Government health care agencies, including the Australian Commission on Safety and Quality in Health Care (ACSQHC), that works with healthcare providers and policy makers in partnership with consumers.[17] In 2017, the Australian Aged Care Quality Agency (ACQA), in consultation with industry and community stakeholders, began updating the Aged Care Quality Standards (hereinafter referred to as the Quality Standards) to reflect the person-centred model of care.[18] Although the language differs slightly from the model created by the Pioneer Network, the fundamental principles are the same in that residents are placed at the centre

of care, and RACHs should provide an environment that "*optimise(s) the consumer's independence, health, well-being and quality of life.*"[18]

A powerful example of the transition towards person-centred care is seen in how food and food services have been positioned in the Quality Standards.[18] The accreditation standards prior to 2019 stated that *"recipients must be offered meals of adequate variety, quality and quantity served each day at times generally acceptable to both recipients and management generally consisting of three meals and three snacks."*[19] This reflects the previous focus on organisational priorities and also positions residents as passive recipients of care. The updated Quality Standards, introduced in 2019,[18] not only highlight the integral role food quantity and quality have in ensuring residents receive adequate nutrition and hydration but go further, acknowledging that *"Meals and the dining experience are a very significant part of day-to-day life, they play an important role in connecting consumers socially and support a sense of belonging."*[18] As such, the Quality Standards[18] now also address dimensions such as flavour, presentation, and temperature; factors commonly cited as important to resident food service satisfaction.[20-22]

Another change introduced with the latest Quality Standards is the need for RACHs to regularly seek feedback and input from stakeholders within the system (both staff and residents) and utilise that information to inform quality improvements.[18] Historically, food service satisfaction has been measured by surveying the consumer/resident perspective, but this is a downstream approach that only focusses on the food system outputs. There are many stakeholders within the system that have the potential to impact the residents' dining experience. For this reason, the Quality Standards now require RACHs to seek feedback from organisational stakeholders (workforce) and consumers (resident and family), making satisfaction questionnaires highly relevant.[18]

1.3 CONCEPTUAL FRAMEWORKS

Residential Aged Care Homes have been described as complex, adaptive systems[23]; as such, no one theory can adequately describe and define the complex relationship between organisational practices and consumer satisfaction. The Systems Theory of Organisations provides a framework for understanding the organisation and structural aspects of RACHs. The Food Service Systems Model (FSSM) and the Quality Health Outcome Model (QHOM) describe the food service systems in RACHs and explore the role each stakeholder plays within the system. Finally, the Expectancy-Disconfirmation Paradigm (EDP)[24] and the Importance-Performance Model (IPM)[25] are used to understand consumer satisfaction. When considered together, these frameworks provide a method for understanding the connection between the satisfaction of stakeholders, the outputs of the food service system, and the impact this has on resident satisfaction and well-being. The subsequent sections explore how these frameworks interplay and, ultimately, how they impact resident health outcomes.

1.3.1 SYSTEMS THEORY OF ORGANISATIONS

The General Systems Theory is attributed to biologist Ludwig von Bertalanffy in 1950.[26] He proposed that an entity (e.g., the human body) was more than a series of discrete parts (e.g., organs or cells); instead, it was an open and adaptive system comprised of interconnected parts. Katz and Kahn[27] took the principles of General Systems Theory and applied them to organisational behaviour to provide a richer understanding of how organisations work. They suggest that although organisations share properties in common with all systems, they also have unique characteristics that differentiate them from other systems; for example, transforming inputs into a product or service.[27] Additionally, systems are comprised of interconnected sub-systems that are interdependent and interact through feedback processes. Consequently, the systems theory approach looks at organisations as a whole rather than a collection of discrete parts.[27]

Put simply, an organisational system is an interconnected series of interdependent parts designed to achieve a specific goal, intent, or purpose. For example, one of the organisational goals of RACHs in Australia is to "*make sure that consumers have enough nutrition and hydration to maintain life and good health and reduce the risks of malnutrition and dehydration.*"[18]

1.3.2 FOOD SERVICE SYSTEMS MODEL

The Food Service Systems Model (FSSM), first proposed by Dr. Allen Vaden in 1980,[28] is an excellent illustration of the systems theory of organisations. The FSSM comprises six interconnected sub-systems: input, transformation, output, controls, memory, and feedback (Figure 1). Briefly, controlling factors such as accreditation standards combined with organisational goals and financial drivers will influence inputs. Inputs include human labour, skills, operational time, and raw ingredients. Inputs are transformed into meals that are plated and delivered to the intended recipient (e.g., resident) in the dining area. From the organisational perspective, the desirable output of the system is the adequate consumption of nutritious foods.[28]

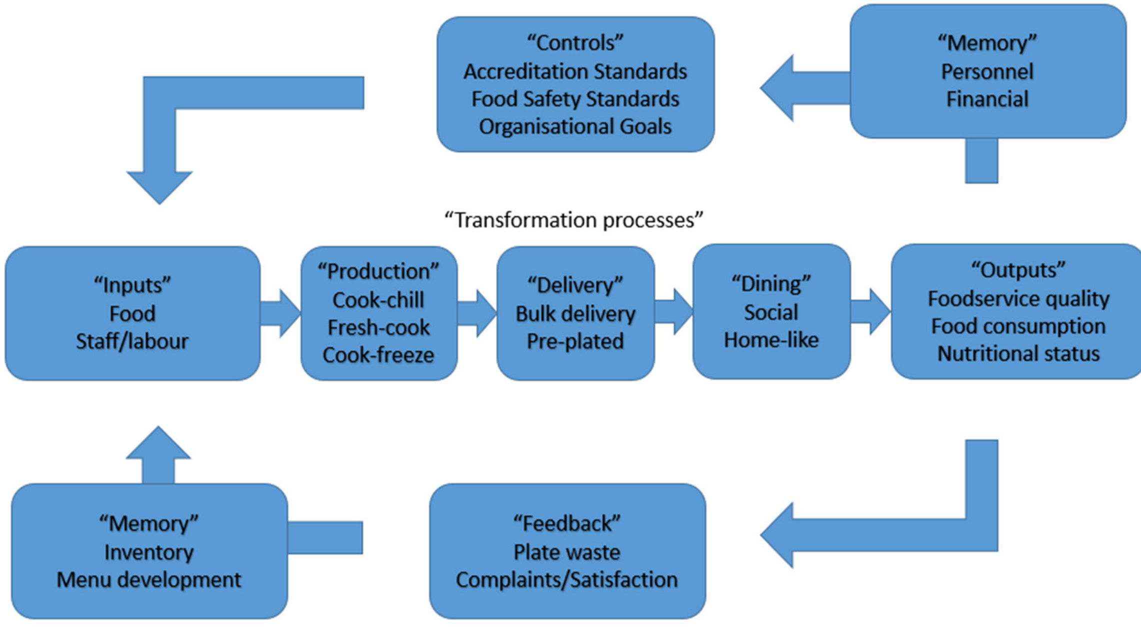


Figure 1: The Food Service Systems Model (Adapted from Vaden)[28]

In the FSSM, feedback arising from the outputs can occur in two ways. Firstly, feedback from residents can be obtained from plate waste, suggestions, and quantitative methods of feedback such as Food Service Satisfaction Questionnaires (FSSQs). This feedback can inform the kitchen about the quality, quantity, and variety of meals. Secondly, clinical outcomes for residents are also an important feedback measure, with unintentional weight loss an obvious consequence of unsatisfactory food service. In both instances, feedback informs the memory (stored information) of the food service system and impacts factors such as menu development, forecasting, and inventory which influences inputs, and the cycle begins anew. Some aspects of this cycle are repeated at every meal service (e.g., recording plate waste) and can result in rapid changes throughout the system. In contrast, some aspects (e.g., satisfaction surveys) occur less frequently and therefore may result in slower changes.[28]

1.3.3 THE DONABEDIAN AND QUALITY HEALTH OUTCOMES MODEL

The FSSM[28] provides a general framework for understanding how food service systems work in a broad range of organisations, from restaurants to school cafeterias. However, there are nuances specific to food service systems in health care settings including, but not limited to, consumer health outcomes. The Donabedian Model posits health outcomes are a result of a linear Structure-Process-Flow pathway that occurs within the health care setting (Figure 2).[29,30] For example, in a clinical setting, the equipment and staff (structure) shape and inform the diagnosis, treatment, and education of patients (process) which then impacts the patient's health status, knowledge, behaviour, and quality of life (outcome).[29] This same model can be applied to food service in the RACH setting. Structural items include the kitchen type, equipment, and staff. Processes include the production and delivery of meals to residents. Outcomes include health status, quality of life, and satisfaction.

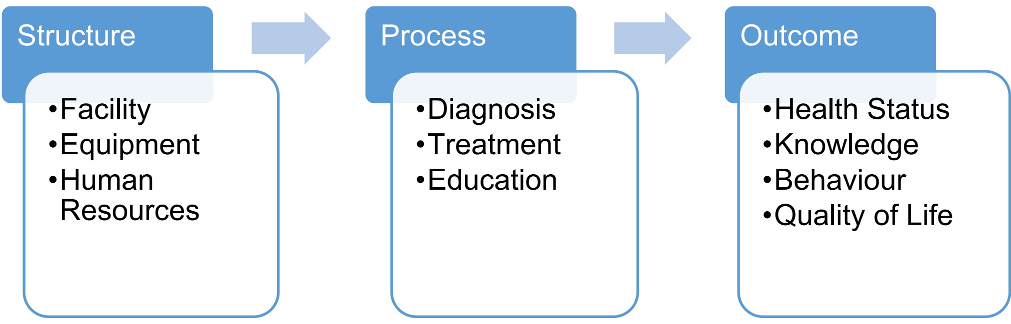


Figure 2: Classical Depiction of the Donabedian Structure-Process-Outcome Model[30]

The Quality Health Outcomes Model (QHOM)[31] builds upon the Donabedian Model[30] and suggests an interactive, rather than a linear, understanding of the relationships between consumers, systems, and outcomes. Where the Donabedian Model[30] proposes a linear relationship between interventions and outcomes, which is moderated by consumer factors, the QHOM[31] outlines the bidirectional relationship between the interventions, consumers, and the context in which they are delivered. The QHOM[31] further incorporates elements of systems theory to create a model that recognises multiple feedback loops between the consumer, the system, and the context in which care is provided.

When the characteristics of RACH food service are mapped against the QHOM[31] (Figure 3), it is evident that consumer characteristics encompass factors relevant to satisfaction such as expectations, values, and beliefs. The system characteristics may include factors such as menu cycle, kitchen type and staffing levels which can also impact satisfaction. In this model, there is a bidirectional relationship between client expectations, values, beliefs, and the food service system. Similarly, the relationship between these factors can influence the design and delivery of a food service intervention, impacting resident outcomes such as nutritional status, quality of life and satisfaction.

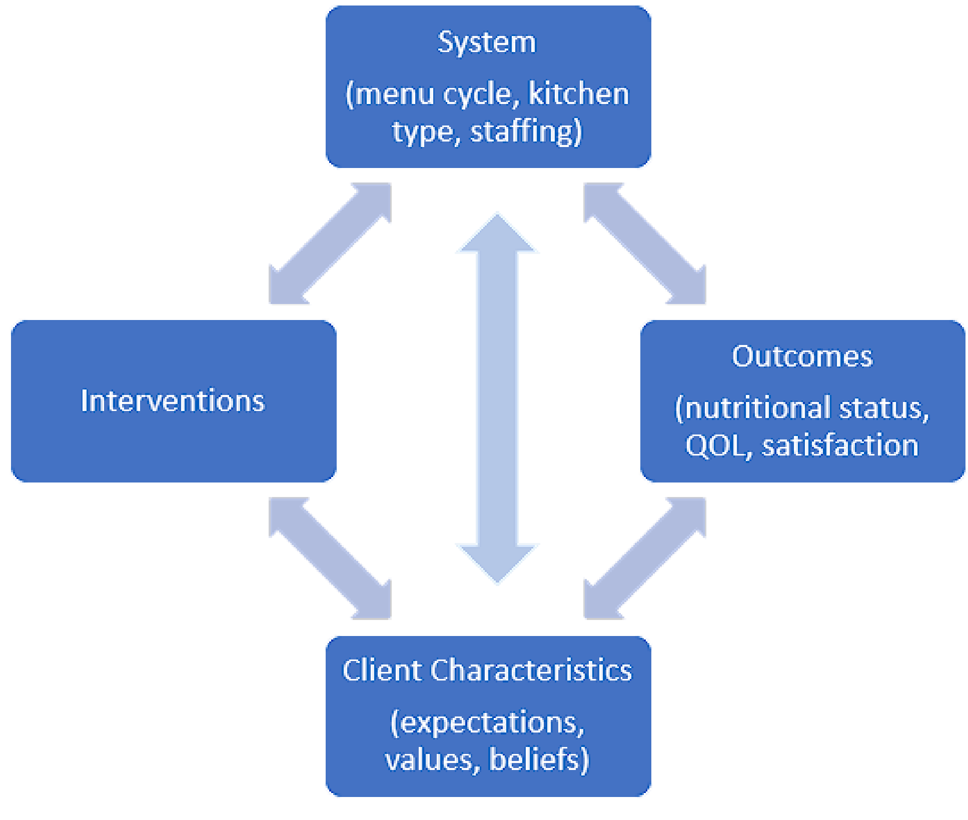


Figure 3: Quality Health Outcomes Model (Adapted from Mitchell et al)[31]

1.3.3.4 QUALITY NUTRITIONAL OUTCOMES MODEL-LONG TERM CARE

Crogan et al[32] adapted the QHOM[31] and incorporated Perrow's[33] theory of complex organisations to explain how resident satisfaction can impact nutritional status and long-term health outcomes. In their Quality Nutritional Outcomes Model-Long Term Care (QNO-LTC),[32] the organisational systems and technology (knowledge/resources) and resident characteristics (physiological well-being, functional ability, health status, cognitive function, and sensory factors) impact resident satisfaction and, consequently, food intake and nutritional status (Figure 4).[32] In the long-term, resident satisfaction also impacts psychosocial factors (e.g., quality of life, depression, well-being) and physical factors (e.g., increased pressure ulcers, falls, hospitalisation). The QNO-LTC synthesises the complex conceptual frameworks previously outlined into one clear pathway that highlights the impact of food service satisfaction on resident health and well-being.[32]

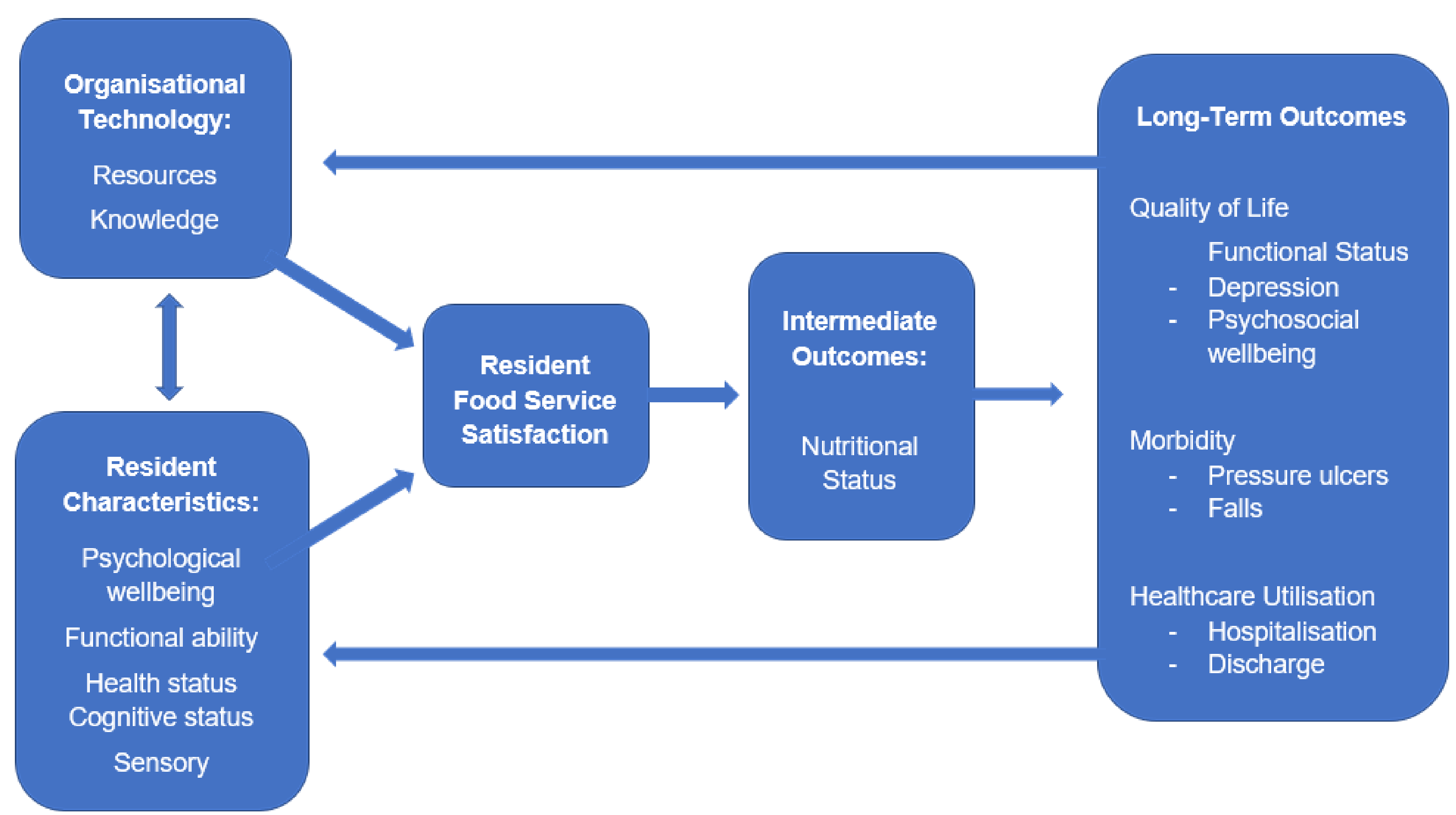


Figure 4: The Quality Nutritional Outcomes Model-Long Term Care (QNO-LTC) adapted from Crogan et al[32]

1.4 UNDERSTANDING FOOD SERVICE IN RESIDENTIAL AGED CARE

Although similar food service systems are in place across all health care institutions, such as aged care, acute care, and rehabilitation facilities, the context in RACHs is fundamentally different from short-stay settings. For example, the average length of stay in acute care hospitals in Australia is 2.7 days[34] compared to 2.8 years in aged care homes.[13] Therefore, the long-term resident is more likely to experience boredom and repetition with the menu due to the length of stay.

Another important factor is the physical environment. Hospital patients typically consume meals at their bedside, whereas RACHs usually provide dining rooms to facilitate social engagement among their residents.[35] Additionally, short stay settings cater to a diverse range of nutritional requirements, whereas RACHs cater to a homogeneous population who share an age-related set of dietary requirements.[36]

An important distinction between the two settings is the impact of dissatisfaction. A patient in a short stay setting who is dissatisfied may take comfort knowing the situation is temporary and, when discharged, they will regain access to familiar and favourable foods. Additionally, most hospitals have independent catering facilities where patients can purchase meals if they are unsatisfied with the food provided. In RACHs, residents who are dissatisfied with the food have little or no alternative available. A recent study by Sahin & Caferoglu[37] explored resident food service satisfaction and the impact on their nutritional status. Their findings suggest that resident dissatisfaction was associated with almost 20 times increased risk of malnutrition. Consequently, dissatisfaction can have a long-lasting and cumulative effect that can result in reduced intake, compromised nutritional status, malnutrition, and depression.[37-39]

1.5 UNDERSTANDING AND MEASURING SATISFACTION

There are multiple points in the food service system where stakeholders engage and have the potential to influence outcomes (Figure 5). Administrators and site managers are influenced by controlling factors such as accreditation standards, food safety standards, and corporate or organisational goals. Site managers determine staffing hours, staff training, food supply contracts, and many other factors which impact the quality and quantity of inputs into the kitchen. Cooks, chefs, and catering staff may be involved in menu planning, recipe development, cooking, plating, and delivering meals to the resident. Nurses and carers are responsible for monitoring and assisting residents during mealtime and ensuring that information such as food consumption, food refusal, plate waste and residents' nutritional status is entered into the system. Lastly, residents are the immediate consumers of the meals provided by the kitchen, with friends and family acting as a proxy for residents when required.

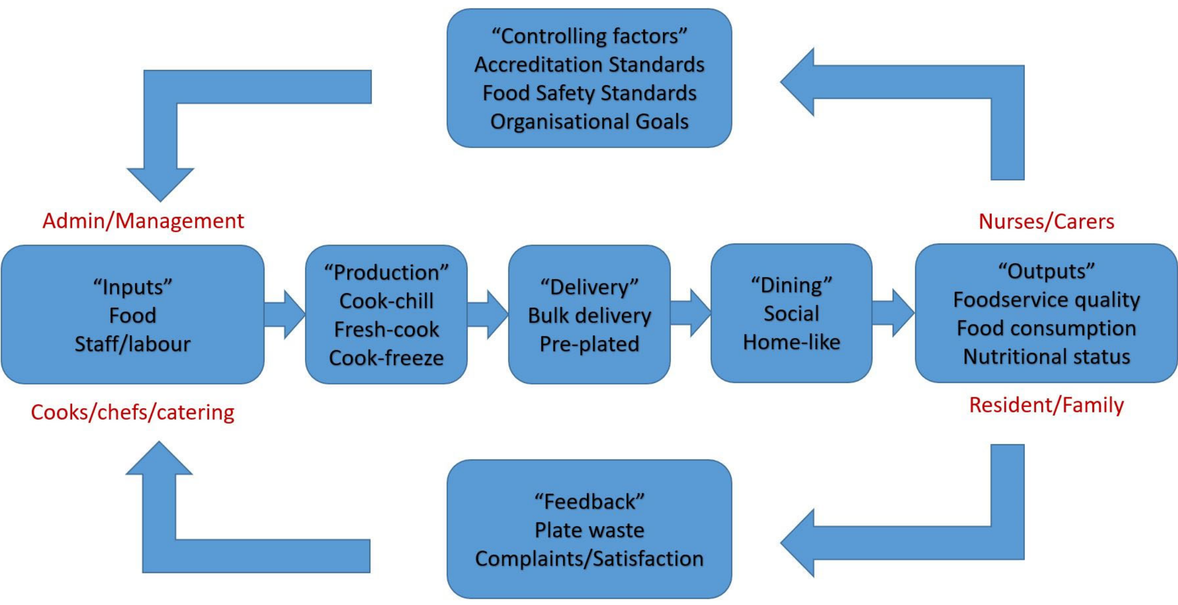


Figure 5: A visual representation of where stakeholders (shown in red) interact with the Food Service Systems Model (adapted from Vaden)[28]

The individuals who interact with the FSSM can be categorised as organisational stakeholders (staff) or consumers (residents and family). Studies comparing resident and staff priorities suggest that staff focus on clinical care and place other items, such as food and activities, much lower in importance.[40,41] Yet, for the resident, simple pleasures such as food can be the highlight of their day.[42,43] Thus, the organisation and residents have very different drivers, objectives, and expectations and, therefore, different measures of satisfaction.[40,44]

Although the questionnaires presented in this thesis are consumer oriented, they contribute to a larger toolkit of instruments that RACHs can use to measure stakeholder satisfaction more broadly. This toolkit contains a previously published FSSQ for food service staff such as cooks and chefs.[45] Additionally, as outlined, staff satisfaction can have a significant impact on resident satisfaction. Therefore, it is important to understand the factors that contribute to both organisational and consumer satisfaction.

1.5.1 CONSUMER SATISFACTION

Consumer satisfaction has been described as the positive or negative feeling of fulfilment that individuals experience after engaging with a product or service.[24] The most widely accepted model of satisfaction is the Expectancy-Disconfirmation Paradigm (EDP)[24] which states individuals determine satisfaction by comparing their expectations regarding a product or service to their actual experience; the resulting discrepancy (positive or negative disconfirmation) shapes satisfaction. The EDP has been used to evaluate satisfaction in a wide range of industries, including health services, food services, retail, and tourism; however, it is not without criticism.

One of the concerns with the EDP is the premise that consumers have a firm expectation prior to engaging with a service; it does not allow for situations where consumers do not know what to expect. This is likely to be true in the case of residential aged care, where individuals may lack any previous exposure or experience with institutionalised food

services. Another criticism is the use of expectations as a baseline measurement because they are inherently subjective, with differences in gender, background, education, and wealth all creating unique experiences that individuals use to construct expectations.[46]

A variation of the EDP is the Importance-Performance Model (IPM), which suggests that satisfaction is related to a combination of perceived importance and performance (quality) rather than expectations or values.[25] The argument is that when a consumer is ambivalent about a particular feature of a product or service, they may not experience feelings of satisfaction or dissatisfaction. For example, residents who wish to be involved in food preparation may feel dissatisfied if not presented with this opportunity, whereas those who do not desire or value this will feel ambivalent.

Despite the increased awareness of the importance of measuring consumer satisfaction, there remains little agreement on the construct itself. This creates problems for researchers who must first choose which satisfaction theory is appropriate, decide how to operationalise the chosen theory, and then interpret and compare the results obtained.[47] Indeed, the lack of a clearly defined and agreed-upon definition for satisfaction has led to objections about the use of satisfaction surveys as being unreliable.[48] Donabedian, however, claims that "*information about [patient] satisfaction should be as indispensable to assessments of quality as to the design and management of health care systems",*[30] a view that many governing agencies are also adopting.

1.5.2 ORGANISATIONAL SATISFACTION

Organisational (staff) satisfaction differs from consumer satisfaction in several important ways. As with consumer satisfaction, several prominent theories are relevant to employee satisfaction within an organisation. Maslow's Hierarchy of Needs is commonly used in psychology to explain human behaviour and has been adapted by theorists to create Maslow's Theory of Motivation/Satisfaction to explore the determinants of job satisfaction.[49]

Maslow proposes that human needs form a pyramidic hierarchy composed of five layers (Figure 6). The need represented by each layer must be met before an individual can progress to a higher layer in the hierarchy.[50] At the bottom of the pyramid are basic physiological needs that can be met within an organisation through compensation and healthcare benefits. The next layer involves safety which encompasses job security but also whether employees feel safe in their working environment. When these two basic needs are met, employees experience a sense of belonging, acceptance, and friendship within the organisation. This can lead to feelings of esteem whereby employees are recognised for their efforts and feel a sense of achievement and pride in their work. With the previous needs met, employees can self-actualise, grow, and flourish within their role. This is believed to be *"the most widely mentioned theory of motivation and [job] satisfaction."*[49]

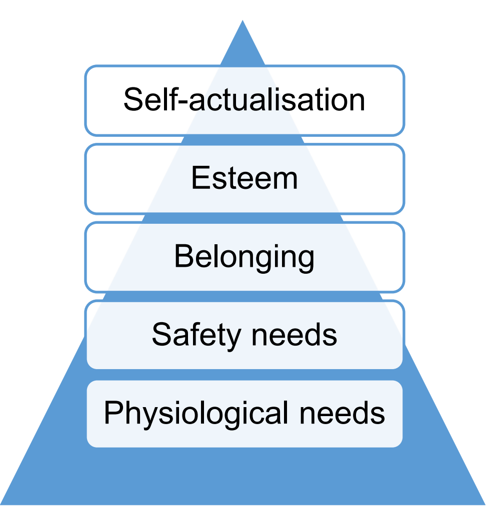


Figure 6: Simplified representation of Maslow's Hierarchy of Needs[50]

Another widely recognised theory is the Herzberg Motivation-Hygiene Theory which suggests two factors determine job satisfaction.[51] Motivation factors create satisfaction and include achievement, tasks, performance, recognition, responsibility, and advancement. Hygiene factors cause dissatisfaction and include administrative practices, supervision, co-worker relationships, and benefits. Importantly, satisfaction and dissatisfaction are not opposites, they function on the same plane. For example, an employee may have no

complaints about their salary but dislike the tasks required. This is considered to be one of the most valuable models for exploring job satisfaction.[51]

The last theory of note is Hackman & Oldham's Job Characteristic Theory which posits five characteristics determine job satisfaction; skill variety, task identity, task significance, autonomy, and feedback.[52] These characteristics shape how an individual perceives their role within the organisation and impacts three psychological aspects: meaningfulness, responsibility for outcomes, and knowledge of results. These psychological aspects then impact work-related outcomes such as motivation, satisfaction, performance, absenteeism, and turnover. This theory is notable in that it has been used to develop the Job Diagnostic Survey,[52] which has been used in research to measure staff satisfaction among aged care workers.[53-58]

As with theories concerning consumer satisfaction, each of the job satisfaction theories described has strengths, limitations, advocates, and critics. Maslow's theory[49] and Herzberg's theory[51] are content theories that may help employers understand the factors motivating staff within their organisation. Hackman & Oldham's process theory explores how motivation and satisfaction occur on a physical and intellectual level.[52] When measuring job satisfaction among the stakeholders who interact with the food service in aged care homes the theory is likely less important than the context. General job satisfaction surveys, even those created specifically for use within an aged care context, must contain questions pertaining to meals and dining for it to be a useful measure of satisfaction for staff who interact with the food service system.

1.6 CHAPTER SUMMARY

The introduction to this thesis has described the complex nature of food service systems, especially those within health care settings. Unlike restaurants and other community dining establishments, the food service within RACHs must consider the long-term health outcomes of the consumer. Given the persistently high rate of malnutrition among older adults living in

RACHs and the link between food service and nutritional status,[37] exploring food service satisfaction is an important area of research.

The RACH food service system is comprised of organisational stakeholders (staff) and consumers (resident and family). Given the interconnected nature of complex systems, it is not surprising that satisfaction of all stakeholders is necessary for the system to function optimally. Consequently, the Quality Standards[18] now require aged care providers to seek feedback from both organisational stakeholders and consumers as part of the accreditation process.

1.7 AIMS AND RESEARCH QUESTION

1.7.1 AIMS

This project aims to explore the factors relevant to consumer satisfaction with the food service in RACHs and use this intelligence to develop questionnaires intended to support aged care providers during accreditation and quality improvement activities.

1.7.2 RESEARCH QUESTIONS

To address the project aims, this thesis will present and discuss the findings arising from projects that have been designed and developed to answer the following research questions:

Research Question 1 (RQ1): What is the validity and reliability of food service satisfaction questionnaires currently available to RACHs?

Research Question 2 (RQ2): What methods are currently used by RACHs within South Australia to measure food service satisfaction?

Research Question 3 (RQ3): What factors relating to food service are important to include in a questionnaire intended to measure resident satisfaction with the dining experience in RACHs?

Research Question 4 (RQ4): How does the resident experience in RACHs in South Australia compare to the food service domain of the Aged Care Quality Standards?

Research Question 5 (RQ5): Can the validity and reliability of a newly developed resident food service satisfaction questionnaire be established?

Research Question 6 (RQ6): What factors relating to food service should be included in a questionnaire intended to measure family members' satisfaction with the dining experience offered to their relatives living in a RACH?

The research questions outlined above are answered using data obtained from various sources. Research question one was answered by conducting a systematic literature review to identify and critically appraise existing satisfaction questionnaires (Chapter Three). Research question two used data collected with a cross-sectional survey that food service managers from participating RACHs were asked to complete (Chapter Four). Research question three was answered by conducting semi-structured interviews with residents and exploring qualitative literature to understand the factors relevant to resident satisfaction with RACH food service (Chapter Five). Research question four was answered by administering the questionnaire to residents (n=387) living in RACHs in South Australia and comparing the results against the Quality Standards[18] (Chapter Six). Research question five was answered in Chapter Seven by conducting statistical analyses of the data obtained from administering the questionnaire to residents. Finally, research question six was answered by conducting semi-structured interviews with family members and synthesizing the data with a narrative review of the qualitative literature (Chapter Eight).

1.8 ETHICS

All research conducted as part of this thesis was approved by the Social and Behavioural Research Ethics Committee of Flinders University, South Australia (Project #6929). The final approval notice can be seen in Appendix A.

CHAPTER 2: THE METHODOLOGY OF SCALE DESIGN

As discussed in Chapter One, two groups of stakeholders interface with the food service systems in RACHs; the staff involved in the purchasing, preparing, and serving of meals (organisational) and the residents and family members who are the recipients (consumers) of the food services. In Australia, Standard 6 of the Quality Standards requires homes to regularly seek "*input and feedback from consumers, carers, the workforce and others and uses the input and feedback to inform continuous improvements for individual consumers and the whole organisation.*"[18] It is therefore vital that aged care homes have valid and reliable ways of measuring stakeholder satisfaction. This chapter describes the steps involved in designing, testing, and validating a summated rating scale.

2.1 INTRODUCTION

Summated rating scales are commonly used in research to measure non-observable phenomena such as attitudes, beliefs, and behaviours.[59,60] The first scale is attributed to Rensis Likert[61] and, to date, the Likert scale remains one of the most widely used tools in social sciences.[59] A summated rating scale has four characteristics that distinguish it from other types of questionnaires: (1) it contains multiple items that are combined or summed; (2) each item in the scale measures a quantitative variable; (3) each item is a statement that requires a rated response; and (4) there is no incorrect response.[59,60]

The dominant authors in the field of scale development suggest that designing a new tool consists of a series of steps conducted in multiple stages.[62-64] These steps should include: (1) construct definition; (2) designing the scale; (3) preliminary testing; and (4) full administration and item analysis. Additionally, the COSMIN® guidelines[65-67] can be used as a quality benchmark during the design, development and refinement of any new scale. This process provides a logical framework for discussing the theories underpinning scale development together with the methods required to test the instrument.

2.2 DEFINING THE CONSTRUCT

The first step in developing a new measurement instrument is to define the construct of interest, including the scope and subcomponents. Defining and delineating the construct is crucial; without understanding the construct, it is not possible to create items that accurately reflect the construct.[62] Therefore, in any satisfaction survey, the construct of satisfaction must be fully explored.[68] In research areas where there has been little work to conceptualise the construct, such as food service satisfaction, the construct and scale will likely evolve together; this process is evident throughout the remainder of this thesis.[62]

Spector suggests that scale development should occur inductively; authors should begin with a clearly defined construct that guides subsequent scale development. Conversely, a deductive approach is where authors start with a list of items they believe measure the construct and then conduct statistical analysis (e.g., factor analysis) to reveal the underlying constructs.[62] The issue with a deductive approach is that undoubtedly any scale will have correlated items which will group together into factors that can be ascribed meaning, however they may not accurately reflect the true construct. Consequently, an inductive approach has been adopted and the construct of consumer satisfaction explored in depth.

2.2.1 THE SWEDISH CUSTOMER LOYALTY BAROMETER

As a marketing strategy, consumer satisfaction began to evolve in the 1980s. Prior to this, corporate gains could be described with systems theories; for example, profits were generated from efficiencies in production (processes and outputs) rather than consumer satisfaction.[69-71] The Swedish Customer Loyalty Barometer (SCLB) was developed in 1989 by Claes Fornell, who is considered by many to be the 'Father of Consumer Satisfaction'. Fornell remains one of the most widely cited scholars in marketing science.[69-71]

The original SCSB Model had two antecedents that predict consumer satisfaction: (1) the consumer's experience with a product or service and (2) the consumer's expectations regarding that performance. Clearly, this model is founded in the Expectation-

Disconfirmation Paradigm (EDP).[24] According to the SCLB, the consequences of consumer satisfaction are customer loyalty or complaints (Figure 7), which is based on Hirschman's Exit, Voice and Loyalty model.[72] Hirschman posited that unhappy consumers would either exit the relationship with the organisation (e.g., stop purchasing the product or service) or use their voice to change the relationship (e.g., complain). According to this model, the decision to exit or voice is moderated by consumer loyalty.[69-71]

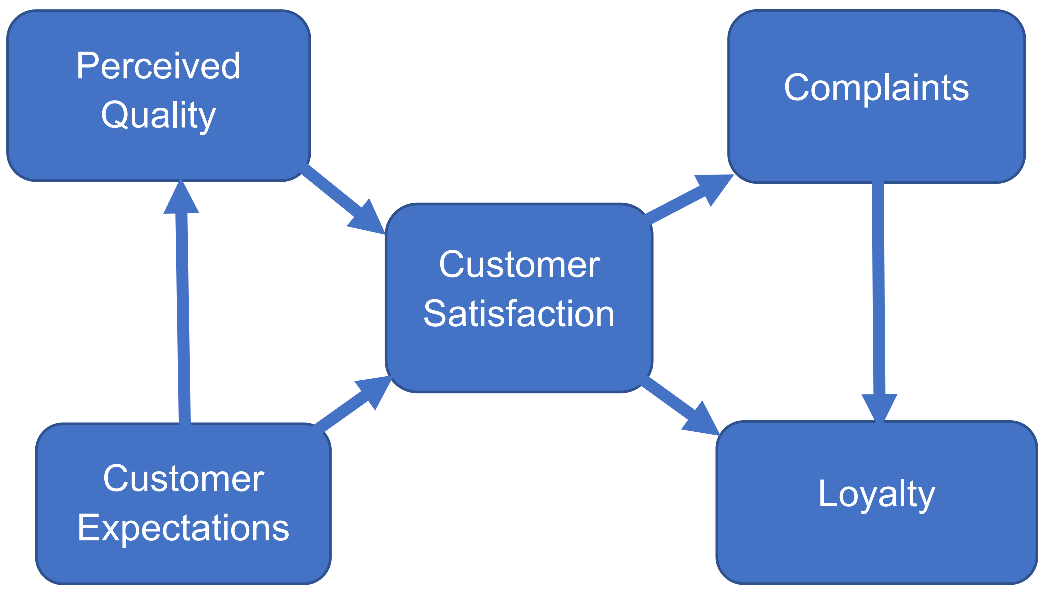


Figure 7: Simplified representation of The Swedish Customer Loyalty Barometer (SCLB) model of consumer satisfaction[69-71]

2.2.2 THE AMERICAN CUSTOMER SATISFACTION INDEX

The American Customer Satisfaction Index (ACSI) was founded in 1994 by Fornell and colleagues at the National Quality Research Centre (NQRC), University of Michigan. The updated ACSI model builds upon the SCLB version to better understand how organisations can measure the quality of goods and services from the consumer perspective.[69-71] The NQRC describes the combination of customer expectations, the perception of quality, and perceptions of value as 'quality for cost'.[71] Consequently, the major difference between the SCLB and the ACSI is the latter factors of perceived quality and value, concepts founded in the IPM.[25] As seen in Figure 8, the antecedents of the ACSI model of customer satisfaction

are consumer expectations (arising from the EDP)[24] and perceived quality/value (arising from the IPM).[25] The ACSI has become a national measure of consumer satisfaction, recognised by the United States Government as the gold standard for benchmarking consumer satisfaction.[69-71]

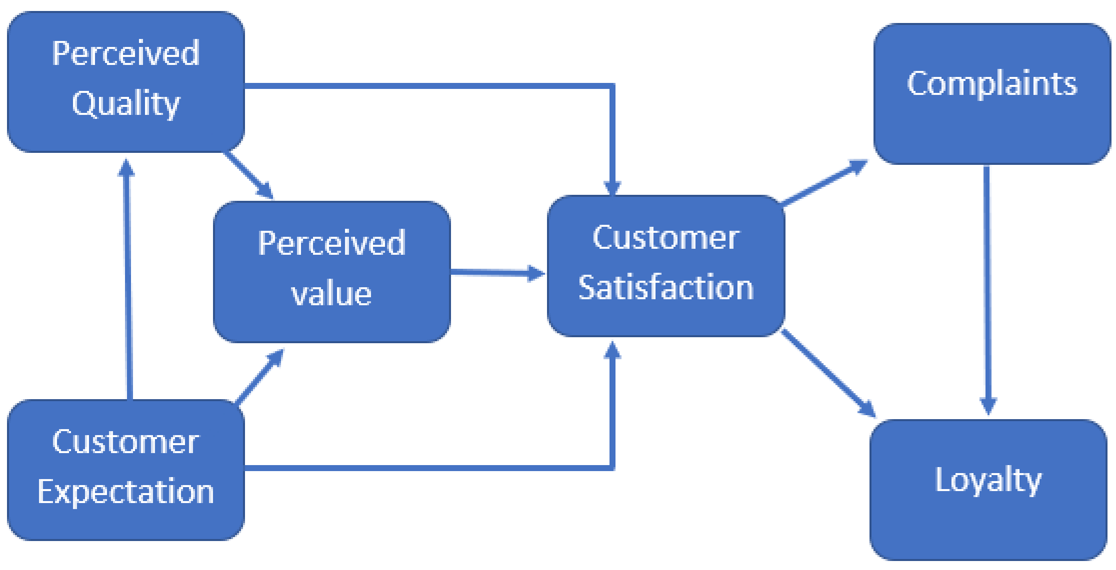


Figure 8: Simplified representation of The American Customer Satisfaction Index (ACSI) Model of Customer Satisfaction[69-71]

2.2.3 THE AMERICAN CUSTOMER SATISFACTION INDEX WITH GOVERNMENT SERVICES AND NON-PROFIT ORGANISATIONS

For consumers of government services and non-profit agencies, exit may not be a practical or viable way of expressing dissatisfaction. Similarly, factors such as intent to repurchase and 'quality for cost' are often not relevant as, in many cases, consumers have little choice but to interact with these agencies. Consequently, the ACSI[69-71] model was adapted and a model suitable for government services and non-profit organisations was developed. Whereas the antecedents in the private sector are expectations, quality, and value, in the government model these factors are: (1) the clarity and accessibility of information, (2) the timeliness and ease of processes, (3) the usefulness and ease of the website, and (4) polite

and professional customer service. In addition, users of government services often do not have the option of exiting the consumer/provider relationship when dissatisfied. The government model reflects this lack of choice and suggests the outcome of consumer satisfaction is trust and confidence in the agency (Figure 9). The ACSI model is currently used to measure satisfaction with health services in the U.S.A.[69-71] and has been adapted for use in other countries such as Bosnia,[73] Taiwan,[74] Indonesia,[75] and China.[76] Accordingly, it is an appropriate model for exploring consumer satisfaction within Australian RACHs.

Figure 9: Simplified representation of The American Customer Satisfaction Index with Government Services and Non-profit Organisations[69-71]

2.3 DESIGNING THE SCALE

Once the construct has been clearly defined, the next stage is to design the scale. This involves writing an introductory paragraph with instructions on how the respondent should

proceed, understanding how to operationalise latent variables into manifest variables, generating the items for inclusion and choosing an appropriate response scale.[62]

2.3.1 INTRODUCTION AND INSTRUCTIONS

The beginning of any questionnaire should contain instructions or prefacing information to help respondents know how to complete the scale as this provides context and a frame of reference. This can include setting a time frame of reference, asking participants to imagine or remember certain situations or specifically identifying points of reference.[62] For example, Crogan et al[32] prefaces some of their domains with statements like: "*Over the past week, during mealtime, I have received.*" This provides residents with a clear timeframe and a focus event for them to consider when responding to the subsequent items.

2.3.2 LATENT AND MANIFEST VARIABLES

Prior to creating any questionnaire, it is important to understand the difference between latent and manifest variables. Latent variables are intangible and difficult to measure. These are often qualitative concepts and emotional states such as depression, anxiety, happiness, and satisfaction. As these concepts are not directly measurable, it is necessary to create manifest variables; that is, items that help to observe or measure the latent variable.[77] Manifest variables are used by researchers to understand and explain latent variables. In the context of factor analysis, the latent variables are described by the factors, and the manifest variables are described by the items.[77] For example, when considering dining room ambience as a latent variable, individual manifest variables could address seating arrangements, ambience, and lighting.

2.3.3 ITEM GENERATION

When construct definition has been thoroughly conducted, item generation is a natural and logical progression. Item generation should involve utilising several resources, including evaluating existing instruments, conducting a literature review, consulting experts, and conducting interviews with the intended population.[62] Stakeholder consultation and

interviews are crucial for understanding the factors important to the intended population, yet this step is commonly overlooked.[78-81] Indeed, if researchers do not explore the construct beyond the scope of published literature, their perspective is limited, and new ideas are less likely to emerge.[82]

Once a battery of items has been drafted from the evidence and stakeholder perspective, it is then necessary to phrase the items using clear, concise, and easy-to-understand language. The following is a list of good practice when designing items:

1. Each item should address a single idea; double-barrelled items can result in respondent confusion and unclear results.
2. Items should be worded in plain English (or the appropriate native language), avoiding jargon and colloquialisms; this is especially important if the scale is going to be translated into a different language.
3. Items should be grammatically simple and consider the reading and comprehension level of the intended population.
4. Items should not make assumptions, be leading or loaded in such a way that it creates respondent bias.
5. Items should not contain double negatives as this may also lead to respondent confusion.

Additionally, the developer must decide whether to include positively and negatively worded items; a topic that is widely debated.[62,83-85] A positively worded item is one where agreement is appropriate, and negatively worded questions are where disagreement is appropriate. Many believe that including negatively worded items is a way of preventing acquiescence bias; that is, some participants will respond with extremely positive views regardless of the content of the item. Consider the following example provided by Johnson et al[83] during their investigation of negatively worded questions: "*I like to shop for clothing*" and "*I do not like to shop for clothing*". As these items are opposed, the responses should be different, however

they are so similarly worded that respondents may fail to detect the negative framing. This example highlights yet another issue with item generation; when negatively worded items simply adopt the negative stance (*I like* versus *I do not like*) this may not be understood as clearly as rephrasing the statement to '*I hate to shop for clothing'*.[62]

2.3.4 RESPONSE SCALE

The type of response scale used in a questionnaire can impact the quality and reliability of data gathered from participants. Traditional Likert scales contain an ordered response continuum ranging from strongly disagree to strongly agree; however, this can be varied to include a wide range of response categories. The most common response formats are frequency, evaluation, and agreement. Frequency asks respondents to indicate how often each item has or should occur; this can be done numerically (e.g., once per day) or with verbal anchors (e.g., never – always). Frequency should be chosen when the goal is to evaluate how often events occur. Evaluation asks respondents to rate their response along a spectrum from positive to negative (e.g., excellent – terrible). Evaluation should be chosen when the goal is to measure attitudes or performance. Lastly, agreement asks respondents to indicate their level of agreement with a statement (e.g., strongly agree – strongly disagree). Agreement is one of the most popular response scales because it is highly versatile and fits well across a broad range of constructs.[62]

In addition to determining the most appropriate wording for the response scale, developers must also choose whether the scale will contain an even or odd number of response categories.[60] Odd-numbered scales contain a middle point that offers a neutral option with the same number of positive or negative choices arranged on either side; this allows participants to express ambivalence or indifference.[60] Even-numbered scales, also called forced-choice scales, lack a neutral option and therefore force participants to state a preference.[20] Odd-numbered scales with five to nine points of discrimination are the most popularly used; however, there is no consensus in the literature about the most accurate method.[62,84,86]

Further, it is necessary to decide whether the construct can be measured with a unipolar or bipolar scale and then ascribe a numerical value to each response category so that it can be summed to present the user with a final rating or score. Scales that measure frequency are unipolar or one-directional as there cannot be fewer than zero occurrences. Therefore, a scale with a four-point response format ranging from never to always would score between one to four points per item. Conversely, scales that measure positive or negative attitudes can be bipolar. For example, a 10-point response scale could range from -5 (indicating strong disagreement) to +5 (indicating strong agreement), with responses around the middle indicating ambivalence or neutrality.[62,86]

Lastly, it is important to consider how the end-user will sum the scale to arrive at a final score. This is determined by the type of response scale and the wording of the items; scores arising from positively worded statements or questions can easily be summed, whereas negatively worded questions will require reverse scoring to avoid cancelling the positive responses.[62]

2.4 PRELIMINARY TESTING

Any newly designed scale should be presented to an expert panel to establish content validity and also tested among the intended population to establish face validity.[65-67] Although content and face validity are terms used interchangeably, they are distinct and separate concepts.[87]

Content validity refers to how well the items in the scale represent the construct of interest. This begins during the development phase, where domain identification and item generation should be informed by a comprehensive literature review, thereby drawing upon the expertise of multiple academics who have published in the appropriate research field.[87,88]

The next phase is to present the questionnaire to a panel of 5-10 experts who then judge the items and instrument as a whole to determine if the content is valid.[87,88] The panel should

include qualified professionals with clinical experience in the relevant field, academics who have published related research, and someone familiar with psychometric properties and scale design.[88]

Face validity refers to how well a newly developed scale is understood or accepted by a lay person. Although not strictly a psychometric property, a scale that does not reflect the issues or concerns of the intended population may not be relevant and therefore have little merit or value. Additionally, when the scale is intended for populations with varying cognitive ability or education levels, the items must be well understood otherwise, any responses may be meaningless.

2.5 FULL ADMINISTRATION AND ITEM ANALYSIS

2.5.1 DATA ANALYSIS

Psychometric testing of any newly developed scale involves full administration to respondents across multiple time points. Important considerations such as data analysis and sample size are outlined below.

2.5.1.1 TESTS TO ESTABLISH VALIDITY

Several tests should be undertaken to determine whether the data is suitable for factoring. The following descriptions are based on the outputs generated during factor analysis using the Statistical Package for the Social Sciences (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.).

1. Visually examine the correlation matrix to determine whether there are sufficiently strong correlations between the items.[89] Traditionally, items with an $r<\pm0.3$ are thought to have a weak relationship and should be considered for removal.[89] Senthilnathan argues that social science variables are less consistent than other sciences and therefore the acceptable cut-off is $r<\pm0.2$.[90] Similarly, items with $r>\pm0.8$ have a strong relationship and may be redundant, although in social sciences this threshold may be as low as $r>\pm0.7$.[90]

2. Bartlett's Test of Sphericity tests the null hypothesis that no correlations exist between variables by comparing the correlation matrix to the identity matrix. As mentioned above, the correlation matrix shows the correlation coefficients between variables. The identity matrix plots variables with a value of one or zero to determine whether they are orthogonal (i.e., uncorrelated). The null hypothesis proposes that the variables are orthogonal, that is, not correlated. Correlations are important because they form the factors in the analysis; therefore, it is necessary to reject the null hypothesis. Commonly, the statistical significance for this test is set at $p<0.05$ or $p<0.01$.[89]

3. The Kaiser-Meyer-Olkin Test (KMO) creates an index that identifies whether there is a linear relationship between the variables and, therefore, appropriate to conduct a factor analysis. Values can range between 0 – 1, values <0.6 are considered unacceptable, values in the 0.70s are considered "middling", and values above 0.8 are considered "meritorious" or worthy of analysis.[89]

4. Anti-image Matrices and Individual Measures of Sampling Adequacy (MSA) indicates how strongly each item correlates with other items in the matrix. Acceptable values for the MSA are the same as the KMO, that is, ideally greater than 0.70. Items with a value below 0.70 should be removed and the analysis rerun until all remaining individual items are within the acceptable range. A correlation matrix is suitable for factoring when the MSA values on the diagonal of the anti-image matrix are large.[89]

5. Communalities describes the proportion of each variables' variance that can be explained by the factors. Where communality is low (<0.4) this suggests the variable has little in common with other variables in the scale and should be considered for removal.[89,91]

Once it has been determined that the data are suitable for factor analysis, the two most common methods of factor extraction are Principal Components Analysis (PCA) and Exploratory Factor Analysis (EFA). Although PCA is predominantly utilised for item reduction

and EFA for estimating the underlying factors, results are similar unless there are <20 items and low communalities.[91]

Determining how many factors should be retained is crucial as having too few (under-factoring) can result in errors as factors may combine causing variables to load incorrectly. On the other hand, choosing too many factors (over-factoring) may result in factors splitting and being uninterpretable.[92] Multiple methods can be used to determine the appropriate number of factors including Eigenvalues, Catell's Scree Plot and Velicer's Minimum Average Partial (MAP), each described below.

1. The Kaiser-Guttman rule states that eigenvalues >1.0 should be retained; components with eigenvalues <1.0 account for less variance and should therefore be excluded. Kaiser's criterion of retaining Eigenvalues >1.0 has received criticism for being inaccurate and overestimating factors.[93] Despite the criticisms, this remains one of the most commonly reported methods of determining how many factors to retain.

2. Catell's scree plot is another method for choosing how many components should be retained by plotting the extracted components against their eigenvalues. The inflexion point can be determined by drawing a straight line through the lower values; components above the curve should be retained.[94]

3. Velicer's Minimum Average Partial (MAP) is considered one of the most accurate methods of determining how many factors to retain. This process has been recommended as best practice when conducting a PCA or EFA as it is more accurate than Pearson's correlation, especially when using skewed ordinal data.[92]

4. Horn's Parallel Analysis (PA)[95] is one of the most strongly recommended techniques for determining how many factors to retain.[96] The PA method generates data matrices from random data in parallel with the actual data. The eigenvalues generated using the Kaiser-

Guttman method are compared to those generated by the PA to determine the cut-off point (i.e., the point at which the Kaiser-Guttman eigenvalue falls below the PA eigenvalue).[95]

Once the number of factors has been determined, the matrix is rotated to show how components load onto each variable. Ideally there is a simple structure wherein each variable loads strongly onto one factor (salient loading value ≥ 0.40), and each factor has at least three variables with a salient loading.[97] Two types of rotation can be used when conducting a factor analysis to simplify the data structure. Orthogonal (e.g., Varimax) rotation assumes that each factor is independent (uncorrelated) whereas oblique (e.g., Promax) assumes there is a correlation between two or more factors.[89] When discussing food service satisfaction it can be assumed that factors that contribute to satisfaction are not necessarily correlated. For example, items related to the meal on the plate such as taste, and temperature may not be correlated to staff attitude; however, both contribute to resident satisfaction.

Convergence validity can be explored by asking participants to complete the newly designed questionnaire and an established scale, then comparing the results. Pearson's correlation (for parametric data) or Spearman's correlation (for non-parametric data) can be performed between the summed scores of the two questionnaires, which will describe the strength of the relationship between the two instruments. Correlation coefficients of $r > 0.8$ are considered very strong, $r = 0.6\text{-}0.79$ are considered strong, $r = 0.40\text{-}59$ are considered moderate, and $r < 0.4$ is considered weak.[98] Streiner et al[99] suggest that for health measurement scales, correlations within the midrange of $r = 0.4 – 0.8$ indicates both instruments are measuring the same construct.

2.5.1.2 TESTS TO ESTABLISH RELIABILITY

Internal reliability assesses consistency across items within the instrument. In a well-constructed questionnaire, participants should respond consistently to related items indicating high internal reliability. This can be tested using Cronbach's alpha with coefficients

of α ≥ 0.5 considered reliable in development and coefficients of α ≥ 0.7 considered excellent as this is the recommendation for an established questionnaire.[100]

External reliability assesses consistency between different users or consistency over time. Temporal stability (also called test-retest reliability) is a measure of consistency over time; when an instrument is stable, the same participants when tested under the same conditions at different time points, should yield similar results. Another measure is intra-rater reliability which measures the users' consistency in scoring or observing the same subject across multiple time points. Although Pearson's correlation is commonly conducted to establish reliabiilty in these two areas, the COSMIN®[65-67] guidelines explain that Pearson's correlation coefficient is not adequate as this only takes into account the percent of agreement; it does not account for random chance agreement.[101] Instead, when analysing ordinal scales, both temporal stability and intra-rater reliability should be analysed using Weighted Kappa.[65-67]

The Classic Kappa only considers total agreement whereby all disagreement is treated equally, and therefore, this is most appropriate for dichotomous or nominal scales.[102] For ordinal scales a weighted Kappa is preferred as this gives different weights to the disagreements, this test may be conducted using a linear or quadratic weighting. In the linear model, the level of disagreement between categories is given an even weighting however with the quadratic model the level of disagreement is considered to be more serious for each category away from agreement.[103]

Consequently, Kappa is a portion of agreement that is expressed with values between -1 to +1 . Negative values indicate agreement worse than expected (or disagreement) with the maximum of -1 indicating no observed agreement. Positive values indicate that the level of agreement is greater than could be expected by chance, with the maximum value of +1 indicating perfect agreement. Kappa values of <0.20 indicate a poor level of agreement, 0.21 to 0.40 is fair, 0.41 to 0.60 is moderate, 0.61 to 0.80 is substantial and 0.81 to 1.0 indicates a near-perfect level of agreement.[103]

2.5.1.3 MISSING DATA

Missing data (also called "item non-response") occurs in surveys when participants fail to respond to an item, either intentionally or unintentionally.[104,105] There are two primary methods of handling missing data in scales: removal of the data or imputation, that is, assigning a value to the missing responses based on scientific assumptions about the data so that it can still be included in analysis. Removing the data can result in too small a sample size, thereby underpowering the statistical analysis. Imputation, if done incorrectly, can skew the data resulting in unreliable or incorrect analysis.[104,105] To determine which method should be adopted it is first necessary to understand the reason for missingness.

Missing data can be categorised as Missing Completely At Random (MCAR), Missing at Random (MAR), and Missing Not At Random (MNAR). When data are MCAR there is no systematic relationship that would account for the missing values and the probability of missingness is the same across all cases; this may occur if a participant inadvertently skips over a question. Data may be considered MAR when there is an explanation or relationship between missingness that is unrelated to the variable itself. For example, older participants may not be able to recall their date of birth, however the missingness is related to their memory, not the question itself. Finally, data that are MNAR are those where there is a relationship or cause for the missingness that does relate to the question. This can occur when an item asks the respondent for sensitive or challenging information, such as sexual orientation. In this situation, participants deliberately choose not to respond.[104,105]

In addition to understanding the causes of missing data, it is also important to be aware of the patterns of missing data that can be present when analysing the results of questionnaires. There are three major patterns that can be seen in missing survey data: (1) data that are missing by design; (2) data that are missing after a certain point in the questionnaire; and (3) data that are missing for some items from some respondents.

Data that are missing by design occurs when not all questions are given to all respondents, this may be because the question is not relevant to all respondents. These types of items are commonly referred to as contingency questions. This can occur in questionnaires where responses are hierarchal, and the answer to one question determines the relevancy of subsequent items. For example, the ACSI scale[71] asks respondents "*Have you complained to the agency in the past year?",* with the follow-up question, "*How would you rate the handling of your complaint*?" If consumers have not complained in the past year the follow-up question is redundant and no response is required. In this situation, the type of missingness is known and can be adjusted for in the analysis.

When data are missing after a certain point in a questionnaire that is termed partial completion; this commonly happens in phone or internet surveys where the respondent disconnects before completion. If the breakpoint occurs early in the survey, the entire survey should be excluded from analysis; if the break occurs towards the end of the survey, the unanswered questions can be treated as item non-response.[104,105]

Finally, item non-response occurs when data are missing for some questions from some respondents. This may be because the question was unintentionally overlooked (MCAR), the respondent did not know the answer (MAR), or the respondent refused to answer (MNAR). It can also occur because the response provided was not meaningful e.g., values fell outside the expected range or responses were illegible (MAR).[104,105]

One of the most common methods of handling missing data in statistical analysis software is listwise or pairwise deletion. When data are deleted listwise, a single missing value causes the entire unit (survey) to be excluded from the analysis. This method can be useful when only a small number of data are missing, otherwise it can be wasteful. When data are deleted pairwise, the entire unit is retained and only the missing values are excluded; consequently, the completed values are retained for analysis. This results in less data being

wasted; however, it can cause inconsistencies in some analyses due to differences arising from the sub-samples created through data partitioning.[104,105]

When deletion is undesirable, the missing values can be replaced with a plausible value, a process known as imputation. The most common method of imputing data is to replace the missing value with the mean, median, or mode derived from the valid responses. This method assumes that, had the participant responded, their answer would follow the same trends as those given by other participants in the sample. Simple imputation is considered to be a suitable method of dealing with data that are MCAR and MAR; where data are MNAR, this implies systematic reasons for missingness, and simple imputations could result in biased analysis.[104,105]

2.5.2 SAMPLE SIZE

Each statistical test required to demonstrate validity and reliability has a minimum sample size to provide adequate power. The COSMIN®[65-67] guidelines for establishing construct validity state there should be an item to respondent ratio of 7:1 with a minimum sample of 100. Alternatively, one of the most commonly cited guidelines for factor analysis is the “Rule of 10”, which states there should be at least 10 participants for every item on the questionnaire.[106] For tests of internal consistency (reliability), the COSMIN® guidelines state a minimum of 100 responses should be analysed, and for relative measures of reliability (test-retest, inter-rater, and intra-rater) a minimum of 100 participants is also required.[65-67]

2.6 CHAPTER SUMMARY

This chapter has outlined the steps involved in developing a summated rating scale. The design process begins with a review of the literature to define the construct, in this case, consumer satisfaction. The American Customer Satisfaction Index with Government Services and Non-profit Organisations provides an appropriate framework for measuring consumer satisfaction with RACHs. The latent and manifest variables identified during construct definition can then inform item generation. Each item should measure a singular

concept and be clearly worded and readily understood by the intended population. Once a battery of items has been generated, developers must decide whether to frame the items as a question or statement and choose the most appropriate response scale. Once designed, the scale is then presented to a panel of experts to demonstrate content validity and pre-tested on a sub-set of the intended population to establish face validity. Finally, the scale is ready for administration among the intended population so that tests for validity and reliability can be conducted.

CHAPTER 3: REVIEW OF THE LITERATURE

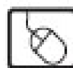
Chapter One explored food service systems in RACHs, particularly the connection between stakeholder satisfaction and resident health outcomes. Chapter Two described the methodology of scale design and discussed the statistical methods required to establish validity and reliability. This chapter discusses a systematic review of the literature to identify and critically appraise existing FSSQs available to RACHs, thereby addressing (RQ1): What is the validity and reliability of food service satisfaction questionnaires currently available to RACHs? This review was registered with PROSPERO: International prospective register of systematic reviews (CRD42018102793). This chapter includes material published in:

Pankhurst M, Yaxley A, Miller M. Identification and Critical Appraisal of Food Service Satisfaction Questionnaires for Use in Nursing Homes: A Systematic Review. *J Acad Nutr Diet*. 2021;121(9):1793-1812.e1. doi:10.1016/j.jand.2021.05.017

The review was conceived and designed by MP, AY and MM. MP was responsible for the review's conduct and synthesis with input from AY and MM. MP drafted the initial manuscript, AY and MM provided critical review and feedback. All authors read and approved the final manuscript. The signed co-authorship approval can be viewed in Appendix B. The review, as published in the Journal of the Academy of Nutrition and Dietetics, can be seen in Figure 10.

RESEARCH

Review



Identification and Critical Appraisal of Food Service Satisfaction Questionnaires for Use in Nursing Homes: A Systematic Review

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ABSTRACT

Background Food service provision in nursing homes is a complex, adaptive system through which multiple stakeholders interface. Organizational stakeholders include staff involved in preparing and delivering meals. Consumer stakeholders are the end users including residents and family. Questionnaires can be an economical and efficient method of measuring food service satisfaction in nursing homes and a powerful quality improvement tool.

Objective (1) To identify questionnaires that measure food service satisfaction of various stakeholders in a nursing homes and (2) to critically appraise the psychometric properties of identified questionnaires.

Methods Five electronic databases were searched (Cumulative Index to Nursing and Allied Health Literature, Medline, ProQuest, Scopus, and Cochrane) in April 2020. Data from the eligible studies were extracted, and the psychometric properties were critically appraised using the Consensus-Based Standards for the Selection of Health Measurement Instruments.

Results This review identified 129 studies that used a questionnaire to measure food service satisfaction in nursing homes. Of those, 107 studies representing 75 unique general nursing home satisfaction questionnaires were excluded for failing to adequately explore aspects related to food service. From the remaining 22 studies, 7 food service satisfaction questionnaires were identified; 5 intended for consumers (residents) and 2 intended for organizational stakeholders (staff). Using the Consensus-Based Standards for the Selection of Health Measurement Instruments quality criteria, most questionnaires had flaws in content validity and construct validity, primarily due to small sample sizes. No questionnaires explored food service satisfaction from the family perspective.

Conclusions Nursing homes collect satisfaction information for accreditation, marketing, benchmarking, and quality improvement. Although questionnaires are easy to administer, the quality of the data they collect is impacted by the validity and reliability of the questionnaires used. Using unreliable satisfaction data may mean that nursing homes are not accurately able to understand the impact of changes in the system on stakeholder satisfaction.

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GLOBALLY, THE POPULATION IS AGING WITH THE number of adults aged ≥65 years expected to increase by 7% between 2020 and 2050.[1] At a nationwide level, there is projected to be an increase in this population of 5.1% in the United States, 6.7% in Canada, 6.8% in the United Kingdom, and 4.9% in Australia.[2] Although the average life expectancy is increasing, the final years may be accompanied by illness and disability.[2] Healthy life expectancy refers to the years an individual can expect to live without conditions that impact life expectancy and quality of life. Globally, women have a projected healthy life expectancy of 88 years and men 79 years, after which both may experience 4 to 5 years of poor health resulting in the need for long-term residential care.[3]

Internationally, long-term residential care has different names and meaning but it can usually be categorized as low care or high care. Low-care homes, often called assisted living facilities (United States), retirement communities or retirement villages (Australia, United States), operate with a social model and typically offer minimal medical support. High-care facilities may be referred to as long-term care (Canada, United States), skilled nursing facilities (United States), social care (United Kingdom), residential aged care homes (Australia), or simply nursing homes (hereinafter). These facilities operate on a medical model offering accommodation

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and medical care for older adults who can no longer be supported to live independently in the community.[4]

Aged care in many countries is undergoing a culture change away from the medical model toward person-centered care. In the United States, the Pioneer Network together with the Centers for Medicare and Medicaid Services promote the importance of resident choice, autonomy, and dignity at mealtime.[5] This change is consistent with aged care standards in other countries such as Canada and the United Kingdom that require aged care homes to offer a variety of nutritious, appetizing foods and snacks that meet the residents' individual needs and preferences.[6,7] In Australia, the accreditation standards highlight the integral role of food and discuss dimensions such as flavor, presentation, temperature, and other factors important to food service satisfaction.[8-10]

Nursing homes have been described as complex adaptive systems[11] wherein the different subsystems, such as clinical care and food services, are interconnected with the goal of consumer satisfaction. The stakeholders in the food service system can be categorized as either organizational or consumer. Organizational stakeholders are those responsible for the production and supply of meals to residents in the nursing home. This may include the site manager, nurses, aides, caregivers, and direct care workers. It can also include the food service staff such as cooks, chefs, caterers, food service managers, and registered dietitians. Consumer stakeholders are the end users of the food service system and may include the resident, their family members, or other proxies. Organizational and consumer stakeholders may have very different drivers, objectives, and expectations, which can create tensions. For example, the organization may view mealtimes as a process required to provide adequate nutrition and hydration, whereas consumers may view mealtimes as a source of pleasure and comfort.[12,13]

Every stakeholder plays a role in ensuring the food service system is run efficiently, effectively, and harmoniously. Employees who interface with the system must be satisfied in their role and with the duties they perform for the system to function smoothly. Staff satisfaction among nursing home workers has been linked with resident satisfaction and improved resident outcomes such as a decrease in unintentional weight loss.[13] Historically, food service satisfaction has only been measured by surveying the consumer/resident perspective. As highlighted, however, many stakeholders and factors have the potential to impact upon the residents' dining experience. For this reason, many countries require nursing homes to provide evidence they are measuring feedback and complaints from both organizational stakeholders and consumers, making satisfaction questionnaires highly relevant.

Consumer satisfaction can be described as the negative or positive feeling of fulfilment individuals experience after engaging with a product or service.[14] The most widely accepted model of satisfaction is the expectancy-disconfirmation paradigm,[15] which posits that individuals determine satisfaction by comparing their expectations regarding a product or service to their actual experience.[16] It is important to note this is a consumer-driven model and not applicable to organizational stakeholders who engage with the system as the service provider. Organizational (staff) satisfaction differs from consumer satisfaction in several important domains. One of the popular theories underpinning staff satisfaction is Herzberg's Motivation-Hygiene Theory.[17] Herzberg suggests satisfaction is determined by motivators such as achievement, tasks, performance, recognition, responsibility, and advancement. Conversely, dissatisfaction is determined by hygiene factors such as administrative practices, supervision, coworker relationships, and benefits. Importantly, satisfaction and dissatisfaction are not opposites, rather they function on the same plane (eg, an employee may have few complaints but remain unmotivated). Consequently, the way in which staff satisfaction is measured must differ to how consumer satisfaction is measured.

Questionnaires can be an efficient and effective method of measuring satisfaction across a range of stakeholders; however, the quality of the feedback obtained is limited by the validity and reliability of the questionnaires used. Measuring any psychological construct, such as satisfaction, with a quantitative scale is a complex process.[18] The scale must be valid and measure what it purports to and it must be able to reliably measure satisfaction over time. Any questionnaire that does not meet these criteria has limited usefulness, especially as a quality improvement tool. This systematic literature review aims to identify questionnaires that are currently used for measuring stakeholder satisfaction with food services in nursing homes and to critique their psychometric properties.

RESEARCH SNAPSHOT

Research Question: What are the psychometric properties of the existing questionnaires used to measure food service satisfaction among organizational and consumer stakeholders in nursing homes?

Key Findings: There were very few dedicated food service satisfaction questionnaires (n = 7) developed for use in nursing homes. Despite some strengths, there were methodological flaws, such as lack of stakeholder consultation during development or underpowered sample sizes during psychometric testing. These factors can affect their validity and reliability and may therefore reduce their usefulness.

MATERIALS AND METHODS

This review was registered with PROSPERO: International prospective register of systematic reviews (CRD42018102793). Methods for the review were informed by the Consensus-Based Standards for the Selection of Health Measurement Instruments (COSMIN) methodology for systematic reviews of patient-reported outcome measures.[19-21]

Search Strategy

A comprehensive search of the literature was conducted in April 2020 to identify questionnaires used to measure food service satisfaction in nursing homes. With the assistance of an expert librarian, key words and synonyms were identified and combined under the following headings: (1) residential aged care (nursing home, rest home, long-term care); (2) satisfaction (experience, enjoyment); and (3) instrument,

(survey, questionnaire, tool). Small adjustments were made to adapt the searches for specific databases, which included Ovid-Medline, Cochrane, Cumulative Index to Nursing and Allied Health Literature, Scopus, and Proquest. A copy of the full search strategy used in Scopus is included as Figure 1, available at jandonline.org.

Study Selection

Types of Settings. Studies conducted in assisted living facilities were excluded as the lack of federal governance results in heterogeneity between facilities. Studies in acute care, short-term care facilities or community/home care were also excluded.

Types of Assessment Methods. Questionnaires that did not contain any items pertaining to food service satisfaction were excluded.

Types of Participants. Studies assessing satisfaction of any potential stakeholder in food service systems in nursing homes were included. This includes adults who are permanent residents in a nursing home, their friends, and their family. Additionally, studies assessing satisfaction of employees involved in the food service system including nursing home administrators, cooks, chefs, catering staff, nurses, and nurse aides/caregivers were included.

Other. No date or language exclusions were applied; all foreign language studies were manually entered into translation software to determine preliminary eligibility. Studies conducted in palliative care were excluded as the biological and psychosocial relationship with food can shift during end-of-life care.[22]

Data Extraction

A total of 23,132 citations were imported into Covidence[23] systematic review software with 7582 duplicates identified. Additionally, several studies and questionnaires (n = 24) were located through hand-searching gray literature repositories and government and health authority websites and bibliographies (Figure 2). Remaining studies (n = 15,550) were manually screened by abstract and title against the inclusion and exclusion criteria by 2 authors (MP and AY). Any disagreements where consensus was unable to be reached were resolved by the third author (MM).

A total of 534 studies underwent manual full text review; 405 were excluded with reasons (Figure 2). Eligible studies (n = 129) were allocated to 1 of 2 stakeholder categories: organizational (staff) satisfaction (n = 6) and consumer (resident and resident proxy) satisfaction (n = 123). Questionnaires that contained a single or global measure of food service satisfaction were excluded as they lack the depth to identify specific areas to improve quality and satisfaction.[24] For further refinement, a secondary screening process was conducted wherein the content of the questionnaires was assessed for how robustly they were able to measure the construct of food service satisfaction. Consequently, the content analysis of general nursing home satisfaction questionnaires conducted by Robinson et al[25] was used as a benchmark. The authors identified 6 domains relevant to adequately measuring food service satisfaction: (1) satisfaction with food; (2) food likes/dislikes respected; (3) choice/variety; (4) dining atmosphere; (5) ability to choose dining companion; and (6) staff attitude.

In summary, 107 studies, including 21 foreign language studies, were excluded as the questionnaires they used (n = 75) did not adequately measure the construct of food service satisfaction. Twenty-two studies were included in the qualitative synthesis; from these 7 distinct food service satisfaction questionnaires were identified and critiqued to ascertain the psychometric properties of each instrument used. Data reported included descriptive statistics (sample size), measures of content validity (expert panel, pretesting), construct validity (hypothesis testing and/or factor analysis), internal reliability (Cronbach α), and temporal stability (correlations).

Quality Appraisal

The COSMIN initiative was created by an international group of researchers who have expertise in the development and evaluation of measurement scales.[26] The panel developed and tested a critical appraisal checklist designed to assess the methodological rigor of health-related patient-reported outcomes.[26] Although there is a large array of quality appraisal tools available, the COSMIN tool is the most comprehensive method of evaluating the results of questionnaire validation studies. The tool allows users to rate questionnaires on a 4-point scale (excellent, good, fair, poor) in all areas of validity and reliability[26] and has been used in recent literature reviews of satisfaction questionnaires.[27,28] Two investigators (MP and AY) independently assessed the psychometric properties of each questionnaire using the COSMIN method, with the third author (MM) adjudicating any discrepancies.

RESULTS

This review identified 22 articles that used food service satisfaction questionnaires in nursing homes. Seven exploratory studies were excluded from data extraction because they created a research-specific instrument that was not intended for use by nursing homes to measure food service satisfaction.[29-35] Additionally, 2 reports contained questionnaires that had not undergone any type of psychometric testing and therefore could not be considered valid or reliable.[7,36] Eleven studies[37-47] were concerned with measuring consumer satisfaction, using 5 different food service satisfaction questionnaires (Table 1). Namely the FoodEx-LTC (Long Form),[37] the FoodEx-LTC (Short Form),[39] the FoodEx-LTC (Spanish),[41] the Resident Food and Food Service Satisfaction Survey (RF&FSSS),[44] and the Resident Foodservice Satisfaction Questionnaire (RFSQ).[46] Figure 3 contains samples of items taken from each of these questionnaires mapped against the food service satisfaction themes identified by Robinson et al.[25] Two studies[48,49] contained questionnaires appropriate for measuring food service satisfaction among organizational stakeholders (Table 2), namely, the Food Service Satisfaction Questionnaire (Food Service Aged Care) (FSSQFSAC)[48] and the Team Member Mealtime Experience Questionnaire (TMEQ).[9] No questionnaires adequately measured family satisfaction with food service.

Regarding content validity, 5 of the questionnaires included stakeholder consultation during the development process[37,39,44,48,49] using qualitative interviews, focus groups,

The RF&FSSS[44] and RFSQ (LF)[46] were administered by multiple researchers or used a mix of assisted- and self-completed survey data; however, neither reported interrater reliability. Similarly, there is no discussion regarding how the FoodEx-LTC (Sp)[41] was administered to Mexican-American residents. The FoodEx-LTC (LF & SF)[37,39] was administered to residents by the same researcher, and the FSSQFSAC[48] and TMEQ[49] were self-administered, therefore interrater reliability was not required.

Three of the questionnaires used a 4-point response scale with no neutral option,[37,39,41] and 3 used a 5-point response scale with a neutral option.[46,48,49] The RF&FSSS[44] used a 3-point response scale with a neutral option (yes, no, or sometimes); however, during statistical analysis, this was collapsed into 2 categories (positive or not positive), reducing the scale to a dichotomous format.

The only questionnaire to have been used as a measure of resident satisfaction pre- and post-intervention in a follow-up study[52] was the FoodEx-LTC (SF).[39] In the intervention group, only 8 of the 23 items experienced a significant ($P < 0.05$) change. Similarly, in the control group 7 of the 23 items demonstrated a significant ($P < 0.05$) change. None of the other questionnaires have been used in follow-up studies to assess responsiveness.

All resident questionnaires contain both positively and negatively framed questions, which may require the use of a scoring matrix to interpret the score. There is a scoring template mentioned for the RFSQ[46] available upon request from the authors.

Quality Appraisal Results Using the COSMIN Tool

Using the criteria set by the COSMIN Tool, most questionnaires rated poorly across the 9 domains of internal consistency, reliability, measurement error, content validity, structural validity, hypothesis testing, cross-cultural validity, criterion validity, and responsiveness. The most common reasons for low ratings were inadequate sample size, data reporting, data analysis, and methodology, which have been noted next to each rank in Figure 4. Due to the lack of any established gold standard, criterion validity was not able to be tested by any of the authors and was therefore rated as not applicable (n/a).

Five questionnaires sufficiently established content validity[37,39,44,48,49]; however, 2 did not conduct stakeholder consultation during the questionnaire development.[41,46] Three questionnaires assessed internal consistency using factor analysis,[46,48,49] and 3 used hypothesis testing to establish construct validity[37,39,41]; however, in most cases, the sample sizes were too small. The authors of the RF&FSSS[44] did not conduct any tests to establish construct validity including internal consistency, structural validity, or hypothesis testing. Regarding reliability, 4 questionnaires had inadequate sample sizes[37,39,44,48] and 2 failed to report any test-retest data.[41,46] The TMEQ[49] was developed using ICC to establish reliability; however, this test is appropriate for continuous data; for ordinal data, weighted κ is the preferred choice.[53]

DISCUSSION

Questionnaires can be an effective and economical tool for measuring satisfaction with services. When used as part of the quality improvement cycle, the data obtained allow stakeholders to monitor change and identify areas for improvement. This systematic review identified food service satisfaction questionnaires intended for use among a range of stakeholders in nursing homes and assessed their validity and reliability. Two questionnaires were identified to measure satisfaction with the food service system among organizational stakeholders.[48,49] Five questionnaires[37,39,41,44,46] were identified to measure consumer food service satisfaction from the resident perspective. No questionnaires were identified that measure family satisfaction with the food and dining experience of their loved ones.

Content validity is the extent to which the questionnaire measures the phenomenon it was intended to measure. This begins during the developmental phase wherein preliminary questions are formulated based on qualitative interviews, previous literature, and field observations. The questions are then presented to an expert panel that rates the relevance, readability, clarity, and comprehensiveness of the questions. Understanding the stakeholder perspective is an integral part of content validity and ensuring the questionnaire is contextually relevant.[54] The failure to incorporate user perspective has consistently been a strong criticism of satisfaction questionnaires.[25,54-56] Four questionnaires drew upon stakeholder engagement and involvement during development,[37,39,44,49] and 2 were based on hospital food service questionnaires.[44,46] Acute care questionnaires may not be relevant in an aged care setting because the conditions of stay are fundamentally different.[57] For example, the average length of stay in acute care hospitals in Organisation for Economic Co-operation and Development countries is <8 days[58] compared with a nursing home where residents in the United States spend an average of 2 years and residents in Australia, an average of 2.8 years.[4,59] Although residents living in nursing homes may have longer menu cycles compared with hospital menus, they are more likely to experience repetition and boredom with the menu than acute care patients due to the length of stay. Another important distinction between the settings is the physical environment. The majority of hospital patients consume meals at the bedside,[60] whereas nursing homes usually offer a dining room environment for residents to socialize.

Construct validity is the extent to which the questionnaire measures the various factors or constructs associated with the phenomenon. Construct validity may be established by testing a hypothesis that is linked to the measurement tool or through factor analysis. Three of the questionnaires relied on hypothesis testing[37,39,41]; however, one of the concerns with this method is that it hinges on a series of theoretical assumptions. Failure to support the proposed hypothesis may be a flaw in the underlying assumptions, a flaw in the questionnaire itself, or a combination of both.[61] For example, Crogan et al (FoodEx-LTC)[37] used physical markers (albumin, prealbumin, body mass index) to measure a psychological construct (satisfaction), which, in this case, is being used as a proxy for food consumption. Two of the 4 hypotheses proposed during this study were unsupported by the data, highlighting the indeterminacy of using hypothesis testing as the sole form of establishing construct validity.

The goal of factor analysis is to identify which items in a questionnaire best represent the content domains of the construct being explored and to compare the goodness-of-fit

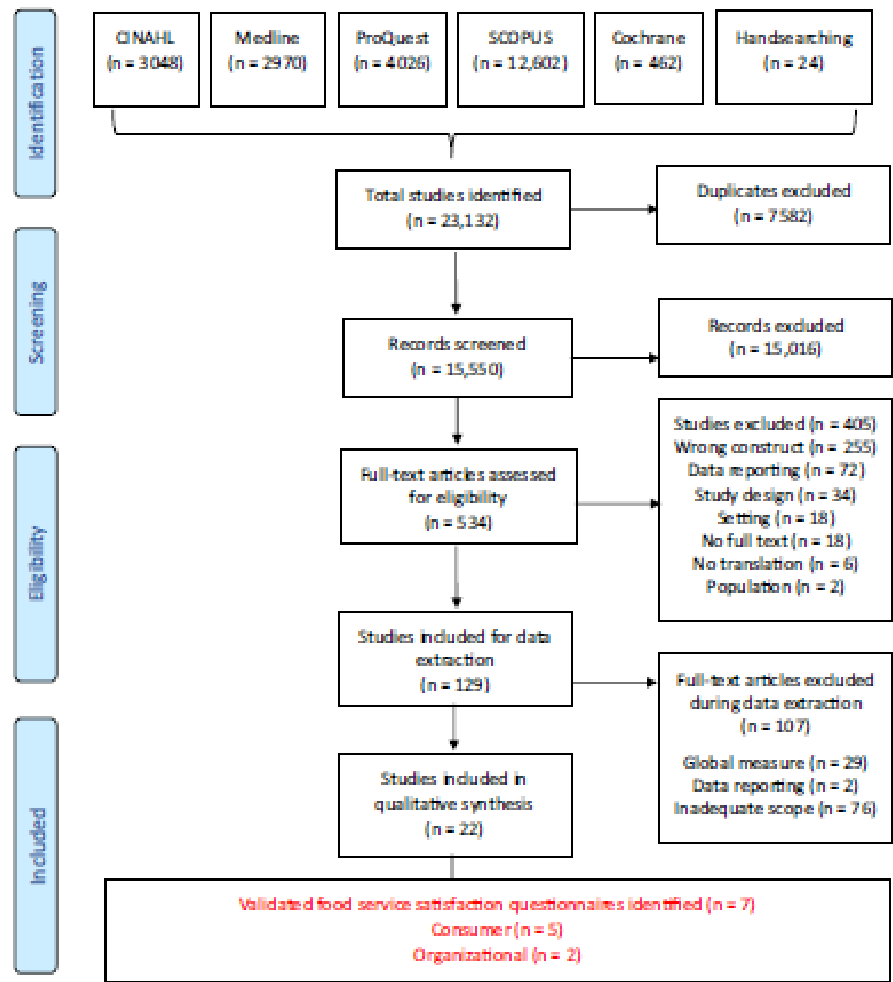

Figure 2. Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram of the literature search and refinement process for a systematic review of food service satisfaction questionnaires used in Nursing Homes. CINAHL = Cumulative Index to Nursing and Allied Health Literature.

or stakeholder meetings (Table 3). Two of the questionnaires drew upon themes in food service satisfaction questionnaires intended for use in other settings.[44,46] Lastly, the development of the Spanish version of the FoodEx-LTC (Sp)[41] did not include consultation with Hispanic residents to establish relevance to the new population.

Regarding construct validity, 3 questionnaires used hypothesis testing as the sole method of establishing construct validity,[37,39,41] and 3 used factor analysis[46,48,49] to establish validity of a long-form questionnaire. The authors of the RF&FSSS[44] did not conduct any tests to establish construct validity. Additionally, 2 long-form questionnaires were adapted into short forms; one used the more widely accepted method of principal components analysis for item reduction,[46] and the other used a less conventional Pearson correlation[39] (Table 4). None of the short-form questionnaires were retested in a fresh population to establish validity of the condensed version.

All authors used Cronbach α to demonstrate scale reliability (Table 4). Coefficients of $\alpha \geq .5$ are considered acceptable in development with values $\alpha \geq .7$ deemed excellent as this is the recommendation for established questionnaires.[50] The TMEQ[49] had an overall $\alpha = .93$; however, the intraclass correlation (ICC) for individual items exhibited only moderate reliability (0.5-0.75), with 1 item falling below the 0.5 cutoff for acceptability. Similarly, the RF&FSSS[44] demonstrated acceptable reliability with values ranging between $\alpha = .60$ and $\alpha = .62$. The remaining questionnaires[37,39,41,46,48] had values $\alpha \geq .7$ in multiple domains, suggesting excellent reliability; however, 1 domain in the FSSQFSAC[48] fell below the cutoff (resident relationships $\alpha = .429$).

Four of the questionnaires reported test-retest scores using paired t tests (Table 4), however none discuss measurement error.[37,39,44,48] Correlation coefficients of $r > 0.8$ are considered very strong, $r = 0.6$ to 0.79 are considered strong, $r = 0.40$ to 59 are considered moderate, and $r < 0.4$ is considered weak.[51] The FoodEx-LTC[37,39] had very strong test-retest scores for both the long and short form. The FSSQFSAC[48] had 1 weak domain (reliability $r = 0.28$); however, the remaining 8 domains were moderate to strong.[48] The temporal stability of the TMEQ[49] was tested using ICC, demonstrating very strong overall reliability (0.85) with individual domains scoring between 0.72 and 0.8. The authors of the RFSQ (LF & SF)[46] simply reported that their paired t tests scores were high.

Table 1. Content summary of the consumer (resident) Food Service Satisfaction Questionnaires for use in nursing homes identified among the peer reviewed literature

Citation	Country	Questionnaire name	Sample size	Administration	Questionnaire domains or factors identified by authors (items per domain/factor)	Response format	Other studies involved with the questionnaires
Crogan et al 2004[37]	United States	FoodEx-LTC (LF)[a]	61	I[b]	5 domains, 44 items Enjoying food and food service (11) Exercising choice (8) Cooking good food (7) Providing good food service (positive view) (13) Providing good food service (negative view) (5)	4-point scale: true, somewhat true, somewhat false, false	Evans and Crogan 2005[38]
Crogan and Evans 2006[39]	United States	FoodEx-LTC (SF)[c]	61	I	4 domains, 28 items Enjoying food and food service (8) Exercising choice (6) Cooking good food (5) Providing food service (9)	4-point scale: true, somewhat true, somewhat false, false	Crogan et al 2015[40]
Crogan and Evans 2010[41]	United States	FoodEx-LTC (Sp)[d]	22	I	4 domains, 28 items Enjoying food and food service (8) Exercising choice (6) Cooking good food (5) Providing food service (9)	4-point scale: true, somewhat true, somewhat false, false	Evans and Crogan 2005[42] Evans and Crogan 2007[43]
Lengyel et al 2004[44]	United States	RF&FSS[e]	205	I	2 domains, 23 items Food service (11) Quality of life (12)	3-point scale: yes, no, sometimes	Keller et al 2017[45]
Wright et al 2010[46]	Australia	RFSQ (LF)[f]	313	M[g]	12 factors (37 items) Meal quality and enjoyment (14) Autonomy (5) Staff consideration (3) Hunger and food quantity (3) Chewing and swallowing ability (2) Physical environment (2) Presentation of the staff (2) Adequacy of dining aids and knives (2) Timing of meal service and choice (2) Access to snack preparation (1) Meal time suitability (1) Availability of the option to season meals (1)	5-point scale: always, often, sometimes, rarely, never DNA[h]	Wright et al 2011[47]

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Table 1. Content summary of the consumer (resident) Food Service Satisfaction Questionnaires for use in nursing homes identified among the peer reviewed literature (*continued*)

Citation	Country	Questionnaire name	Sample size	Administration	Questionnaire domains or factors identified by authors (items per domain/factor)	Response format	Other studies involved with the questionnaires
		RFSQ (SF)[i]	313	M	4 factors (24 items) Meal quality and enjoyment (1) Autonomy (3) Staff consideration (2) Hunger and food quantity (3) Other (6)	5-point scale: always, often, sometimes, rarely, never DNA	

[a]FoodEx-LTC (LF) = questionnaire that measures food and food service satisfaction, long form.
[b]I = interviewer.
[c]FoodEx-LTC (SF) = questionnaire that measures food and food service satisfaction, short form.
[d]FoodEx-LTC (Sp) = questionnaire that measures food and food service satisfaction, Spanish version.
[e]RF&FSS = Resident Food & Food Service Satisfaction Survey.
[f]RFSQ = Resident Food Service Satisfaction Questionnaire, long form.
[g]M = mixed; interviewer and self.
[h]DNA = does not apply.
[i]Resident Food Service Satisfaction Questionnaire, short form.

between different models.[62] By convention, only items that clearly load onto 1 factor are retained, and items that load onto multiple factors or load with a low eigenvalue are typically eliminated. Double-barreled, ambiguous, or poorly worded questions may load onto multiple factors and be eliminated, yet the subject may still be relevant to the construct of interest. Similarly, domains may not be explored fully enough, resulting in a low number of items being loaded and the domain being omitted. Importantly, an adequate sample size is essential for performing factor analysis with at least 10 participants for every item on the questionnaire.[63] Three questionnaires used factor analysis to establish construct validity[46,48,49]; however all had fewer than 7 respondents per item, which can increase the error in eigenvalues and factor loadings.[64]

Internal (consistency) reliability explores the extent to which items on the questionnaire measure the construct of interest. In a well-constructed questionnaire, participants should respond consistently to related items indicating high internal reliability. Inconsistent responses suggest the questionnaire measures a different construct (eg, quality instead of satisfaction), indicating low internal reliability. All questionnaires were able to demonstrate acceptable Cronbach α, thereby establishing internal reliability; however, the results of the quality appraisal suggest that, in most cases, sample sizes were too small to provide adequate statistical power.

Test-retest reliability, also called temporal stability, is a measure of consistency over time. When a questionnaire is stable, the same participants when tested under the same conditions at different time points should yield similar results. The 4 questionnaires that included paired t test scores all exhibited strong correlation coefficients[37,39,44,48]; however, they all had inadequate sample sizes for statistical analysis. Wright et al (RFSQ)[46] did not perform test-retest, nor did Crogan and Evans (FoodEx-LTC)[41] when testing the Spanish version. Temporal stability is essential to establish because observing changes across 2 time points is how nursing homes can measure changes in satisfaction. Without a stable questionnaire, any observed fluctuations may be flaws in the questionnaire, which are falsely interpreted as changes in satisfaction.

Interrater reliability is a measure of consistency between different users. When a questionnaire has strong interrater reliability, different users should record similar results when testing or observing the same phenomena. Three questionnaires[41,44,46] use multiple interviewers but do not discuss interrater reliability, therefore it is not possible to know whether differences observed across 2 time points are attributable to interviewer technique and ability or actual changes in satisfaction.

Measurement error is the difference between the measure taken and its true value and can be caused by the questionnaire itself, the data collection mode, the interviewer or respondent.[65] Bias can occur when a participant's response is inaccurate, whereas variance occurs when values are reported differently across multiple time points.[65] Measurement error is concerned with absolute reliability and calculated with standard error of measurement, coefficient of variation, or limits of agreement. None of the questionnaires discussed measurement error.

Measurement precision refers to the scale's ability to accurately record participants' responses; for example,

Table 2. Content summary of the organizational food service satisfaction questionnaires for use in nursing homes identified among the peer-reviewed literature

Citation	Country	Questionnaire name	Sample size	Administration	Questionnaire domains or factors identified by authors (items per factor/domain)	Factors[a] relevant to organizational satisfaction contained in Hertzberg's Two Factor Theory[17]	Response format
Miller at al 2018[48]	Australia	Food Service Satisfaction Questionnaire (Food Service Aged Care)	265	S[b]	8 factors (60) Job satisfaction (16) Food quality (12) Staff training (6) Consultation (4) Eating environment (6) Reliability (7) Family expectations (4) Resident relationships (4) Positive promotion (1)	Motivation (satisfaction): Achievement Recognition The work itself Responsibility Advancement Hygiene (dissatisfaction): Administrative practices Supervision Interpersonal relations Physical working conditions Job security Benefits Salary	5-point scale: very dissatisfied, dissatisfied, neutral, satisfied, very satisfied Not applicable I don't know
Keller et al 2020[49]	Canada	Team Member Mealtime Experience Questionnaire	137	S	3 factors (19 items) Time (6) Supportive atmosphere (7) Relational care (6)	Motivation (satisfaction): Achievement Recognition The work itself Responsibility Advancement Hygiene (dissatisfaction): Administrative practices Supervision Interpersonal relations Physical working conditions Job security Benefits Salary	5-point scale: strongly disagree, disagree, neutral, agree, strongly agree

[a]Struck-out factors were not addressed in questionnaire.
[b]S = self.

Table 3. Summary of validity and reliability measures reported in food service satisfaction in nursing homes questionnaire development studies

Author/year (country)	Questionnaire name	Sample	Respondent	Content and Face Validity			Construct Validity			Reliability					
				Stakeholder	Literature	Expert	Hypothesis	Factorial	Cross-cultural	Internal	Measurement Error	Test-retest	Interrater	Responsive	Interpretability
Crogan et al 2004[37] (United States)	FoodEx-LTC (LF)[a]	61	R[b]	Yes	No	Yes	Yes	No	X[c]	Yes	?[f]	Yes	X	No	No
Crogan and Evans 2006[39] (United States)	FoodEx-LTC (SF)[d]	61	R	Yes	No	Yes	Yes	No	X	Yes	?	Yes	X	Yes	No
Crogan and Evans 2010[41] (United States)	FoodEx-LTC (Sp)[e]	22	R	No	No	No	Yes	No	Yes	Yes	X	No	?	No	No
Lengyel et al 2004[44] (United States)	Resident Food and Food Service Satisfaction Survey	205	R	Yes	Yes	Yes	No	No	X	Yes	?	Yes	?	No	No
Wright et al 2010[46] (Australia)	Resident Foodservice Satisfaction Questionnaire (LF[g] and SF[h])	313	R	No	Yes	Yes	No	Yes	X	Yes	X	No	?	No	Yes
Miller et al 2018[48] (Australia)	Food Service Satisfaction Questionnaire (Food Service Aged Care)	265	S[i]	Yes	Yes	Yes	No	Yes	X	Yes	?	Yes	X	No	No

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Table 3. Summary of validity and reliability measures reported in food service satisfaction in nursing homes questionnaire development studies (*continued*)

Author/year (country)	Questionnaire name	Sample	Respondent	Content and Face Validity			Construct Validity			Reliability				Responsive	Interpretability
				Stakeholder	Literature	Expert	Hypothesis	Factorial	Cross-cultural	Internal	Measurement Error	Test-retest	Interrater		
Keller et al 2020[49] (Canada)	Team Member Mealtime Experience Questionnaire	137	S	Yes	Yes	Yes	No	Yes	X	Yes	?	Yes	X	No	No

[a]FoodEx-LTC (LF) = questionnaire that measures food and food service satisfaction, long form.
[b]R = resident.
[c]X = not required.
[d]FoodEx-LTC (SF) = questionnaire that measures food and food service satisfaction, short form.
[e]FoodEx-LTC (Sp) = questionnaire that measures food and food service satisfaction, Spanish version.
[f]? = not reported.
[g]LF = long form.
[h]SF = short form.
[i]S = staff.

measures containing fewer response categories do not allow participants to indicate the strength to which they agree or disagree with a statement.[66] Lengyel et al (RF&FSSS)[44] used a 3-point scale (yes, no, sometimes); however, for analysis they merged the no and sometimes categories together creating a dichotomous scale. Although the literature remains divided on the best format for response scales, many authors feel that dichotomous scales are unreliable, inconsistent, and incapable of capturing complex feelings.[66] The 3 questionnaires developed by Crogan and colleagues(FoodEx-LTC)[37,39,41] all use a 4-point response (true, somewhat true, false, somewhat false), and the remaining questionnaires[46,48,49] used a 5-point response to indicate frequency (always, often, sometimes, rarely, never).

Responsiveness or sensitivity to change indicates whether the questionnaire is able to accurately assess changes in the system.[67] Responsiveness is a separate psychometric characteristic that should be critiqued because questionnaires that are insensitive to change may fail to detect the true effects of an intervention.[67] The only questionnaire that was used as a pre- and postmeasure of satisfaction was the FoodEx-LTC (SF) in a later study conducted by Crogan et al.[52] They were able to demonstrate an increase in satisfaction for 14/28 items in the intervention group; this is compared with an increase in satisfaction in 11/28 items in the control group. The questionnaire was used in another subsequent study[40] where it performed similarly with an increase of satisfaction in 18/28 items in the intervention group and 14/28 in the control group. When implementing a food service intervention, one would expect an observable change in satisfaction in the intervention group compared to the control group. The similarity in satisfaction between the groups could be the result of the intervention or the inability of the questionnaire to accurately respond to change.

In summary, although there were strengths to each of the questionnaires, none met the COSMIN guidelines for quality appraisal. All questionnaires included in this review had flaws in methodology or had inadequate sample sizes and therefore struggled to establish an acceptable level of validity and reliability. Although all questionnaires rated poorly, they are not necessarily unsound, just untested in important areas. Of the questionnaires intended for residents, only the FoodEx-LTC (LF) was able to demonstrate adequate content validity and reliability and is therefore considered to be the most relevant for practice. However, it was published in 2004, which predates the new person-centered care approach to aged care. Consequently, the questionnaire may not adequately capture domains that are now considered important to resident satisfaction such as resident participation and involvement. Among the organizational questionnaires, the TMEQ[49] has some merit; however, as a tool for measuring staff satisfaction with the food services, it lacks a theoretical foundation (eg, Herzberg's Two Factor Theory). The FSSQFSAC[48] incorporated aspects of the Minnesota Satisfaction Questionnaire[68] during development and may therefore be better suited to measuring staff satisfaction.

Strengths and Limitations

There are some limitations to consider when evaluating the results of this review. Although no language filter was used to exclude studies, translation software was used rather than

Table 4. Summary of the reported validity and reliability results of identified questionnaires used to measure consumer (resident) food service satisfaction in nursing homes (resident questionnaires in alphabetical order)

Tool name, author (country)	Validity		Reliability	
	Content	Construct	Internal consistency	Temporal stability
FoodEx-LTC (LF)[a]: questionnaires completed (n = 61)				
Crogan et al 2004[37] (United States)	Expert panel (n = ?[b]) Pretested with residents (n = 10) feedback on format and clarity	Hypothesis testing H1[c]: Positive relationship between food/food service and serum albumin/prealbumin Albumin positively correlated with "enjoying food and food service" ($r = 0.25$, $P = 0.031$) and "exercising choice" ($r = 0.30$, $P = 0.013$); no significant correlation with prealbumin H2: Negative relationship between food/food service and depression Depression negatively correlated with "enjoying food and food service" ($r = -0.48$, $P < 0.001$) and "providing good food service (+)" ($r = -0.32$, $P = 0.007$) Depression positively correlated with "cooking good food" ($r = 0.39$, $P = 0.001$) and "providing good food service (−)" ($r = 0.33$, $P = 0.005$) H3: Positive relationship between food/food service and between food/food service and BMI[d] and functional status No significant correlations with BMI or with functional status	α[e] for each domain (44 items) Enjoying food and food service 0.81[e] Exercising choice 0.69[a] Cooking good food 0.81[e] Providing good food service (positively view) 0.76[f] Providing good food service (negatively view) 0.87[f]	PCC[g]: test-retest* (n = 15) 0.84 0.89 0.83 0.55 0.87
FoodEx-LTC (SF)[h]: questionnaires completed (n = 61)				
Crogan and Evans 2006[39] (United States)	Expert panel (n = ?) Pretested with residents (n = 10) feedback on format and clarity	Hypothesis testing H1: Positive relationship between food/food service and serum albumin/prealbumin Albumin positively correlated with "enjoying food and food service" ($r = 0.24$, $P \leq 0.02$) and "exercising choice" ($r = 0.29$,	α for each domain (28 items) Enjoying food and food service 0.72[f] Exercising choice 0.88[f] Cooking good food 0.82[f] Providing food service 0.88[f]	PCC: test-retest (n = 15) 0.79 0.88 0.82 0.88

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Table 4. Summary of the reported validity and reliability results of identified questionnaires used to measure consumer (resident) food service satisfaction in nursing homes (resident questionnaires in alphabetical order) (*continued*)

Tool name, author	Validity		Reliability	
(country)	Content	Construct	Internal consistency	Temporal stability
		$P \leq 0.05$); no significant correlation with prealbumin H2: Negative relationship between food/food service and depression Depression negatively correlated with "enjoying food and food service" ($r = -0.47$, $P \leq 0.02$) and "exercising choice" ($r = -0.27$, $P \leq 0.05$) Depression positively correlated with "cooking good food" ($r = 0.41$, $P \leq 0.02$) and "providing food service" ($r = 0.32$, $P \leq 0.02$) H3: Positive relationship between food/food service and functional status Functional status was positively correlated with "exercising choice" ($r = 0.25$, $P \leq 0.05$) H4: Positive relationship between food/food service and BMI BMI was positively correlated with "cooking good food" ($r = 0.25$, $P \leq 0.05$)		
FoodEx-LTC (Sp)[i]: questionnaires completed (n = 22)				
Crogan and Evans 2010[41] (United States)	Pretested with bilingual community dwelling Hispanic adults (n = 52) for content and clarity	Hypothesis testing (not stated *a priori*) H1: Relationship between food consumed and serum prealbumin No significant correlation with serum prealbumin and food consumed H2: Relationship between food/food service and food intake Food intake at breakfast ($r = -0.700$, $P < 0.001$) and lunch ($r = 0.776$, $P < 0.001$) significant correlated with FoodEx-LTC (Sp) score	α for each domain (28 items) Enjoying food and food service 0.82[f] Exercising choice 0.66[f] Cooking good food 0.75[f] Providing food service 0.70[j]	

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Table 4. Summary of the reported validity and reliability results of identified questionnaires used to measure consumer (resident) food service satisfaction in nursing homes (resident questionnaires in alphabetical order) (*continued*)

Tool name, author (country)	Validity		Reliability	
	Content	Construct	Internal consistency	Temporal stability
		H3: Relationship between serum prealbumin and functional status No significant correlation with prealbumin and functional status		
RF&FSSS[k]: questionnaires completed (n = 205)				
Lengyel et al 2004[44] (United States)	Expert panel (n = ?) Pretested with residents for clarity, understanding and acceptance (n = 28)	No tests conducted	α for each domain (23 items), n = 205 Food service 0.62[j] Quality of life 0.60[j]	Test-retest (n = 21) Paired samples *t* test 23/25 questions found to be reliable ($P > 0.05$)
RFSQ (LF&SF)[l]: questionnaires completed (n = 313; n = 210 in nursing home)				
Wright et al 2010[46] (Australia)	Expert panel (n = 20) Pretested with residents from nursing homes and geriatric rehabilitation (n = 40) for content format and ease of use	EFA[m] (PCA[n]) Varimax Rotation (n = 248) Velicer's MAP[o] recommended retention of 4 strongest factors (40% of variance) (4 factors; 24 items) Additional 8 factors using eigenvalues >1.0 (64% of variance) (12 factors; 37 items)	α for each domain (18 items) n = 248 Meal quality and enjoyment 0.91[f] Autonomy 0.64[j] Staff consideration 0.79[f] Hunger and food quantity 0.67[j] Items loading onto more than 1 factor analyzed separately (further research)	
FSSQ$_{FSAC}$[p]: questionnaires completed (n = 265)				
Miller et al 2018[48] (Australia)	Expert panel (n = 6) Pretested with food service staff (n = 33)	EFA (PCA) Varimax Rotation (n = 265) 17 factors identified using eigenvalues >1.0; however, a 9-factor solution was consistent with Catell's scree test 1 factor removed following poor test-retest leaving 8 factor solution (items loading	α for each domain (62 items) Job satisfaction 0.932[f] Food quality 0.871[f] Staff training 0.922[f] Consultation 0.840[f] Eating environment 0.777[f]	PCC test-retest (n = 29) 0.826 ($P < 0.001$) 0.473 ($P = 0.010$) 0.708 ($P < 0.001$) 0.632 ($P < 0.001$)

(*continued on next page*)

Table 4. Summary of the reported validity and reliability results of identified questionnaires used to measure consumer (resident) food service satisfaction in nursing homes (resident questionnaires in alphabetical order) (*continued*)

Tool name, author (country)	Validity		Reliability	
	Content	Construct	Internal consistency	Temporal stability
		with correlation >0.4) (59% of variance) (8 domains; 62 items)	Reliability 0.695[j] Family expectations 0.781[f] Resident relationships 0.429[q]	0.600 (P = 0.001) 0.276 (P = 0.147) 0.615 (P < 0.001) 0.586 (P = 0.001)
TMEQ[r]: questionnaires completed (n = 137)				
Keller et al 2020[49] (Canada)	Pretested with managerial staff (n = 6)	EFA (PAX[s]) Obvarimax Rotation (n = 137) 3 factors identified using eigenvalues >1.0, no other methods used 4 items removed with poor loading (<0.40) leaving a 3-factor solution (3 domains; 19 items); % of variance not reported	α for each domain (19 items) Time 0.85[f] Supportive atmosphere 0.86[f] Relational care 0.81[f]	ICC[t] test-retest (n = 103) 0.85 0.72 0.78

[a]FoodEx-LTC (LF) = questionnaire that measures food and food service satisfaction, long form.
[b]? = not reported.
[c]H = hypothesis.
[d]BMI = body mass index.
[e]Cronbach α.
[f]Excellent Cronbach α.
[g]PCC =Pearson correlation coefficient.
[h]FoodEx-LTC (SF) = questionnaire that measures food and food service satisfaction, short form.
[i]FoodEx-LTC (Sp) = questionnaire that measures food and food service satisfaction, Spanish version.
[j]Acceptable Cronbach α.
[k]RF&FSS = Resident Food & Food Service Satisfaction Survey.
[l]RFSQ (LS & FS) = Resident Food Service Satisfaction Questionnaire (short form and long form).
[m]EFA = exploratory factor analysis.
[n]PCA = principal components factor analysis.
[o]MAP = minimum average partial.
[p]$FSSQ_{FSAC}$ = Food Service Satisfaction Questionnaire (Food Service Aged Care).
[q]Poor Cronbach α.
[r]TMEQ = Team Member Mealtime Experience Questionnaire.
[s]PAX = principle axis analysis.
[t]ICC = intraclass correlation.

Themes identified by Robinson et al[25]	RFSQ (SF)[a,46]	FoodEx-LTC[b](LF[c,37], SF[d,39], and Sp[e,41])	RF&FSS[f,44]
Satisfaction with food	The hot foods are just the right temperature.	(I have received) foods served at the proper temperature.	Is the cold food cold? Is the hot food hot?
	Overall, how would you rate your satisfaction with the foodservice?	(Since I came to the nursing home) I have been satisfied with the food service.	Are you happy with the service you receive at mealtimes?
Choice/variety	I like the amount of food choice I have.	How important to you is: Choosing what to eat?	Would you like to be given more choice in what you eat?
	There is enough variety for me to choose meals that I want to eat.	(I get) a variety of food. (I have received) the same food too often.	Is there a wide assortment of food served to you?
Food likes/ dislikes respected	I am asked about my food and drink preferences.	I have to eat things I just hate.	Do you like the types of foods that are served?
Dining atmosphere	The dining room has a nice social atmosphere at meal times.	I am taking to the dining room too soon.	Do you like where you eat your meals?
Ability to choose dining companion	I am able to choose where I sit to eat my meal.	I am forced to eat with other people.	Would you like to have more choice in whom you eat with?
Staff attitude	The staff who serve my meals are friendly and polite.	(The staff) are friendly and courteous.	Is the staff that serve our meals friendly?
	I am treated with respect by the staff at mealtimes.	(The staff) provide help in cutting up my food.	Are you given enough time to eat?

[a]RFSQ (SF) = Resident Food Service Satisfaction Questionnaire (Short Form).

[b]FoodEx-LTC = questionnaire that measures food and food service satisfaction.

[c]LF = long form.

[d]SF = short form.

[e]Sp = Spanish version.

[f]RF&FSS = Resident Food & Food Service Satisfaction Survey.

Figure 3. Sample items taken from consumer (resident) food service satisfaction questionnaires for use in nursing homes mapped against food service satisfaction themes identified by Robinson et al.[25]

professional translators, which may result in some context being lost. Additionally, several studies used a commercial or proprietary satisfaction questionnaire; as such it was not possible to obtain and critique the full version. Despite this, there are some strengths to this review. To our knowledge this is the first systematic review to identify food service satisfaction questionnaires across the entire range of stakeholders within nursing homes. This provides a unique snapshot of where the current research gaps lie and may inform future research. Additionally, the COSMIN tool is the most relevant and powerful critical appraisal instrument for patient-reported outcomes, including satisfaction, providing a clear insight into the methodological strengths and weaknesses of each questionnaire.

Implications of the Review

Nursing homes may collect satisfaction data for a variety of reasons including accreditation, marketing, measures of

	A: Internal consistency	B: Reliability	C: Measurement error	D: Content validity	E: Structural validity	F: Hypothesis testing	G: Cross cultural	H: Criterion Validity	I: Responsiveness
FoodEX-LTC (LF)[a]: Crogan et al 2004[37] (United States)	X[b]	P[SS]	X	G[M]	P[SS]	P[SS]	n/a[c]	n/a	X
FoodEX-LTC (SF)[d]: Crogan and Evans 2006[39] (United States)	X	P[SS]	X	G[M]	P[SS]	P[SS]	n/a	n/a	F[DR]
FoodEX-LTC (Sp)[e]: Crogan and Evans 2010[41] (United States)	X	X	X	P[M]	P[SS]	P[SS]	P[SS]	n/a	X
RF&FSSS[f]: Lengyel et al 2004[44] (United States)	X	P[SS]	X	F[DR]	X	X	n/a	n/a	X
RFSQ (LF and SF)[g]: Wright et al 2010[46] (Australia)	PSS	X	X	P[M]	F[M]	n/a	n/a	n/a	X

(continued on next page)

Figure 4. Summary of quality appraisal of questionnaires measuring food service satisfaction in consumers (residents) living in nursing homes using the COSMIN Tool with annotations indicating the reason for each grade.

	A: Internal consistency	B: Reliability	C: Measurement error	D: Content validity	E: Structural validity	F: Hypothesis testing	G: Cross cultural	H: Criterion Validity	I: Responsiveness
FSSQFSAC[h]: Miller et al 2018[48] (Australia)	P^{SS}	P^{SS}	X	E^{i}	P^{SS}	n/a	n/a	n/a	X
TMEQ[j]: Keller et al 2020[49] (Canada)	F^{DR}	P^{DA}	X	F^{M}	F^{DR}	n/a	n/a	n/a	X

SS = sample size. M = methodology. DR = data reporting. DA = data analysis. M = methodology.

[a]FoodEx-LTC (LF) = questionnaire that measures food and food service satisfaction, long form.

[b]X = not conducted.

[c]n/a = not applicable.

[d]FoodEx-LTC (SF) = questionnaire that measures food and food service satisfaction, short form.

[e]FoodEx-LTC (Sp) = questionnaire that measures food and food service satisfaction, Spanish version.

[f]RF&FSS = Resident Food & Food Service Satisfaction Survey.

[g]RFSQ (LS & FS) = Resident Food Service Satisfaction Questionnaire (short form and long form).

[h]FSSQFSAC = Food Service Satisfaction Questionnaire (Food Service Aged Care).

[i]E = excellent.

[j]TMEQ = Team Member Mealtime Experience Questionnaire.

Figure 4. *(continued)* Summary of quality appraisal of questionnaires measuring food service satisfaction in consumers (residents) living in nursing homes using the COSMIN Tool with annotations indicating the reason for each grade.

performance, and improvement in the quality of care. Questionnaires can be an effective and efficient way of measuring satisfaction; however, the data they provide are only as valid and reliable as the measurement tool. This review demonstrates that none of the questionnaires available to nursing homes meet the quality criteria established by COSMIN and therefore the data obtained may be unreliable and unstable. The consequence is that nursing homes may not be aware of where residents are dissatisfied; nor can they tell whether changes in the system are resulting in increased or decreased satisfaction. Importantly, in countries where satisfaction information is collected by governing agencies as part of the accreditation process, unreliable satisfaction data may result in false-positive or -negative reports. For example, the Consumer Experience Report questionnaire used by the Aged Care Quality and Safety Commission in Australia contains 14 questions with only 1 pertaining to food or meals.[69]

CONCLUSION

This review identified 129 studies that used a food service satisfaction questionnaire; however, 107 studies were excluded because the questionnaires used (n = 75) did not adequately measure the construct. From the remaining studies (n = 22), 7 food service satisfaction questionnaires were appraised for quality against the COSMIN system. Although each questionnaire underwent psychometric testing to establish validity and reliability during development, the results of the COSMIN appraisal suggest there are important gaps that could affect their efficacy, impacting the quality of results. All questionnaires for resident use are outdated and do not reflect the shift in aged care toward a person-centered model. Additionally, there are no questionnaires suitable for measuring family member satisfaction with food service. This highlights the need for further research in this area to the increase the robustness of existing questionnaires and to develop and refine new questionnaires that fill the current gaps.

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RESEARCH

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STATEMENT OF POTENTIAL CONFLICT OF INTEREST

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AUTHOR CONTRIBUTIONS

M. Pankhurst and A. Yaxley performed the literature review and quality appraisal. M. Pankhurst wrote the first draft with contributions from A. Yaxley and M. Miller. All authors reviewed and commented on subsequent drafts.

Figure 10: Literature review manuscript titled "Identification and Critical Appraisal of Food Service Satisfaction Questionnaires for Use in Nursing Homes: A systematic Review" published in the Journal of the Academy of Nutrition and Dietetics 2021[68]

3.1 INTRODUCTION

This systematic literature review was conducted with the understanding that there are various methods for measuring the general satisfaction of stakeholders in an aged care setting. However, little is known about how suitable these methods are for measuring food service satisfaction. Therefore, the purpose of the review was to identify any RACH satisfaction questionnaire containing items about meals and dining and critically appraise how appropriate they are for measuring food service satisfaction.

There are fundamental processes consistent with any systematic literature review such as formulating the aim of the review, defining eligibility criteria and screening articles for inclusion.[107] Additionally, there are extra steps required when conducting a systematic review of Patient-Reported Outcome Measures (PROMs). The Consensus-based Standards for the Selection of Health Measurement Instruments (COSMIN®) initiative was created by an international group of researchers with expertise in developing and evaluating measurement scales.[65-67] The panel developed and tested a critical appraisal checklist designed to assess the methodological rigour of PROMs.[65-67] As satisfaction surveys are a type of PROM, this method was deemed the most appropriate for conducting the review and critically appraising the questionnaires. The COSMIN® checklist entails evaluating the content validity and the internal structure, evaluating the interpretability and feasibility, and using this information to formulate recommendations.[65-67]

3.2 AIMS

This systematic literature review aims to identify, appraise, and discuss questionnaires intended to measure stakeholder satisfaction with the food service in RACHs. To achieve this, the following objectives were used:

1. Identify stakeholders who regularly interact with the food service system in a RACH.
2. Identify questionnaires used to measure the satisfaction of those stakeholders.
3. Understand the domains important in measuring food service satisfaction.

4. Identify how thoroughly existing measurement tools explore food service satisfaction.
5. Critically appraise the psychometric properties of existing questionnaires.

3.3 LITERATURE REVIEW METHODS

3.3.1 SEARCH STRATEGY

A systematic search of the literature was conducted in April 2020 to capture research articles discussing stakeholder satisfaction, specifically food service satisfaction, in the residential aged care setting. During the preliminary scoping, it became evident that some questionnaires were used frequently as a measurement tool and cited across multiple studies. Therefore, the goal was to identify the unique questionnaires from the pool of literature and assess their suitability for measuring food service satisfaction.

Keywords and synonyms were identified from the existing literature, commonly accepted terminology, and expert opinion, including a research librarian. Search terms were combined under the following headings: (1) residential aged care (nursing home, rest home, long-term care); (2) satisfaction (fulfilment, experience, enjoyment); and (3) instrument (survey, questionnaire, tool). Some terms were adjusted to adapt the search strategy for specific electronic databases: Ovid-Medline, Cochrane Database of Systematic Reviews, Cumulative Index of Nursing and Allied Health Literature (CINAHL), Scopus and ProQuest (Appendix C).

3.3.2 STUDY SELECTION

Two researchers manually screened the studies against the inclusion and exclusion criteria identified below. A third researcher was available to adjudicate disagreements where consensus was unable to be reached; however, this was not required.

Types of settings: Studies exploring satisfaction in the RACH setting were included. Studies conducted in Assisted Living Facilities were excluded. Despite providing long-term accommodation, the lack of federal governance results in heterogeneity between facilities. Studies in acute care, short-term care, or community/home care were also excluded.

Types of assessment methods: Questionnaires containing no items about the food and dining experience were excluded. Any proprietary, subscription, or cost-based questionnaires were excluded as these were not considered to be freely accessible to RACHs. Questionnaires used by government, quality oversight or accreditation agencies were included.

Types of participants: Studies assessing the satisfaction of residents, their friends, and family were included. Additionally, studies assessing the satisfaction of employees involved in the food service system including nursing home administrators, cooks, chefs, catering staff, nurses, and nurse aides/carers were included. Questionnaires intended to assess the satisfaction of non-permanent, consulting, or ad-hoc staff, such as dietitians or speech pathologists, were excluded as they may have only transient interactions with the food service system.

Other: No date or language exclusions were applied; all foreign language studies were manually entered into translation software to determine preliminary eligibility. Studies conducted in palliative care were excluded as the biological and psychosocial relationship with food can shift during end-of-life care.[108]

3.3.3 DATA EXTRACTION

Due to the comprehensive nature of the search strategy, and the large number of citations revealed when scoping the literature, a secondary screening protocol was devised to allow for further refinement. Therefore, in addition to the aforementioned inclusion/exclusion criteria, any studies containing questionnaires with only a single or global measure of food service satisfaction were excluded as they lack the depth to identify specific areas within the food service system that can be addressed to improve quality and satisfaction.[109]

Additionally, the findings of a literature review conducted by Robinson et al[79] were used as a benchmark for measuring how robustly questionnaires explored the construct of food service satisfaction. The authors conducted a content analysis of sixteen general nursing home satisfaction questionnaires and identified six domains relevant to food service satisfaction: (1) satisfaction with food; (2) food likes/dislikes respected; (3) choice/variety; (4) dining

atmosphere; (5) ability to choose dining companion, and (6) staff attitude. As resident satisfaction with meals and the dining experience have been shown to be a major determinant in overall nursing home quality[110] and satisfaction,[111,112] only tools that contained a question related to each of the six domains identified by Robinson et al[79] were included for review.

3.3.4 QUALITY APPRAISAL

Although a large array of quality appraisal tools exist, the COSMIN® tool is the most comprehensive method of evaluating the results of questionnaire validation studies. It allows researchers to rate questionnaires across nine domains: (1) internal consistency (reliability), (2) reliability (test-retest, intra-rater and inter-rater), (3) measurement error, (4) content validity, (4) structural validity (construct validity), (6) hypothesis testing, (7) cross-cultural validity, (8) criterion validity and (9) responsiveness.[65-67] How these domains contribute to the validity and reliability of an instrument can be seen in Figure 11.

The COSMIN® tool allows users to rate questionnaires on a four-point scale (excellent, good, fair, poor) in all areas of validity and reliability[65-67] and has been used in recent literature reviews of satisfaction questionnaires.[113,114] Two researchers independently assessed the psychometric properties of each questionnaire using the COSMIN®[65-67] method.

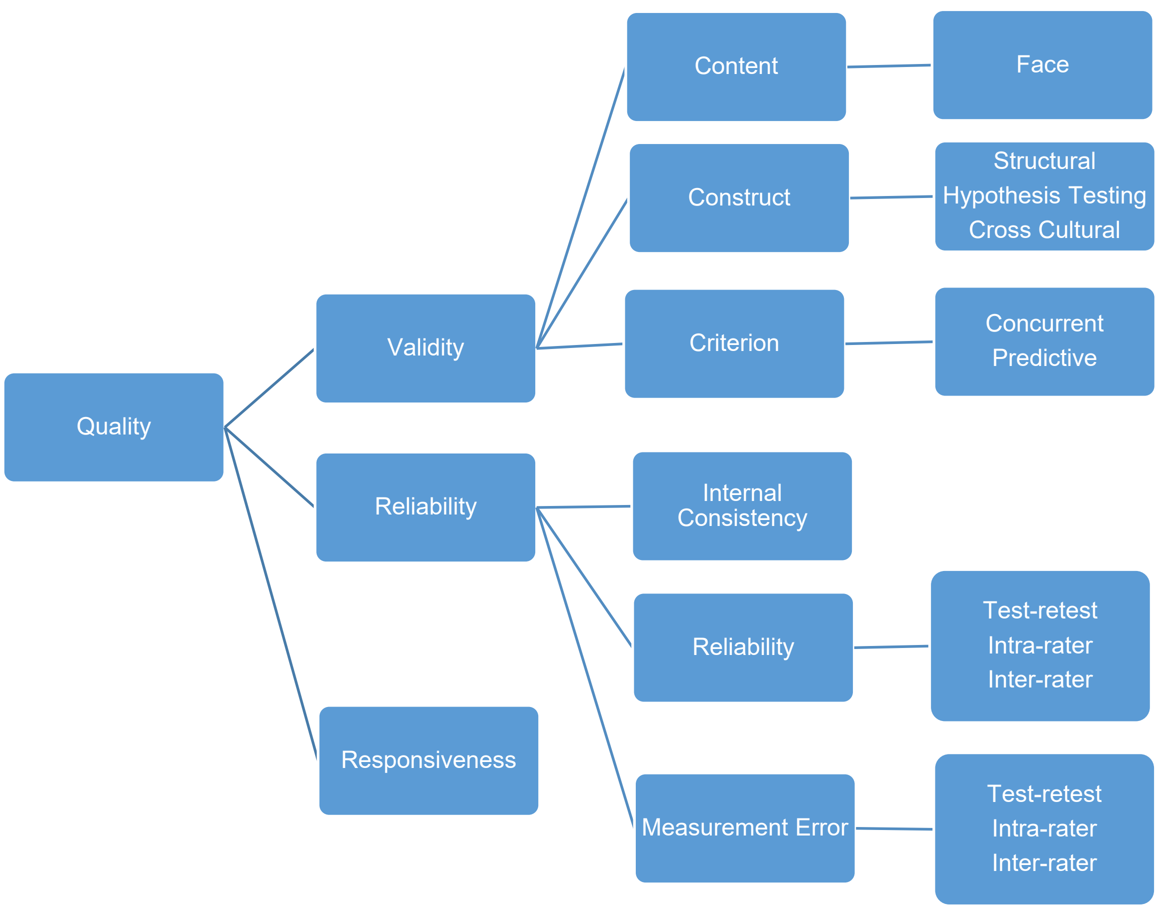


Figure 11: Conceptual map illustrating the manner in which validity, reliability, interpretability and responsiveness contribute to the quality of a Patient Reported Outcome Measure (PROM), adapted from the COSMIN® Quality Appraisal Tool[65-67]

3.4 RESULTS

3.4.1 SEARCH RESULTS

A total of 23,108 citations were imported into Covidence systematic review software (Veritas Health Innovation)[115] with 7,582 duplicates identified. Additionally, several articles and questionnaires (n=24) were located through hand-searching grey literature repositories, health authority websites, and bibliographies. The remaining studies (n=15,550) were manually screened against the inclusion and exclusion criteria, resulting in 534 studies undergoing full text review. One hundred and twenty-nine studies were found to include a satisfaction questionnaire; 107 were further excluded because they either contained a global measure of food service satisfaction (n=29), lacked sufficient data to allow analysis (n=2) or had inadequate scope (n=76). The PRISMA diagram reporting the results of the published

literature review[68] can be seen in Appendix D. Additionally, Figure 10 summarises the results of the review as published in 2021.

To ensure currency, the search was run again in June 2022 with a date filter set to capture all publications from 2020 onward. An additional 11,279 citations were identified, after removing duplicates (n=5262), a total of 6,017 citations were screened by title and abstract. Thirty-one studies made it through to full text review, after exclusions (n=26), five new studies were included. The citations from the first review published in 2020[68] were carried forward and results have been synthesized together (Figure 12).

For this review, studies that used a questionnaire to measure satisfaction in an aged care setting were categorised as:

(1) studies intended to measure satisfaction with a range of goods or services offered within the aged care home but not containing a food service component (excluded from any further review);
(2) studies intended to measure overall satisfaction with the nursing home *and* containing a food service component (included in the full text review); or
(3) questionnaires explicitly developed for measuring food service satisfaction (included in data extraction).

A total of 565 studies met the criteria for full text review, 143 journal articles were identified as having satisfaction questionnaires intended for use in RACHs. Twenty-seven went through to full text review and 116 studies were excluded. Of the excluded studies, 67 contained a resident satisfaction questionnaire, 33 contained a family satisfaction questionnaire, 15 measured both residents and family and family satisfaction, and one study measured resident, family, and staff satisfaction. Together, the 116 studies contained a total of 70 discrete questionnaires; 58 were used to measure resident satisfaction, 11 measured family satisfaction and one measured family, resident, and staff satisfaction. Although the 70 instruments contained questions about food, none addressed all of the domains identified by Robinson et al[79] and were therefore excluded from quality appraisal. Details of the excluded

studies, including the extent to which they measure food service satisfaction, can be seen in Appendix E.

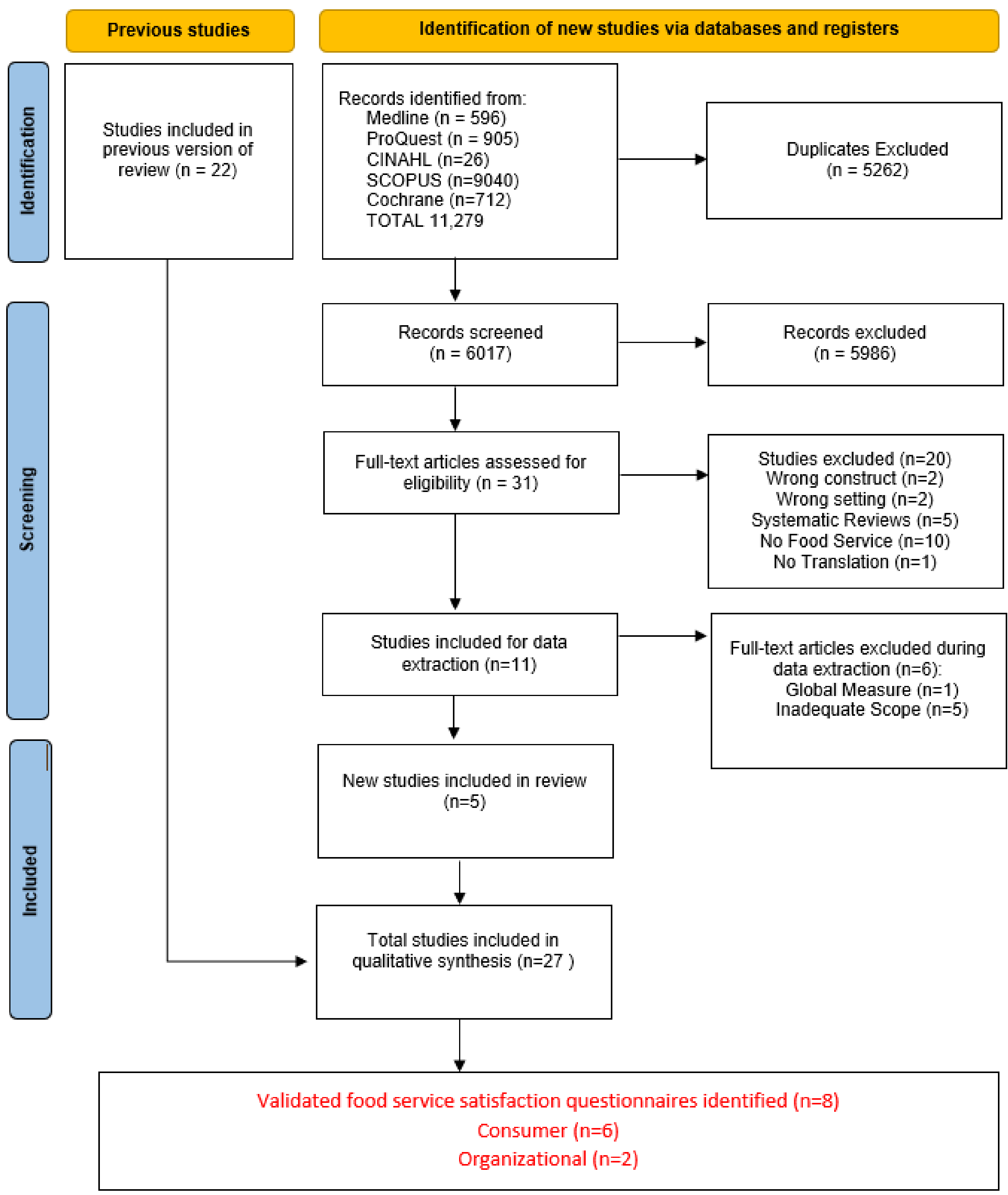


Figure 12: PRISMA Flow Diagram of the literature search and refinement process for a systematic review of food service satisfaction questionnaires used in Residential Aged Care Homes (RACHs)

Twenty-seven articles underwent final full-text review[32,37,38,41,45,116-137] (Table 1); nine were excluded from further consideration,[37,41,126-131,133] and 18 progressed through to quality appraisal and data extraction.[32,38,45,116-125,132,134-137] The additional exclusions included seven experimental studies that explored aspects of resident satisfaction with the food services,[37,41,127-131] and two Best Practice Guidelines for nutrition and hydration in residential aged care.[126,133] The COSMIN®[65-67] guidelines state that there should be some information describing the psychometric properties, a factor none of these studies addressed. Consequently, the nine publications and the questionnaires they contained were not included in the quality appraisal.

From the remaining 18 studies,[32,38,45,116-125,132] six resident FSSQs were identified[32,117,119,121,123,134] (Table 1). Namely, the FoodEx-LTC (Long Form),[32] the FoodEx-LTC (Short Form),[117] the FoodEx-LTC (Spanish),[119] the Resident Food and Food Service Satisfaction Survey (RF&FSSS),[121] the Resident Food Service Satisfaction Questionnaire (RFSQ),[123] and the Meal Satisfaction Assessment Questionnaire (MSAQ).[134] Not all studies contained original or independent questionnaires; some were refinements of previous FSSQs. For example, Crogan and Evans developed the FoodEx-LTC long-form questionnaire[32] which was subsequently refined and reduced to a short-form[117] and later translated into Spanish.[119] Similarly, Wright et al[123] developed the RFSQ, which they also reduced to a short-form. The tools by Lengyel et al,[121] Crogan and Evans,[117] and Wright et al[123] were adapted or used in subsequent studies.[38,116,118,132,138] All FSSQs mentioned above are intended to be completed by the resident; this systematic review did not identify any food service satisfaction questionnaires to be completed from the perspective of family members or proxies.

Table 1: Food Service Satisfaction Questionnaires identified in this systematic literature review of stakeholder satisfaction with food services in Residential Aged Care Homes (RACHs)

Author (Year)	Type	Instrument name	Study details	Included in quality appraisal (Y/N)	Reason for exclusion
Bartl and Bunney[126] (2015)	R	Resident Meal Satisfaction Survey	Grey Literature	N	No psychometric testing
Buckinx et al[131] (2017)	R	Not named	Primary: Exploratory study to determine the influence of environment on food intake among nursing home residents.	N	No psychometric testing
Carrier et al[128] (2007)	R	Not named	Primary: Exploratory study to examine the links between resident malnutrition and food service characteristics.	N	No psychometric testing
Crogan et al[32] (2004)	R	FoodEx-LTC (LF)	Primary: Psychometric study	Y	n/a
Crogan and Evans[117] (2006)	R	FoodEx-LTC (SF)	Primary: Psychometric study	Y	n/a
Crogan et al[38] (2013)	R	FoodEx-LTC (SF)	Follow up: Responsivity FoodEx-LTC (SF) used as a pre- and post-measurements of resident satisfaction	N	FSSQ already included for appraisal
Crogan et al[118] (2015)	R	FoodEx-LTC (SF)	Follow up: Responsivity FoodEx-LTC (SF) used as a pre- and post-measurements of resident satisfaction	N	FSSQ already included for appraisal
Crogan & Evans[119] 2010	R	FoodEx-LTC (Sp)	Primary: Psychometric study	Y	n/a

Author (Year)	Type	Instrument name	Study details	Included in quality appraisal (Y/N)	Reason for exclusion
Dietitians of Canada[133] (2019)	R	Nutrition and Dietary Services Satisfaction Questionnaire	Grey Literature	N	No psychometric testing
Donini et al[130] (2013)	R	Survey on perceived food and nutritional support quality	Primary: Exploratory study to determine the prevalence of malnutrition in hospitals and nursing care homes and to measure the perceived quality in food and nutritional care.	N	No psychometric testing
Evans and Crogan[116] (2005)	R	FoodEx-LTC	Follow up: Analysis of the results obtained during psychometric testing of the FoodEx-LTC (LF)	N	FSSQ already included for appraisal
Evans and Crogan[120] (2007)	R	FoodEx-LTC (SF)	Preliminary: Translating the FoodEx-LTC (SF) into Spanish	N	FSSQ already included for appraisal
Grondahl and Aagaard[127] (2016)	R	Not named	Primary: Exploratory study to understand how nursing home residents perceive their participation in food and meal related activities.	N	No psychometric testing
Jeon & Seo[132] (2014)	R	Perceived Foodservice Quality Questionnaire	Primary: Exploratory study to determine how nursing home residents perceived food service quality and Satisfaction With Food Related Life and the impact this has on quality of life. Used items from the FSSQ by Wright et al[123] to measured perceived food quality	N	FSSQ: already included for appraisal

Author (Year)	Type	Instrument name	Study details	Included in quality appraisal (Y/N)	Reason for exclusion
Jeong et al[134] (2022)	R	Meal Satisfaction Assessment Questionnaire (MSAQ)	Primary: Psychometric study	Y	n/a
Keller et al[122] (2017)	R	Making the Most of Mealtimes (M3)	Protocol: RFFSS used with a suite of tools to identify determinants of food intake	N	FSSQ already included for appraisal
Keller et al[125] (2020)	O	Team Member Mealtime Experience Questionnaire (TMEQ)	Primary: Psychometric study	Y	n/a
Keller et al[135] (2021)	O	Team Member Mealtime Experience Questionnaire (TMEQ)	Primary: Psychometric study	N	FSSQ already included for appraisal
Kenkmann et al[129] (2010)	R	Not named	Primary: Exploratory study to determine if changes in food services resulted in changes in resident falls, weight, hydration, cognitive status, lipids and satisfaction with the food and drinks	N	No psychometric testing
Lengyel et al[121] (2004)	R	Resident Food and Foodservice Satisfaction Survey (RFFSS)	Primary: Psychometric study	Y	n/a
Miller et al[45] (2018)	O	Flinders Food Service Satisfaction Questionnaire Food Service Aged Care (FSSQFSAC)	Primary: Psychometric study	Y	n/a

Author (Year)	Type	Instrument name	Study details	Included in quality appraisal (Y/N)	Reason for exclusion
Sahin et al[37] (2022)	R	Not named	Primary: Exploratory study to determine the impact of food service quality on nutritional status of residents	N	No psychometric testing
Trinca et al[136] (2021)	R	Making the Most of Mealtimes (M3)	Primary study: M3 study to investigate the association between care practices, staff-to-resident ratio at mealtimes; components of RFFSS used with a suite of tools to identify determinants of food intake	N	FSSQ already included for appraisal
West et al[41] (2003)	R	Not named	Primary: Exploratory study to understand how nursing home residents rate importance and satisfaction of items related to food services.	N	No psychometric testing
Wright et al[123] (2010)	R	Resident Food Service Satisfaction Questionnaire (RFSSQ) (LF & SF)	Primary: Psychometric study	Y	n/a
Wright et al[124] (2011)	R	Resident Food Service Satisfaction Questionnaire (RFSSQ) (LF & SF)	Follow up: Analysis of the results obtained during psychometric testing of the RFSSQ	N	FSSQ already included for appraisal
Wu et al[137] (2021)	R	Making the Most of Mealtimes (M3)	Follow up: Secondary analysis of the M3 study; components of RFFSS used with a suite of tools to identify determinants of food intake	N	FSSQ already included for appraisal

Abbreviations: R=Resident; LF=Long Form; Y=Yes; N=No; SF=Short Form; O=Organisation; n/a=Not Applicable

This review identified three studies containing questionnaires intended to measure food service satisfaction among organisational (staff) stakeholders in RACHs.[45,125,139] Crogan et al[139] developed and used two questionnaires to measure dissatisfaction with the food service system and barriers to nutrition care from the perspective of nurses and nurses' aides[139] however full versions of these instruments were not published and were not provided upon request. Miller at al[45] developed the Flinders Food Service Satisfaction Questionnaire Food Service Aged Care (FSSQFSAC) for use with food service staff (cooks and chefs) working in residential aged care whereas Keller et al[125] developed the Team Member Mealtime Experience Questionnaire (TMEQ), both instruments were included in the quality appraisal.

3.4.2 VALIDITY AND RELIABILITY OF INSTRUMENTS USED TO MEASURE FOOD SERVICE SATISFACTION

Below is a summary of the reported validity and reliability measures of the eight food service questionnaires (six resident and two staff) identified in the review (Table 2).

3.4.2.1 CONTENT/FACE VALIDITY

Regarding content validity, five questionnaires included stakeholder consultation during development with item generation based on qualitative interviews, focus groups, or stakeholder meetings (FoodEx-LTC (LF), FoodEx-LTC (SF), FSSQFSAC, RF&FSSS and TMEQ) [32,45,117,121,125]. Three questionnaires (MSAQ, RF&FSSS and RFSQ) drew upon themes in food service satisfaction questionnaires intended for use in other settings,[121,123,134] and three questionnaires did not engage stakeholders during development (MSAQ, RFSQ and FoodEx-LTC (Sp)).[119,123,134] Finally, the Spanish version of the FoodEx-LTC was translated from a tool developed and validated among non-Hispanic residents. However, the pre-testing of the Spanish version did not include consultation with Hispanic residents.

Table 2:Summary of the validity and reliability measures reported in food service satisfaction questionnaire validation studies

Author/Year	Questionnaire name		Content & Face Validity			Construct Validity			Reliability					
		Respondent	Stakeholder	Literature	Expert	Hypothesis	Factorial	Cross-cultural	Internal	Measurement Error	Test re-test	Inter-rater	Responsiveness	Interpretability
Resident Questionnaires														
Crogan et al[117] 2004	FoodEx-LTC (LF)	R	Y	N	Y	Y	N	X	Y	?	Y	X	N	N
Crogan and Evans[117] 2006	FoodEx-LTC (SF)	R	Y	N	Y	Y	N	X	Y	?	Y	X	Y	N
Crogan and Evans[119] 2010	FoodEx-LTC-Sp (SF)	R	N	N	N	Y	N	Y	Y	?	N	?	N	N
Jeong et al[134] 2022	Meal Satisfaction Assessment Questionnaire (MSAQ)	R	N	Y	Y	N	Y	N	Y	?	?	?	N	N
Lengyel et al[121] 2004	Resident Food and Food Service Satisfaction Survey: RF&FSSS	R	Y	Y	Y	N	N	X	Y	?	Y	?	N	N
Wright et al[123] 2010	Resident Foodservice Satisfaction Questionnaire: RFSQ (LF & SF)	R	N	Y	Y	N	Y	X	Y	?	N	?	N	Y
Organisational Questionnaires														
Keller et al[123] 2020	Team Member Mealtime Experience Questionnaire: TMEQ	S	Y	Y	Y	N	Y	X	Y	?	Y	X	N	N
Miller et al[45] 2018	Flinders Food Service Satisfaction Questionnaire Food Service Aged Care: FSSQFSAC	S	Y	Y	Y	N	Y	X	Y	?	Y	X	N	N

Abbreviations: LTC=Long Term Care; LF=long form; SF=short form; R=resident; S=staff; Y=yes; N=no; X=not required; ?=not reported

Each resident questionnaire was mapped across the domains and items identified by Robinson et al,[79] Case and Gilbert[110] and qualitative peer-reviewed literature discussing resident food service satisfaction to identify any areas that may have been omitted (Table 3). Dining atmosphere was the least explored across all questionnaires, and none contained items relating to participation, family involvement, or being given sufficient time to eat.

Five resident questionnaires included at least one item that matched each of the six domains (FoodEx-LTC (LF), FoodEx-LTC (SF), FoodEx-LTC (Sp) RF&FSSS and RFSQ)[32,117,119,121,123] (Table 4), however the MSAQ[134] did not contain any items relating to dining companion or staff attitude.

Table 3: Content analysis of the existing resident Food Service Satisfaction Questionnaires mapped against the themes identified in the peer reviewed literature

	Satisfaction with food†							Food likes/ dislikes†				Choice/ variety†							Dining atmosphere †			Dining companion†			Staff attitude†		
	Food characteristics*‡	Texture Modified	Meal importance/enjoy*‡	Meal Delivery	Menu ordering	Nutritious food‡	Quantity of food/meals*	Familiar/fave foods*‡	Special occasions*‡	Preferences*‡	Individualise‡	Choice (food)* ‡	Variety*‡	Participation‡	Timing of meals*‡	Input/feedback‡	Autonomy/Independence‡	Foods from outside*‡	Dining room milieu*‡	Décor/seating/clean‡	Flatware/utensils‡	Choice (dining)* ‡	Social engagement*‡	Family‡	Staff attitude/assist*‡	Staff skill/safety*‡	Sufficient time to eat*‡
FoodEx-LTC (LF)[32]	X		X	X	X	X	X	X		X		X	X		X	X	X	X				X	X		X	X	
FoodEx-LTC (SF)[117]	X		X		X		X	X		X			X		X	X	X					X	X		X	X	
FoodEx-LTC (Sp)[119]	X		X		X		X	X		X			X		X	X	X					X	X		X	X	
MSAQ[134]	X					X				X		X			X				X								
RF&FSSS[121]	X		X		X		X		X			X	X		X	X			X	X					X		
RFSQ (LF)[123]	X	X	X		X		X			X	X	X	X		X	X	X		X		X	X	X		X	X	
RFSQ (SF)[123]	X		X				X			X		X	X		X	X						X	X		X		

Legend: *Resident expectations identified by Case and Gilbert [110]. †Domains identified by Robinson et al. [79] ‡Themes identified from qualitative literature that increase satisfaction

Abbreviations: LF=Long Form; SF=Short Form; LTC=Long Term Care; RF&FSSS=Resident Food and Food Service Satisfaction Survey; RFSQ=Resident Foodservice Satisfaction Questionnaire

Table 4: Content summary of the resident Food Service Satisfaction Questionnaires identified in the peer reviewed literature

Citation	Country	Instrument name	Admin.	Questionnaire domains or factors identified by authors (items)	Food service domains identified by Robinson et al[79]	Response format	Other studies utilising the tools
Crogan, et al[32]	U.S.A.	FoodEx-LTC (LF)	I	5 domains, 44 items Enjoying food and food service (11) Exercising choice (8) Cooking good food (7) Providing good food service (positive view) 13) Providing good food service (negative view) (5)	(1) satisfaction with food ✓ (2) food likes/dislikes ✓ (3) choice/variety ✓ (4) dining atmosphere ✓ (5) dining companion ✓ (6) staff attitude ✓	4 pt scale True, somewhat true, somewhat false, false	Evans and Crogan[116]
Crogan and Evans[117]	U.S.A.	FoodEx-LTC (SF)	I	4 domains, 28 items Enjoying food and food service (8) Exercising choice (6) Cooking good food (5) Providing food service (9)	(1) satisfaction with food ✓ (2) food likes/dislikes ✓ (3) choice/variety ✓ (4) dining atmosphere ✓ (5) dining companion ✓ (6) staff attitude ✓	4 pt scale True, somewhat true, somewhat false, false	Crogan et al[118]
Crogan and Evans[119]	U.S.A.	FoodEx-LTC (Sp)	I	4 domains, 28 items Enjoying food and food service (8) Exercising choice (6) Cooking good food (5) Providing food service (9)	(1) satisfaction with food ✓ (2) food likes/dislikes ✓ (3) choice/variety ✓ (4) dining atmosphere ✓ (5) dining companion ✓ (6) staff attitude ✓	4 pt scale True, somewhat true, somewhat false, false	Evans and Crogan[140] Evans and Crogan[120]

Citation	Country	Instrument name	Admin.	Questionnaire domains or factors identified by authors (items)	Food service domains identified by Robinson et al[79]	Response format	Other studies utilising the tools
Jeong et al[134]	Korea	MSAQ	?	6 domains, 16 items Direct and indirect effect of the environment (5) A meal with dignity (3) Financial factors (2) Being appealing (2) Desired meal (2) A change in appetite (2)	(1) satisfaction with food ✓ (2) food likes/dislikes ✓ (3) choice/variety ✓ (4) dining atmosphere ✓ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale Strongly disagree – strongly agree	None reported
Lengyel et al[121]	U.S.A.	RF&FSSS	I	2 domains, 23 items Food service (11) Quality of life (12)	(1) satisfaction with food ✓ (2) food likes/dislikes ✓ (3) choice/variety ✓ (4) dining atmosphere ✓ (5) dining companion ✓ (6) staff attitude ✓	3 pt scale Yes, no, sometimes	Keller et al[122]

Citation	Country	Instrument name	Admin.	Questionnaire domains or factors identified by authors (items)	Food service domains identified by Robinson et al[79]	Response format	Other studies utilising the tools
Wright et al[123]	Australia	RFSQ (LF)	M	12 factors (37 items) Meal quality & enjoyment (14) Autonomy (5) Staff consideration (3) Hunger & food quantity (3) Chewing and swallowing ability (2) Physical environment (2) Presentation of the staff (2) Adequacy of dining aids & knives (2) Timing of meal service and choice (2) Access to snack preparation (1) Meal time suitability (1) Availability of the option to season meals (1)	(1) satisfaction with food ✓ (2) food likes/dislikes ✓ (3) choice/variety ✓ (4) dining atmosphere ✓ (5) dining companion ✓ (6) staff attitude ✓	5 pt scale Always, often, sometimes, rarely, never DNA	Wright et al[124] Jeong and Seo[132]
		RFSQ (SF)	M	4 factors (24 items) Meal quality & enjoyment (1) Autonomy (3) Staff consideration (2) Hunger & food quantity (3) Other (6)	(1) satisfaction with food ✓ (2) food likes/dislikes ✓ (3) choice/variety ✓ (4) dining atmosphere ✓ (5) dining companion ✓ (6) staff attitude ✓	5 pt scale Always, often, sometimes, rarely, never DNA	

Abbreviations: Admin=Administration; U.S.A.= United States of America; LTC=Long Term Care; LF=Long Form; I = Interviewer; pt=point; SF=Short form; RF&FSSS=Resident Food and Food Service Satisfaction Survey; RFSQ=Resident Foodservice Satisfaction Questionnaire; M=Mix of self and interviewer administered; ?=Not Reported; struck through=not addressed

Both organisational questionnaires (FSSQFSAC and TMEQ)[45,125] met the requirements for content validity as they included stakeholder consultation, a review of the literature, and an expert panel. The Flinders FSSQFSAC[45] has a stronger theoretical foundation by drawing upon aspects of the Minnesota Satisfaction Questionnaire; however, both questionnaires contain elements of Hertzberg's Two Factor Theory[51] (Table 5).

Table 5: Content summary of the organisational Food Service Satisfaction Questionnaires (FSSQs) identified in the peer reviewed literature

Citation	Country	Questionnaire name	Admin.	Questionnaire domains or factors identified by authors, items	Factors contained in Hertzberg's Two Factor Theory[16]	Response format
Miller at al[45]	Australia	Flinders Food Service Satisfaction Questionnaire Food Service Aged Care	S	8 factors (60 items) Job Satisfaction (16) Food quality (12) Staff training (6) Consultation (4) Eating environment (6) Reliability (7) Family expectations (4) Resident relationships (4) Positive Promotion (1)	**Motivation (Satisfaction):** Achievement ✓ Recognition ✓ The work itself ✓ Responsibility ✓ Advancement ✓ **Hygiene (Dissatisfaction):** Administrative practices ✓ Supervision ✓ Interpersonal relations ✓ Physical working conditions ✓ ~~Job security~~ ~~Benefits~~ ~~Salary~~	5 pt scale Very dissatisfied, dissatisfied, neutral, satisfied, very satisfied Not applicable I don't know

Citation	Country	Questionnaire name	Admin.	Questionnaire domains or factors identified by authors, items	Factors contained in Hertzberg's Two Factor Theory[16]	Response format
Keller et al[125]	Canada	Team Member Mealtime Experience Questionnaire	S	3 factors (19 items) Time (6) Supportive atmosphere (7) Relational Care (6)	**Motivation (Satisfaction):** ~~Achievement~~ ~~Recognition~~ The work itself ✓ Responsibility ✓ ~~Advancement~~ **Hygiene (Dissatisfaction):** Administrative practices ✓ ~~Supervision~~ Interpersonal relations ✓ Physical working conditions ✓ ~~Job security~~ ~~Benefits~~ ~~Salary~~	5 pt scale Strongly disagree, disagree, neutral, agree, strongly agree

Abbreviations: S=Self; struck through=not addressed

3.4.2.2 CONSTRUCT VALIDITY

Regarding construct validity, three questionnaires (FoodEx-LTC and variants)[32,117,119] used hypothesis testing as the sole method of establishing construct validity, and four questionnaires (MSAQ, TMEQ, FSSQFSAC, and RFSQ)[45,123,125,134] used a form of factor analysis (Tables 6 and 7). The authors of the RF&FSSS did not conduct any tests to establish construct validity.[121] Additionally, two long-form questionnaires were adapted into short forms; one (RFSQ)[123] used the more widely accepted method of Principal Components Analysis (PCA) to perform item reduction, while the other (RF&FSSS)[121] used a less conventional Pearson's correlation. None of the short-form questionnaires were retested in a fresh population to establish the validity of the condensed version.

3.4.2.3 RELIABILITY

All authors used Cronbach's alpha (α) to demonstrate scale reliability (Tables 6 and 7). Coefficients of $\alpha \geq 0.5$ are considered acceptable in development, with values $\alpha \geq 0.7$ deemed excellent as this is the recommendation for established questionnaires.[100] The TMEQ by Keller et al[125] had an overall α=0.93 however, the Intra-Class Correlation (ICC) for individual items exhibited only moderate reliability (0.5-0.75), with one item falling below the 0.5 cut-off for acceptability. Similarly the MSAQ[134] had an overall α=0.74 however Factor 5 (α=0.45) and Factor 6 (α=0.38) fell below the acceptable cut-off of $\alpha \geq 0.5$. Despite this, the authors retained both factors. Additionally, the RF&FSSS by Lengyel et al[121] demonstrated acceptable reliability with values ranging between α=0.60 to α=0.62. The remaining questionnaires had an (α) exceeding 0.7 in multiple domains suggesting excellent reliability (FoodEx-LTC and variants, FSSQFSAC and RFSQ).[32,45,117,119,123] However, one domain in the FSSQFSAC by Miller et al[121] fell below the cut-off (resident relationships α=0.429).

Table 6: Summary of the reported validity and reliability results of identified questionnaires used to measure food service satisfaction in residents

Instrument name [citation]	**Validity**		**Reliability**	
	Content	Construct	Internal consistency	Temporal stability
FoodEx-LTC (LF)[32]		Questionnaires completed (n=61)		(n=15)
	Expert panel (n=N/R) **Pre-tested** with residents (n=10) feedback on format and clarity.	**Hypothesis Testing:** **H_1 Positive relationship between food/food service and serum albumin/prealbumin** • Albumin positively correlated with 'enjoying food and food service' (*r*=0.25, p=.031) and 'exercising choice' (*r*=0.30, p=0.013); no significant correlation with prealbumin **H_2 Negative relationship between food/food service and depression** • Depression negatively correlated with 'enjoying food and food service' (*r*=-0.48, p<0.001) and 'providing good food service (positive)' (*r*=-0.32, p=0.007) • Depression positively correlated with 'cooking good food' (*r*=0.39, p=0.001) and 'providing good food service (negative)' (*r*=0.33, p=0.005) **H_3 Positive relationship between food/food service and between food/food service and BMI and functional status** • No significant correlations with BMI or with functional status	**α for each domain (44 items):** Enjoying food and food service 0.81 Exercising choice 0.69 Cooking good food 0.81 Providing good food service (+) 0.76 Providing good food service (-) 0.87	Test-retest: PCC 0.84 0.89 0.83 0.55 0.87

FoodEx-LTC (SF)[117]	Expert panel (n=N/R) **Pre-tested** with residents (n=10) feedback on format and clarity.	Questionnaires completed (n=61)		(n=15)
		Hypothesis Testing: **H_1 Positive relationship between food/food service and serum albumin/prealbumin** • Albumin positively correlated with 'enjoying food and food service' (*r*=0.24, p≤0.02) and 'exercising choice' (*r*=0.29, p≤0.05); no significant correlation with prealbumin **H_2 Negative relationship between food/food service and depression** • Depression negatively correlated with 'enjoying food and food service' (*r*=-0.47, p≤0.02) and 'exercising choice' (*r*=-0.27, p≤0.05) • Depression positively correlated with 'cooking good food' (*r*=0.41, p≤0.02) and 'providing food service' (*r*=0.32, p≤0.02) **H_3 Positive relationship between food/food service and functional status** • Functional status was positively correlated with 'exercising choice' (*r*=0.25, p≤0.05) **H_4 Positive relationship between food/food service and BMI** • BMI was positively correlated with 'cooking good food' (*r*=0.25, p≤0.05)	**α for each domain (28 items)** Enjoying food and food service 0.72 Exercising choice 0.88 Cooking good food 0.82 Providing food service 0.88	Test-retest: PCC 0.79 0.88 0.82 0.88

FoodEx-LTF (Sp)[119]	**Pre-tested** with bilingual community dwelling Hispanic adults (n=52) for content and clarity	Questionnaires completed (n=22)		
		Hypothesis Testing (not stated a priori): **H_1 Relationship between food consumed and serum prealbumin** • No significant correlation with serum prealbumin and food consumed **H_2 Relationship between food/food service and food intake** • Food intake at breakfast (*r*=-0.700, p<0.001) and lunch (r=0.776, p<0.001) significantly correlated with FoodEx-LTCSp score **H_3 Relationship between serum prealbumin and functional status** • No significant correlation with prealbumin and functional status	**α for each domain (28 items)** Enjoying food and food service 0.82 Exercising choice 0.66 Cooking good food 0.75 Providing food service 0.70	N/R
MSAQ[134]	Expert panel (n=7) **Pre-tested** with older adults for reaction, comprehension and response time (n=15)	Questionnaires Completed (n=290) (n=142 RACH)		
		EFA (n=290) Eigenvalues >1.0 and visual inspection of Scree Plot (63.7% of variance) (6 factors; 16 items)	**α for each domain (16 items)** Direct and indirect effect of the environment 0.71 A meal with dignity 0.71 Financial factors 0.78 Being appealing 0.55 Desired meal 0.45 A change in appetite 0.38	N/R

RF&FSSS [121]	Expert panel (n=N/R) **Pre-tested** with residents for clarity, understanding and acceptance (n=28)	Questionnaires Completed (n=205)		(n=21)
		Nil tests for validity.	**α for each domain (23 items)** Food service 0.62 Quality of life 0.60	Test-retest: Paired t-test 23/25 questions found to be reliable (p>0.05)
RFSQ (LF&SF)[123]	Expert panel (n=20) **Pre-tested** with residents from RACH and geriatric rehabilitation (n=40) for content format and ease of use	Questionnaires Completed n=313 (n=210 RACH)		
		PCA Varimax Rotation (n=248) LF: Eigenvalues >1.0 (64% of variance) (12 factors; 37 items) SF: Velicer's MAP recommended retention of 4 strongest factors (40% of variance) (4 factors; 24 items)	**α for each domain (18 items)** Meal quality and enjoyment 0.91 Autonomy 0.64 Staff consideration 0.79 Hunger and food quantity 0.67 Items (n=6) loading onto more than one factor analysed separately	N/R

Abbreviations: LTC=Long Term Care; LF=Long Form; NR=not reported; H=hypothesis; (+)=positive; (-)=negative; α=Cronbach's alpha; PCC=Pearson's Correlation Co-efficient; SF=Short Form; Sp=Spanish; MSAQ=Meal Satisfactgion Assessment Questionnaire; EFA=Exploratory Factor Analysis; RF&FSSS=Resident Food and Food Service Satisfaction Survey; RFSQ=Resident Foodservice Satisfaction Questionnaire; RACH=Residential Aged Care Home; PCA=Principle Components Analysis; MAP=Minimum Average Partial

Table 7: Summary of the reported validity and reliability results of identified questionnaires used to measure food service satisfaction in organisational stakeholders

Instrument name [citation]	**Validity**		**Reliability**	
	Content	Construct	Internal consistency	Temporal stability
FSSQFSAC	Expert panel (n=6) **Pre-tested** with food service staff (n=33)	Questionnaires completed (n=61)		(n=29)
		PCA Varimax Rotation (n=265) 17 factors identified using Eigenvalues >1.0 however a nine-factor solution was consistent with Catell's scree test. One factor removed following poor test-retest leaving eight factor solution (items loading with correlation >0.4) (59% of variance) (8 domains; 62 items).	**α for each domain (62 items)** Job satisfaction 0.932 Food quality 0.871 Staff training 0.922 Consultation 0.840 Eating environment 0.777 Reliability 0.695 Family expectations 0.781 Resident relationships 0.429	Test-retest: PCC 0.826 (p<0.001) 0.473 (p=0.010) 0.708 (p<0.001) 0.632 (p<0.001) 0.600 (p=0.001) 0.276 (p=0.147) 0.615 (p<0.001) 0.586 (p=0.001)
TMEQ	**Pre-tested** with managerial staff (n=6)	Questionnaires completed (n=137)		(n=103)
		EFA Oblique Varimax Rotation (n=137) 3 factor identified using Eigenvalues >1.0, no other methods used Four items removed with poor loading (<0.40) leaving a three factor solution (3 domains; 19 items); % of variance not reported.	**α for each domain (19 items)** Time 0.85 Supportive atmosphere 0.86 Relational care 0.81	Test-retest: ICC 0.85 0.72 0.78

Abbreviations: FSSQFSAC=Flinders Food Service Satisfaction Questionnaire Food Service Aged Care; PCA=Principle Components Analysis; α=Cronbach's alpha; PCC=Pearson's Correlation Co-efficient; EFA=Exploratory Factor Analysis; ICC=Intra-Class Correlation

Four studies reported test-retest scores using paired t-tests (FoodEx-LTC (LF), FoodEx-LTC (SF), RF&FSSS and FSSQFSAC).[32,45,117,121] Correlation coefficients of r>0.8 are considered very strong, r=0.6-0.79 are considered strong, r=0.40-59 are considered moderate and r<0.4 is considered weak.[98] The FoodEx-LTC had very strong test-retest scores for both the long-form and short-form.[32,117] The Flinders FSSQFSAC[45] questionnaire for cooks and chefs had one weak domain (reliability 0.276; p=0.147), however the remaining eight domains were moderate to strong. The questionnaire by Keller et al (TMEQ)[125] reported an ICC score of 0.85 for the entire scale with individual domains scoring between 0.72 and 0.81. The questionnaire by Lengyel et al (RF&FSSS)[121] reported that their paired t-tests scores were high, presenting no data to support their statement. Finally, the MSAQ[134] did not discuss test-retest.

The instruments developed by Lengyel et al (RF&FSSS)[121] and Wright et al (RFSQ)[123] were administered by multiple researchers or used a mix of assisted- and self-completed survey data; however, neither of these studies reported inter-rater reliability. Similarly, there is no discussion regarding how the FoodEx-LTC (Sp)[119] or the MSAQ[134] was administered to participants. Lastly, the FoodEx-LTC (LF & SF)[32,117] was administered to residents by the same researcher, and the Flinders FSSQFSAC[45] was self-administered therefore, inter-rater reliability was not required.

3.4.2.4 MEASUREMENT PRECISION

Three of the questionnaires (FoodEx-LTC and variants)[32,117,119] used a four-point response scale with no neutral option, and four questionnaires (FSSQFSAC, MSAQ, RFSQ, and TMEQ)[45,123,125,134] used a five-point response scale with a neutral option. The tool by Lengyel et al[121] used a three-point response scale with a neutral option (yes, no, or sometimes). However, during statistical analysis, this was collapsed into two categories (positive or not-positive) essentially reducing the scale to a dichotomous format.

3.4.2.5 RESPONSIVITY

The only questionnaire used as a pre- and post- measure of satisfaction was the FoodEx-LTC (SF).[117] In a follow-up study, Crogan et al[38] demonstrated an increase in satisfaction for 14/28 items in the intervention group compared to an increase in satisfaction for 11/28 items in the control group. The same questionnaire was used in a second follow-up study[118] where it performed similarly with an increase in satisfaction for 18/28 items in the intervention group and 14/28 in the control group. None of the other questionnaires were used in follow-up studies to assess responsivity.

3.4.2.6 INTERPRETABILITY

Five of the resident questionnaires contained both positively and negatively framed questions which may require a scoring matrix to interpret the score.[32,117,119,121,123] Wright et al, who developed the RFSQ,[45] were the only authors to mention scoring by the end user; their publication states they will provide a scoring template upon request. The MSAQ[134] contained positively framed items, as such the highest score (5=strongly agree) indicated the highest level of satisfaction, resulting in an easily summed total score.

3.4.3 COSMIN® METHOD OF EVALUATING VALIDITY AND RELIABILITY

The eight food service satisfaction questionnaires identified in the peer-reviewed literature[32,45,117,119,121,123,125,134] were critiqued using the COSMIN®[65-67] method (Table 8). When using the COSMIN® checklist, the ‘worst score counts’; for example, the questionnaire by Lengyel et al[121] (RF&FSSS) scored poorly because the sample size used for testing reliability was small therefore the entire domain of reliability received a poor rating.

Table 8: Summary of quality appraisal results using the COSMIN® Tool[65-67]

	A: Internal consistency	B: Reliability	C: Measurement error	D: Content validity	E: Structural validity	F: Hypothesis testing	G: Cross cultural	H: Criterion Validity	I: Responsiveness
Resident Questionnaires									
FoodEx-LTC (LF): Crogan et al[32]	P^{DA}	P^{SS}	**X**	G^{M}	P^{SS}	P^{SS}	n/a	n/a	**X**
FoodEx-LTC (SF): Crogan & Evans[117]	P^{DA}	P^{SS}	**X**	G^{M}	P^{SS}	P^{SS}	n/a	n/a	F^{DR}
FoodEx-LTC-Sp (SF): Crogan & Evans[119]	P^{SS}	**X**	**X**	P^{M}	P^{SS}	P^{SS}	P^{SS}	n/a	**X**
MSAQ: Jeong et al[134]	G^{SS}	**X**	**X**	P^{M}	F^{DA}	**X**	n/a	P^{DR}	**X**
RF&FSSS: Lengyel et al[121]	**X**	P^{SS}	**X**	F^{DR}	**X**	**X**	n/a	n/a	**X**
RFSQ (LF & SF): Wright et al[123]	P^{SS}	**X**	**X**	P^{M}	F^{M}	n/a	n/a	n/a	**X**
Organisational Questionnaires									
FSSQFSAC: Miller et al[45]	P^{SS}	P^{SS}	**X**	E	P^{SS}	n/a	n/a	n/a	**X**
TMEQ: Keller et al[125]	F^{DR}	P^{DA}	**X**	F^{M}	F^{DR}	n/a	n/a	n/a	**X**

Abbreviations: (E) = Excellent; (G) = Good; (F) = Fair; (P) = Poor; ^{SS} = Sample Size; ^{DR} = Data Reporting; ^{DA} = Data Analysis; ^{M} = Methodology; n/a = Not Applicable; X = Not Conducted; FSSQ = Food Service Satisfaction Questionnaire

Using the criteria set by the COSMIN®[65-67] guidelines, most questionnaires rated poorly across the nine domains of internal consistency, reliability, measurement error, content validity, structural validity, hypothesis testing, cross-cultural validity, criterion validity, and responsiveness. The most common reasons for low rankings were inadequate sample size, inadequate data reporting, inappropriate method of data analysis, and gaps in face validity.

The tools developed by Crogan et al (FoodEx-LTC and variants)[32,117,119] performed poorly in areas of internal consistency primarily because they did not conduct any form of factor analysis to check the uni-dimensionality of the scale. The authors did conduct hypothesis testing to demonstrate validity; however, the sample sizes were small. Similarly, they also

rated poorly for reliability and measurement error due to a small test-retest sample size. Lengyel et al[121] focussed solely on reliability and did not conduct any tests to establish validity. Due to these methodological limitations, the three tools by Crogan et al (FoodEx-LTC and variants)[32,117,119] and the tool by Lengyel et al (RF&FSSS)[121] all rated poorly.

The instrument developed by Wright et al (RFSQ)[123] rated poorly for internal consistency due to the low item-to-respondent ratio. Neither Jeong et al[134] (MSAQ) or Wright et al[123] (RFSQ) discussed inter-rater reliability or test-retest, nor did they include qualitative interviews with residents during the development process. Lastly, due to the lack of any established gold standard, criterion validity was not able to be tested by most of the authors and was therefore rated as not applicable (n/a).[32,117,119,121,123] Jeong et al[134] compare the results of their MSAQ against sections of two other FSSQs, however neither are considered to be appropriate comparators.

Regarding the organisational questionnaires, the Flinders FSSQFSAC developed by Miller et al[45] to measure food service satisfaction among cooks and chefs had excellent content validity. Although this study met many quality benchmarks, it rated poorly for internal consistency and structural validity due to the low item-to-respondent ratio. The TMEQ[125] rated fairly for internal consistency (reliability) and content validity; however, the statistical method they used (ICC) is only appropriate for continuous, not ordinal, data.[65-67]

3.4.4 DISCUSSION

Questionnaires can be an effective and economical tool for measuring satisfaction with services. When used as part of the quality improvement cycle, the data obtained allow stakeholders to monitor change and identify areas for improvement. This systematic review identified food service satisfaction questionnaires intended for use among a range of stakeholders in RACH and assessed their validity and reliability. Two questionnaires[45,125] were intended to measure satisfaction with the food services among organisational stakeholders, and six[32,117,119,121,123,134] were intended to measure resident food service

satisfaction. However, no questionnaires were identified that measure family satisfaction with the food and dining experience of their loved ones.

The most common measure of consumer satisfaction identified in the literature was general nursing home satisfaction questionnaires. Although questionnaires can be useful as a quality improvement tool, they must contain sufficient precision to provide meaningful feedback to the RACH. Although all the general nursing home satisfaction questionnaires contained at least one item related to food and food services, none explored the construct sufficiently (Appendix E).

The most common measure of organisational stakeholder satisfaction identified in the literature was job satisfaction surveys. Many studies investigated satisfaction among nurses and carers working in RACHs utilising general measures of job satisfaction such as the Minnesota Satisfaction Questionnaire[141] or the Job Descriptive Index.[142] However, these instruments lack the specificity to address issues unique to an aged care setting, let alone the complexities of food services. Some questionnaires have been created and validated in the residential aged care setting such as the Benjamin Rose Nurse Assistant Job Satisfaction survey[143,144]; however, many do not explore the most fundamental aspect of the direct care worker role, resident interaction.[145] There were a small number of satisfaction surveys specifically for use among RACH staff that considered resident interaction[146,145,147,148]; however none contained questions relevant to food service.

Content and face validity is the extent to which the tool measures the phenomenon it was intended to measure. In other words, do the questions gather the type of data necessary to answer the question being posed. This begins during the developmental phase, where preliminary questions are formulated based on qualitative interviews, previous literature, and field observations. The questionnaire is then presented to an expert panel who rate the readability, clarity, and comprehensiveness of the overall scale.[100] Understanding the stakeholder perspective is integral to content validity and ensuring the instrument is

contextually relevant.[81] Indeed, failure to incorporate user perspective has consistently been a strong criticism of satisfaction instruments.[78-81]

Three of the resident questionnaires drew upon stakeholder engagement and involvement during development (FoodEx-LTC (LF), FoodEx-LTC (SF), RF&FSSS) [32,117,121] and two were based on hospital food service questionnaires (RFSQ and MSAQ).[123,134] As discussed in Chapter One, acute care questionnaires may not be relevant in an aged care setting because the conditions in short-term settings are fundamentally different. For example, the average length of stay in acute care hospitals in Australia is 2.7 days[34] compared to 2.8 years in aged care homes.[13] Although most aged care homes have longer menu cycles than acute care settings, the long-term resident is more likely to experience boredom and repetition with the menu due to the length of stay. Another important distinction between the two settings is the physical environment. In a hospital, patients routinely consume their meals at the bedside,[35] whereas RACHs usually offer a dining room to facilitate resident socialisation.

Most of the questionnaires intended for residents contained double-barrelled or ambiguous questions (FoodEx-LTC (LF), FoodEx-LTC (SF), FoodEx-LTC (Sp), RFSQ and MSAQ).[32,117,119,123,134] This makes it impossible to know which aspect of the question the resident is responding to. For example, Crogan & Evans[32] ask residents about receiving "plenty of fresh fruits and vegetables", if the answer is yes, how can the catering manager know whether it is fruits or vegetables they are referring to? Interestingly, the MSAQ,[134] which is intended to be completed by older adults, contained items from the Flinders FSSQFSAC[45] which is intended for cooks and chefs working in RACHs. Additionally, the MSAQ[134] was developed for a Korean population, consequently some of the items may not be relevant for other cultures; e.g., *"I'm satisfied if I eat while watching the rice and all side dishes."*

Construct validity is the extent to which the tool measures the various factors or constructs associated with the phenomenon. Construct validity may be established by testing a hypothesis that is linked to the measurement tool; however, factor analysis is the preferred method of establishing validity. Three of the questionnaires relied solely on hypothesis testing (FoodEx-LTC and variants).[32,117,119] One of the concerns with this method is it hinges on a series of theoretical assumptions. Failure to support the proposed hypothesis may be a flaw in the underlying assumptions, a flaw in the instrument itself, or a combination of both.[149] For example, Crogan et al[32] used physical markers (albumin, prealbumin, BMI) to measure a psychological construct (satisfaction) which, in this case, is being used as a proxy for food consumption. Consequently, two of the four hypotheses proposed during their study were unsupported by the data. This highlights the indeterminacy of using hypothesis testing as the sole form of establishing construct validity.

The two most common methods of factor analysis used during questionnaire development are Principal Components Analysis (PCA) and Exploratory Factor Analysis (EFA). These methods assist researchers in identifying how well items (variables) fit assigned domains and consequently can result in a decreased number of domains and/or items.[89] The goal of factor analysis is to identify which items in a questionnaire best represent the content domains of the construct being explored.[64] By convention, only items that clearly load onto one factor are retained; items that load onto multiple factors or load with a low Eigenvalue are typically eliminated.[89] Although factor analysis is a statistical method of item reduction, double-barrelled or poorly worded questions may load onto multiple factors and be eliminated, yet the subject may still be relevant to the construct of interest. Similarly, domains may not be explored fully enough resulting in a low number of items being loaded and the domain being omitted; however, this only reflects the structure of the questionnaire, not the relevance of the domain to the construct.

Three studies developed short-form questionnaires from the original long-form version.[117,123,134] Jeong et al[134] used an EFA for item reduction, Wright et al[123] used PCA for

this purpose, and Crogan et al[32] used a less conventional Pearson's Correlation. The PCA conducted by Wright et al[123] identified four factors: (1) meal quality and enjoyment containing 10 items; (2) autonomy containing three items: (3) staff consideration containing two items and (4) hunger and food quantity containing three items. During factor analysis, any factor that loads with less than three items should be removed, yet this was not done.[89] Additionally, four questions associated with meal quality and two questions associated with autonomy failed to load onto any factor. These were still included in the questionnaire as separate items with the recommendation that *"These items are to be analyzed separately rather than as part of any factor".*[123]

The EFA conducted by Jeong et al[134] identified six factors: (1) direct and indirect effect of the environment containing five items; (2) a meal with dignity containing three items; (3) financial factors containing two items; (4) being appealing containing two items; (5) desired meal containing two items; and (6) a change in appetite containing two items. Factors three to six contain less than two items suggesting the factor analysis should be conducted again, although authors acknowledge they conducted an EFA and should proceed to a PCA for further validation. As highlighted above, the low number of items per domain could be due to multiple factors related to the structure of the questionnaire.

The COSMIN®[65-67] guidelines state that the benchmark for statistical robustness when conducting a factor analysis should be seven respondents per item on the scale. This is slightly lower than the commonly accepted 'Rule of 10,' which states there should be 10 respondents per item.[150] Four questionnaires[45,123,125,134] used factor analysis to establish construct validity. Wright et al[123] and Jeong et al[134] each pilot tested a 61-item scale (RFSQ and MSAQ respectively) which would require a minimum sample size of 427 participants. Wright et al[123] recruited 313 participants and Jeong et al[134] recruited 290 participants. Miller et al[45] had 80 items during their initial administration, requiring a sample size of 560, but they only recruited 381 participants. Similarly, Keller et al[125] included 23 items in the TMEQ,

requiring a sample size of 161, but they only recruited 137 team members. Small sample sizes can cause errors in eigenvalues and factor loadings weakening the structural validity of the scale.[150]

Two questionnaires were administered to split populations; the RFSQ[123] was administered to older adults in a geriatric rehabilitation hospital (n=103) and RACHs (n=210) whereas the MSAQ[134] was administered to community dwelling (n=148) and institutionalised older adults (n=142). Fundamentally, these represent different populations and questionnaires should be validated separately, in each population.[151] Importantly, the questionnaire by Jeong et al[134] contains two items that are more relevant to community dwelling adults such as buying cheap food ingredients and reducing the frequency of dining outside the home. Additionally, it does not contain any items important for institutionalised settings such as the staff attitude or dining companions. Consequently, these questionnaires may not adequately measure food service satisfaction in either population.

Criterion validity estimates the extent to which a new questionnaire or measure agrees with an independent criterion of the construct in either a predictive or concurrent manner.[151] Predictive validity is concerned with how well a measure predicts future performance,[151] for example, the Special Tertiary Admissions Test (STAT) is administered to individuals without high school qualifications and is thought to be a predictor of how well they will perform at University.[152] Concurrent validity is concerned with how well two existing measures agree or how well a newly developed instrument compares to one that is already considered valid (e.g., a gold standard).[151] When comparing the results of two questionnaires, a high level of correlation would indicate concurrent validity.[89,150] Due to the lack of a recognised gold standard, most of the questionnaires were unable to establish criterion validity.

Jeong et al[134] present correlation data comparing their MSAQ to the Acute Hospital Food Service Patient Satisfaction Questionnaire (AHFSPSQ)[153] and the Satisfaction With Food-related Life Questionnaire (SWFL),[154] however they do not discuss how they obtained their

data. Additionally, they do not mention how many participants completed these questionnaires so it is unknown whether they met minimal sample sizes for statistical robustness. Finally, they only conducted partial correlations, choosing specific items from their MSAQ (n=13) to compare against the AHFSPSQ (n=8) rather than comparing against the full scale.

Internal reliability (consistency) explores the extent to which items in an instrument measure the construct of interest. In a well-constructed questionnaire, participants should respond consistently to related items indicating high internal reliability. Conversely, where responses are inconsistent, this indicates that the questionnaire measures a different construct (e.g., quality instead of satisfaction), suggesting low internal reliability.[89,150] Most questionnaires (FoodEx-LTC and variants, TMEQ, RF&FSSS, FSSQFSAC and RFSQ)[32,45,117,119,121,123,125] were able to demonstrate acceptable Cronbach's α, thereby establishing internal reliability. The MSAQ[134] had two factors with α≤0.5 which is below the cut-off point for removal, however, the authors justify the inclusion by discussing the importance of those factors. Finally, the results of the quality appraisal suggest that, in most cases, sample sizes were too small to provide adequate statistical power to establish reliability.

Test-retest reliability, also called temporal stability, is a measure of consistency over time. When an instrument is stable, the same participants should provide similar responses when tested under the same conditions at different time points.[89,150] Four questionnaires (FoodEx-LTC (LF), FoodEx-LTC (SF), RF&FSSS and FSSQFSAC)[32,45,117,121] included paired t-test scores demonstrating good temporal stability; however, they all had inadequate sample sizes for statistical analysis. Wright et al[123] (RFSQ) and Jeong et al[134] did not conduct any test-retest analysis, nor did Crogan and Evans[123] when testing the Spanish version of the FoodEx-LTC. Temporal stability is essential to establish because observing changes across multiple time points is how RACHs can measure changes in satisfaction. Without a stable questionnaire, any observed fluctuation may be due to flaws in the questionnaire, which are falsely interpreted as changes in satisfaction.

Inter-rater reliability is a measure of consistency between different users. When an instrument has strong inter-rater reliability, different users should record similar results when testing or observing the same phenomena. Three questionnaires (FoodEx-LTC Spanish, RF&FSSS and RFSQ)[119,121,123] were administered through multiple users; however, the authors do not discuss interrater reliability. Therefore, it is not possible to know whether differences observed across the two time points are attributable to interviewer technique and ability or actual changes in satisfaction.[150] Jeong et al[134] do not discuss whether their MSAQ was interviewer or self-administered; therefore, it is unclear whether this is an area they should have addressed.

Measurement precision refers to a scale's ability to record participants' responses accurately. For example, measures containing fewer response categories do not allow participants to indicate the strength to which they agree or disagree with a statement.[86] Lengyel et al[121] (RF&FSSS) used a three-point scale (yes, no, sometimes); however, during analysis, they merged the no and sometimes categories together creating a dichotomous scale. Although the literature remains divided on the best format for response scales, many authors feel that dichotomous scales are unreliable, inconsistent, and incapable of capturing complex feelings.[86] All three questionnaires developed by Crogan and colleagues (FoodEx-LTC and variants)[32,117,119] used a four-point response (true, somewhat true, false, somewhat false). The remaining questionnaires (TMEQ, FSSQFSAC, RFSQ and MSAQ)[45,123,125,134] used a five-point scale to indicate frequency (always, often, sometimes, rarely, never).

Responsiveness or sensitivity to change indicates whether the instrument can accurately assess changes in the system.[155] Responsiveness is a distinct psychometric characteristic that should be critiqued as tools that are insensitive to change may fail to detect the true effects of an intervention, despite meeting other psychometric standards.[155] The only questionnaire used as a pre- and post- measure of satisfaction was the FoodEx-LTC (SF).[117] During a follow-up study, Crogan et al[38] demonstrated an increase in satisfaction for 14/28

items in the intervention group compared with an increase in satisfaction for 11/28 items in the control group. The same questionnaire was used in another study[118] where it performed similarly with an increase in satisfaction for 18/28 items in the intervention group and 14/28 in the control group. When implementing a food service intervention, one would expect an observable change in satisfaction in the intervention group compared to the control group. The similarity in satisfaction between the groups across the two studies could be the result of the intervention or the inability of the questionnaire to respond to change.

In summary, although there were strengths to each of the questionnaires, none met the COSMIN®[65-67] guidelines for quality appraisal. All questionnaires included in this review had flaws in methodology or had inadequate sample sizes and therefore struggled to establish an acceptable level of validity and reliability. Although all questionnaires were rated 'poorly', they are not necessarily flawed, just untested in important areas.

Of the questionnaires intended for residents, only the FoodEx-LTC (LF) demonstrated adequate content validity and internal reliability and is therefore considered the most relevant for practice. It was, however, published in 2004 pre-dating the new person-centred approach to aged care, and therefore may not adequately capture domains that are now considered important to resident satisfaction, such as resident participation and involvement.

Among the organisational questionnaires, the TMEQ by Keller et al[125] has merit; however, it lacks a theoretical foundation (e.g., Herzberg's Two Factor Theory). The FSSQFSAC tool by Miller et al[45] incorporated aspects of the Minnesota Satisfaction Questionnaire[156] during development and may therefore be better suited to measuring staff satisfaction.

3.4.4.1 STRENGTHS AND LIMITATIONS

There are some limitations to consider when evaluating the results of this review. Although no language filter was used to exclude studies, translation software was used rather than employing professional translators; this may result in some context being lost. Additionally, several studies were excluded because they used a commercial or proprietary satisfaction

questionnaire; as such, it was not possible to obtain and critique the full version. Despite this, there are some strengths to this review. This is the first systematic review to identify food service satisfaction questionnaires across the entire range of stakeholders within RACHs. This provides a unique snapshot of current knowledge gaps and may inform future research. Additionally, the COSMIN®[65-67] tool is the most relevant and powerful critical appraisal instrument for PROMs, including satisfaction, providing a clear insight into each questionnaire's methodological strengths and limitations.

3.4.4.2 IMPLICATIONS OF THE REVIEW

Residential Aged Care Homes collect satisfaction data for a variety of reasons, including accreditation, marketing, benchmarking, and quality improvement. Questionnaires can be an effective and efficient way of measuring satisfaction; however, the data they produce are only as valid and reliable as the instrument itself. This review demonstrated that none of the questionnaires available to RACHs meet the quality criteria established by COSMIN®[65-67]; therefore, the data obtained may be unreliable. The consequence is that RACHs may not be aware of where stakeholders are dissatisfied, nor can they tell whether changes in the system result in increased or decreased satisfaction. Importantly, in countries where governing agencies routinely collect satisfaction information as part of the accreditation process, unreliable satisfaction data may result in false-positive or -negative results.

3.5 CHAPTER SUMMARY

This review identified 143 studies that used a satisfaction questionnaire to measure satisfaction with food services; however, 116 studies were excluded because the questionnaires contained within did not adequately measure the construct. From the remaining studies (n=27), eight food service satisfaction questionnaires were appraised for quality against the COSMIN®[65-67] system. Although each questionnaire underwent some form of psychometric testing to establish validity and/or reliability during development, the results of the appraisal suggest there are important gaps that could affect their effectiveness,

thereby impacting the quality of the data obtained. Five of the questionnaires intended for resident use are at least 12 years old and do not reflect the shift in aged care towards a person-centred model.[32,117,119,121,123] The only recent questionnaire was developed in Korea and validated in both community dwelling and institutionalised populations and may not suitable for use by RACHs.[134] Additionally, there are no questionnaires suitable for measuring family member satisfaction with food services in RACHs. This highlights the need for further research to increase the robustness of existing questionnaires and develop and refine new questionnaires that fill the current gaps.

The literature review conducted in Chapter Three demonstrated that the most common way of measuring organisational (staff) satisfaction is with general job satisfaction questionnaires; however, very few address factors unique to food service. The two exceptions were the Flinders Food Service Satisfaction Questionnaire Food Service Aged Care (FSSQFSAC)[45] developed to measure the satisfaction of food service staff, and the Team Member Mealtime Experience Questionnaire (TMEQ)[125] developed to measure satisfaction among nurses and direct care workers.

The most common method of measuring consumer satisfaction was using a general nursing home questionnaire, not dissimilar to the one currently used by the ACQSC during accreditation.[157] Unfortunately, none of the general satisfaction tools measured the construct of food service adequately and therefore do not provide enough information to the home for quality improvement. Additionally, the review identified a small number of dedicated FSSQs intended to measure resident satisfaction,[32,117,119,121,123] however all instruments were at least 10 years old and do not reflect the shift toward person-centred care. Finally, no questionnaires were developed to measure family satisfaction with food services.

The Royal Commission into Aged Care Quality and Safety (hereinafter referred to as the Royal Commission) was established in 2018 in response to the poor quality of care consumers have experienced in RACHs in Australia.[158] One of the key outcomes was an

increase to the Basic Daily Fee that homes were directed to use to "*improve the quality of care, in particular their nutritional requirements*."[158] This highlighted the urgent need to focus on consumer satisfaction with the dining experience in RACHs. Consequently, the remaining chapters in this thesis focus on designing and developing food service satisfaction questionnaires for residents and their families.

3.6 GAPS IN KNOWLEDGE AND ORIGINAL CONTRIBUTION OF PROPOSED RESEARCH

There is limited information regarding the tools and methods RACHs use to measure food service satisfaction. This literature review identified two studies exploring how American nursing homes and governing agencies gather resident and family satisfaction data.[80,159] Notably, these two studies are more than 15 years old and only consider general nursing home satisfaction. No similar studies have been conducted, in Australia or overseas to examine the methods and tools currently used by RACHs to measure food service satisfaction. To explore this gap, each RACH that agreed to participate was invited to complete a short cross-sectional survey (Aged Care Home Food Service Questionnaire) asking about the methods and tools they use (if any) to measure food service satisfaction. The results of this survey are presented in Chapter Four, providing a unique and previously unexplored insight into how RACHs in Australia obtain consumer satisfaction data.

It is also essential to understand the psychometric qualities of instruments currently available to RACHs. Until now, no studies have compared the validity and reliability of tools currently available for measuring food service satisfaction. Quality appraisal of the studies identified in the literature review indicates that none of the tools intended to measure resident food service satisfaction meet the COSMIN®[65-67] requirements for validity and reliability. Therefore, a key gap this thesis addresses is the development of a valid and reliable questionnaire for measuring resident food service satisfaction. This will provide

organisational stakeholders, including RACH administrators, food service managers, and dietitians, with a valid and reliable tool for measuring change.

Finally, more than two-thirds (68.1%) of residents in RACHs have moderate to severe cognitive impairment,[8] which may limit their capacity to provide written or verbal feedback to the home. In this situation, family members may act as advocates for the resident and essentially become the consumer-by-proxy. Previous research shows that when resident satisfaction surveys are administered to relatives and other proxies, there is often a poor level of agreement between the two respondents.[160-164] Therefore, another gap that this thesis addresses is to commence the design a food service satisfaction questionnaire tailored to the unique factors present when a family member must act as a proxy for the resident.

CHAPTER 4: THE USE AND USEFULNESS OF FOOD SERVICE SATISFACTION INFORMATION TO RESIDENTIAL AGED CARE HOMES

This chapter discusses the results of a cross-sectional survey administered to RACHs to understand the use and usefulness of FSSQs. This chapter answers the second research question (RQ2): What methods are currently used by RACHs in South Australia to measure food service satisfaction?

4.1 INTRODUCTION

Accreditation agencies and independent quality assurance organisations routinely gather consumer satisfaction data and use this intelligence to inform legislative guidelines.[15] In many countries, the data is also used as a measure of public accountability and transparency thereby informing future consumers.[18,165-167] Additionally, oversight agencies such as the ACQSC may also require RACHs to conduct measures of satisfaction to inform quality improvement processes.[18] Consequently, stakeholder satisfaction data plays a valuable role in improving the quality of care in RACHs.[168]

The literature review in Chapter Three identified a large volume of stakeholder satisfaction questionnaires intended for use in RACHs. Among organisational stakeholders, questionnaires are available to measure the satisfaction of site administrators,[169] nurse managers,[170] nurses,[171] nurse assistants,[172] direct care workers,[144] and catering staff.[45] There are also many resident and family questionnaires available for measuring their satisfaction across multiple domains of the care provided within a RACH (Appendix E).

Very few questionnaires have been developed to measure stakeholder satisfaction with the food and food service in RACHs.[32,45,117,119,121,123,125] From the limited pool of questionnaires identified in literature review, five are intended to measure consumer (resident) satisfaction[32,117,119,121,123] and two measure organisational (staff) satisfaction.[45,125]

Consequently, there are stakeholders, including family members, who are not currently being surveyed. This identifies a clear gap in knowledge and justifies the design and develop of instruments to measure satisfaction from their perspective.

Researchers developing new satisfaction surveys make the following assumptions: (1) aged care homes use satisfaction surveys; (2) existing satisfaction questionnaires are not methodologically sound; and (3) aged care homes find satisfaction data useful.[80] However, there is very little research to support these assumptions. The literature review conducted in Chapter Three was unique as it was the first to critically appraise the psychometric properties of existing FSSQs and established that all had methodological flaws, thereby providing evidence to support the second assumption.

The literature review returned over 15,000 results; only one study investigated how aged care homes gather consumer satisfaction data and whether this data is useful.[80] Castle et al[80] surveyed nursing home administrators (n=266) in New Jersey, U.S.A., to explore how frequently they use resident satisfaction questionnaires and how the data were used. Results suggest that 86% of aged care homes used a general nursing home satisfaction survey, and most administer it yearly. Homes reported using a satisfaction questionnaire for corporate reasons (benchmarking), accreditation purposes, and quality improvement (most commonly with food services and meals).[80] Therefore, despite the literature review demonstrating that none of the general nursing home satisfaction questionnaires sufficiently explored food service, they are still used for this purpose.

There is a paucity of research in this area; therefore, little is known about the use and usefulness of consumer satisfaction questionnaires in RACHs. For example, the study by Castle et al[80] only explored the use of general nursing home satisfaction questionnaires in one region in America. No similar studies have been conducted to investigate how RACHs measure food service satisfaction.

4.2 METHODOLOGY

4.2.1 OVERVIEW OF STUDY DESIGN

This was a cross-sectional survey of food service managers working in RACHs. The protocol for this research was approved by the Social and Behavioural Research Ethics Committee of Flinders University, South Australia (Project #6929).

4.2.2 AIMS

This study aimed to (1) understand the methods food service managers in RACHs use to obtain food service satisfaction data from residents, and (2) identify how they use the data.

4.2.3 DEVELOPMENT OF THE AGED CARE HOME FOOD SERVICE QUESTIONNAIRE

Due to the lack of published literature in this area, the development of this survey was primarily informed by the study conducted by Castle et al.[80] The first page contained demographic items relating to the number of residents catered for by each home, the type of kitchen in the home, and the style of menu used. As this survey was conducted concurrently with the administration of the resident FSSQ, this data was captured to give context to the food service system present within each of the participating RACHs.

The second page of the survey contained items relating to the use and usefulness of food service satisfaction questionnaires within the RACH. The questions were similar to those asked by Castle et al[80] and enquired about the type of satisfaction questionnaire used by the home, the frequency of administration, and the purpose of gathering the data. The survey contained 15 questions; some items required respondents to write a numerical value, whereas other items included a check box containing the most likely responses and an open-ended "other" category. A senior food service dietitian reviewed the questionnaire for relevance, content, and clarity (Appendix F).

4.2.2 RECRUITMENT

Aged care homes within South Australia were identified from a licensed database containing the details of RACHs in each state across Australia.[173] Homes from a range of suburbs across Adelaide and the surrounding areas were stratified by their Socio-Economic Indices for Areas (SEIFA); sites were randomly selected from each stratum using Microsoft Excel. Where an organisation agreed to participate, all sites in their care were included in the study. Site managers were invited to participate in the resident FSSQ validation study between February and July 2019. The study was promoted via email, phone, or personal contact during networking events held with stakeholders; details of the introductory letter can be viewed in Appendix G.

4.2.4 DATA COLLECTION

Where an aged care home expressed interest in participating in the resident FSSQ validation study, a face-to-face meeting was arranged with the site manager and food service manager to discuss the details of both studies. The food service manager was given a paper copy of the organisational survey to complete during the interview. Consent to participate in the organisational study was provided verbally by the site manager and further implied by completing the survey.

4.2.5 DATA ANALYSIS

Statistical analysis was conducted using the Statistical Package for the Social Sciences (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.). Descriptive statistics were reported as frequencies (n), percentages (%), median and IQR.

4.3 FINDINGS

Five corporations expressed interest in the study, representing a total of 20 different RACHs across South Australia: St George's Park Nursing Home (one site), Lifecare (five sites), Uniting Communities (two sites), RSL Veteran's Home (one site) and Eldercare (11 sites).

Seventeen RACHs were within the Adelaide Metropolitan Area, and three were in a rural location. The Socio-Economic Indices for Areas (SEIFA) for 2011[174] indicated homes were located across the band of advantage and disadvantage, with 50% ranked in the top five suburbs for South Australia and 50% ranked in the lower five suburbs (Table 9). All homes (n=20) completed the organisational survey.

Table 9: Location of the 20 participating Residential Aged Care Homes ranked by Socio-Economic Indices for Areas (SEIFA)[174] together with the number of homes in each rank

Suburb	Postcode	SEIFA state rank
St Georges	5169	10
Glen Osmond	5064	
Joslin	5070	
Myrtle Bank	5064	
Glenelg	5045	8
Glengowrie	5044	
Hove	5048	
Payneham South	5070	7
Woodcroft	5162	6
Everard Park	5035	
Evanston Park	5116	5
Felixstow	5070	
Mt Barker	5251	
Aldinga	5173	4
Reynella	5161	3
Seaford	5169	
Maitland	5573	
Minlaton	5575	2
Stansbury	5582	
Hendon	5014	

Abbreviations: SEIFA=Socio-Economic Indices for Areas

The smallest home provided meals for as few as 16 residents, while the largest cooked meals for up to 225 residents (median=90; IQR=46). One home had a cook-freeze kitchen (5%); the remaining 19 sites (95%) had fresh-cook facilities (Table 10). All homes reported a four-week menu cycle with most (n=14) reporting two menu changes per year.

Table 10: Description of the food service satisfaction structures in place across the participating RACHs

Item Subject	Item Response	n (%)
Kitchen Type	Fresh cook	19 (95)
	Cook freeze	1 (5)
Menu cycle	4-week rotation	20 (100)
Menu changes	2/year	14 (70)
	4/year	5 (25)
	>5/ year	1 (5)
Menu type	Fully selective	7 (35)
	Semi selective	12 (60)
	Non-selective	1 (5)
Ordering style	Day before service	13 (65)
	Bain-marie	7 (35)
Portion size	Small, medium, large	20 (100)

Food service managers reported using either a fully selective menu (n=7) or semi-selective menu (n=12). Most homes took meal orders the day before service (n=13) with seven reporting a bain-marie system that allowed residents to choose at the point of service. All homes indicated that residents could choose between small, medium, or large meal portions.

Regarding the way RACHs gather food service satisfaction data from their residents, half (n=10) reported using used a dedicated FSSQ, while one quarter (n=5) used a general nursing home satisfaction survey (Table 11). Of the 15 homes that used a questionnaire, five (25%) indicated they used a satisfaction questionnaire that had been developed in-house, and 10 (50%) used a questionnaire that had been developed at a corporate level. Homes reported gathering resident satisfaction data annually (n=7) or quarterly (n=5). All homes indicated they gathered verbal feedback from residents, utilised suggestion boxes, feedback forms, and used resident focus group meetings as additional ways of listening to residents' opinions.

Table 11: Descriptive statistics demonstrating how participating RACHs gather, use and share food service satisfaction data

Item Subject	Item Response	n (%)
Questionnaire type	FSSQ	10 (50)
	General	5 (25)
	None	4 (20)
	Unsure	1 (5)
Questionnaire developed	In house	5 (25)
	Corporate	10 (75)
Questionnaire frequency	Monthly	2 (10)
	Quarterly	5 (25)
	Annually	7 (35)
	Bi-annually	1 (5)
Questionnaire usefulness	Extremely	16 (80)
	Moderately	4 (20)
Questionnaire purpose	Quality improvement	12 (60)
	Quality improvement and accreditation	4 (20)
	Quality improvement, accreditation, and marketing	3 (15)
Data sharing	Corporate only	3 (15)
	Residents only	1 (5)
	Residents/family/staff	4 (20)
	Corporate/residents/staff	1 (5)
	Corporate/residents/family	1 (5)
	Corporate/residents/family/staff	10 (50)

Regarding the usefulness of the intelligence, most homes (80%) considered the feedback was extremely useful. Comments made in the open text box indicated the majority of homes (n=19) used the information gathered from residents to make changes to the food services. Additionally, many homes (n=12) also indicated they used the data solely for quality improvement whilst some (n=4) used it for quality improvement and accreditation. Residential Aged Care Homes shared the intelligence with various stakeholders, most

commonly (n=10) with all relevant stakeholders such as the corporate head office, residents, family and staff.

4.4 DISCUSSION

It is encouraging that 95% of homes included in this study routinely gathered resident satisfaction with the food services; however, the methods they report using may be unreliable. Half of the participating homes (n=10) used a FSSQ, however, most indicated the questionnaire they used had been developed in-house or at a corporate level. The issue is that ad-hoc or user-created surveys may be filled with ambiguous, double-barrelled, or poorly worded questions, thereby making the data difficult to interpret. In addition, it is unlikely that user-created surveys have undergone the rigorous design and development process outlined in Chapter Two. Therefore, they may also fail to reliably measure resident satisfaction with the meals.

Five homes (25%) indicated they used a general nursing home satisfaction survey to measure resident satisfaction with the food services. However, as highlighted in the systematic literature review in Chapter Three, none of the general nursing home satisfaction questionnaires adequately explored the domains of food service satisfaction. Additionally, as these were user-created, there is also the risk that the questionnaire is psychometrically unsound.

The frequency with which RACHs gather food service satisfaction data varied from monthly (10%) to bi-annually but most commonly (35%) annually. This is similar to the data reported by Castle et al,[80] the homes they surveyed reported measuring satisfaction monthly (12%) through to yearly (45%). While yearly surveys may be appropriate for general nursing home satisfaction, that may not be frequent enough for food service departments. Every home participating in this study indicated at least two menu changes per year; it seems logical and appropriate to measure resident satisfaction after any major change to the menu. As each

home indicated a four-week menu cycle, surveying residents one month after the menu changes would allow them to provide feedback after fully experiencing the updated menu.

When asked about the usefulness of the satisfaction surveys, food service managers indicated they found the information moderately to extremely useful. Again, this is similar to the data gathered by Castle et al,[80] 28% of the administrators surveyed claimed satisfaction data was extremely useful and 44% found it very useful. This provides additional evidence to support the third assumption regarding satisfaction questionnaires,[80] that is, aged care homes find the data useful.

All homes reported using qualitative methods such as food focus groups and verbal feedback from residents, either in conjunction with satisfaction questionnaires (75%) or as the only measure of satisfaction (20%). Food focus groups can be valuable for engaging residents with the food service system and potentially increasing resident satisfaction.[175] However, without incorporating some form of standardised quantitative measure, it is difficult to gauge the impact these have. Further, relying on residents to provide direct verbal feedback as a sole measure of satisfaction is problematic as residents may be reluctant to complain or criticise the food.[40,176] As with focus groups, without some method of reliably measuring change, it is not possible to know the impact of direct verbal feedback.

4.4.1 STRENGTHS AND LIMITATIONS

Some limitations should be considered when interpreting these results. Firstly, the lack of prior research on this topic makes it difficult to provide context to the findings; therefore, it is impossible to know how representative the data is. Additionally, the small sample size (n=20), especially the number of aged care organisations (n=5), makes it difficult to draw inferences from the results. A further limitation is that homes were not asked to provide a copy of the questionnaires they were using. Therefore, it is not possible to determine the content validity of the instruments they have been using.

Despite the limitations, this study provides a unique contribution to knowledge; no other authors have investigated how RACHs measure and use food service satisfaction data. Future research should include a larger number of RACHs from across Australia to better understand the methods currently used to measure resident satisfaction. As of July 2022, there are 2,902 RACHs operating in Australia, a sample of 230 food service managers would provide adequate power for statistical analysis. This would provide valuable information to government organisations to influence policy such that a valid, reliable, and standardised measure of consumer satisfaction can be implemented in all RACHs across Australia. Rather than each home measuring food service satisfaction on an ad-hoc basis, this would provide a national benchmark of food service quality and satisfaction that can inform future consumers.

4.5 CONCLUSION

In conclusion, RACHs measure resident satisfaction in multiple ways. Qualitative methods are primarily informal and include food focus groups and verbal feedback from residents. Quantitative methods include general nursing home satisfaction questionnaires, food service satisfaction questionnaires, suggestion boxes, and feedback forms. Quantitative methods are beneficial because they provide a quantifiable measure of change and form evidence during accreditation and certification.[18] Although this study was conducted with a small sample of homes, the results suggest that RACHs routinely use satisfaction surveys and they consider the information to be useful, primarily for accreditation, and quality improvement. This demonstrates the need to provide RACHs with valid, reliable, and standardised measures of food service satisfaction for all stakeholders.

Independent oversight and accreditation agencies routinely collect resident satisfaction data to provide public accountability and transparency. Many of these organisations are government-owned or affiliated, using questionnaires that have been rigorously designed and psychometrically tested to ensure validity and reliability.[15,29,165,177,178] In Australia, the

ACQSC also requires RACHs to seek feedback from residents at each site and use that information to inform quality improvements.[18] Consequently, how RACHs gather and use this data is highly relevant. The results of this cross-sectional survey of food service managers working in RACHs provide insight into how resident satisfaction is measured and how the data is used.

4.6 CHAPTER SUMMARY

This chapter explored how RACHs measure, use, and share resident food service satisfaction data. Academically, the desire to create new satisfaction questionnaires is based on three assumptions: (1) existing questionnaires are either not adequately able to measure the construct or are not psychometrically sound, (2) RACHs use questionnaires to measure satisfaction, and (3) they find the data obtained useful. The first assumption was demonstrated through the systematic literature review conducted in Chapter Three; all existing FSSQs have methodological flaws and may not be psychometrically sound. The study discussed in this chapter addressed the final two assumptions by demonstrating that RACHs use satisfaction questionnaires and the data they obtain is useful for accreditation and quality improvement. Although this has been briefly explored through the lens of general nursing home satisfaction,[80] no previous studies have explored the way RACHs measure food service satisfaction, thereby adding to the original contribution of this thesis.

CHAPTER 5: DESIGNING A RESIDENT FOOD SERVICE SATISFACTION QUESTIONNAIRE

Chapter Two described the methodology of scale design which provided a blueprint for the design and development of a resident FSSQ. Whereas that chapter looked broadly at consumer satisfaction, this chapter explores food service satisfaction in greater detail which, in turn, informs item generation. The chapter concludes by discussing the response scale, layout, and the results of preliminary testing. This chapter answers the third research question (RQ3): What factors relating to food service are important to include in a questionnaire intended to measure resident satisfaction with the dining experience in RACHs?

5.1 INTRODUCTION

Resident satisfaction with meals and the dining experience is a major determinant in overall nursing home quality[110] and overall consumer satisfaction with the aged care provider.[111,112] Australia, America, and the United Kingdom are examples of countries that make resident satisfaction ratings taken during accreditation a matter of public record, contributing to a quality rating system to inform new consumers.[18,165-167] Consumer dissatisfaction may result in poor review ratings and referrals,[179] and impact national quality rankings such as the Centers for Medicare and Medicaid Services (CMS) Five-Star Quality Rating System.[165] In Australia, the Department of Health is developing a similar star rating for RACHs that includes consumer experience as one of four cornerstones of quality.[180] Consequently, it is important that RACHs have access to valid and reliable FSSQs to reflect the level of resident satisfaction with their food services.

5.2 METHODOLOGY

5.2.1 OVERVIEW OF STUDY DESIGN

This was a mixed methods study conducted for the purpose of designing and refining a FSSQ for individuals living in a RACH. This project (#6929) was approved by the Social and Behavioural Research Ethics Committee (SBREC).

5.2.2 AIMS

This study aimed to:

1. Explore the perspective of residents regarding the food service in RACHs;
2. Identify factors that could shape food service satisfaction for residents;
3. Develop and refine a resident FSSQ that meets the COSMIN®[65-67] standards for excellence;
4. Ensure the FSSQ reflects the shift to person-centred care;
5. Ensure the FSSQ contains items included in the Quality Standards such that RACHs could use the FSSQ to provide evidence of meeting the Quality Standards; and
6. Establish the content and face validity of the questionnaire.

5.2.3 QUESTIONNAIRE DEVELOPMENT

5.2.3.1 DEFINING THE CONSTRUCT

Although the theories that underpin consumer satisfaction provide a foundation for understanding the broader construct, they lack context and specificity. Food service satisfaction is a subcomponent of consumer satisfaction, a construct that becomes even more nuanced within the context of the residential aged care setting. For example, the ACSI model defines perceived value as the level of product quality in relation to the financial outlay of the consumer, a quality to cost ratio.[69-71] This remains a valid method of measuring satisfaction in the broader context of foods and beverages purchased through various vendors in the community (e.g., restaurants and fast food outlets),[73] however this model is

not as relevant in institutionalised food settings where customer loyalty has little meaning. When community-dwelling individuals are dissatisfied with a product or service they have the option of voicing their complaints and/or switching brands.[69] In residential aged care, consumers may not feel empowered to voice complaints and, for most, there is no option to change 'brands' as this would mean relocating to another aged care home.

5.2.3.2 UNDERSTANDING CONSUMER SATISFACTION WITH FOOD SERVICES

Unsurprisingly, there has been extensive research into food service satisfaction within the hospitality industry as customer satisfaction is directly related to return patronage.[181,182] When reviewing the prominent studies in the area, three factors appear to influence dining satisfaction; the food quality, the cost or value of the meal, and service delivery.[181] Kivela et al[182] suggest that there are four restaurant attributes that impact consumer satisfaction: (1) the presentation, variety, taste, quality, freshness, and temperature of the food; (2) the attitude, knowledge, and training of the service staff; (3) the dining room atmosphere, noise levels, view, cleanliness, and décor; and (4) convenience and consistency. Although some aspects such as price, value or convenience may not be relevant in institutionalised food services, other factors such as food quality, dining atmosphere, and service delivery remain important.

5.2.3.3 UNDERSTANDING CONSUMER SATISFACTION WITH INSTITUTIONALISED FOOD SERVICES

Institutionalised food services such as those found in hospitals, military bases, boarding schools, prisons, and RACHs are typically characterised by limited staff and funding, centralised kitchens, mass-produce meals, cyclical menus, and a stable 'consumer' base.[183] Although hospitals fit under the umbrella of institutionalised food service, the average length of stay in acute care settings is less than 3 days whereas residency in boarding schools, military bases, prisons and RACHs can last months to years.

There appears to be very little discourse regarding theories of food service satisfaction within institutionalised settings. Most research looks pragmatically at the food service attributes that

influence satisfaction, such as the food quality, service staff, and dining environment.[183-185] One of the factors that set institutionalised food service apart from other forms of hospitality is that consumers are often 100% reliant on the institution for the provision of meals and beverages, which frequently results in a lack of choice.

5.2.3.4 PROPOSED MODEL OF RESIDENT SATISFACTION WITH THE FOOD SERVICES IN AGED CARE HOMES

There is a paucity of research exploring the theories of resident satisfaction with food services in aged care. Crogan et al[32] devised the QNO-LTC, which proposes a pathway through which organisational knowledge and resident characteristics influence resident food satisfaction. Although this is an operational model rather than an underpinning theory, it does help to provide insight into the consequences of dissatisfaction with institutionalised food service.

As discussed, the ACSI model of consumer satisfaction with government services or non-profit organisations covers some of the issues relevant to engaging with an institution. However, the model is based on consumer interaction external to the organisation (e.g., community-dwelling adults), not from the perspective of someone consuming the goods and services from within the organisation (e.g., institutionalised adults). Additionally, not all external consumers interact with government agencies daily, whereas residents must interact with the organisation multiple times a day to receive essential services, such as nutrition and hydration.

The consumers of food services in residential aged care can be described as internal or primary consumers (e.g., residents) and external or secondary consumers (e.g., family members). The consequences of satisfaction are different for each. For example, for family members, the consequences of dissatisfaction with the food service might be distrust in the organisation resulting in negative feedback or a poor review.[179] However, for the resident who is 100% reliant on the food and beverages provided by the organisation, the consequences of dissatisfaction with the food services would also include the physical and

psychosocial consequences outlined in the QNO-LTC.[32] Consequently, family and residents require their own unique model to conceptualise the factors influencing satisfaction. A representation of the relevant aspects of both the ACSI[69-71] model and the QNO-LTC[32] can be seen in Figure 13, which incorporates nutritional status and quality of life as consequences of resident satisfaction with the food services.

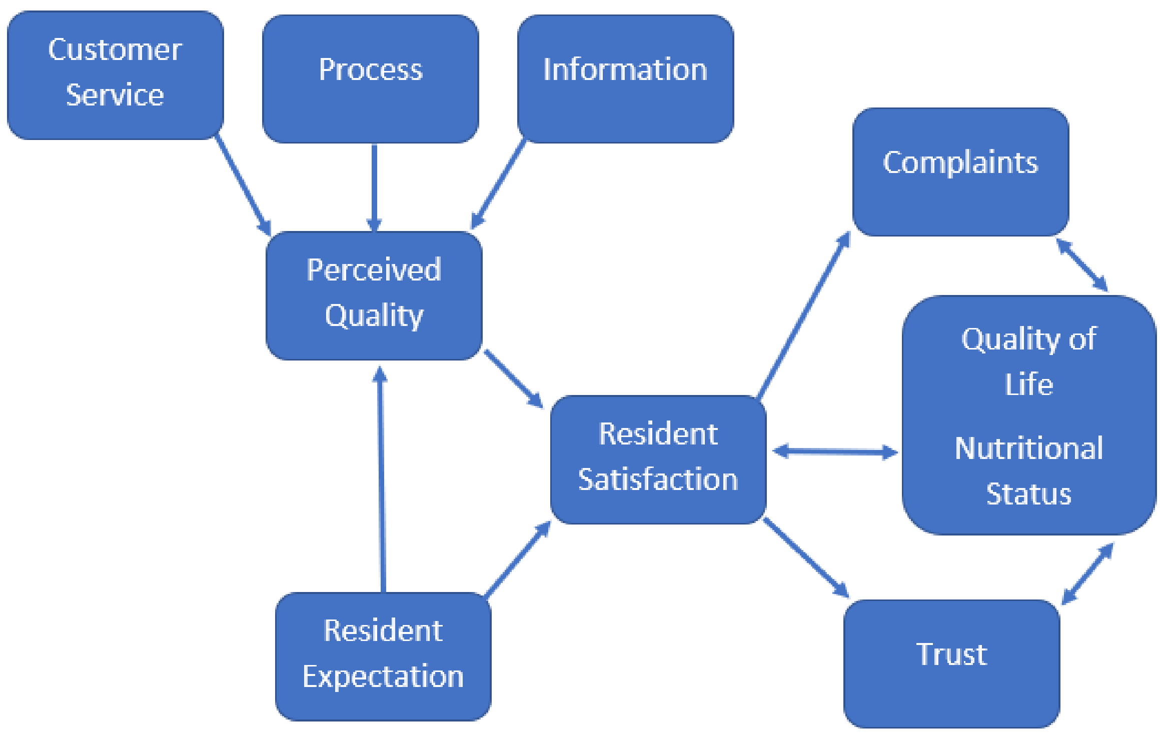


Figure 13: Proposed model of resident satisfaction with the food services in residential aged care homes (adapted from ACSI and QNO-LTC)[32,69-71]

The ACSI[69-71] model of consumer satisfaction with government services or non-profit organisations is operationalised through a 16-item questionnaire that explores nine latent variables (Table 12). Although it is not a perfect fit for measuring consumer satisfaction with institutionalised food services, there are latent variables that should be considered when designing a new scale. For example, processes, customer service and complaints are all latent variables that can be readily translated into food service manifest variables (e.g.,

timeliness of the meal services, the courtesy of the food service staff and consumer feedback/complaints). In addition, other variables such as overall evaluation of quality and satisfaction are relevant and can help RACHs understand the satisfaction of their residents. Consequently, the theories of consumer satisfaction that have been operationalised through the latent and manifest variables in the ACSI[69-71] model remain important considerations during item generation.

Table 12: Latent variables, manifest variables and questions included in the ACSI[69-71] Model for Government Services and Non-profit Organisations Consumer Satisfaction Survey

Item	Manifest Variable	Latent Variable
1. How would you rate your expectations of the overall quality of services from the agency?	Overall expectation (pre-experience)	Customer Expectation
2. How difficult or easy was it to get information about the agency's services?	Accessibility	Information
3. Was the information about the agency's services clear and understandable?	Clarity	
4. How timely and efficient was the agency in providing the services you wanted?	Timeliness	Process
5. How difficult or easy was it to obtain services from the agency?	Ease	
6. How courteous were the agency personnel?	Courtesy	Customer Service
7. How professional were the agency personnel?	Professionalism	
8. How logically organised and easy to use is the agency's web site?	Ease of use	Web Site
9. Is the information from the agency's web site useful in terms of being current, accurate, helpful and relevant?	Usefulness of information	
10. How would you rate the overall quality of the agency's services?	Overall evaluation (post-experience)	Perceived Quality

Item	Manifest Variable	Latent Variable
11. How satisfied are you with the agency's services?	Overall satisfaction	Customer Satisfaction
12. To what extent have the agency's services fallen short of or exceeded your expectations?	Expectancy disconfirmation (EDP)[24]	
13. How well do you think the agency compares with an ideal version of the organisation?	Performance vs ideal	
14. Have you complained to the agency in the past year? (If yes) How would you rate the handling of your complaint?	User complaints	Customer Complaints
15. How confident are you that the agency will do a good job in the future?	Confidence	User Trust
16. How willing would you be to say positive things about the agency?	Willingness to recommend	

Finally, part of defining the construct is determining how it can be sub-divided into separate dimensions. Although each item can be considered an aspect of the construct to be analysed separately, with a summated rating scales they should be combined into subscales (also called factors) that help to explain the larger construct.[62] Based on the current literature regarding the broader construct of consumer satisfaction and the more nuanced area of food service satisfaction it is hypothesised that three subdomains will be evident. Those are (1) factors related to the food on the plate such as taste, temperature, appearance, and variety; (2) factors related to choice, autonomy, and personalisation; (3) and factors related to customer service such, as staff attitude, knowledge and behaviour.

5.2.4 ITEM GENERATION

Item generation should involve utilising multiple resources, including evaluating existing instruments, conducting a literature review, expert consultation and interviews with the intended population.[62]

5.2.4.1 STAKEHOLDER INTERVIEWS

Stakeholder interviews are essential when designing a new scale as understanding the resident perspective is integral to generating items relevant to their satisfaction. [78-81] Consequently, semi-structured interviews were conducted with nursing home residents (n=13) in 2014 to understand their experience with the food service system. Full details of the study design, interview methods, and participant demographics have been described elsewhere.[186] Briefly, older adults (14 females; 5 males; M=78 years; SD 10) were recruited from within RACHs and support groups for persons with dementia. Individual interviews with residents were used wherein they were asked to describe the food and dining in their current RACH. Interviews were transcribed by a professional transcription service (SmartDocs Pty Ltd); an example has been included in Appendix H.

A secondary analysis of the interview transcripts was conducted using qualitative content analysis, a method deemed highly appropriate in survey research.[105] Content analysis has been described as *"a research technique for the objective, systematic, and quantitative description of the manifest content of communication".*[105,187,188] Consequently, interviews were coded to identify specific comments, thoughts, and ideas that could be used to create manifest variables.[105] The resulting codebook can be seen in Table 13, which demonstrates that many of the manifest variables identified during the interviews are aligned with the themes and concepts identified by Robinson et al[79] and Case and Gilbert.[110]

Table 13: Code Book Containing Codes and Participant Quotes from the Qualitative Interviews conducted by Milte et al[186]

Code Name	Description	Example Participant Quote
Access to food	Quotes related to the residents' ability to access food when they are hungry.	But I like the thought of, it's probably unrealistic, but having like a 24-hour kitchen sometimes in a secure unit where you've got different little nibbles in the fridge so that if someone gets up at night instead of giving them more sedation or anything like that actually give them something to eat and then they'll go back to sleep because they're quite possibly hungry.
Appearance	Quotes related to the plating of the food, the visual appearance of the meal.	The fish and all that was on a plate and that looked – it looked as good as I'd have at home, you know. Maybe not as good as a hotel or a gourmet restaurant, but as good as I have at home. And the sweets, as you say, a dob of cream, that's often what they have, you know, like a jelly with a bit of cream on it. So, yeah, that seems to be quite presentable, and I don't know how far you go beyond that, you know, and still be practical.
Assistance to eat	Quotes related to residents who require assistance to eat.	But I think with nursing there's so, you know, particularly in aged care and if you've got somebody that is a full feed and they have a problem, you know, that might take you 20 minutes, you can't do it in five minutes. So when a person is fully reliant on the staff yeah and then others… but there should always be someone in a dining room in close proximity to monitor those people, you can't just leave them.
Autonomy	Quotes related to residents keeping their autonomy within the home e.g., being able to make their own cup of coffee rather than waiting to be offered at mid-meals.	But you know, for women, who've cooked for a family all their life, why wouldn't they want to keep trying to cook, even if it's as simple as making a cup of coffee? So, I mean at Clayton you could go into the breakfast dining room area, which had the kitchenette, and you could make yourself a tea or coffee any time of the day that you liked, you just couldn't have water in your

Code Name	Description	Example Participant Quote
		room boiling, so that was kind of the alternative of you being able to say to your guests, “Oh, we’ll go and have a cup of coffee now,” which worked really well actually.
Bringing in food	Quotes related to resident's having food brought into the home e.g., by family, take away.	What we find that they do on a Saturday night often is they get a takeaway night so they’ll go and get Chinese or fish and chips or whatever and bring it back to the people that can eat it so they get a taste of the outside. Not so much food people bring in because there's so many rules now on the gastro that you can't have your salami sitting in the back of a car or something, you get these problems there. But they love that, they all… or the family member can say oh look dad used to love dim sims or he loves sweet and sour and they’ll get that and they’ll eat that on the Saturday night.
Choice	Quotes related to food choices (or lack of).	There's – say there's beef stroganoff or cold meat or something, so there's a choice every day. There's no choice of dessert. That's the same. It's different every day but there's only one, and that's the main meals. That's for breakfast, lunch and dinner. For instance, breakfast there's cereals or there's eggs of some sort. So there is that choice.
Cultural food	Quotes related to the cultural appropriateness of foods offered in the home.	So, I think if you just--thinking about how multicultural we are--what have we got? 168 different cultures living in our country of only, whatever it is, 24 million people, surely we have to have more choice. But, if there’s not choice it has to be better tasting and better visually, and it can be, it’s not that hard to do. So, I just don’t think that it’s on the agenda, it’s quickest, cheapest, easiest to, you know, mass produce.
Dining environment	Quotes related to the various aspects of the dining room environment,	But as far as the other little things, certainly I think cloths, tablemats, anything once again that’s homey, that’s pleasant to look at. The vase of flowers on the table, I

Code Name	Description	Example Participant Quote
	e.g., sound levels, decor, layout.	notice that in there, there can be most ordinary little collection of flowers, you know just a couple of pieces of fern and something that's just been gathered from around the garden with very limited access.
Enjoyment	Quotes related to the enjoyment of food, looking forward to mealtimes etc	So, I think there's a real disconnect between the pleasure of food versus that, "We have to provide everyone with a nutritious meal," which looks, tastes and smells disgusting. What's the point of that? All that does is give people grief.
Enough time to eat	Quotes related to giving residents enough time to complete their meals without feeling rushed.	Well, again, I think it's again about the management of the – and if you're in a profit mode – making mode, you don't want your staff hanging around forever trying to induce somebody to eat. I mean I think personally they should be – the eating pattern in residential care should be geared to the slowest eater and rather than the staff determining who is the fastest or who is the slowest, basically.
Familiar food	Quotes related to familiar foods or traditional meals.	What makes a good meal. I think meals that relate to what people have always had, like the roasts on Sundays, the fish on Friday and – and desserts that are nice and sweet and that sort of thing.
Family input or involvement	Quotes related to family providing input to the home, assisting residents within the home or advocating for residents.	So yeah, I think family, well I think we're an integral part of the whole running of - because that's just the way. I think there's a need, there's a need for family to be involved and I think it really improves the quality of their loved ones care. It's also on a physical level but it's also on a - the staff actually - the staff are really appreciative of my help and - and the fact that you're - that you're there.

Code Name	Description	Example Participant Quote
Family sharing meals	Quotes related to family being able to join residents at mealtime.	So of the group in the - in the lodge that <husband's name>'s in, I'm the only - I'm the only one, I've - that's ever been there at mealtime in my experience. I'm probably there most evenings at teatime. I sometimes I - if I'm going to be there at lunchtime, I'll order a meal, and so…
Favourite food	Quotes related to being served favourite foods, including specific brands.	Because at the nursing homes, this last one we visited, they said "and we have a continent breakfast". I thought bloody continental breakfast. I have an egg every morning for breakfast without fail for probably 50 years, 60 years. I haven't missed having an egg, unless I've been in hospital or something. See, and they say it's continental. I think continental breakfast? I don't eat bread. Bread puts my sugar up, and so I want my egg. But they said well if you came to live at this nursing home we would in fact let you have what you wanted for breakfast when it comes to the point.
Fresh food	Quotes related to the freshness of the foods or meals.	I think there's a trend from what I've heard that many of the residential care centres are purchasing their food, like, precooked from somewhere. <wife's name>'s place, they've still got their own kitchen which I think makes the world of difference.
Importance of Mealtimes	Quotes related to the importance of mealtimes for residents.	I would say that it's absolutely vital for more reasons than just nutrition. That it's a big part of the resident's day and has the potential to be either make their day or break their day. I just think it's absolutely vital.
Individualization	Quotes related to the ability of the home to cater to individual needs and preferences of residents.	That's right there might, yeah. But I'm in that position of not having got to anywhere to know just what sort of – there's three choices, what sort of choices are these? Things that I don't even like anyway.

Code Name	Description	Example Participant Quote
Meal names	Quotes related to the name meals are given on the menu, are they recognizable, are they familiar, are they descriptive?	And so you know I'd usually write it with a bit of a flourish, so that you described the sauce, or you know, that you embellished it a bit. And that is interesting, all those little things count. Whether they're actually going to anticipate that meal with you know, you're going to be eager to anticipate that meal, or whether they're going to you know, whether it's just meat and vegetable, meat and potato.
Meal Timing	Quotes related to the timing of meals in aged care homes.	And so, residential care is marketed as, "This is your home," so number one about food in residential care--when you live in a home you eat when you feel like eating, you don't eat at 8 am, midday and 5 pm, and you don't eat slop that looks and tastes like slop.
Nutrition not as important as taste	Quotes that suggest that taste and appearance are far more important to residents than nutritional value.	The nutrition side of it is not such a major issue, I don't think, and not eating simply because you can't stand the taste is far worse for you than eating something that tastes great and looks great and smells great and it's got a little bit of cream and butter or salt in it. So, I think it's really important.
Ordering methods	Quotes relating to how meals are ordered in aged care homes.	Well, I've only ever seen that aspect – it operates on the weekends, so <wife's name> was asked what she would like over the weekends for meals, basically, but the rest of the week it's sort of per the predetermined eating chart for the quarter or the month or whatever, basically, but-
Portion Size	Quotes relating to portion size.	Yeah and I think from my experience previously, it's to do also with this age group, they - they just hate waste, and they feel very upset about waste. And so that's one thing, apart from the fact that they don't actually feel hungry, and would just benefit from just a little bit. They - if they're

Code Name	Description	Example Participant Quote
		confronted with a big lot, then - and can't eat it, it's a bit like you know, old Victorian times, times you know when you cleared your plate and you're a good girl if you did that. So there's those overtones as well.
Quality	Quotes relating to the quality of the food and meals provided in aged care homes.	I mean I've heard residents and family members there complain about they get tinned spaghetti which is usually cold by the time they get it and serve it with mashed potato or something; it sounds revolting.
Resident participation	Quotes relating to resident input and participation within the food system e.g., menu planning.	Food--we live our whole life around food; food is a celebration of living, and even in a small way every single day that's what you do with food. So, not to be involved in even--you know, for a lot of people these days are growing parts of their own food, even if it's only herbs and a few vegies, why wouldn't you want to keep doing that?
Social aspects of dining	Quotes relating to the social aspects of dining.	It sort of breaks the day up for them, and so then just the social, the social aspect of it, that like he mostly eats in the dining room. And so there's - there's an opportunity to interact. He sits separately from this group of ladies who are really delightful, but he can observe what's going on, he can - he can hear their little bits of conversation. So socially it's yeah, it's sort of I think it's very very important part of the day.
Speaking out	Quotes related to making complaints, speaking up and providing feedback to the home.	I did, I always did as I was told. But now, I've got braver. Anyway, so if they give him food, he feels he has to eat it. And this is, I say for goodness sake, either tell them you don't want it or else don't eat it, just leave it. But he eats, feels you have to do as you're told. I know people our age often do.
Special dietary requirements	Quotes related to catering for special dietary requirements e.g., diabetics.	Yeah. And of course, everybody gives you lots of potato, but potato is the worst thing for diabetes. It puts your sugar up as badly as bread. And so I can see me having a lot

Code Name	Description	Example Participant Quote
		of arguments with people. I suppose I could say look, don't put any potato on my plate please. I'll have to.
Staff Attitude	Quotes related to the attitude staff have towards residents at mealtimes.	Everything's familiar and the staff are, well the staff are just always - they're always kind, they're always very courteous to them, they often, you know sometimes as they get up from the table, they all get a hug before they go to their bedroom for the night.
Staffing	Quotes related to staffing e.g., understaffing at mealtime, staff training.	Again, I suppose it boils down then to the skills or the – of the kitchen staff, basically. I mean if you don't want to employ somebody straight out of school, you wouldn't expect them to be dishing up perhaps what you would like to eat, whereas if you got somebody that's a chef or something like that, he's – it's a piece of cake, basically. And the other thing is, I think that we need to look at meals on a seven-day basis rather than a five-day basis. And so the staff are there, you know, for – and Saturdays and Sundays are not different to a Monday and a Tuesday; that's what I'm saying.
Taste	Quotes related to the taste of meals.	I think for some salt is an issue, or it was with my mum, you know, the fact that a lot of the food is cooked without salt. I used to take the salt and pepper shaker up and I thought at 93 or whatever she was I can't see any problem having a little bit of added salt. But a lot of people do come in after having food with salt and find that it doesn't taste any good and the vegetables haven't got it. But then other people will say the gravy is too salty. So I think there's two types of gravy that they use, one that's got salt and one that hasn't.

Code Name	Description	Example Participant Quote
Temperature	Quotes related to the temperature of meals.	But it needs to be hot, it needs to be served up as it comes and not, you know, you get the carers that get distracted and go off and do something else and come back and somebody's meal's cold.
Texture modified	Quotes relating to texture modified meals.	You can make most vitamised food taste good; it may not look great because it's vitamised but you can make it taste good, and you don't have to be a chef to do that, you just have to have taste buds.
Variety	Quotes relating to the variety of meals offered.	It is, just lettuce and tomato, none of the yummy salads. Yeah that's right, the salad is always the same so there's no… I mean even, you know, having a, varying your salads or something.

5.2.4.2 UNDERSTANDING RESIDENT EXPECTATIONS

The EDP[24] theory of satisfaction posits that expectations play a significant role in the shaping of consumer satisfaction; therefore, it is essential to understand resident expectations regarding food services. Perhaps the most comprehensive list of resident expectations comes from Case and Gilbert,[110] who analysed the results of a nationwide American Health Care Association long-term care satisfaction survey conducted in 1995. The study identified four elements important to the resident dining experience:

1. Quality of Meals: Residents desire pleasurable meals that are high quality, well presented, and tasty. They want food that is easy to recognise, and they wish to celebrate special occasions, such as birthdays and holidays, with food. They also expect that anyone on a special diet should be given equal access to quality catering.

2. Addressing Individual Tastes: Individualisation included aspects such as food and serving size preferences and access to cultural or familiar foods, including brand

name foods rather than generic products. Residents expect to be offered favourite foods, including take-away foods from outside the home. Choice was a strong theme in this category, with residents expecting adequate menu choice and also the ability to choose meal timing and dining location.

3. Dining Setting: Residents believe the physical environment, décor, and ambience of the dining area should create a pleasant atmosphere. There should also be adequate staffing and assistance provided in the dining room. Additionally, residents want to be given adequate time to eat without feeling rushed.

4. Social Aspects of Dining: Residents want the ability to choose their dining companion, including the freedom to separate themselves from disruptive residents. They believe meals should facilitate social connection and provide an opportunity to make new friends.

Robinson et al[79] conducted a content analysis of sixteen general nursing home satisfaction questionnaires and compared the results with qualitative interviews conducted with residents (n=15). The authors undertook this work to inform item generation of a newly developed general nursing home satisfaction questionnaire for use in New Jersey, U.S.A. They identified six broad domains of resident satisfaction: activities, care and services, caregivers, environment, meals and well-being. Within the domain of meals, they further identify six subcomponents that are important to residents: satisfaction with food, food likes/dislikes, choice/variety, dining companion, dining atmosphere, and staff attitude.

When the results by Case and Gilbert[110] are tabulated with the results by Robinson et al[79] it forms a clear picture of the aspects of the dining experience in RACHs that are relevant and important to residents (Table 14). Consequently, this formed a framework for item generation.

Table 14: Conceptual mapping of the themes important to resident satisfaction with the food service in RACHs identified by Robinson et al[79] and Case and Gilbert[110]

Domains identified by Robinson et al[79] in general satisfaction instruments	Themes identified by Case and Gilbert[110]	Individual items identified by Case and Gilbert[110]
Satisfaction with food	Quality of meals	Taste, appearance, pleasurable, quantity
Food likes/dislikes	Addressing individual tastes	Celebratory meals, special diets respected, recognizable foods, cultural foods, familiar/favourite foods
Choice/variety		Variety, menu choice, meal timing, foods from outside the home
Dining companion	Social aspects of dining	Choice of companion, social environment, facilitate friendships
Dining atmosphere	Dining setting	Choice of dining location, pleasant atmosphere/decor
Staff attitude		Staffing levels, staff assistance, ability to request help, sufficient time to eat

Furthermore, the resident FSSQs identified during the systematic literature review in Chapter Three were compared against the themes identified by Robinson et al[79] and Case and Gilbert[110] (Table 15); this process identified gaps in the existing tools. For example, none of the existing FSSQs contained questions regarding resident participation, family involvement or being given sufficient time to eat. Additionally, the long form of the FoodEx-LTC[32] was the only questionnaire asking if residents could bring in food from outside the home. In addition to the quantitative literature, multiple qualitative studies (n=40) were reviewed to understand food service satisfaction from the resident perspective. These studies are cited and explored in greater detail when discussing each of the items generated; however, the common

themes have also been highlighted in Table 15, further demonstrating the elements of food service satisfaction important to residents.

Table 15: Comparison of the current resident food service satisfaction questionnaires mapped against the themes identified in the literature

Instrument name	Satisfaction with food†					Food likes/ dislikes†				Choice/ variety†									Dining atmosphere		Dining companion†			Staff attitude†		
	Food characteristics*‡	Texture Modified	Meal importance/enjoy*‡	Nutritious food‡	Quantity of food/meals*	Familiar/favourite foods*‡	Special occasions*‡	Preferences*‡	Individualisation‡	Choice (food)* ‡	Menu ordering	Meal Delivery	Variety*‡	Participation‡	Timing of meals*‡	Input/feedback‡	Autonomy/Independence‡	Foods from outside*‡	Dining room ambience*‡	Décor/clean/utensils ‡	Choice (dining)* ‡	Social engagement*‡	Family‡	Staff attitude/assist*‡	Staff skill/safety*‡	Sufficient time to eat*‡
FoodEx-LTC (LF)[32]	X		X	X	X	X		X		X	X	X	X		X	X	X	X			X	X		X	X	
FoodEx-LTC (SF)[117]	X		X		X	X		X			X		X		X	X	X				X	X		X	X	
FoodEx-LTC (Sp)[119]	X		X		X	X		X			X		X		X	X	X				X	X		X	X	
MSAQ[134]	X	X		X		X				X					X				X							
Lengyel RF&FSSS[121]	X		X		X		X			X	X		X		X	X			X	X				X		
Wright RFSQ (LF)[123]	X	X	X		X			X	X	X	X		X		X	X	X		X	X	X	X		X	X	
Wright RFSQ (SF)[123]	X		X		X			X		X			X		X	X					X	X		X		

Abbreviations: *Resident expectations identified by Case and Gilbert[110]; †Domains identified by Robinson et al[79]; ‡Themes identified from qualitative literature that increase resident satisfaction; LF=Long Form; SF=Short Form; Sp=Spanish; RFSQ=Resident Foodservice Satisfaction Questionnaire; RF&FSSS=Resident Food and Food Service Satisfaction Survey

5.2.4.3 REVIEW OF THE QUALITATIVE LITERATURE

In addition to quantitative studies already described in Chapter Three, the systematic review also captured an extensive amount of qualitative literature that provided valuable insight into the experience of residents living in RACHs. Additionally, as the intention is that the FSSQ can support RACHs during accreditation, components of the Quality Standards[18] have been highlighted where relevant. Finally, the Best Practice Food and Nutrition Manual for Aged Care Facilities by Bartl and Bunney[126] (hereinafter referred to as the Best Practice Guidelines) was also referenced as this represents the recommended minimum standard for food in RACHs in Australia. For consistency and clarity, the following section categorises the qualitative themes using the domains identified by Robinson et al[79] together with the expectations identified by Case and Gilbert.[110]

5.2.4.3.1 SATISFACTION WITH FOOD

The latent variable of satisfaction with the food can be broken down into manifest variables that address dimensions such as the characteristics of the food on the plate (e.g., taste, temperature, appearance), the enjoyment of the consumer and the quality/quantity of food provided.

Food characteristics

Food characteristics is a domain that is universal to all food service satisfaction questionnaires because the taste, temperature, freshness, and appearance are primary determinants of meal enjoyment.[21,116,189,190] For older adults living in RACHs, Adams et al[189] suggest that temperature is the dominant factor; however other authors in this field believe that temperature, taste, and appearance are equally important determinants.[20,116,191,192] In order to be accredited, RACHs must meet the nutritional requirements of residents in their care,[19] however if the meals are not appetising, flavoursome, and served at the correct temperature, then food refusal and plate wastage are likely to increase with resident nutritional status likely to decrease. [191,193] Peeters et al[194] sought to understand the eating

profiles of Dutch residents by using a 35-item questionnaire to determine individuals' eating characteristics.[194] Over 90% of the participants (n=295) said that food had to look appetising and smell good, a theme further reinforced during focus group discussions where residents also raised the importance of taste and presentation.[194] Finally, the Quality Standards[18] state the organisation should *"make sure the presentation of each meal, such as its texture, flavour, smell and appearance, support good appetite and good food consumption".*

Meal Importance and Enjoyment

Mealtimes become a central part of resident life[19] and, for many, are the highlight of the day.[42,195,196] The serving and sharing of food symbolises comfort, caring, and connection.[197,198] During qualitative interviews conducted among Dutch residents by Baur et al,[40] one woman described how she wept when she first began living in a RACH because she was so distraught at the notion of eating bad quality food for the remainder of her life. Sadly, residents who experience a dissatisfying dining experience are confronted with this reality on a daily basis[40] which can seriously impact their well-being and quality of life.[32,38,198] Consequently, meal importance and enjoyment can be considered an overall reflection of the factors related to good food and food service.

Quantity of food/meals

The rate of malnutrition in RACHs in Australia has been consistently high for decades[199,200]; consequently, food security is an important concern. Food security can be described as "*enough food of the right sort to stay healthy into old age.*"[201] The Best Practice Guidelines in Australia states that residents should have access to mid-meal snacks 'around the clock'.[126] During main meals, they should be offered a portion tailored to their needs, including a second serving or additional dessert if desired.[126] Bailey et al[202] found that some residents believed the amount of food they were served to be excessive: *"There is a lot of waste, a terrible lot of waste – there would be a lot less waste if the meals were smaller I'm sure."* Conversely, other residents complained that they went to bed hungry or filled up on bread

and butter because there was not enough food offered at mealtimes.[202] The Quality Standards[18] state that organisations should ensure that *“consumers have enough nutrition and hydration to maintain life and good health and reduce the risks of malnutrition and dehydration”,* thereby making food security an important item for consideration. Finally, in addition to receiving an adequate quantity of food, residents should also be offered a broad range of foods from across the five food groups to ensure they have the opportunity to meet their nutritional needs.[36]

5.2.4.3.1 FOOD LIKES AND DISLIKES

The domain of food likes and dislikes addresses how well RACHs can cater to residents’ individual tastes and preferences. This can include the provision of familiar foods, catering for food preferences (e.g., vegetarian), and catering for special diets (e.g., gluten free). As described below, each of these aspects should be given consideration during item generation.

Individualisation

For the sake of economy, efficiency, and uniformity, many RACHs adopt a ‘one-size-fits-all’ approach to catering.[202] For example, it is not uncommon for the chef to use a very light touch when seasoning dishes to ensure that those with a delicate palate are not overwhelmed. Although this is logical from a food service perspective, it does not allow for individualisation; therefore, residents who prefer more flavour might never be catered for. Although residents’ opinions vary regarding the seasoning level, they agree that seasoning is an important aspect of meal quality and reflects personal preferences.[20]

Familiar foods

Familiar foods, favourite foods, culturally appropriate food, and traditional foods will be discussed together due to the high amount of cross-over between these themes in the literature. Traditional foods can be defined as foods and beverages transmitted generationally; as such, they form part of an individuals’ identity at a familial or cultural

level.[203,204] These food habits and preferences typically form during childhood and connect the individual to their identity, creating a feeling of well-being and belonging.[203,204] Residents strongly prefer traditional or family-favourite foods that have historical or nostalgic value.[20] For example, a Chinese resident might appreciate being offered congee or juk (a savoury rice porridge) at breakfast rather than oatmeal or cereal.[205] Finally, the Quality Standards[18] in Australia state that RACHs should consider consumers' preferences together with religious and cultural backgrounds when providing meals.

Food Preferences and Special Diets

Although resident preferences may be documented at the point of admission, if they are not updated frequently, they may fail to reflect changes in preferences. Heaton et al[191] provide an excellent example of changing preferences and the consequences of receiving 'too much of a good thing'. They used their unique "Rate the Food" tool in one nursing home and asked residents to rate the dishes on the menu using a five-point Chernoff Faces scale (excellent, good, fair, bad, terrible). Residents rated traditionally appealing items such as apple cobbler 'terrible' simply because they were frequently repeated on the menu.[191] These factors also relate to the Quality Standards[18] and the requirement that RACHs should strive to meet consumer preferences.

5.2.4.3.3 CHOICE, VARIETY AND AUTONOMY

Community-dwelling adults are active participants in their mealtime and can choose the timing of their meals, the food they wish to eat, and how much to serve themselves. However, once individuals enter a RACH they are expected to adapt to institutional life,[206] surrender a lot of autonomy, and become passive recipients of care.[207] Staff determine when medications are administered, the range of activities available, the food offered on the menu, and the timing of meals. Aged Care staff may view mealtimes as a process required to provide adequate nutrition and hydration,[44,208] whereas for residents, mealtimes provide a way of connecting to and interacting with culture and society.[209] The preparation and

consumption of food provide a vehicle for expressing our beliefs, values, cultural identity, and individual preferences central to our personhood.[210] For residents entering institutionalised life, where menu cycles are set, mealtimes are regimented, and food is prepared by staff, much of this individual expression is lost. These concepts can be operationalised with manifest variables that consider choice, variety, meal delivery and timing. Additionally, food-related autonomy can be captured with variables that enquire about their ability to participate or contribute to the food service and provide feedback to the RACH. Evidence to support the inclusion of these aspects is described below.

Choice

It is important to distinguish between choice (e.g., decision making) and freedom of choice (e.g., autonomy). Simple decision-making occurs in a restrained situation, for example, where a resident is offered a choice between two meals at lunch but cannot influence what those meals are.[211] Conversely, freedom of choice is unrestrained, for example, when a resident can request what they want to be served for their main meal, just as one might at a restaurant. Both concepts are important as everyday decision-making, including food-related, enhances resident autonomy, satisfaction, and quality of life.[41,212] Given the institutionalised nature of residential aged care, choice can be described as the ability of residents to choose foods they like or reject foods they dislike without their choices impacting their food security or quality of life.[179] Additionally, choice is more than just being offered two options at mealtimes; it includes the ability to choose a different option at the time of service.[38]

Variety

Variety and choice are inherently linked as there can only be limited choice without adequate variety. The Best Practice Guidelines state that there should be a variety of colour, textures, flavours, and shapes across the menu.[126] Other measures such as ensuring consecutive meals do not contain the same meat (e.g., roast chicken at lunch then chicken sandwiches

at dinner) can also increase variety across the day.[126] The following quotes captured by Crogan et al[20] highlight the monotonous and repetitive nature of institutionalised food: *"This last month they had a kick on rice ... we've been getting it for lunch and dinner all month long"* and *"For a while, it was carrots twice a day and one day we had carrots and scrambled eggs. Did you ever hear of such a thing for breakfast?".*

Meal Delivery and Menu Ordering

There are multiple ways in which meal delivery and menu ordering could be interpreted in aged care homes, and there can be large variances between sites regarding how these systems are operationalised. Homes may have a range of cooking, plating, and serving styles and different ways they manage menu ordering. For that reason, it is important to include questions that apply to all residents, regardless of the individual food service systems in place in their RACH. Therefore, rather than asking residents questions about how they placed their order, the goal was to determine whether residents received the meal they had requested and whether alternatives were available to them if they received a meal they were unhappy with.

In Australia, the Best Practice Guidelines recommend offering residents a choice of two hot dishes at the main meal[126]; however there is no guarantee that either option will be appealing to all residents. For example, during qualitative interviews conducted by van Hoof et al[213] one resident said *"Sometimes, the food is alright, and at other times it is very bad. I have the choice between two meals, and I guess I always chose the wrong meal."* Giving residents adequate choice should also include choosing an alternative dish that suits their preferences if they are delivered something that is not appetising.[21,126] This is reflected in the Quality Standards,[18] which require RACHs to provide consumers with a choice of "*suitable and healthy meals, snacks and drinks.*"

Timing of Meals

In institutionalised food services, mealtimes are often more associated with staff schedules than resident preferences.[40,189,214,215] Breakfast service may begin at 7am with the main meal offered at midday and the evening meal served around 5pm.[189,216,217] Adams et al[189] conducted a study wherein they asked residents (n=104) to compare their prior eating habits while living in the community to those in the RACH. The responses showed a habitual desire to eat breakfast between 5.30 am – 9.30 am (peaking at 7.00 am), lunch between 11.00 am – 1.30 pm (peaking at midday) and dinner ranging between 4.30 pm to 7.30 pm (peaking at 6.00 pm). Although institutionalised mealtimes may cater for the peak, it does not address the natural variance in meal timing. This puts some residents in a position where they may have no appetite when the meal is served and others in a situation where they may be excessively hungry.

During the interviews conducted by Milte et al[186] residents complained about the rigidity of meals, with participants stating they felt the evening meal was too early and too close to afternoon tea. In a qualitative study exploring resident quality of life in American nursing homes,[218] one participant said *"One thing is they wake you up at 5 am to get ready for breakfast. I don't want to wake up at 5, I had to get up at 5 today and wait until 8.30 to eat. I was so hungry by then and angry."* As a way of implementing person-centred care, the Quality Standards[18] in Australia now state that RACHs should adopt *"an individual and flexible approach to preparing and delivering meals,"* including the timing of meal services.

Participation

When residents first enter the residential aged care system, they are expected to surrender the autonomy they enjoyed as community-dwelling adults and adapt to an environment where everything is predetermined.[40,215,218] Remaining engaged with everyday activities can increase a resident's sense of autonomy and personhood, thereby increasing quality of life and well-being.[186,219,220] Creating opportunities for residents to participate in cooking activities

can be a way for RACHs to maintain a sense of normalcy and foster community.[220] In a qualitative study by Forbes-Thompson and Gessert,[218] one participant said, *"Everything changed overnight. I was used to living in my own home, fixing my own meals, cleaning my own home; I was used to being busy. Now I just sit and do nothing."* Adams et al[189] surveyed residents living in American nursing homes (n=104); 75% claimed the thing they missed most about being in their own home was cooking, indicating they value being included in menu development and meal preparation. For women, cooking and meal preparation may be part of their gender identity.[221] Consequently, the Quality Standards[18] now states that organisations should involve consumers in menu planning and/or food preparation.

Input/feedback

The current population of residents is known as the 'silent generation'; they were raised with cultural norms that discouraged complaining.[189,222] Food, in particular, was something to be grateful for because many who belong to this generation were born during a time of economic depression and food scarcity.[40] To compound matters further, residents may also fear speaking out due to perceived repercussions from staff or management.[186] Despite the barriers, when residents are empowered to provide feedback and feel their concerns are heard, this can increase their excitement, engagement, and satisfaction with the food service.[191] This section also relates to the Quality Standards,[18] which state RACHs should provide evidence of how consumers are consulted in menu development.

Autonomy/Independence

Food-related autonomy can be defined as the freedom to make food choices independent of the aged care home.[202,223] Autonomy with food increases the variety and, therefore, the choice available to residents and reinstates their sense of control and self-determination.[38] Although there are multiple ways in which residents can exert autonomy at mealtime, the area of most interest during this project was food security, as food scarcity can be a contributor to unintentional weight loss. The Best Practice Guidelines state food and snacks

should be accessible to residents between meals.[126] Further, residents need to be aware of what is available so they can avoid asking care staff for food and drinks, which may be perceived as embarrassing or inappropriate.[42,224] Food security has been addressed in the Quality Standards[18]; RACHs are now required to provide access to food and drinks outside of regular catering hours.

Another important aspect of autonomy is supporting and encouraging residents to be able to eat independently without carer assistance.[197] Research conducted among older hospital patients has shown that many have diminished vision, hand grip and pinch strength, creating problems when opening small or 'fiddly packages' (tetra packs, fruit cups, wrapped biscuits, condiment sachets).[225] Residents unable to open food packages, remove thermal lids, or remove plastic wrap may forgo consuming those items resulting in a lost opportunity for nutrition.[225] The Quality Standards[18] also discuss this concern; RACHs must ensure food and beverages are accessible to the consumer and prepared or packaged in a way the consumer can eat and drink.

Foods from outside

Giving residents the ability to source their own food outside the home,[226] having food delivered (e.g., pizza)[20] or having friends and family bring in food[41] is another way RACHs can increase choice, independence, and foster autonomy.[227] Heid et al[228] used the Preferences for Everyday Living Inventory (PELI)[229] to explore resident preferences and found they value the freedom to order take-out food as this allows them to self-cater.[228] Family members also value bringing culturally appropriate foods, fresh fruit, and favourite items to increase the variety available to the resident and to create some continuity between their previous home life and the RACH.[227,230] Additionally, residents may use their food as means of connecting and sharing with each other. During a qualitative study conducted by Bergland and Kirkevold[231] one participant explained how she used food brought into the home to enhance her relationship with another resident, *"She comes to visit me and then we*

talk… and if she gets some sweets, she comes to me [to share] and if I get something she appreciates from my family, then I share it with her."

5.2.4.3.4 DINING ATMOSPHERE

The dining room ambience is shaped by the physical and social environment present during a meal.[216,232] This includes elements such as the presence of other people, noise, lighting levels, room temperature, décor, and distractions. A recent study suggested residents spend up to 27% of their time eating and drinking,[233] and up to 25% of their time in the dining room.[234] Therefore, it is not surprising that residents feel that the dining room milieu and the comfort of the seating are important.[41]

The eating environment and communal dining are factors that may affect appetite.[235] Wikby and Fägerskiöld interviewed Swedish residents (n=15), and all stated that eating together was important as the resulting socialisation enhanced their appetite and meal enjoyment.[235] Adams et al[189] used the Resident Dining Style Preferences Survey to understand the factors important to nursing home residents; the results suggest that residents prefer to be seated with friends and dine in a quiet atmosphere. The Quality Standards[18] state that RACHs should consider *"the atmosphere, interpersonal and social aspects of the dining experience".*

5.2.4.3.5 DINING COMPANION

Mealtimes are an opportunity for social engagement and connection, which has been shown to enhance resident quality of life.[20,226,236] Socialising in the communal dining room is a way for residents to recapture the warmth of the past[20] while also developing new friendships.[186] During qualitative interviews conducted by Abma & Baur[175] residents stressed the importance of socialisation at mealtime: *'It's the only time of the day when you have a nice get-together. Dinner time means everything to me'*.

Unfortunately, if residents cannot choose with whom they are seated, it can have a detrimental effect by robbing them of their sense of autonomy. In multiple studies, residents have stated the number of companions present at the table and the ability to choose their

dining companion are important factors.[189,190,226] During the qualitative interviews with family members conducted by Milte et al[186] participants discussed the importance of social engagement for residents; however, they also felt it was important for residents to have the freedom to choose their companions.

Alternatively, some residents prefer to eat alone because they perceive communal dining as something to be endured.[127] Additionally, residents on a texture-modified diet or those who have a physical impairment impacting their ability to eat may feel more comfortable in the privacy of their own room.[224,235,237,238] Also, residents may prefer quieter surroundings than those offered in the community dining space when there are disruptive or problematic dining companions.[186,238]

5.2.4.3.6 STAFF ATTITUDE

Staff play an important role in the dining experience, especially for residents who require assistance to eat. Factors such as the attitude of staff[41] and the staff to resident ratio[226] are believed to influence resident satisfaction. Where staff are able and willing to facilitate and honour resident choice, this can enhance the residents' satisfaction and quality of life.[20]

Not only is staff training a major determinant of both resident and staff satisfaction, it also directly impacts the quality of care provided.[239-241] A New Zealand study involving 50 aged care homes found food service staff training was inadequate. Although the majority of homes included (n=35) had provided food safety training, fewer than six homes offered training in food preparation, nutrition, malnutrition, or texture modification.[239]

The recent Royal Commission brought to light many incidences of substandard care, including those related to food and food service.[158] Understaffing at mealtime is an ongoing concern, as residents who require assistance to eat may be rushed, forcefully fed, or neglected for extended periods.[158,242,243] Residents who tire easily during mealtime, are slow to finish their meal, or require assistance to eat are at increased risk of malnutrition.[227,244]

Staff can support residents by providing verbal encouragement, prompts, and non-verbal cues, all effective strategies to increase consumption.[201,227,244] The Best Practice Guidelines in Australia,[125] Canada,[243] and Wales[132] state that staff should ensure mealtimes are not rushed, provide assistance with cutting up food when required, and use encouraging or positive language. Finally, the Quality Standards[18] state that consumers should not feel rushed during mealtime and staff should be available to assist in a manner that maintains individual dignity.

Finally, staff can be overburdened at mealtimes with trying to arrange toileting and setting up residents who require assistance.[242,243] For efficiency and time management, residents may be taken to the dining room up to an hour before meal service begins.[242,243] During qualitative interviews conducted by Evans & Crogan[116] residents discussed concerns about being left in the dining room for too long after the meal concluded. Consequently, the fear of not being able to access the toilet facilities in a timely manner resulted in them reducing or restricting their food and fluid intake.[116]

5.2.5 ITEM POOL

A list of potential items was generated using the intelligence obtained from participant interviews and the data from quantitative and qualitative articles. An important consideration when designing any scale is whether to frame each item as a statement or question. As there is no agreement regarding which format is superior, items were drafted as statements. Consequently, the result was 35 individual items plus two global satisfaction items categorised into five themes: (1) choice and participation in food service; (2) food and meals; (3) dining environment; (4) staff; and (5) global measures of satisfaction (Table 16).

Table 16: Pool of potential food service satisfaction items for inclusion in a Food Service Satisfaction Questionnaire designed for use by residents living in aged care homes

Questionnaire Subheading	Statement
Choice and Participation in Food Service	1. I have a choice in what I want to eat at meal times. 2. I often worry that I will not get the meals I have requested. 3. I often have to eat things I dislike. 4. An alternative is available for me to choose if I am not satisfied with the meal provided. 5. I am able to source my own food from outside this home. 6. I have a choice in who I sit with at meal times. 7. My friends and family members can eat with me at meal times. 8. I have a choice in when I want to eat my meals. 9. I feel I will be listened to if I make suggestions to improve the food and food service. 10. I have the opportunity to assist with preparing meals, if I wish. 11. I have the opportunity to assist with setting up the dining room for meal times, if I wish. 12. I have the opportunity to assist with tidying up the dining room after meal times, if I wish.
Food and Meals	13. I receive a variety of foods every day. 14. I receive enough fresh fruits every day. 15. I receive enough fresh vegetables every day. 16. I often receive meals cooked by different methods. 17. I often receive foods that are unfamiliar to me. 18. I often receive foods that look appetising to me. 19. I often receive foods that taste good to me. 20. I am satisfied with the amount of food that I am served. 21. I am satisfied with the temperature of meals served. 22. I am satisfied that the meals served are freshly cooked. 23. I can help myself to food whenever I get hungry

Questionnaire Subheading	Statement
Dining Environment	24. I usually do not have to wait in the dining room for too long before my meal arrives. 25. I can usually reach or open my food by myself at meal times. 26. I usually do not have to wait in the dining room for too long after I have finished my meal. 27. The dining room is a comfortable and inviting place at meal times.
Staff	28. Are able to provide food to meet my individual diet preferences. 29. Prepare the meals the way I like. 30. Make an effort to serve food I like. 31. Are friendly and polite when they serve food at meal times. 32. Encourage me to eat enough at meal times. 33. Are willing to provide help with cutting up my food. 34. Give me enough time to finish my meals. 35. Are qualified to provide a good food service.
Global Measures	• I am satisfied with the meals here. • I am satisfied with the food service here.

5.2.7 INTRODUCTION AND INSTRUCTIONS FOR THE FSSQ

As outlined in Chapter Two, questionnaires should contain an introduction that describes the context and expectations for respondents. Subsequently, the beginning of the FSSQ contained an introductory passage introducing the purpose of the questionnaire, a definition of food service, and a guide for how long the questionnaire should take to complete.

"Thank you for agreeing to take part in the Food Service Satisfaction Questionnaire for residents living in aged care homes. This questionnaire asks you about your satisfaction with the food service that you receive in this aged care home. In this questionnaire, food service is defined as the ***provision, serving and preparation of food or meals***.

For each item in the questionnaire, please select which answer best describes ***how true each statement is for you.*** This questionnaire should take around 15 minutes to complete. Be assured that your responses will remain anonymous. You do not have to complete this questionnaire if you decide that you do not want to."

5.2.6 RESPONSE SCALE

As discussed in Chapter Two, the response scale should ask participants to indicate a level of evaluation, agreement, or frequency.[62] For a FSSQ intended to measure satisfaction over time, frequency was deemed the most appropriate. Concerning specificity, i.e., the level of detail required from the respondent, there does not appear to be a significant difference between using a 4-point or 5-point scale. The subject matter and intended population are the most important considerations when choosing the number of response categories.[60] The greatest concerns when designing a scale for older adults are that (1) acquiescence bias is likely, therefore a neutral option could be problematic, and (2) response scales with a large amount of variance can be confusing.[84] Consequently, a 5-point response scale weighted around a soft-neutral option was considered appropriate (not at all true, rarely true, sometimes true, often true, true nearly all the time).

5.2.8 OTHER CONTENT

In addition to the introductory paragraphs, the front page of the questionnaire also contained five brief demographic questions. These ask participants to indicate their gender, age and length of residency. Additionally, participants were asked to indicate whether they had any problems with their thinking or memory and to identify any special dietary requirements.

5.2.5 PRELIMINARY TESTING

5.2.5.1 EXPERT PANEL

A preliminary version of the FSSQ containing 35-items was drafted and reviewed by an expert panel of individuals and professionals prominent in various aspects of aged care, dementia care, food service, and statistics.

The first draft included inverse items to reduce acquiescence bias[150,245]; however, the panel felt that switching between contexts could be confusing for older participants and may increase respondent fatigue. When designing the widely accepted Ohio Nursing Home Resident Satisfaction Survey, Straker et al[12] also discovered that negatively worded items were difficult for residents to answer appropriately. Furthermore, negative items can also impact the internal validity of the scale, reducing the Cronbach's alpha coefficient, which may cause significant differences in the way factors load.[85,246] Consequently, all questions were reworded as a positive statement. This also increases interpretability for the end-user as there is no need for a complex scoring matrix.

Another consideration raised by the expert panel was the presence of cognitive function amongst participants. Tools for assessing cognitive impairment are frequently used in research (e.g., Mini-Mental State Examination)[247]; however these are lengthy and may not be appropriate for adults over 80 years of age.[248] Fillenbaum[249] suggested an abbreviated version that contained fewer items (e.g., date of birth, naming the previous American President, day of the week) would be appropriate if the intent is to identify capacity rather than diagnose severity. In a study conducted among the same population group, Paulus & Jans[250] successfully adapted this approach to include three items (age, date of birth, year of birth). Consequently, these three items were included with the demographic questions to identify residents with impairment.

5.2.5.2 STAKEHOLDER FEEDBACK

The FSSQ also underwent two rounds of pre-testing with residents (n = 6 and n=10) from separate RACHs (n=4) to get feedback on content and clarity. Interviews lasted approximately one hour wherein the interviewer read each item to the participant to gauge the response. Where an item seemed unclear or poorly understood, the participant was probed and encouraged to offer their suggestions for improving the content and clarity. This process resulted in changes to the wording on some items and a change to the response

scale. Additionally, the residents who assisted with pre-testing felt the statement format was confusing; they indicated questions would be easier to understand. They also felt the response scale ("not at all true" to "true nearly all the time") was difficult to use. Finally, some participants also flagged items they felt were poorly worded. For example, when asked if staff were "qualified to provide a good food service", many participants stated they could not possibly know what qualifications were needed and whether staff had attained that level of training.

5.2.6 SUMMARY OF THE FINAL REVISIONS TO THE RESIDENT FSSQ

As described above, expert and stakeholder feedback resulted in some important changes to the FSSQ. Notably, all negatively worded statements were reframed to be positive, and all statements were changed to a question format. Feedback from the statistician on the expert panel resulted in changes to the front page and the addition of a back page to allow some of the demographic questions to be separated. The front page of the questionnaire retained the introductory paragraphs however the demographic questions were separated across two pages to minimise respondent fatigue and avoid pre-biasing responses (Appendix I).

The first page asked respondents to indicate gender, age, and date of birth and overall well-being. Factors such as mood, pain, and wellness can impact satisfaction[84] and potentially confound the results therefore, an item was included as part of the demographic questions asking residents to rate how they felt at the time of completion. The last page contained items related to year of birth, length of residence, memory, and any special dietary requirements. Placing the cognitive screening questions at the front (age, date of birth) and end of the questionnaire (year of birth) reduced bias and allowed for better detection of cognitive impairment.

The original questionnaire was designed to be self-administered; however, to reduce missing data and increase the response rate, the questionnaire was adapted to be interview-administered. Consequently, the item response scale was changed from a 5-point Likert

scale with a soft neutral option to a 4-point Likert scale with no neutral option. Additionally, the format was changed from an agreement of truthfulness to a measure of frequency; none of the time, some of the time, most of the time, all of the time. Finally, three questions utilised a seven-point visual Chernoff faces scale (Figure 14) instead of the four-point Likert scale; resident well-being, global satisfaction (food), and global satisfaction (food service). Although including more anchors on a response scale can be fatiguing for this demographic, it does allow for more precision, therefore it was deemed appropriate for the three global rating questions.

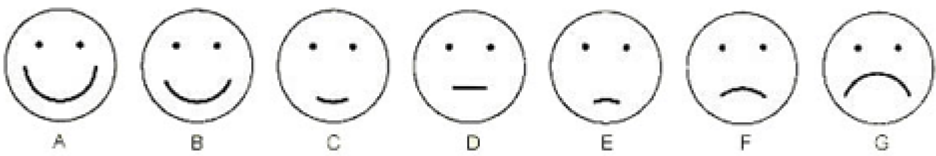


Figure 14: Seven-point Chernoff faces scale

Finally, the revised questionnaire also contained an open-ended question “Is there anything else about the meals here you would like to talk about?” The inclusion of an open-ended question provides residents with an opportunity to raise items of importance that have not previously been identified.[109]

5.3 DISCUSSION

The design and development of the resident FSSQ (content validity) were underpinned by consumer satisfaction theories, drawing upon fundamentals of the Expectancy-Disconfirmation Paradigm (EDP)[24] and the Importance-Performance Model (IPM).[25] The EDP posits that individuals determine satisfaction by comparing their expectations regarding a product or service to their actual experience.[24] Accordingly, the work by Case and Gilbert, who explored resident expectations regarding the food and dining experience, was

referenced during item generation.[110] The Importance-Performance Model (IPM) suggests that satisfaction is related to a combination of perceived importance and performance (quality) rather than expectations or values. These two theories have been operationalised in the American Customer Satisfaction Index (ACSI) with Government Services and Non-profit Organisations to present a logical framework for understanding consumer satisfaction. Together, the aforementioned theories and model informed the creation of a resident FSSQ that captures resident expectations and importance/performance.

In addition to a solid theoretical foundation, the design and development of this FSSQ was informed by a review of published literature,[68] a comparison of existing questionnaires and qualitative interviews with residents living in RACHs. Importantly, the generation of items was also underpinned by the Quality Standards[18] so that RACHs can use the FSSQ as evidence they are meeting the items outlined in Section (3)(f) *Where meals are provided, they are varied and of suitable quality and quantity*. Finally, the FSSQ was refined using the feedback from an expert panel and stakeholder consultation to ensure the questionnaire was comprehensive, relevant, and easy to understand. When compared with existing resident food service satisfaction questionnaires, [32,117,119,121,123,125] no other authors combined all these elements to establish content validity.

5.4 CHAPTER SUMMARY

This chapter described the design and refinement of a resident food service satisfaction questionnaire. The construct of food service satisfaction was explored in greater detail, and a new model of resident satisfaction incorporating components of the ACSI and QHOM-LTC was developed. Item generation was informed by qualitative interviews with stakeholders, a comprehensive review of the qualitative and quantitative literature and examining the items contained in existing FSSQs intended to measure resident satisfaction with the food services in RACHs. Feedback obtained from the expert panel and stakeholder consultation resulted in changes to the wording of statements and the response format to increase clarity and

comprehension. In summary, this chapter established the content and face validity of a new 35-item FSSQ that is ready to commence administration to establish validity and reliability.

CHAPTER 6: ADMINISTRATION OF THE RESIDENT FOOD SERVICE SATISFACTION QUESTIONNAIRE (ITEM PERFORMANCE)

Chapter Five described the design and development of a 35-item questionnaire intended to measure resident satisfaction with the food and food services in residential aged care. With content and face validity established, the next stage is administration of the FSSQ. This chapter discusses the recruitment process, describes the sample population, and presents the participant responses to each item. This project aimed to answer (RQ4): How does the resident experience in RACHs in South Australia compare to the food service domain of the Aged Care Quality Standards? This chapter contains material published in:

Pankhurst M, Yaxley A, Miller M. A snapshot of food service in aged care homes under the new standards. *Nutr Diet*. 2020;77(S1):83. doi:10.1111/1747-0080.12627

The conference presentation was conceived and designed by MP, AY and MM. MP drafted the initial abstract, AY and MM provided critical review and feedback. All authors read and approved the final abstract. The signed co-authorship approval can be viewed in Appendix B.

6.1 INTRODUCTION

As described in Chapter One, the Quality Standards[18] were updated in July 2019 marking a shift away from the medical model towards a person-centred model of care. The Quality Standards[18] now contain eight individual standards that address the various components of care within a RACH. Standard 1 is related to consumer dignity and choice, this highlights the importance of empowering residents to be active participants in their own care. Standard 2 describes the need for RACHs to consult residents when creating care plans and services. Standard 3 relates to the safe and effective delivery of clinical and personal care services. Standard 4 relates to the services and supports for daily living, this includes nutrition, hydration, and food services. Standard 5 sets out expectations for the physical environment in the RACH, both within the residents' rooms and in shared spaces. Standard 6 provides

guidance around seeking feedback from stakeholders and using that intelligence to inform quality improvement activities. Lastly, Standard 7 concerns human resources and Standard 8 relates to organisational governance, ensuring that RACHs fulfill their duty of care.[18]

Each of the above Standards can be related back to the food and dining experience of residents; for example, *'Standard 5: Organisation's service environment'* contains aspects relevant to the dining room environment. However, for the purpose of this study, *'Standard 4: Services and Supports for Daily Living'* will be the focus. This Standard contains seven requirements that are intended to support residents' daily living including food services, domestic assistance, recreational and social activities. Requirement (3)(f) "*Where meals are provided, they are varied and of suitable quality and quantity"* outlines guidelines for RACHs with clear examples of actions and evidence.[19] Although RACHs are required to ensure residents receive adequate nutrition and hydration, the Quality Standards[18] now also address food enjoyment, resident choice, individual preferences, cultural considerations, and the timing of meals. As the FSSQ was intended to be used by RACHs as evidence during accreditation, this study aimed to compare the participant responses to the key outcomes and indicators mentioned in the Quality Standards.[18]

6.2 METHODOLOGY

6.2.1 OVERVIEW OF STUDY DESIGN

This study is an analytical review of the participant responses derived from the administration of the FSSQ. This project (#6929) was approved by the Social and Behavioural Research Ethics Committee (SBREC).

6.2.2 AIMS

This study aimed explore how well RACHs in this sample (n=20) are performing under the Quality Standards[18] by comparing participant responses to key outcomes and expectations highlighted in Standard 4: *Requirement (3)(f) Where meals are provided, they are varied and of suitable quality and quantity*.

6.2.3 RECRUITMENT

As described in Chapter Four, aged care homes within South Australia were identified from a licensed database containing the names and details of individual RACHs in each state across Australia. Permission was sought from site managers to recruit residents living in their homes between February and July 2019. The study was promoted via email, phone, or personal contact during networking events held with stakeholders; details of the introductory letter can be viewed in Appendix G. Homes from a range of suburbs across Adelaide and surrounding areas, from low to high Socio-Economic Indices for Areas (SEIFA), were approached to ensure broad and even representation.

When an aged care home expressed interest in participating, a face-to-face meeting was arranged with the site manager to discuss the details of the study. Each home was provided with a copy of the FSSQ for their records and a copy of the two-page Aged Care Home Food Service Questionnaire (discussed in Chapter Four) which was given to the Food Services Manager to complete. At this time, an appointment was made with the Clinical Nurse (CN) to screen the resident list to ensure individuals met the inclusion/exclusion criteria before being approached.

Criteria for inclusion were that residents had been permanently residing in their current RACH for one month or more and were cognitively able to complete the questionnaire. The only residents not considered were those living in memory support units; they were not approached due to the diagnosis of severe cognitive impairment. Additionally, administrative staff were asked to identify any residents with behavioural issues, trauma, or any other condition that would make completing a questionnaire burdensome for the individual.

6.2.3 DATA COLLECTION

Once eligible residents had been identified, they were approached in their room to ensure privacy and to maintain confidentiality. The same researcher administered all questionnaires as interviewers can assist with overcoming barriers to participation such as poor eyesight or

low literacy.[99] This method also provided the opportunity to check the questionnaire for missing data before concluding the interview. Using a standardised script (Appendix J), participants were informed about the purpose of the study and provided information regarding their confidentiality. A written introductory letter was also made available to participants (Appendix J).

After completing the FSSQ, residents were asked if they would consent to complete a second questionnaire (the FoodEx-LTC)[32] to establish convergence validity. Participants were also asked if they would consent to being approached again to complete the questionnaire a second time for test-retest analysis. Given the known issues with memory in this population, despite agreeing at the first time point, consent was sought again prior to administering the FSSQ a second time. All aged care homes had a four-week menu cycle; therefore, this time-point was chosen to minimise variability in that residents were asked to repeat the questionnaire on the same week of the menu cycle on both occasions. Consequently, residents were asked to provide verbal consent four times as demonstrated in Figure 15.

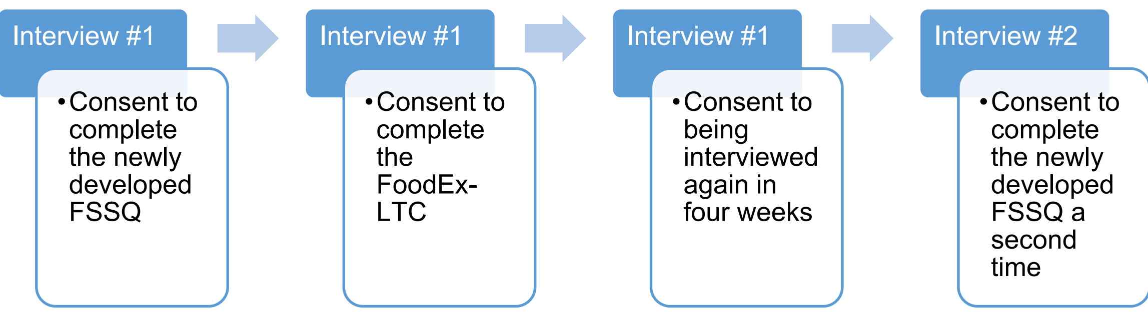


Figure 15: Visual representation of the points at which residents were asked to provide consent to participate

Although participants were guided through the questionnaire by the interviewer and prompted to answer the questions, they were not discouraged from offering their opinions

and experiences regarding the food and food service. This conversational approach helped put participants at ease and built rapport between the interviewer and respondent. When a participant offered anecdotal information, the interviewer made hand-written field notes to capture the essence of what the participant said.

6.2.4 DATA ANALYSIS

Statistical analysis was conducted using the Statistical Package for the Social Sciences (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.). Although the COSMIN®[65-67] guidelines state a subject-to-item ratio of 7:1 is desirable, the expert statistician calculated sample size on the ratio of 10:1[150] as the additional buffer allows for lost data due to missing values. Consequently, a minimum sample size of 350 participants was desireable. Descriptive statistics have been reported using percent, median, and IQR. Item responses have been reported using frequency and percent.

6.3 FINDINGS

6.3.1 PARTICIPANTS

Twenty RACHs agreed to participate in the study with the number of residents living in each home ranging from 16–225 (median=90, IQR=46). The SEIFA Australia, 2011, indicated nursing homes were distributed evenly across the band of advantage and disadvantage, with 50% ranked in the top 5 suburbs for Adelaide and 50% ranked in the lower 5 suburbs.[174] Additional details regarding the RACHs that agreed to participate have been described in Chapter Four.

A total of 466 residents were invited to participate in the project; 66 residents (14%) declined to be interviewed, giving a response rate of 86%. Consequently, interviews were commenced with 400 residents. Eleven interviews (2.75%) were ceased by the researcher because there were signs of potential cognitive impairment or confusion. Two interviews (0.5%) were ceased at the residents’ request resulting in a total of 387 valid surveys included in the analysis. Twenty-nine residents (7.49%) failed to accurately recall their age,

date of birth and year of birth; however, their data were included because they were oriented to their current time and place and could answer the food service satisfaction questions clearly.

Descriptive statistics of the sample are included in Table 17. Briefly, 115 males (29.7%) and 272 females (70.3%) agreed to complete the FSSQ in the first instance. Most respondents (n=373) could provide details regarding their age which ranged from 49-105 years old (median = 87 years; IQR=13). Additionally, most respondents (n=359) could indicate the number of months they had been living in the aged care home; this ranged from 1–168 months (median=18 months; IQR=30).

Table 17: Descriptive statistics of residents who completed the questionnaire (n=387)

	N (%)	Median (min;max)
Age (years)		87 (49;105)
• Responses	373 (96.4)	
Age (stratified by years)		
• <65	6 (1.6)	
• 65 - 74	47 (12.6)	
• 75 - 84	88 (23.6)	
• 85 - 94	179 (48.0)	
• 95+	53 14.2)	
Gender		
• Male	115 (29.7)	
• Female	272 (70.3)	
Length of Stay (months)		18 (1; 168)
• Responses	359 (92.8)	
Length of Stay (stratified by months)		
• < 12	123 (34.2)	
• 12 – 23	74 (20.6)	
• 24 – 35	59 (16.4)	
• 36 - 47	34 (9.4)	
• 48 - 60	17 (4.7)	
• 60+	53 (14.7)	
Well-being (scale A-G)	387 (100)	
• A (Very Happy)	52 (13.4)	
• B	103 (26.6)	
• C	109 (27.9)	
• D (Neutral)	82 (20.4)	
• E	23 (5.9)	
• F	16 (4.1)	
• G (Very Sad)	6 (1.6)	
Diet Type	387 (100)	
• Normal	279 (72.1)	
• Texture Modified	29 (7.5)	
• Diabetic	32 (8.3)	
• Gluten Free	4 (1)	
• Other (e.g., allergies)	43 (11.1)	

Respondents were asked to nominate whether they had any special dietary requirements, most (72.1%) indicated they had no special needs. Some participants indicating a need for a texture modified diet (7.5%) or a diabetic diet (8.3%), and 11.1% chose the ‘other’ category; frequently this was associated with preferences rather than allergies. For example, many participants indicated they would or could not eat mushrooms. Others indicated that some foods (e.g., pork) was not acceptable to them, suggesting religious or cultural preferences. The 35-item questionnaire took between 15-50 minutes to complete (mean=18.3 mins; SD 5.6).

6.3.2 RESPONSES TO INDIVIDUAL ITEMS IN THE FSSQ

Each item is described below, combining the quantitative data and the qualitative responses provided by participants during the interview. Only the results from the first administration (n=387) have been reported (Table 18).

Table 18: Frequency and percent of responses (n=387) to the 35-item Food Service Satisfaction Questionnaire

	None of the time		Some of the time		Most of the time		All of the time		Don't Know		Not Applicable		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Q1 Do you have a choice in what to eat at meal times?	53	13.7	24	6.2	52	13.4	257	66.4	1	0.3	0	0.0	387	100
Q2 Are you satisfied with the temperature of meals served?	14	3.6	71	18.3	189	48.8	113	29.2	0	0.0	0	0.0	387	100
Q3 If you make suggestions to improve the food and food service, do you feel you will be listened to?	88	22.7	30	7.8	30	7.8	189	48.8	45	11.6	5	1.3	387	100
Q4 Do you have a choice in who you sit with at meal times?	167	43.2	2	0.5	3	0.8	212	54.8	2	0.5	1	0.3	387	100
Q5 Does your meal arrive quickly after you have been seated in the dining room?	9	2.3	34	8.8	120	31.0	145	37.5	0	0.0	79	20.4	387	100
Q6 Is the dining room is a comfortable and inviting place at meal times	18	4.7	21	5.4	72	18.6	202	52.2	0	0.0	74	19.1	387	100
Q7 Are you offered fresh fruit every day?	87	22.5	66	17.1	39	10.1	192	49.6	2	0.5	1	0.3	387	100
Q8 Are you able to leave the dining room soon after you have finished your meal?	5	1.3	5	1.3	40	10.3	255	65.9	0	0.0	82	21.2	387	100
Q9 Can you open your food packages by yourself at meal times?	31	8.0	14	3.6	37	9.6	287	74.2	0	0.0	18	4.7	387	100
Q10 Are you served foods that you like?	10	2.6	91	23.5	200	51.7	85	22.0	0	0.0	1	0.3	387	100

	None of the time		Some of the time		Most of the time		All of the time		Don't Know		Not Applicable		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Q11 Do you have a choice in when you can eat your meals?	353	91.2	18	4.7	6	1.6	10	2.6	0	0.0	0	0.0	387	100
Q12 Do you receive familiar foods that you can recognise?	4	1.0	32	8.3	207	53.5	141	36.4	1	0.3	2	0.5	387	100
Q13 Are you offered vegetables every day?	9	2.3	10	2.6	32	8.3	335	86.6	1	0.3	0	0.0	387	100
Q14 Are you able to invite family or friends to eat with you at meal times?	26	6.7	6	1.6	0	0.0	268	69.3	67	17.3	20	5.2	387	100
Q15 Do you receive a variety of foods every day?	13	3.4	63	16.3	136	35.1	171	44.2	4	1.0	0	0.0	387	100
Q16 Are you able to have family or friends bring you food from outside this home?	24	6.2	7	1.8	2	0.5	319	82.4	31	8.0	4	1.0	387	100.0
Q17 Do the meals taste like they are freshly cooked?	10	2.6	40	10.3	152	39.3	176	45.5	9	2.3	0	0.0	387	100
Q18 Can you can choose meals cooked by different methods? eg roasted	16	4.1	59	15.2	53	13.7	249	64.3	8	2.1	2	0.5	387	100
Q19 Are you satisfied with the amount of food that you are served?	5	1.3	11	2.8	63	16.3	307	79.3	0	0.0	1	0.3	387	100
Q20 Do you receive foods that taste good to you?	21	5.4	85	22.0	181	46.8	97	25.1	3	0.8	0	0.0	387	100
Q21 If you are not satisfied with the meal(s) provided are you abled to choose an alternative?	55	14.2	10	2.6	17	4.4	250	64.6	46	11.9	9	2.3	387	100

	None of the time		Some of the time		Most of the time		All of the time		Don't Know		Not Applicable		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Q22 Do you receive foods that look appetising to you?	27	7.0	72	18.6	171	44.2	110	28.4	0	0.0	7	1.8	387	100
Q23 Do you get the meal that you have requested?	4	1.0	14	3.6	113	29.2	208	53.7	2	0.5	46	11.9	387	100
Q24 Can you help yourself to food whenever you feel hungry?	159	41.1	14	3.6	2	0.5	129	33.3	53	13.7	30	7.8	387	100
Q25 Are they able to provide food to meet your preferences?	73	18.9	45	11.6	110	28.4	129	33.3	28	7.2	2	0.5	387	100
Q26 Do they prepare meals the way you like?	39	10.1	73	18.9	154	39.8	107	27.6	9	2.3	5	1.3	387	100
Q27 Are you able to assist them with preparing meals (if you wish)?	155	40.1	4	1.0	0	0.0	15	3.9	61	15.8	152	39.3	387	100
Q28 Do they make an effort to serve food that you like?	82	21.2	44	11.4	95	24.5	146	37.7	20	5.2	0	0.0	387	100
Q29 Are they friendly and polite when they serve food at meal times?	1	0.3	14	3.6	91	23.5	281	72.6	0	0.0	0	0.0	387	100
Q30 Are you able to assist them with setting up the dining area before meals (if you wish)?	94	24.3	4	1.0	1	0.3	79	20.4	50	12.9	159	41.1	387	100
Q31 Do they encourage you to eat enough at meal times?	134	34.6	13	3.4	22	5.7	189	48.8	8	2.1	21	5.4	387	100

	None of the time		Some of the time		Most of the time		All of the time		Don't Know		Not Applicable		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Q32 Are they willing to provide help with cutting up your food?	3	0.8	1	0.3	6	1.6	353	91.2	2	0.5	22	5.7	387	100
Q33 Do they give you enough time to finish your meals?	3	0.8	8	2.1	44	11.4	331	85.5	0	0.0	1	0.3	387	100
Q34 Are you able to assist them with tidying up the dining area after meals (if you wish)?	110	28.4	5	1.3	0	0.0	51	13.2	45	11.6	176	45.5	387	100
Q35 Do they appear to be well trained in providing a good food service?	20	5.2	45	11.6	112	28.9	172	44.4	38	9.8	0	0.0	387	100

Q1 Do you have a choice in what to eat at meal times?

Participants felt that they had a choice in what to eat at meal times most (13.4%) or all of the time (66.4%) (Table 18). Where participants indicated they had limited choice, some elaborated to explain they were not asked what they would like and were delivered the default meal, or staff made choices based on their perceived preferences.

Q2 Are you satisfied with the temperature of meals served?

Participants indicated they were happy with the temperature of the meals most (48.8%) or all (29.2%) of the time (Table 18). Where participants chose to elaborate, the most frequent complaint was that the vegetables were cold and waterlogged/soggy.

Q3 If you make suggestions to improve the food and food service, do you feel you will be listened to?

Participants felt they would be listened to most (7.8%) or all (48.8%) of the time, although 12.9% indicated they did not know and 22.7% felt they would not be listened to at all (Table 18). Some commented on the lack of communication between their care staff and kitchen and therefore felt their suggestions failed to reach their target. Other participants felt they were receiving “lip service”; in other words, the staff would listen to their concerns to placate them but fail to action their suggestions. Finally, a small number (1.3%) felt the question was not applicable because they would never speak up or make a suggestion.

Q4 Do you have a choice in who you sit with at meal times?

Most participants (54.8%) felt they always had a choice in whom they sat with at meal times, including those who chose to eat in their rooms rather than in the communal dining area (Table 18). For those who felt they had no choice (43.2%), many indicated that they had been allocated a seat without consultation but were usually satisfied with their arrangement. One participant felt the question did not apply to him because he was in a wheelchair.

Consequently, he would be placed in the dining room in a position that could accommodate the additional bulk of his chair.

Q5 Does your meal arrive quickly after you have been seated in the dining room?

Participants who ate in their room (20.4%) felt this question did not apply to them. For participants who chose to eat in the dining room, they felt that the meals were served promptly most (31%) or all (37.5%) of the time (Table 18).

Q6 Is the dining room a comfortable and inviting place at meal times?

Most participants (52.2%) felt that the dining room was always a comfortable and inviting place to eat meals; however, 19.1% chose to eat alone in their room (Table 18). Some indicated the dining room was too far from their room or too difficult to access, making it easier to have meals delivered to their room. Some participants with functional impairments or dysphagia disliked the mess they made and were therefore embarrassed to eat in front of others. When participants voiced complaints, they were often related to the noise staff made when clearing away the tables; they found the clashing of plates and cutlery to be jarring and unpleasant.

Q7 Are you offered fresh fruit every day?

Participants felt that they were offered fresh fruit most (10.1%) or all (49.6%) of the time (Table 18). Some participants who responded negatively complained about the volume of canned fruit served in place of fresh fruit.

Q8 Are you able to leave the dining room soon after you have finished your meal?

The majority of participants felt they could leave the dining room when they were finished eating most (10.3%) or all (65.9%) of the time (Table 18). However, some complained they could be physically blocked by walking frames and other furniture, forcing them to wait for

the dining room to clear before they could leave. As with other questions related to the dining room, residents who ate in their room (21.2%) felt this question did not apply to them.

Q9 Can you open your food packages by yourself at meal times?

Participants felt they could easily access or open their food most (9.6%) or all (74.2%) of the time (Table 18). Some qualified their answer to explain that staff was available to assist if they could not manage independently.

Q10 Are you served foods that you like?

Participants indicated they were served foods that they like most (51.7%) or all (22%) of the time; however, almost one quarter (23.5%) responded it was only some of the time (Table 18). In addition, the participant who responded 'not applicable' qualified their response by explaining they had lost their sense of smell/taste and had no appetite; therefore, food had little appeal.

Q11 Do you have a choice in when you can eat your meals?

Most participants (91.2%) indicated that they had no choice regarding the timing of their meals (Table 18). However, some described how the staff tried to be flexible and where the participant had an appointment or outing, staff would keep their meal aside for them and reheat it when required.

Q12 Do you receive familiar foods that you can recognise?

Participants indicated the food they were served was familiar and recognisable most (53.5%) or all (36.4%) of the time (Table 18). Some participants who responded negatively felt items on the menu had "weird names" or looked like "mystery meals".

Q13 Are you offered vegetables every day?

This item had an overwhelmingly positive response, with 86.6% of participants stating they were offered vegetables every day (Table 18).

Q14 Are you able to invite family or friends to eat with you at meal times?

Most participants (69.3%) stated their family or friends were welcome to dine with them; however, many (17.3%) didn't know if the facility would allow this (Table 18). Some stated they would prefer to visit a restaurant off-site to sharing a meal in the RACH or indicated they would not want their family to endure the meals served at the home.

Q15 Do you receive a variety of foods every day?

Participants indicated that they received a variety of food most (35.1%) or all (44.2%) of the time, although some (16.3%) felt the menu was not varied enough (Table 18). Some participants commented that there were too many cakes for dessert and not enough fruit.

Q16 Are you able to have family or friends bring you food from outside this home?

The majority of participants (82.4%) indicated they could store food from outside in their room, although some felt there were restrictions in place (e.g., shelf-stable packaged foods only) (Table 18).

Q17 Do the meals taste like they are freshly cooked?

The majority of participants indicated the meals tasted freshly cooked most (39.3%) or all (45.5%) of the time (Table 18).

Q18 Can you choose meals cooked by different methods? e.g., roasted, stewed, fried

The majority (64.3%) of participants felt different cooking methods were used across the menu (Table 18). A small number (2.1%) indicated they had no way of knowing how the meals were cooked. For participants who responded negatively, some complained about the number of wet dishes (e.g., casseroles and stews) served throughout the week.

Q19 Are you satisfied with the amount of food that you are served?

The majority of participants (79.3%) stated they were always happy with the amount of food they were served (Table 18); however, many verbally indicated the portion sizes were too large.

Q20 Do you receive foods that taste good to you?

Only one-quarter of participants (25.1%) indicated the foods always tasted good (Table 18); however, almost half (46.8%) said that the food was tasty most of the time. Some residents indicated they were not fussy eaters and were therefore not difficult to please.

Q21 If you are not satisfied with the meal(s) provided are you able to choose an alternative?

Some participants indicated alternative choices were available for the midday meal but not the evening one. Some felt it would be impolite to return the meal and request something else, therefore they did not know if an alternative was available. Overall, 64.6% of participants felt they always had the ability to ask for an alternative (Table 18).

Q22 Do you receive foods that look appetising to you?

When interviewing vision-impaired residents, this question was adapted, and they were asked if they received foods that smelled appetising. Only 28.4% of participants indicated the meals always looked appetising, with 44.2% stating they were appetising most of the time (Table 18).

Q23 Do you receive the meal you have requested?

Just over half of the participants (53.7%) said they always got the meal they requested, with 29.2% indicating that staff got their order correct most of the time (Table 18). The most common reason for residents (11.9%) responding 'not applicable' was because they had previously indicated they did not receive a choice in what to eat at meal times.

Q24 Can you help yourself to food whenever you feel hungry?

Only one-third of participants (33.3%) felt they could access food whenever they felt hungry. Some (13.7%) did not know if there was an area where they could go to help themselves (Table 18). For participants who chose “not applicable” (7.8%), the most commonly reported reason was they didn’t feel hungry between meals.

Staff Related Questions

The second section of the questionnaire contained questions related to staff interactions. In the context of the questionnaire, the term ‘staff’ refers to any person involved in the preparation and serving of food; this may include kitchen, catering, and care staff.

Q25 Are they able to provide food to meet your preferences?

Some participants felt that staff did not respect their dislikes, whereas others felt that frequent staff changes and the high number of agency staff (i.e., temporary staff sent from an employment agency) meant their preferences were not noted or understood. Others felt that care staff assumed they knew the individual’s preferences and made choices on their behalf, without consultation. Ultimately, one-third (33.3%) felt that the home was always able to provide food that met their preferences (Table 18).

Q26 Do they prepare the meals the way you like?

Only 27.6% of participants felt that meals were prepared to their liking all of the time, with 39.8% stating this was true most of the time (Table 18). Some participants (2.3%) stated they did not know how meals were prepared and could not answer this question.

Q27 Are you able to assist them with preparing meals (if you wish)?

Most participants indicated they did not wish to be involved in meal preparation (39.3%) or did not know if they would be allowed to (15.8%) (Table 18). A small number indicated they could assist with meal preparation (3.9%); however, they were referring to cooking classes

held as part of the scheduled leisure activities. Lastly, as this question relates to ableness, residents with physical impairments indicated they would not be able to, even if it was permissible.

Q28 Do they make an effort to serve food you like?

Only 27.7% of participants felt that staff always made an effort to serve food they liked, and 24.5% said that staff made an effort most of the time (Table 18). Some participants qualified their response by stating the care staff that served their food were very helpful but were restricted by what was being offered by the kitchen staff.

Q29 Are they friendly and polite when they serve food at meal times?

This question had an overwhelmingly positive response, with 72.6% of participants stating the staff were always friendly and polite (Table 18). Participants who felt staff were friendly most of the time (23.5%) often clarified that issues were usually a result of agency/temporary staff, not permanent staff.

Q30 Are you able to assist them with setting up the dining area before meals (if you wish)?

Participants either did not wish to be involved in setting up the dining area (41.4%) or did not know if they were allowed to help (12.9%) (Table 18). In addition, some felt that occupational health and safety guidelines would prevent their participation even if they wanted to assist with this task.

Q31 Do they encourage you to eat enough at meal times?

Responses to this question were quite divided; 48.8% said the staff always encouraged them to eat enough, and 34.6% said the staff never encouraged them (Table 18). Some participants commented that staff would ask if they had enough to eat before clearing the

plates. Others noted that residents who required assistance to eat were typically given encouragement by their care staff.

Q32 Are they willing to provide help with cutting up your food?

This question had a very positive response rate, with 91.2% of participants reporting that staff were always willing to provide help with cutting their food (Table 18). The high response rate includes participants that were able to eat independently but responded based on their observations of staff willingly providing aid to residents who did require support to eat.

Q33 Do they give you enough time to finish your meals?

The majority of participants (85.5%) felt they were given plenty of time to finish their meals, with 11.4% stating they sometimes felt rushed and 2.1% feel rushed most of the time (Table 18).

Q34 Are you able to assist them with tidying up the dining area after meals (if you wish)?

Participants either did not wish to be involved in clearing the dining area (45.5%) or did not know if they were allowed to help (11.6%) (Table 18). As with the setting up question, some felt that the occupational health and safety rules in the facility were a barrier to participation.

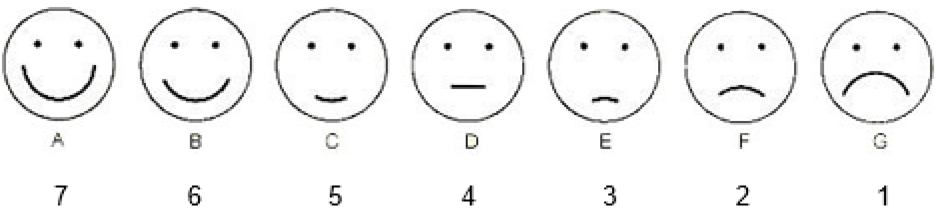
Q35 Do they appear to be well trained in providing a good food service?

Many participants (44.4%) felt the staff was always well trained, with 28.9% indicating there was some room for improvement (Table 18). A small number of participants (9.8%) indicated they had no way of knowing what qualifications the staff had.

Global Satisfaction Questions

The end of the questionnaire contained two statements related to overall satisfaction with the meals and the food service. First, residents were shown the seven-point ‘Chernoff faces scale’, with A being the most satisfied (7/7) and G being the least satisfied (1/7) (Figure 16).

They were asked to point to the face best representing how they felt. Residents who found this difficult to understand or those with visual impairment were asked, “On a scale of one to seven, with one being the lowest and seven being the highest, how would you rate the meals/food service here?”



Residents with visual impairment were asked to rank their global satisfaction on a scale of one to seven with one being the lowest and seven being the highest.

Figure 16: Seven Point Visual Analogue Scale used to determine overall satisfaction with meals and food service

I am satisfied with the meals here (where A is the highest and G is the lowest):

Only 15.8% of participants indicated that they were completely satisfied with the meals served. Almost one third (30%) ranked the meals as B (6/7), and 28.4% ranked the meals as C (5/7) (Table 19).

Table 19: Responses to the global satisfaction statement 'I am satisfied with the meals here'

Response Category	Frequency	Percent	Cumulative Percent
A (7/7)	61	15.8	15.8
B (6/7)	116	30.0	45.9
C (5/7)	110	28.4	74.4
D (4/7)	62	16.0	90.4
E (3/7)	22	5.7	96.1
F (2/7)	7	1.8	97.9
G (1/7)	8	2.1	100.0
Total	386	99.7	
Missing (Don’t Know)	1	0.3	
Total	387	100.0	

I am satisfied with the food service here (where A is the highest and G is the lowest):

Overall, participants had a higher opinion of the food service than the meals themselves, with 26.4% ranking the food service at A (7/7), 36.4% as B (6/7) and 23% as C (5/7) (Table 20).

Table 20: Responses to the global satisfaction statement 'I am satisfied with the food service here'

Response Category	Frequency	Percent	Cumulative Percent
A (7/7)	102	26.4	26.5
B (6/7)	141	36.4	63.1
C (5/7)	89	23.0	86.2
D (4/7)	29	7.5	93.8
E (3/7)	17	4.4	98.2
F (2/7)	5	1.3	99.5
G (1/7)	2	0.5	100.0
Total	385	99.5	
Missing (Don't Know)	2	0.5	
Total	387	100.0	

6.4 DISCUSSION

The core intention of Requirement (3)(f) is to ensure that residents receive enough nutrition and hydration to support their quality of life and to reduce the risk of malnutrition. Prior to the revision to the Quality Standards,[18] the dining experience was viewed through a clinical lens and the resident experience was not highly valued. The shift to a person-centred model provides clearer guidance to RACHs on how nutrition and hydration should be delivered to residents, not just as a clinical method of preventing malnutrition, but to enhance and support resident health and wellbeing.

There were some aspects of the Quality Standards[18] where participating RACHs appeared to perform well. Aged care providers are required to provide residents with a comfortable dining experience so they can enjoy their meals without feeling rushed. Additionally, the

RACH should also ensure that there is sufficient staff to support residents if they need assistance. Most participants (85.5%) felt they were always given adequate time to eat and 91.2% of participants indicated that staff were always willing to provide assistance where required. Lastly, 72.6% of participants felt that staff were always friendly and polite during meals. This is aligned with the results of the Consumer Experience Report, wherein 72.3% of residents (n=31,000) say that staff treat them with respect all of the time.[251]

Staff interaction with the residents at mealtimes appears to be one area where RACHs are performing well against the Quality Standards.[18] This is reassuring as staff attitude[41] and the staff to resident ratio[226] can impact resident satisfaction. Perhaps one reason for the consistent performance across sites is the training opportunities offered to individuals wishing to work in an aged care setting.[239-241] For example, a Certificate III in Individual Support (Ageing) is offered by TAFE (Technical And Further Education) college, a nationally recognised and Government owned Registered Training Organisation.[252] This course is considered an entry level training module and covers fundamental aspects of care such as providing individualised support to residents and supporting resident independence and wellbeing. Additionally, the Federal Government have increased training opportunities and are offering free training to aged care workers to increase their competence in the workplace.[253] Ensuring staff are appropriately trained and providing ongoing training opportunities are key elements to ensuring resident-staff interactions are professional, respectful and compassionate.

Conversely, there are some aspects of the Quality Standards[18] where participating RACHs appeared inconsistent. For example, RACHs are required to offer residents a choice of healthy meals, snacks, and drinks. Although two thirds of participants (66.4%) felt they always had a choice in what to eat at mealtime, less than half of the participants (44.2%) felt they were always offered a variety of foods. Another requirement is that RACHs consistently provide residents with their "*meal and drink preferences and menu selections*."[18] Only one third (33.3%) of the participants felt their preferences were met all of the time, with 18.9%

participants indicating that the RACH was never able to meet their preferences. Additionally, only 22% of participants indicated they always got the meal they requested with a further 23.5% stating the RACH got their meal order correct only some of the time.

One plausible explanation for the inconsistencies across sites is the internal procedures and policies adopted by individual organisations. For example, some aged care providers have in-house dietitians who are specifically employed to work with the food service to cater to resident needs and preferences. However, many RACHs engage the services of dietitians on an ad-hoc basis, often with the goal of conducting a menu review to meet accreditation standards. In this situation, the dietitian has only a transient interaction with the food service in the home and may have limited impact or influence.[254] Another factor could be how RACHs perceive choice. When completing the Aged Care Home Food Service Questionnaire discussed in Chapter Four, one third (35%) indicated they offered a fully selective menu which would involve offering residents a choice of entree, at least two different main meals and a choice for dessert. However, when the meal service was observed, the only choice residents were offered were for the main dish. As highlighted, the variation in food service systems across individual sites could explain some of the variance in participant responses in this regard.[124]

Lastly, there are some aspects of the Quality Standards[18] where most participating RACHs appeared to have difficulty meeting the guidelines. One key example of the shift to person-centred care is that RACHs are now required to consider individual needs and preferences regarding the timing of meals. Overwhelmingly, participants (91.2%) felt they did not have a choice in when they could eat their meals. Additionally, RACHs are required to provide evidence that they involve residents in menu planning or food preparation and that residents are encouraged to provide feedback. Almost half of the participants (48.8%) felt that they would be listened to if they made a suggestion to improve the food service, however many (22.7%) felt they did not have a voice at all. When participants were asked if they were able

to assist with preparing meals 40.1% indicated they were not permitted to participate in food service activities, mostly due to health and safety concerns.

This requirement puts RACHs in an interesting predicament. Although they are required by the Quality Standards[18] to allow resident participation, risk management around Food Safety Standards[255] create concerns about providing residents with a hands-on experience. One of the key themes arising from the qualitative research conducted by Baily et al[202] is that residents embrace dignity of risk and, given the choice, they would "*rather die happy*" than live in a risk-adverse environment. Indeed, dignity of risk is one of the key components of *Standard 1:Consumer Dignity and Choice*, wherein residents have the right to make their own decisions and RACHs "*need to take a balanced approach to managing risk and respecting consumer rights.*"[18] The results of this study suggest RACHs are erring on the side of caution and are still negotiating ways to manage any risk involved in resident participation.

6.4.1 LIMITATIONS

The major limitation to this study is the timing of data collection. The Quality Standards[18] were revised and updated in 2018, during this time RACHs were given one year to adjust their model of care and notified that from July 1st 2019, accreditation would be based on the revised Quality Standards. Data collection for this study began in April 2019 and concluded in November 2019, shortly after the revised Quality Standards[18] were implemented. Despite having a year to prepare for the change, it was not yet mandatory, therefore RACHs may not have made the necessary adjustments to their processes. Consequently, the data collected during this period may reflect the resident experience prior to a person-centred model being mandated. As RACHs have now had three years to implement the Quality Standards,[18] administering the FSSQ again would provide valuable insight into whether the change in governance has resulted in a change to the food service in RACHs. Therefore, future research should repeat the administration of the FSSQ and compare the outcomes to the Quality Standards.[18]

Another limitation is that the FSSQ was only administered to residents living in RACHs in South Australia. Although the ACQSC provides Federal governance and guidance, each state has their own health regulations, food safety standards, staff training organisations, wages, salaries, and a myriad of other factors that can impact the way in which aged care providers deliver nutrition and hydration to residents in their care. Consequently, administering the FSSQ to a broader range of residents across the different states in Australia could provide additional insight and could allow for a national state-by-state comparison.

A final limitation is that multiple regressions were not conducted to explore any associations between the independent variables gathered during data collection (diet type, wellbeing, length of stay) and the dependent variable (resident satisfaction). As 28% of residents indicated they had special dietary requirements, this warrants further investigation to understand the impact this might have on their satisfaction with the food service. Furthermore, one third of participants had lived in the home for less than 12 months. It is possible that length of stay in the RACH has an impact on resident satisfaction, this should also be explored to determine whether length of residency has a positive or negative impact on satisfaction.

6.5 CONCLUSION

Based on resident perspectives gathered during this study, many RACHs do not meet the core expectations of the Quality Standards.[18] Overall, RACHs performed well in areas relating to the dining environment and providing assistance to residents at mealtimes. Aged care homes were not consistent in areas related to choice, variety, individualisation and meeting resident preferences. Lastly, RACHs were not yet meeting the requirements related to resident participation with the food services and flexibility around mealtimes. The accreditation process in Australian RACHs begins with resident interviews to discuss their areas for concern, consequently this snapshot highlights some key areas for improvement within the residential aged care food service system.

6.6 CHAPTER SUMMARY

In summary, this chapter presented a unique snapshot of the experience of residents living in RACHs in South Australia by comparing the item responses of those who participated in this study (n=387) to the Quality Standards.[18] The key findings indicate that although many participants felt that they always had adequate choice and variety, fewer felt that meals were tasty or appetising. One third thought their food preferences were always met but very few felt they had flexibility around meal timing. Finally, less than half felt their feedback or suggestions would always be listened to. This last concern provides additional justification for creating a FSSQ that allows residents to give feedback to their RACH in a safe and confidential manner.

CHAPTER 7: PSYCHOMETRIC TESTING OF THE RESIDENT FOOD SERVICE SATISFACTION QUESTIONNAIRE

7.1 INTRODUCTION

As described in Chapter Two, questionnaires can be an efficient and effective method of measuring satisfaction across a range of stakeholders; however, the quality of the feedback obtained is limited by the validity and reliability of the questionnaire itself. The scale must be valid and measure what it purports to, and it must be able to reliably measure satisfaction over time. Any questionnaire that does not meet these criteria has limited usefulness, especially as a quality improvement tool. This chapter answers the fifth research question (RQ5): Can the validity and reliability of a newly developed resident food service satisfaction questionnaire be established?

7.2 METHODOLOGY

7.2.1 OVERVIEW OF STUDY DESIGN

This study intended to establish the psychometric properties of a newly designed FSSQ. This project (#6929) was approved by the Social and Behavioural Research Ethics Committee (SBREC).

7.2.2 AIMS

This study aimed to (1) test the validity and reliability of a newly developed FSSQ and (2) understand what components of food service satisfaction are relevant to residents living in South Australian RACHs.

7.2.3 RECRUITMENT

The recruitment process has been described in full in Chapter Six. Briefly, site managers from RACHs in South Australia were approached to seek permission to recruit residents under their care. The administrative staff was engaged to identify residents who did not meet the inclusion criteria.

7.2.4 DATA COLLECTION

Data collection methods for this study have also been described in Chapter Six. Residents were approached in their room and explained the purpose of the research. Residents who provided verbal consent were asked to complete the preliminary FSSQ and the FoodEx-LTC during the first visit. Additionally, four weeks later, residents were asked to complete the FSSQ a second time to establish test-retest reliability.

7.2.5 DATA ANALYSIS

Statistical analysis was conducted using the Statistical Package for the Social Sciences (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.). As discussed in Chapter Six, the sample size was determined based on the subject-to-item ratio of 10:1 necessary to adequately power factor analysis; in this case, 35-items required a minimum of 350 participants.[150] For other statistical tests such as convergence validity and temporal stability, the COSMIN® benchmark for excellence stipulates a sample size of ≥ 100 for adequate power. This determined the number of residents asked to complete the FoodEx-LTC on the first visit (convergence validity) and the preliminary FSSQ on the second visit at four weeks (temporal stability).

The statistical methods required to establish validity and reliability have been described in detail in Chapter Two. Prior to conducting a factor analysis the data set should be checked to ascertain whether it is suitable for factoring. This involves examining the correlation matrix to identify and remove any items that exhibit extremely high or low correlations. Data are suitable for factoring when KMO and MSA values are are >0.70 and the Bartlett's Test of Sphericity is significant ($p<0.05$). Additionally, items should have a communality >0.40 to be included in the analysis. Once unsuitable items have been removed from the data, construct validity can be established using factor analysis (PCA with varimax rotation). The number of factors to retain is determined by examining the Eigenvalues, Catell's Scree Plot and Velicer's Minimum Average Partial (MAP). During analysis, any item that had a factor loading <0.40 was omitted. Similarly any item that loaded across multiple factors was also

omitted. In order to establish convergence validity, the summed scores from the resident FSSQ and the FoodEx-LTC (LF) were compared using correlations; that is, Pearson's Correlation for parametric data and Spearman's Correlation for non-parametric data. Correlation coefficients of $r>0.8$ are considered very strong, $r=0.6$-0.79 are considered strong, $r=0.40$-59 are considered moderate, and $r<0.4$ is considered weak.[98]

Internal reliability was examined with Cronbach's alpha with coefficients of $\alpha \geq 0.5$ considered reliable in development and coefficients of $\alpha \geq 0.7$ considered excellent as this is the recommendation for an established questionnaire.[100] Temporal stability and test-retest reliability were examined using Weighted Kappa with values of <0.20 indicate a poor level of agreement, 0.21 to 0.40 is fair, 0.41 to 0.60 is moderate, 0.61 to 0.80 is substantial and 0.81 to 1.0 indicates a near-perfect level of agreement.[103] Descriptive statistics have been reported using percent, median, and IQR. Item responses have been reported using frequency and percent.

As the questionnaire was interviewer-administered and checked for completion before concluding the interview, all missing data could be considered contingent or hierarchical.[104] For example, if a resident indicated they chose to eat in their room rather than the community dining room, that made subsequent questions such as "Do you have a choice in who you sit with at meal times?" redundant and marked "not applicable." Consequently, missing values were replaced with the mean to maintain the sample size and statistical power. This type of imputation has been deemed an acceptable method of addressing missingness in quality of life scales where less than 50% of responses are missing.[256]

7.3 FINDINGS

7.3.1 VALIDITY: PRINCIPAL COMPONENTS ANALYSIS

A Principal Components Analysis (PCA) was conducted where the missing values arising from "Don't Know" or "Not applicable" were replaced with the mean value of participants who responded.

7.3.1.1 CORRELATION MATRIX

The correlation matrix was visually examined (Tables 21-24) to identify items displaying a weak correlation. In the correlation matrix tables, the highest r-value for each item has been highlighted as follows; items with a fair to strong correlation (r=0.35-0.70) are highlighted in green, items with a weak correlation (r=0.20-0.35) are highlighted in yellow; and items with a very weak correlation (r<0.20) are highlighted in orange. Consequently, fourteen items were flagged for possible removal:

Q4 Do you have a choice in who you can sit with at meal times? (0.118)

Q5 Do you have to wait for a long time after being seated in the dining room before your meal arrives? (0.240)

Q7 Are you offered fresh fruit every day? (0.258)

Q8 Are you able to leave the dining room soon after you have finished your meal? (0.288)

Q9 Can you open your food packages by yourself at meal times? (0.136)

Q11 Do you have a choice in when you can eat your meals (0.125)

Q13 Are you offered vegetables every day? (0.278)

Q14 Are you able to invite family or friends to eat with you at meal times? (0.290)

Q16 Are you able to have family or friends bring you food from outside the home? (0.250)

Q23 Do you receive the meal you have requested? (0.272)

Q24 Can you help yourself to food whenever you feel hungry? (0.273)

Q31 Do they encourage you to eat enough at mealtimes? (0.200)

Q32 Are they willing to provide help with cutting up your food? (0.290)

Q33 Do they give you enough time to finish your meals? (0.242)

Table 21: Full Correlation Matrix for Questions 1-10

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Q1	1.000	-0.006	0.159	0.053	-0.061	0.025	0.162	-0.032	0.048	0.140
Q2	-0.006	1.000	0.238	-0.083	0.236	0.188	0.076	0.080	-0.040	0.322
Q3	0.159	0.238	1.000	-0.040	0.124	0.181	0.214	0.063	-0.025	0.301
Q4	0.053	-0.083	-0.040	1.000	0.090	-0.034	-0.086	0.017	-0.038	-0.020
Q5	-0.061	0.236	0.124	0.090	1.000	0.202	0.048	0.206	0.024	0.154
Q6	0.025	0.188	0.181	-0.034	0.202	1.000	0.171	0.288	0.025	0.174
Q7	0.162	0.076	0.214	-0.086	0.048	0.171	1.000	0.105	0.045	0.035
Q8	-0.032	0.080	0.063	0.017	0.206	0.288	0.105	1.000	0.080	0.059
Q9	0.048	-0.040	-0.025	-0.038	0.024	0.025	0.045	0.080	1.000	-0.026
Q10	0.140	0.322	0.301	-0.020	0.154	0.174	0.035	0.059	-0.026	1.000
Q11	0.042	-0.024	-0.034	0.067	0.094	-0.032	0.050	0.064	-0.001	0.050
Q12	0.127	0.265	0.200	0.055	0.098	0.184	0.111	0.067	-0.002	0.294
Q13	0.231	0.070	0.179	0.058	0.150	0.083	0.236	0.103	0.030	0.062
Q14	0.244	-0.009	0.093	-0.015	0.013	0.010	0.165	0.073	0.039	-0.023
Q15	0.332	0.244	0.305	-0.053	0.113	0.202	0.200	0.027	0.051	0.360
Q16	0.088	0.010	0.123	0.000	0.055	-0.031	0.090	-0.007	0.051	-0.071
Q17	0.043	0.363	0.293	0.022	0.188	0.290	0.059	0.109	-0.080	0.405
Q18	0.264	0.124	0.361	-0.046	0.135	0.164	0.222	0.061	0.048	0.239
Q19	0.060	0.245	0.215	-0.036	0.190	0.198	0.204	0.164	0.017	0.126
Q20	0.128	0.363	0.285	-0.074	0.160	0.271	0.116	0.152	0.014	0.568
Q21	0.304	0.091	0.224	-0.017	0.048	0.191	0.227	0.126	0.028	0.142
Q22	0.178	0.390	0.382	-0.117	0.227	0.252	0.157	0.171	0.065	0.494
Q23	0.119	0.207	0.110	-0.071	0.116	0.120	0.079	0.093	0.023	0.176
Q24	0.204	0.082	0.108	0.096	0.153	0.083	0.258	0.091	0.068	0.077
Q25	0.202	0.319	0.394	0.013	0.130	0.220	0.145	0.038	-0.052	0.440
Q26	0.208	0.395	0.400	-0.041	0.209	0.331	0.177	0.073	-0.066	0.518
Q27	0.024	0.039	0.119	0.118	0.148	0.112	0.059	0.058	-0.012	0.074
Q28	0.155	0.287	0.383	-0.001	0.079	0.178	0.187	-0.005	-0.073	0.339
Q29	0.017	0.289	0.254	-0.049	0.098	0.267	0.169	0.186	0.019	0.257
Q30	0.019	0.022	0.066	0.093	0.185	0.066	0.175	0.220	0.120	-0.034
Q31	0.125	0.002	0.104	0.003	0.016	-0.102	0.111	-0.118	0.055	0.159
Q32	0.150	0.092	0.155	-0.081	0.119	0.049	0.077	0.093	0.016	0.043
Q33	0.085	0.241	0.131	-0.100	0.086	0.126	0.145	0.048	0.015	0.134
Q34	0.044	0.016	0.145	0.041	0.240	0.049	0.143	0.196	0.136	0.064
Q35	0.148	0.356	0.383	-0.040	0.235	0.218	0.127	0.163	0.030	0.373

Table 22: Full Correlation Matrix for Questions 11-20

	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
Q1	0.042	0.127	0.231	0.244	0.332	0.088	0.043	0.264	0.060	0.128
Q2	-0.024	0.265	0.070	-0.009	0.244	0.010	0.363	0.124	0.245	0.363
Q3	-0.034	0.200	0.179	0.093	0.305	0.123	0.293	0.361	0.215	0.285
Q4	0.067	0.055	0.058	-0.015	-0.053	0.000	0.022	-0.046	-0.036	-0.074
Q5	0.094	0.098	0.150	0.013	0.113	0.055	0.188	0.135	0.190	0.160
Q6	-0.032	0.184	0.083	0.010	0.202	-0.031	0.290	0.164	0.198	0.271
Q7	0.050	0.111	0.236	0.165	0.200	0.090	0.059	0.222	0.204	0.116
Q8	0.064	0.067	0.103	0.073	0.027	-0.007	0.109	0.061	0.164	0.152
Q9	-0.001	-0.002	0.030	0.039	0.051	0.051	-0.080	0.048	0.017	0.014
Q10	0.050	0.294	0.062	-0.023	0.360	-0.071	0.405	0.239	0.126	0.568
Q11	1.000	0.108	0.087	0.052	0.012	0.026	-0.039	0.035	0.020	-0.024
Q12	0.108	1.000	0.160	0.015	0.314	0.017	0.331	0.238	0.100	0.375
Q13	0.087	0.160	1.000	0.228	0.258	0.098	0.117	0.278	0.249	0.068
Q14	0.052	0.015	0.228	1.000	0.187	0.250	0.025	0.126	0.133	0.028
Q15	0.012	0.314	0.258	0.187	1.000	0.059	0.353	0.435	0.231	0.447
Q16	0.026	0.017	0.098	0.250	0.059	1.000	0.019	0.082	0.049	-0.024
Q17	-0.039	0.331	0.117	0.025	0.353	0.019	1.000	0.289	0.261	0.465
Q18	0.035	0.238	0.278	0.126	0.435	0.082	0.289	1.000	0.232	0.340
Q19	0.020	0.100	0.249	0.133	0.231	0.049	0.261	0.232	1.000	0.174
Q20	-0.024	0.375	0.068	0.028	0.447	-0.024	0.465	0.340	0.174	1.000
Q21	0.035	0.241	0.199	0.145	0.236	0.005	0.109	0.213	0.198	0.204
Q22	0.045	0.394	0.156	0.132	0.498	-0.020	0.514	0.364	0.232	0.644
Q23	0.103	0.226	0.111	0.000	0.154	-0.029	0.178	0.106	0.045	0.272
Q24	0.097	-0.002	0.232	0.163	0.124	0.113	0.058	0.188	0.146	0.111
Q25	0.027	0.280	0.222	0.115	0.344	0.015	0.368	0.335	0.233	0.470
Q26	0.023	0.401	0.252	0.080	0.463	0.008	0.459	0.400	0.280	0.622
Q27	0.125	0.103	0.110	0.077	0.067	0.074	0.086	0.060	0.131	0.016
Q28	0.038	0.248	0.199	0.158	0.351	-0.027	0.285	0.328	0.275	0.333
Q29	0.099	0.158	0.167	0.084	0.252	0.069	0.316	0.186	0.406	0.287
Q30	0.102	0.042	0.208	0.098	0.059	0.060	-0.010	0.130	0.171	0.008
Q31	0.102	0.063	0.129	0.200	0.105	0.074	0.028	0.118	0.087	0.120
Q32	0.041	-0.001	0.263	0.290	0.168	0.089	-0.006	0.287	0.220	0.067
Q33	0.073	0.125	0.106	0.102	0.219	0.073	0.242	0.171	0.188	0.201
Q34	0.089	0.077	0.163	0.114	0.116	-0.004	0.104	0.154	0.167	0.049
Q35	0.030	0.332	0.240	0.105	0.346	0.030	0.455	0.340	0.292	0.467

Table 23: Full Correlation Matrix for Questions 21-30

	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
Q1	0.304	0.178	0.119	0.204	0.202	0.208	0.024	0.155	0.017	0.019
Q2	0.091	0.390	0.207	0.082	0.319	0.395	0.039	0.287	0.289	0.022
Q3	0.224	0.382	0.110	0.108	0.394	0.400	0.119	0.383	0.254	0.066
Q4	-0.017	-0.117	-0.071	0.096	0.013	-0.041	0.118	-0.001	-0.049	0.093
Q5	0.048	0.227	0.116	0.153	0.130	0.209	0.148	0.079	0.098	0.185
Q6	0.191	0.252	0.120	0.083	0.220	0.331	0.112	0.178	0.267	0.066
Q7	0.227	0.157	0.079	0.258	0.145	0.177	0.059	0.187	0.169	0.175
Q8	0.126	0.171	0.093	0.091	0.038	0.073	0.058	-0.005	0.186	0.220
Q9	0.028	0.065	0.023	0.068	-0.052	-0.066	-0.012	-0.073	0.019	0.120
Q10	0.142	0.494	0.176	0.077	0.440	0.518	0.074	0.339	0.257	-0.034
Q11	0.035	0.045	0.103	0.097	0.027	0.023	0.125	0.038	0.099	0.102
Q12	0.241	0.394	0.226	-0.002	0.280	0.401	0.103	0.248	0.158	0.042
Q13	0.199	0.156	0.111	0.232	0.222	0.252	0.110	0.199	0.167	0.208
Q14	0.145	0.132	0.000	0.163	0.115	0.080	0.077	0.158	0.084	0.098
Q15	0.236	0.498	0.154	0.124	0.344	0.463	0.067	0.351	0.252	0.059
Q16	0.005	-0.020	-0.029	0.113	0.015	0.008	0.074	-0.027	0.069	0.060
Q17	0.109	0.514	0.178	0.058	0.368	0.459	0.086	0.285	0.316	-0.010
Q18	0.213	0.364	0.106	0.188	0.335	0.400	0.060	0.328	0.186	0.130
Q19	0.198	0.232	0.045	0.146	0.233	0.280	0.131	0.275	0.406	0.171
Q20	0.204	0.644	0.272	0.111	0.470	0.622	0.016	0.333	0.287	0.008
Q21	1.000	0.307	0.083	0.273	0.271	0.320	0.060	0.207	0.163	0.096
Q22	0.307	1.000	0.249	0.128	0.487	0.653	0.118	0.418	0.238	0.021
Q23	0.083	0.249	1.000	0.109	0.185	0.260	0.079	0.109	0.131	0.013
Q24	0.273	0.128	0.109	1.000	0.194	0.198	0.128	0.187	0.226	0.175
Q25	0.271	0.487	0.185	0.194	1.000	0.596	0.119	0.545	0.316	0.066
Q26	0.320	0.653	0.260	0.198	0.596	1.000	0.118	0.481	0.339	0.030
Q27	0.060	0.118	0.079	0.128	0.119	0.118	1.000	0.224	0.131	0.260
Q28	0.207	0.418	0.109	0.187	0.545	0.481	0.224	1.000	0.279	0.072
Q29	0.163	0.238	0.131	0.226	0.316	0.339	0.131	0.279	1.000	0.155
Q30	0.096	0.021	0.013	0.175	0.066	0.030	0.260	0.072	0.155	1.000
Q31	0.085	0.092	0.048	0.183	0.144	0.102	0.034	0.187	0.179	0.099
Q32	0.152	0.160	0.001	0.043	0.133	0.174	0.047	0.149	0.164	0.093
Q33	0.100	0.213	0.220	0.066	0.207	0.228	0.047	0.170	0.225	0.069
Q34	0.091	0.101	0.028	0.155	0.104	0.134	0.323	0.083	0.120	0.604
Q35	0.252	0.524	0.145	0.140	0.473	0.582	0.113	0.414	0.348	0.063

Table 24: Full Correlation Matrix for Questions 31-35

	Q31	Q32	Q33	Q34	Q35
Q1	0.125	0.150	0.085	0.044	0.148
Q2	0.002	0.092	0.241	0.016	0.356
Q3	0.104	0.155	0.131	0.145	0.383
Q4	0.003	-0.081	-0.100	0.041	-0.040
Q5	0.016	0.119	0.086	0.240	0.235
Q6	-0.102	0.049	0.126	0.049	0.218
Q7	0.111	0.077	0.145	0.143	0.127
Q8	-0.118	0.093	0.048	0.196	0.163
Q9	0.055	0.016	0.015	0.136	0.030
Q10	0.159	0.043	0.134	0.064	0.373
Q11	0.102	0.041	0.073	0.089	0.030
Q12	0.063	-0.001	0.125	0.077	0.332
Q13	0.129	0.263	0.106	0.163	0.240
Q14	0.200	0.290	0.102	0.114	0.105
Q15	0.105	0.168	0.219	0.116	0.346
Q16	0.074	0.089	0.073	-0.004	0.030
Q17	0.028	-0.006	0.242	0.104	0.455
Q18	0.118	0.287	0.171	0.154	0.340
Q19	0.087	0.220	0.188	0.167	0.292
Q20	0.120	0.067	0.201	0.049	0.467
Q21	0.085	0.152	0.100	0.091	0.252
Q22	0.092	0.160	0.213	0.101	0.524
Q23	0.048	0.001	0.220	0.028	0.145
Q24	0.183	0.043	0.066	0.155	0.140
Q25	0.144	0.133	0.207	0.104	0.473
Q26	0.102	0.174	0.228	0.134	0.582
Q27	0.034	0.047	0.047	0.323	0.113
Q28	0.187	0.149	0.170	0.083	0.414
Q29	0.179	0.164	0.225	0.120	0.348
Q30	0.099	0.093	0.069	0.604	0.063
Q31	1.000	0.132	0.087	0.072	0.147
Q32	0.132	1.000	0.122	0.101	0.233
Q33	0.087	0.122	1.000	0.093	0.234
Q34	0.072	0.101	0.093	1.000	0.129
Q35	0.147	0.233	0.234	0.129	1.000

7.3.1.2 BARTLETT'S TEST OF SPHERICITY, KAISER-MEYER-OLKIN AND MEASURE OF SAMPLING ADEQUACY

The Kaiser-Meyer-Olkin (KMO) measure for the scale was 0.873 indicating the scale was suitable for factoring. The individual Measure of Sampling Adequacy (MSA) score for each question can be seen in Table 25. Questions 4, 9, and 16 fell below the cut-off of 0.6.

Table 25: Individual MSA scores for 35 items

Q1	.811	**Q11**	.605	**Q21**	.872	**Q31**	.744
Q2	.912	**Q12**	.900	**Q22**	.907	**Q32**	.760
Q3	.924	**Q13**	.881	**Q23**	.841	**Q33**	.902
Q4	**.483**	**Q14**	.753	**Q24**	.785	**Q34**	.659
Q5	.806	**Q15**	.928	**Q25**	.941	**Q35**	.943
Q6	.833	**Q16**	**.529**	**Q26**	.927		
Q7	.872	**Q17**	.890	**Q27**	.758		
Q8	.703	**Q18**	.907	**Q28**	.907		
Q9	**.457**	**Q19**	.902	**Q29**	.866		
Q10	.924	**Q20**	.915	**Q30**	.683		

Using the recommendations from the correlation matrix and the individual MSA scores, Questions 4, 9, 11, and 16 were removed from the second analysis. Examination of the second anti-image matrix indicated all remaining items were above the 0.6 threshold and were therefore retained for further analysis. The adjusted KMO measure was 0.889 with a significant ($p<0.001$) Bartlett's Test of Sphericity.

7.3.1.3 EIGENVALUES

Examination of the eigenvalues suggests retaining seven factors which accounts for 52.62% of the total variance (Table 26).

Table 26: Initial Eigenvalues and Total Variance of 31 items

Item	Total	% of Variance	Cumulative %
1	7.247	23.378	23.378
2	2.382	7.685	31.063
3	1.847	5.957	37.021
4	1.304	4.206	41.227
5	1.273	4.108	45.335
6	1.156	3.728	49.063
7	1.104	3.561	52.624
8	.995	3.208	55.832
9	.931	3.004	58.836
10	.910	2.936	61.772
11	.837	2.699	64.471
12	.804	2.593	67.064
13	.797	2.572	69.637
14	.788	2.541	72.177
15	.732	2.360	74.538
16	.695	2.241	76.779
17	.679	2.189	78.968
18	.644	2.078	81.046
19	.620	1.999	83.045
20	.603	1.946	84.991
21	.579	1.869	86.861
22	.542	1.749	88.610
23	.505	1.628	90.238
24	.500	1.612	91.850
25	.440	1.421	93.270
26	.424	1.367	94.637
27	.392	1.264	95.901
28	.370	1.193	97.094
29	.346	1.115	98.209
30	.295	.951	99.161
31	.260	.839	100.000

7.3.1.4 CATTELL'S SCREE PLOT

Visual inspection of Cattell's Scree plot suggested three factors were appropriate (Figure 17).

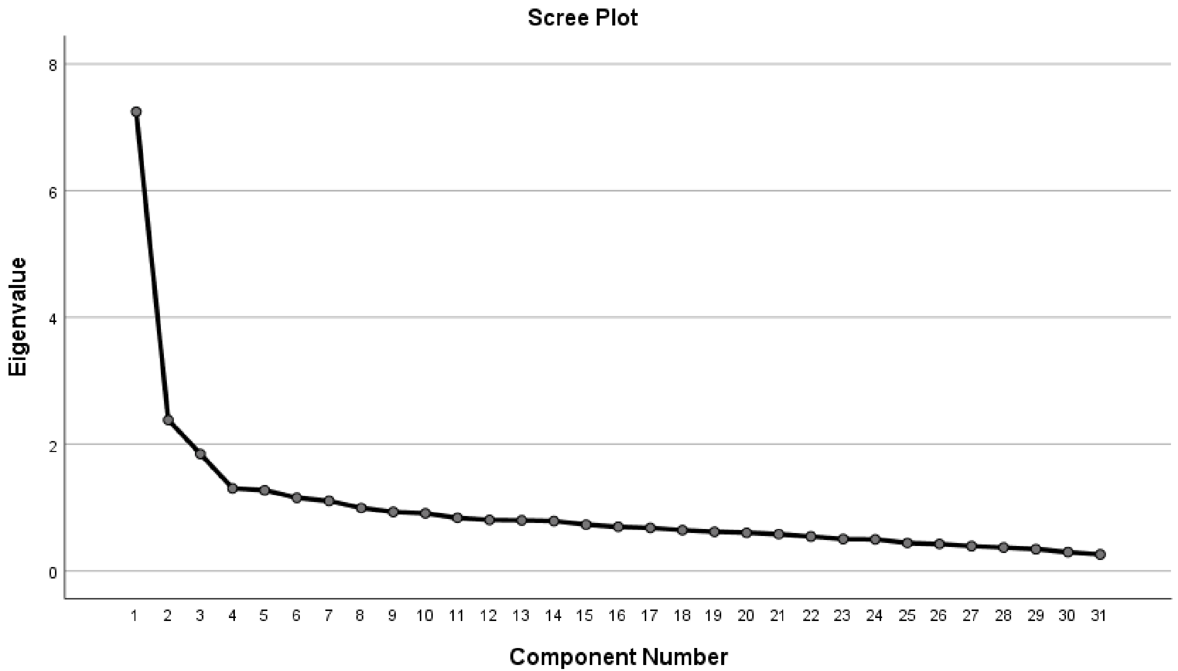


Figure 17: Results of Cattell's Scree Plot

7.3.1.5 VELICER'S MINIMUM AVERAGE PARTIAL (MAP)

Velicer's Minimum Average Partial (MAP) test was conducted, omitting missing data. The smallest average squared partial correlation was .0267 and the smallest average 4th power partial correlation was .0021. Both the original (1976) and revised (2000) MAP test suggested retaining three factors.

7.3.1.6 HORN'S PARALLEL ANALYSIS

Horn's Parallel Analysis (PA) was conducted to determine the point at which the Kaiser eigenvalue fell below the PA eigenvalue, which was four factors (Table 27).

Table 27: Results of Horn's Parallel Analysis

Component	Kaiser Eigenvalue	PA Eigenvalue
1	7.247	1.565
2	2.382	1.495
3	1.847	1.430
4	**1.304**	**1.378**
5	1.273	1.295
6	1.156	1.224

7.3.1.7 PCA WITH A THREE FACTOR SOLUTION

Given the agreeance between Cattell's Scree Plot and Velicer's MAP to retain three factors another PCA was conducted using three factors which accounted for 37.021% of the total variance. Questions 6, 19, 23, and 33 did not load saliently onto any factors (Table 28) and were omitted from the next PCA.

Table 28: Rotated Component Matrix for three factors (31 items)

Item	**Factor**		
	1	2	3
Q26 Do they prepare the meals the way you like?	.786	.247	.075
Q20 Do you receive foods that taste good to you?	.780	.052	.002
Q22 Do you receive foods that look appetising to you?	.772	.178	.063
Q17 Do the meals taste like they are freshly cooked?	.688	-.055	.138
Q10 Are you served foods that you like?	.687	.030	-.047
Q35 Do they appear to be well trained in providing a good food service?	.653	.226	.160
Q25 Are they able to provide food to meet your preferences?	.642	.299	.034
Q2 Are you satisfied with the temperature of meals served?	.584	-.093	.152
Q15 Do you receive a variety of foods every day?	.538	.398	-.020
Q12 Do you receive familiar foods that you can recognise?	.531	.068	.027
Q28 Do they make an effort to serve food you like?	.521	.363	.044
Q3 If you make suggestions to improve the food and food service, do you feel you will be listened to?	.465	.301	.094
Q29 Are they friendly and polite when they serve food at meal times?	.405	.170	.334
Q6 Is the dining room a comfortable and inviting place at meal times?	.400	-.066	.330
Q23 Do you receive the meal you have requested?	.348	.011	.068

Item	Factor		
Q33 Do they give you enough time to finish your meals?	.308	.142	.137
Q1 Do you have a choice in what to eat at meal times?	.115	.606	-.206
Q14 Are you able to invite family or friends to eat with you at meal times?	-.050	.573	.048
Q13 Are you offered vegetables every day?	.100	.541	.229
Q18 Can you choose meals cooked by different methods eg roasted	.396	.469	.070
Q32 Are they willing to provide help with cutting up your food?	.059	.466	.121
Q21 If you are not satisfied with the meal(s) provided are you able to choose an alternative?	.248	.449	.067
Q24 Can you help yourself to food whenever you feel hungry?	.063	.440	.236
Q7 Are you offered fresh fruit every day?	.089	.435	.212
Q31 Do they encourage you to eat enough at meal times?	.054	.433	-.068
Q30 Are you able to assist them with setting up the dining area before meals (if you wish)?	-.117	.225	.706
Q34 Are you able to assist them with tidying up the dining area after meals (if you wish)?	-.019	.200	.688
Q8 Are you able to leave the dining room soon after you have finished your meal?	.123	-.079	.536
Q5 Does your meal arrive quickly after you have been seated in the dining room?	.241	-.066	.502
Q27 Are you able to assist them with preparing meals (if you wish)?	.058	.111	.455
Q19 Are you satisfied with the amount of food that you are served?	.278	.258	.389

The subsequent PCA included 27 items and explained 40.079% of the total variance (Table 29). This version had a KMO of 0.887, indicating it was still suitable for factoring, and a significant Bartlett's Test of Sphericity ($p<0.001$). All items met the minimum MSA of 0.6.

Table 29: Rotated Component Matrix for three factors (27 items)

Item	Factor		
	1	2	3
Q26 Do they prepare the meals the way you like?	.790	.240	.066
Q22 Do you receive foods that look appetising to you?	.781	.167	.070
Q20 Do you receive foods that taste good to you?	.781	.044	.008
Q10 Are you served foods that you like?	.701	.003	-.014
Q17 Do the meals taste like they are freshly cooked?	.691	-.067	.118

Item	Factor		
Q35 Do they appear to be well trained in providing a good food service?	.672	.205	.156
Q25 Are they able to provide food to meet your preferences?	.654	.281	.040
Q2 Are you satisfied with the temperature of meals served?	.586	-.107	.132
Q15 Do you receive a variety of foods every day?	.542	.392	-.031
Q28 Do they make an effort to serve food you like?	.538	.337	.045
Q12 Do you receive familiar foods that you can recognise?	.529	.067	.043
Q3 If you make suggestions to improve the food and food service, do you feel you will be listened to?	.480	.289	.095
Q29 Are they friendly and polite when they serve food at meal times?	.408	.171	.269
Q1 Do you have a choice in what to eat at meal times?	.108	.619	-.209
Q14 Are you able to invite family or friends to eat with you at meal times?	-.044	.578	.035
Q13 Are you offered vegetables every day?	.108	.548	.212
Q21 If you are not satisfied with the meal(s) provided are you able to choose an alternative?	.245	.475	.031
Q7 Are you offered fresh fruit every day?	.082	.464	.167
Q18 Can you choose meals cooked by different methods eg roasted	.407	.463	.064
Q32 Are they willing to provide help with cutting up your food?	.071	.461	.092
Q24 Can you help yourself to food whenever you feel hungry?	.067	.456	.233
Q31 Do they encourage you to eat enough at meal times?	.071	.397	-.028
Q34 Are you able to assist them with tidying up the dining area after meals (if you wish)?	.010	.179	.753
Q30 Are you able to assist them with setting up the dining area before meals (if you wish)?	-.094	.216	.752
Q5 Does your meal arrive quickly after you have been seated in the dining room?	.250	-.064	.508
Q27 Are you able to assist them with preparing meals (if you wish)?	.071	.101	.493
Q8 Are you able to leave the dining room soon after you have finished your meal?	.115	-.032	.488

The items loaded onto clear and recognizable factors. However, Question 18, “Can you choose meals cooked by different methods?) loaded across factors one and two, and Question 31 “Do they encourage you to eat enough at meal times?” did not load saliently. Consequently, these two items were removed, and a final PCA was conducted. This three-

factor solution with twenty-five items (Table 30) had clearly defined loadings, a KMO of .890 with a significant Bartlett's Test of Sphericity and explains 41.53% of the variance.

Factor one is related to good food and food service and contains items related to taste, temperature, food likes, dislikes, and preferences. Factor two is related to choice and food availability, and Factor three involves resident participation and staff assistance.

Table 30: Rotated Component Matrix for three factors (25 items)

Item	Factor		
	1	2	3
Q26 Do they prepare the meals the way you like?	**.792**	.241	.063
Q20 Do you receive foods that taste good to you?	**.782**	.024	.013
Q22 Do you receive foods that look appetising to you?	**.782**	.170	.066
Q10 Are you served foods that you like?	**.707**	-.025	-.004
Q17 Do the meals taste like they are freshly cooked?	**.688**	-.080	.121
Q35 Do they appear to be well trained in providing a good food service?	**.676**	.195	.158
Q25 Are they able to provide food to meet your preferences?	**.661**	.276	.041
Q2 Are you satisfied with the temperature of meals served?	**.585**	-.094	.127
Q28 Do they make an effort to serve food you like?	**.547**	.320	.051
Q15 Do you receive a variety of foods every day?	**.544**	.384	-.032
Q12 Do you receive familiar foods that you can recognise?	**.528**	.068	.039
Q3 If you make suggestions to improve the food and food service, do you feel you will be listened to?	**.482**	.275	.097
Q29 Are they friendly and polite when they serve food at meal times?	**.416**	.156	.276
Q1 Do you have a choice in what to eat at meal times?	.115	**.641**	-.221
Q14 Are you able to invite family or friends to eat with you at meal times?	-.032	**.591**	.029
Q13 Are you offered vegetables every day?	.113	**.561**	.205
Q21 If you are not satisfied with the meal(s) provided are you able to choose an alternative?	.248	**.522**	.008
Q7 Are you offered fresh fruit every day?	.086	**.481**	.157
Q24 Can you help yourself to food whenever you feel hungry?	.076	**.460**	.230
Q32 Are they willing to provide help with cutting up your food?	.076	**.446**	.095
Q34 Are you able to assist them with tidying up the dining area after meals (if you wish)?	.012	.171	**.758**
Q30 Are you able to assist them with setting up the dining area before meals (if you wish)?	-.091	.205	**.757**
Q5 Does your meal arrive quickly after you have been seated in the dining room?	.246	-.070	**.509**
Q27 Are you able to assist them with preparing meals (if you wish)?	.074	.109	**.493**
Q8 Are you able to leave the dining room soon after you have finished your meal?	.104	.016	**.467**

7.3.2 VALIDITY: CONVERGENCE

One hundred participants agreed to also complete the FoodEx-LTC during the first interview to establish convergence validity. Table 31 shows a side-by-side comparison of the descriptive statistics of the full sample compared to the sub-set. There were 34 males (34%) and 66 females (66%) aged between 66 to 99 years (median=86, IQR=14).

Table 31: Descriptive statistics of the participants (n=100) who completed the FoodEx-LTC

	FSSQ		FoodEx-LTC	
	N (%)	**Median (min;max)**	**N (%)**	**Median (min;max)**
Age (years)		87 (49;105)		86 (66; 98)
• Responses	373 (96.4)		99 (99.0)	
Age (stratified)				
• <65	6 (1.6)		0 (0.0)	
• 65 - 74	47 (12.6)		12 (12.1)	
• 75 - 84	88 (23.6)		29 (29.3)	
• 85 - 94	179 (48.0)		51 (51.5)	
• 95+	53 (14.2)		7 (7.1)	
Gender				
• Male	115 (29.7)		34 (34.0)	
• Female	272 (70.3)		66 (66.0)	
Length of Stay (months)		18 (1; 168)		14.5 (1;144)
• Responses	359 (92.8)		92 (92)	
Length of Stay (stratified)				
• < 12	123 (34.2)		32 (34.8)	
• 12 – 23	74 (20.6)		19 (20.6)	
• 24 – 35	59 (16.4)		16 (17.4)	
• 36 - 47	34 (9.4)		7 (7.6)	
• 48 - 60	17 (4.7)		9 (9.8)	
• >60	53 (14.7)		9 (9.8)	
Well-being (scale A-G)	387 (100.0)		100 (100.0)	
• A (Very Happy)	52 (13.4)		19 (19.0)	
• B	103 (26.6)		27 (27.0)	
• C	109 (27.9)		28 (28.0)	
• D (Neutral)	82 (20.4)		21 (21.0)	
• E	23 (5.9)		3 (3.0)	
• F	16 (4.1)		1 (1.0)	
• G (Very Sad)	6 (1.6)		1 (1.0)	
Diet Type	387 (100)		100 (100.0)	
• Normal	279 (72.1)		71 (71)	
• Texture Modified	29 (7.5)		3 (3.0)	
• Diabetic	32 (8.3)		14 (14.0)	
• Gluten Free	4 (1)		0 (0.0)	
• Other (e.g., allergies)	43 (11.1)		12 (12.0)	

Results of the FSSQ were normally distributed; however, results from the FoodEx-LTC were skewed; therefore, Spearman's Correlations was conducted. The maximum possible score for the 35-item questionnaire is 140, and the mean response was 102.32 (SD 13.9; 95% CI 98.91-104.55). The maximum possible score for the FoodEx-LTC is 220, and the mean response was 143.24 (SD 19.61; 95% CI 139.24, 147.46). When comparing the scores from both questionnaires Spearman's Correlation was $r=0.0594$ ($p<0.001$; 95% CI 0.430, 0.718).

7.3.2 RELIABILITY: INTERNAL CONSISTENCY

Cronbach's alpha (α) for the three-factor, 25-item scale was 0.888, indicating a good level of internal consistency. Additionally, the (α) for the individual factors performed well (Table 32), with factor two exceeding the minimum to be considered reliable during development ($\alpha \geq 0.5$) and factors one and three exceeding the reliability standard for established questionnaires ($\alpha \geq 0.7$).

Table 32: Cronbach's alpha for the three factor, 25 item scale

Factor	**# items**	(α)
1	13	0.893
2	7	0.648
3	5	0.729

7.3.4 RELIABILITY: TEMPORAL STABILITY

One hundred and five residents consented to complete the FSSQ a second time to establish test-retest reliability. Table 33 shows a side-by-side comparison of the descriptive statistics of the original sample (n=387) compared to the subsample (n=105). There were 29 males (27.6%) and 76 females (72.4%) aged between 58 to 105 years (median=86 years; IQR=12) who completed the questionnaire a second time. The mean time to complete the questionnaire during the first interview was 18.8 minutes (SD ±6.1) compared to 17.4 minutes (SD ±4.3) during the second interview.

Table 33: Descriptive statistics of the participants (n=105) who consented to complete the FSSQ twice

	First interview		Second interview	
	N (%)	Median (min;max)	N (%)	Median (min;max)
Age (years)		87 (49;105)		86 (58;105)
• Responses	373 (96.4)		104 (99.0)	
Age (stratified)				
• <65	6 (1.6)		2 (1.9)	
• 65 - 74	47 (12.6)		16 (15.4)	
• 75 - 84	88 (23.6)		21 (20.2)	
• 85 - 94	179 (48.0)		56 (53.8)	
• 95+	53 (14.2)		9 (8.7)	
Gender				
• Male	115 (29.7)		29 (27.6)	
• Female	272 (70.3)		76 (72.4)	
Length of Stay (months)		18 (1; 168)		17 (1;156)
• Responses	359 (92.8)		104 (99.0)	
Length of Stay (stratified)				
• < 12	123 (34.2)		35 (33.7)	
• 12 – 23	74 (20.6)		25 (24.0)	
• 24 – 35	59 (16.4)		18 (17.3)	
• 36 - 47	34 (9.4)		9 (8.7)	
• 48 - 60	17 (4.7)		4 (3.8)	
• 60+	53 (14.7)		13 (12.5)	
Well-being (scale A-G)	387 (100.0)		105 (100.0)	
• A (Very Happy)	52 (13.4)		10 (9.5)	
• B	103 (26.6)		29 (27.6)	
• C	109 (27.9)		32 (30.5)	
• D (Neutral)	82 (20.4)		24 (22.9)	
• E	23 (5.9)		5 (4.8)	
• F	16 (4.1)		4 (3.8)	
• G (Very Sad)	6 (1.6)		1 (1.0)	
Diet Type	387 (100)		105 (100.0)	
• Normal	279 (72.1)		72 (68.6)	
• Texture Modified	29 (7.5)		7 (6.7)	
• Diabetic	32 (8.3)		12 (11.4)	
• Gluten Free	4 (1)		2 (1.9)	
• Other (e.g., allergies)	43 (11.1)		12 (11.4)	

7.3.4.1 COHEN'S KAPPA, PERCENT AGREEMENT AND GWET'S AC

With one exception, all questions displayed a moderate (0.420) to almost perfect (0.920) level of agreement between the two time points. Question 32, "Are they willing to provide help with cutting up your food?" had Kappa -0.13 (Table 34).

Table 34: Weighted Kappa, Percent Agreement and Gwet's AC to demonstrate the level of agreement between resident responses taken at baseline and four weeks

Item	Kappa	p-value	Percent Agreement	p-value	Gwet's AC	p-value
Q26	.715	<0.001	0.9741	<0.001	0.7320	<0.001
Q20	.639	<0.001	0.9908	<0.001	0.9775	<0.001
Q22	.667	<0.001	0.9429	<0.001	0.8370	<0.001
Q10	.574	<0.001	0.9908	<0.001	0.9799	<0.001
Q17	.420	<0.001	0.9908	<0.001	0.9795	<0.001
Q35	.651	0.069	0.9365	<0.001	0.8460	<0.001
Q25	.728	<0.001	0.9090	<0.001	0.7320	<0.001
Q2	.634	<0.001	0.9524	<0.001	0.8768	<0.001
Q28	.710	<0.001	0.9556	<0.001	0.8965	<0.001
Q15	.618	<0.001	0.9302	<0.001	0.7992	<0.001
Q12	.490	<0.001	0.9450	<0.001	0.8708	<0.001
Q3	.752	<0.001	0.9524	<0.001	0.8384	<0.001
Q29	.464	<0.001	0.9238	<0.001	0.8733	<0.001
Q1	.830	<0.001	0.9551	<0.001	0.9064	<0.001
Q14	.769	<0.001	0.9148	<0.001	0.8707	<0.001
Q13	.651	<0.001	0.9693	<0.001	0.9619	<0.001
Q7	.797	<0.001	0.9817	<0.001	0.9639	<0.001
Q21	.827	<0.001	0.9132	<0.001	0.8454	<0.001
Q24	.625	<0.001	0.8741	<0.001	0.7500	<0.001
Q32	**-0.13**	**.008**	**0.9457**	**<0.001**	**0.9392**	**<0.001**
Q34	.847	.085	0.8850	<0.001	0.7638	<0.001
Q30	.920	<0.001	0.8226	<0.001	0.6242	<0.001
Q5	.594	<0.001	0.9265	<0.001	0.8090	<0.001
Q27	.641	<0.001	0.8213	<0.001	0.6566	<0.001
Q8	.420	<0.001	0.9543	<0.001	0.9201	<0.001

Gwet's AC1 and percent agreement were also calculated for each of the variables as an alternative measure of agreement (Table 34). Percent agreement between the items at both time points ranged from substantial (0.8226) to almost perfect (0.9908). Gwet's AC1 also ranged from substantial (0.6566) to almost perfect (0.9775).

7.4 DISCUSSION

The development of this food service satisfaction questionnaire was informed by the COSMIN® benchmarks for questionnaires.[65-67] As such, a combination of methods were used that sets it apart from others available to RACHs. This is the first resident FSSQ to include all of the following aspects during design and development: (1) consumer satisfaction theories, (2) stakeholder consultation, (3) a systematic review of the literature, (4) adequate sample size to ensure statistical power and (5) robust and appropriate statistical analysis and reporting. In addition, this is the first FSSQ to consider and include aspects of person-centred care, including those relevant to external assessment and accreditation. The final three-factor solution presents a 25-item FSSQ that is quick to complete, acceptable on all tests of validity and reliability and, most importantly, simple for RACH staff to use and interpret.

Construct validity was established using PCA implementing a strict statistical methodology to determine how many factors to retain and which items to remove, ensuring the final version was statistically robust. The result was a 25-item, three-factor questionnaire that explores the major determinants of food service satisfaction. Factor one is related to good food and food service and contains items related to taste, temperature, food likes, dislikes, and preferences. Factor two is concerned with resident choice and food availability, and Factor three includes items related to resident participation and staff assistance. This is congruent with themes and elements identified in the qualitative research in this field.[20,22,127,190,202,243,257,258] Additionally, this is the only study to strengthen construct validity by comparing the results against an existing questionnaire (FoodEx-LTC).[110]

Reliability was established through several methods. Cronbach's alpha was used to demonstrate internal consistency with both the overall scale and individual factors meeting or exceeding established guidelines for acceptability. Weighted Kappa was used to establish external reliability (test/retest and intra-rater reliability); however, the data from Question 32, "Are they willing to provide help with cutting up your food?" triggered an issue known as the "Kappa paradox".[259] This can occur when there are low Kappa values, but high percent agreement, such extremes in data trigger the paradox. Consequently, Gwet's AC1 was also calculated as this is less affected by indices that are closer to 0 and 1 and may be a more accurate measure when the data is in high agreement.[259]

The results of Gwet's AC1 demonstrated a substantial (0.6566) to almost perfect (0.9775) level of agreement, establishing both intra-rater reliability and temporal stability. No other resident FSSQ has been able to establish reliability across these three realms. Additionally, this is the only FSSQ validation study to have used the COSMIN® guidelines[65-67] for choosing the most appropriate statistical methods to establish relative measures of reliability such as test-retest and intra/inter-rater reliability. Finally, this study is the first to meet established guidelines for sample size, lending confidence to the power of the statistical analysis.

Interpretability does not form part of the COSMIN® checklist[65-67]; however, this important factor determines the usability of the questionnaire in practice and should be considered. Questionnaires containing negatively worded items require a matrix to determine a score that can be readily interpreted. For this reason, the 25-items of this questionnaire were all positively worded; therefore, no complicated matrix is required to understand the outcomes. The responses can be allocated a numerical value (1=none of the time; 2=some of the time; 3=most of the time; 4=all of the time). This gives the questionnaire a maximum score of 100, allowing for the easy conversion of the data into a percent.

Finally, previous validation studies have not explored how well residents with mild to moderate cognitive impairment understand the instrument being tested. Among the residents who participated in this study, 2.7% were unable to complete the questionnaire because they appeared confused and disoriented. A further 7.5% of participants failed accurately recall their age or date of birth, indicating some form of cognitive impairment; however, these residents were still capable of providing feedback about the meals to the interviewer. Historically, research in this area excludes residents with cognitive impairment; however, these results suggests that residents with mild to moderate impairment are still capable of providing feedback on their experience with the food service.

Although the methodology ensured the final version was statistically robust, it resulted in the omission of some items that are important considerations relevant to accreditation in Australia.[18] The following three items were removed during factoring of the scale:

- *Question 11 "Do you have a choice in when you can eat your meals?"*
- *Question 6 "Is the dining room a comfortable and inviting place at meal times?"*
- *Question 19 "Are you satisfied with the amount of food that you are served?"*

Question 11: "Do you have a choice in when you can eat your meals?" had an overwhelmingly negative response rate, with 91.2% of residents stating, 'none of the time.' This reflects the nature of institutionalised food service wherein the recipients are expected to adjust to the routines and rituals set in place for the benefit of the organisation, not the consumer. The Quality Standards explicitly state that organisations should factor in personal preferences regarding the timing of meals to ensure residents receive enough food and fluids to meet their nutrition and hydration needs.[18] Although this item exhibited a weak correlation ($r=0.125$) and did not load, in the context of the Quality Standards,[18] it is an important inclusion.

Question 6: "Is the dining room a comfortable and inviting place at meal times?" did not load saliently onto any factor; however, it is also embedded into the Quality Standards with

organisations required to consider "*the atmosphere, interpersonal and social aspects of the dining experience*."[18] Additionally, evidence from peer-reviewed literature and submissions to the Royal Commission suggest the dining environment can be loud, full of distractions, and poorly designed.[43,158,243] Consequently, retaining this item would allow residents to provide feedback to the RACH regarding the dining room.

Question 19: "Are you satisfied with the amount of food that you are served?" did not load saliently onto any factor. A recent study indicated the average amount spent on food per resident per day in Australian RACHs is $6.08.[260] The amount RACHs allocate for their food budget will not only affect the quality of the meals provided but can impact the quantity of food offered to residents. With budgets this low, residents may be at risk of food insecurity, a clear contributor to unintentional weight loss. The Quality Standards states that homes should ensure residents receive "*enough to eat and drink to meet their nutrition and hydration needs.*"[18] Consequently, this important item should be retained.

Once a summated rating scale has been factored, it is inadvisable to 're-insert' deleted items as this may invalidate the PCA. As an alternative, the items can be included at the end of the questionnaire with the other global measures of satisfaction. The test version included two such statements; "I am satisfied with the meals here" and "I am satisfied with the food service here". Given that meal timing, food quantity, and dining room ambience can all be considered aspects of food service (rather than the food itself), these three items can replace the less specific statement "I am satisfied with the food service here."

Consequently, the three-factor solution was modified to include adapted versions of Questions 6, 11, and 19 at the end of the questionnaire that are ranked with the Chernoff faces scale. Additionally, in keeping with the question format of the scale, all global items at the end of the scale should be reframed from statements to questions. The Chernoff scale in the original FSSQ was negatively framed, with the lowest number indicating the highest level of satisfaction. Therefore, this should be revised so that responses to the global satisfaction

are aligned with the remainder of the items; that is, the lowest number indicates the lowest level of satisfaction (Figure 18). Including items in this manner would keep the integrity of the scale intact and still allow those items relevant to the Quality Standards[18] to be included. Participants who struggled with the visual nature of the Chernoff scale responded well to it being described verbally (e.g., on a scale of one to seven). Based these considerations, it is proposed the global items be adapted to include both visual and verbal prompts. For example:

- On a scale of 1-10, how satisfied are you with the meals here?
- On a scale of 1-10, how satisfied are you with the time meals are served?
- On a scale of 1-10, how satisfied are you the community dining area?
- On a scale of 1-10, how satisfied are you with the amount of food you are served?

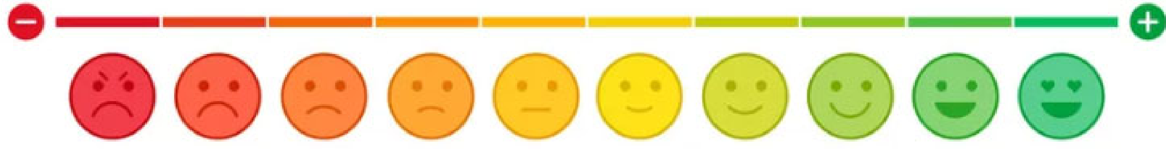


Figure 18: Revised Chernoff Faces Scale

7.4.1 LIMITATIONS

Despite the increased awareness of the importance of measuring consumer satisfaction, there remains little agreement on the construct itself. This creates problems for researchers who must first choose which satisfaction theory is appropriate, decide how to operationalise the chosen theory, and then interpret and compare the results obtained.[47] As a construct, satisfaction is highly subjective; residents in the same aged care home may have varying experiences from very dissatisfied to highly satisfied based purely on their individual expectations, values, and priorities.

As a cross-sectional snapshot of satisfaction, this questionnaire may only give consumers a limited voice; however, at a facility-wide level, it can be a powerful way to observe changes in satisfaction over time. Additionally, although every effort was made to ensure homes were recruited from a range of socio-economic areas, the sample lacked cultural diversity and indigenous representation. Future research should be conducted in regions with a diverse multicultural client base to ensure generalizability. Finally, inter-rater reliability needs to be established to ensure that consistent results are obtained when administered by different staff members.

7.4.2 IMPLICATIONS

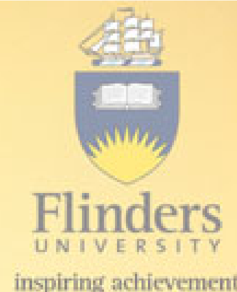
The culture shift in aged care away from a medical model and towards a person-centred model means that we must re-evaluate the way in which we have traditionally measured food service satisfaction in nursing homes. Older studies have looked at determinants of food service satisfaction in acute and short-stay settings and translated those elements into residential aged care. Although certain factors such as taste, temperature, and presentation are universal to meal satisfaction, the unique conditions of living in a RACH require a different lens. Additionally, the existing instruments were developed over a decade ago when the medical model was dominant, and residents were expected to acclimate to institutionalised food. Until now, food service satisfaction questionnaires have not focussed on individual needs and preferences nor asked residents if they wish to participate in everyday activities such as meal preparation.

7.5 CHAPTER SUMMARY

This chapter discussed the psychometric testing of a 35-item resident FSSQ for use in RACHs. The questionnaire was interviewer-administered to 387 residents living in RACHs across South Australia. A PCA revealed a 25-item, three factor questionnaire that explains 41.53% of the variance. Factor one is related to good food and food service and contains items related to taste, temperature, food likes, dislikes, and preferences. Factor two is

concerned with resident choice and food availability, and Factor three includes items related to resident participation and staff assistance. The questionnaire has good internal consistency (α=0.889) with Factor two exceeding the minimum to be considered reliable during development ($\alpha \geq 0.5$) and Factors one and three exceeding the reliability standard for established questionnaires ($\alpha \geq 0.7$). The questionnaire also demonstrated a strong positive correlation with an established FSSQ, good to excellent temporal stability, and moderate to near perfect intra-rater reliability. The final version of the FSSQ is shown below (Figure 19).

Food Service Satisfaction Questionnaire



Date: ___ / ___ / ___

Time Start: _________ AM/PM

Thank you for agreeing to take part in the Food Service Satisfaction Questionnaire for residents living in aged care homes. This questionnaire asks you about your satisfaction with the food service that you receive in this aged care home. In this questionnaire, food service is defined as the ***provision, serving and preparation of food or meals.***

For each item in the questionnaire, please select which answer best describes ***how true each statement is for you.*** This questionnaire should take around 15 minutes to complete. Be assured that your responses will remain anonymous. You do not have to complete this questionnaire if you decide that you do not want to.

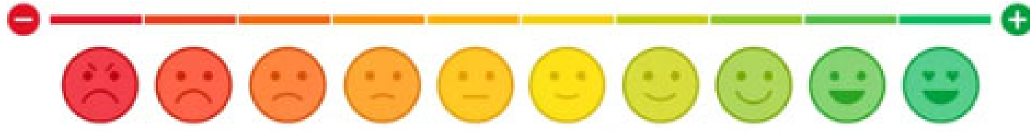
ABOUT YOU (Please tick)

1. **Please state your gender**
   ☐Male ☐Female ☐Other

2. **What is your age?** ________________________________

3. **What is your birth date?** ___________________________

4. **Please circle the option that best represents how you are feeling today:**



ABOUT THE FOOD SERVICE

Questions	Answers (please circle the most appropriate)			
During the past six months:				
1. Do you have a choice in what to eat at meal times?	None of the time	Some of the time	Most of the time	All of the time
2. Are you satisfied with the temperature of meals served?	None of the time	Some of the time	Most of the time	All of the time
3. If you make suggestions to improve the food and food service, do you feel you will be listened to?	None of the time	Some of the time	Most of the time	All of the time
4. Does your meal arrive quickly after you have been seated in the dining room?	None of the time	Some of the time	Most of the time	All of the time
5. Are you offered fresh fruit every day?	None of the time	Some of the time	Most of the time	All of the time
6. Are you able to leave the dining room soon after you have finished your meal?	None of the time	Some of the time	Most of the time	All of the time
7. Are you served foods that you like?	None of the time	Some of the time	Most of the time	All of the time
8. Do you receive familiar foods that you can recognise?	None of the time	Some of the time	Most of the time	All of the time
9. Are you offered vegetables every day?	None of the time	Some of the time	Most of the time	All of the time

Questions	Answers (please circle the most appropriate)			
10. Are you able to invite family or friends to eat with you at meal times?	None of the time	Some of the time	Most of the time	All of the time
11. Do you receive a variety of foods every day?	None of the time	Some of the time	Most of the time	All of the time
12. Do the meals taste like they are freshly cooked?	None of the time	Some of the time	Most of the time	All of the time
13. Do you receive foods that taste good to you?	None of the time	Some of the time	Most of the time	All of the time
14. If you are not satisfied with the meal(s) provided are you able to choose an alternative?	None of the time	Some of the time	Most of the time	All of the time
15. Do you receive foods that look appetising to you?	None of the time	Some of the time	Most of the time	All of the time
16. Can you help yourself to food whenever you feel hungry?	None of the time	Some of the time	Most of the time	All of the time
Thinking about the staff here:				
17. Are they able to provide food to meet your preferences?	None of the time	Some of the time	Most of the time	All of the time
18. Do they prepare the meals the way you like?	None of the time	Some of the time	Most of the time	All of the time
19. Are you able to assist them with preparing meals (if you wish)?	None of the time	Some of the time	Most of the time	All of the time

Questions	Answers (please circle the most appropriate)			
20. Do they make an effort to serve food you like?	None of the time	Some of the time	Most of the time	All of the time
21. Are they friendly and polite when they serve food at meal times?	None of the time	Some of the time	Most of the time	All of the time
22. Are you able to assist them with setting up the dining area before meals (if you wish)?	None of the time	Some of the time	Most of the time	All of the time
23. Are they willing to provide help with cutting up your food?	None of the time	Some of the time	Most of the time	All of the time
24. Are you able to assist them with tidying up the dining area after meals (if you wish)?	None of the time	Some of the time	Most of the time	All of the time
25. Do they appear to be well trained in providing a good food service?	None of the time	Some of the time	Most of the time	All of the time

Is there anything else about the meals here that you would like to tell us about?

....

....

....

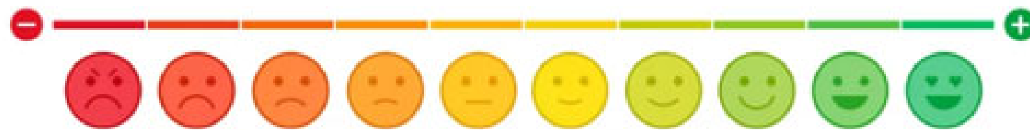
....

....

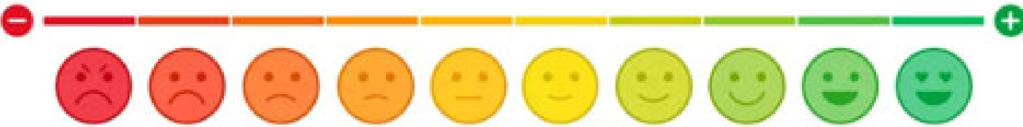
Overall satisfaction

For each question please circle the option that best represents how you feel:

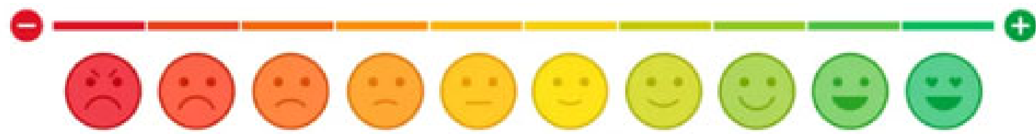
On a scale of 1-10 how satisfied are you with the meals here?



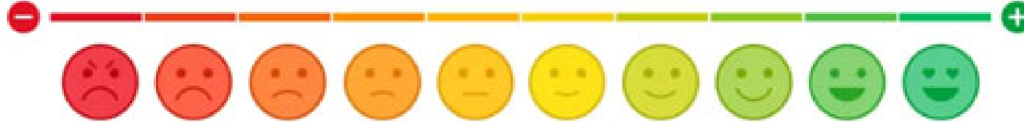
On a scale of 1-10 how satisfied are you with the amount of food you are served?



On a scale of 1-10 how satisfied are you with the times that meals are served?



On a scale of 1-10 how satisfied are you with the community dining areas?



MORE ABOUT YOU (Please tick)

1. **What is your year of birth? ___________________________**

2. **Approximately how long have you lived in this aged care home?**

3. **Do you experience any daily problems with thinking and/or memory?**
   - ☐Yes
   - ☐No
   - ☐Unsure

4. **Do you have any special diet requirements?**
   - ☐No
   - ☐Yes, please specify:
     - ☐Texture modified
     - ☐Diabetes
     - ☐Gluten free
     - ☐Other (please specify): ___________

END OF QUESTIONNAIRE, THANK YOU FOR COMPLETING

inspiring achievement CRICOS No 00114A

Figure 19: Final Version of the 25-item Resident Food Service Satisfaction Questionnaire

CHAPTER 8: DESIGNING A FAMILY FOOD SERVICE SATISFACTION QUESTIONNAIRE

The literature review in Chapter Three identified there are no questionnaires developed to measure the satisfaction of family members with the food and food service of the RACH in which their loved one resides. This chapter begins to address this important gap by commencing the process of creating a FSSQ for family members.

The methodology of scale design was outlined in Chapter Two. Briefly, there are four stages; (1) defining the construct; (2) designing the scale; (3) preliminary testing; (4) administering the questionnaire and data analysis.[62] The construct of consumer satisfaction with institutionalised food services was explored in Chapter Five. Although presented from the resident perspective, the foundations can be applied to other consumers, such as family members.

This chapter focusses on the design stages of a new questionnaire intended to measure family satisfaction with the food services in RACHs. Item generation will be explored in depth before outlining the next steps in testing the content and face validity of the instrument. As with the resident questionnaire, the COSMIN® guidelines[65-67] were used as a quality benchmark. This chapter answers the last research question (RQ6): What factors relating to food service should be included in a questionnaire intended to measure family members' satisfaction with the dining experience offered to their relatives living in a RACH?

8.1 INTRODUCTION

Although residents are the primary consumers of the food service system in RACHs, there may be cognitive and psychosocial barriers that limit their capacity to provide written or verbal feedback to the home.[261] One clear example is when residents have cognitive decline. In 2019-2020 there were 244,000 adults living in RACHS; more than half had dementia.[107] Additionally, the current generation of RACH residents were taught to be grateful and not complain; they are often silent and may indeed be fearful of voicing

dissatisfaction to management and staff.[189,222] In this situation, they may share their concerns with a trusted family member.

Family members play an integral role in choosing an aged care home,[262,263] and most continue to be active participants in their loved one's care after placement in an aged care home.[263-265] Family members know the resident's likes and dislikes, routines, and preferences and can communicate this to the staff.[266] Family members are also considered reliable sources who can provide feedback to the RACH on the quality of services provided to residents.[267] When a resident cannot exert their own agency, this places family members in a position where they must interact with the food service on behalf of the resident, an interaction that is fundamentally different from the resident's experience.

Giving family members questionnaires that are intended for residents is unreliable as the family member is placed in a "proxy-patient" position of having to guess how the resident would respond.[268] Indeed, when family members and residents are given the same satisfaction or QOL questionnaire, there is often a poor level of agreement between the two respondents.[160-164] Gasquet et al[160] asked visitor-resident dyads (n=125) to complete a satisfaction questionnaire previously validated among residents. When the results were compared, visitors overestimated resident satisfaction in all dimensions. Similarly, Kane et al[164] asked residents and family members to complete the same resident QOL questionnaire. When compared, the responses were correlated but the family response could not be considered a substitute for those of the resident. In other words, giving a family member a questionnaire intended for the resident to complete will yield unreliable data yet, to date, there are no questionnaires available for aged care homes to measure the food service satisfaction of the family members/proxies.

8.2 METHODS AND MATERIALS

8.2.1 OVERVIEW OF STUDY DESIGN

This mixed methods study was conducted to generate items for a novel food service satisfaction questionnaire for individuals with a family member living in a RACH. This project (#6929) was approved by the Social and Behavioural Research Ethics Committee (SBREC).

8.2.2 AIMS

The aims of this study were to (1) explore the perspective of family members regarding food service in RACH, (2) identify the factors that could shape food service satisfaction for family members, and (3) develop a pilot family FSSQ.

8.2.3 DEFINING THE CONSTRUCT

When considering the way family member satisfaction is shaped, the American Customer Satisfaction Index with government services and non-profit organisations[69-71] model remains relevant as it explores satisfaction from the perspective of community-dwelling adults. However, due to the intimate connection between family members and the resident living within the organisational structures, additional factors are at play. Notably, the consequences of resident satisfaction with the food and food services (quality of life and nutritional status) can directly impact family satisfaction.

8.2.3.1 PROPOSED MODEL OF FAMILY SATISFACTION WITH THE FOOD SERVICES IN AGED CARE HOMES

A proposed model of how family and resident satisfaction map against the ACSI[69-71] model of consumer satisfaction with government services and non-profit organisations can be seen in Figure 20. Family members' satisfaction is unique in that resident satisfaction is a distinct antecedent to their satisfaction; therefore, this should be considered. This novel model builds upon the model of resident satisfaction which also incorporates the QHOM-LTC.[32]

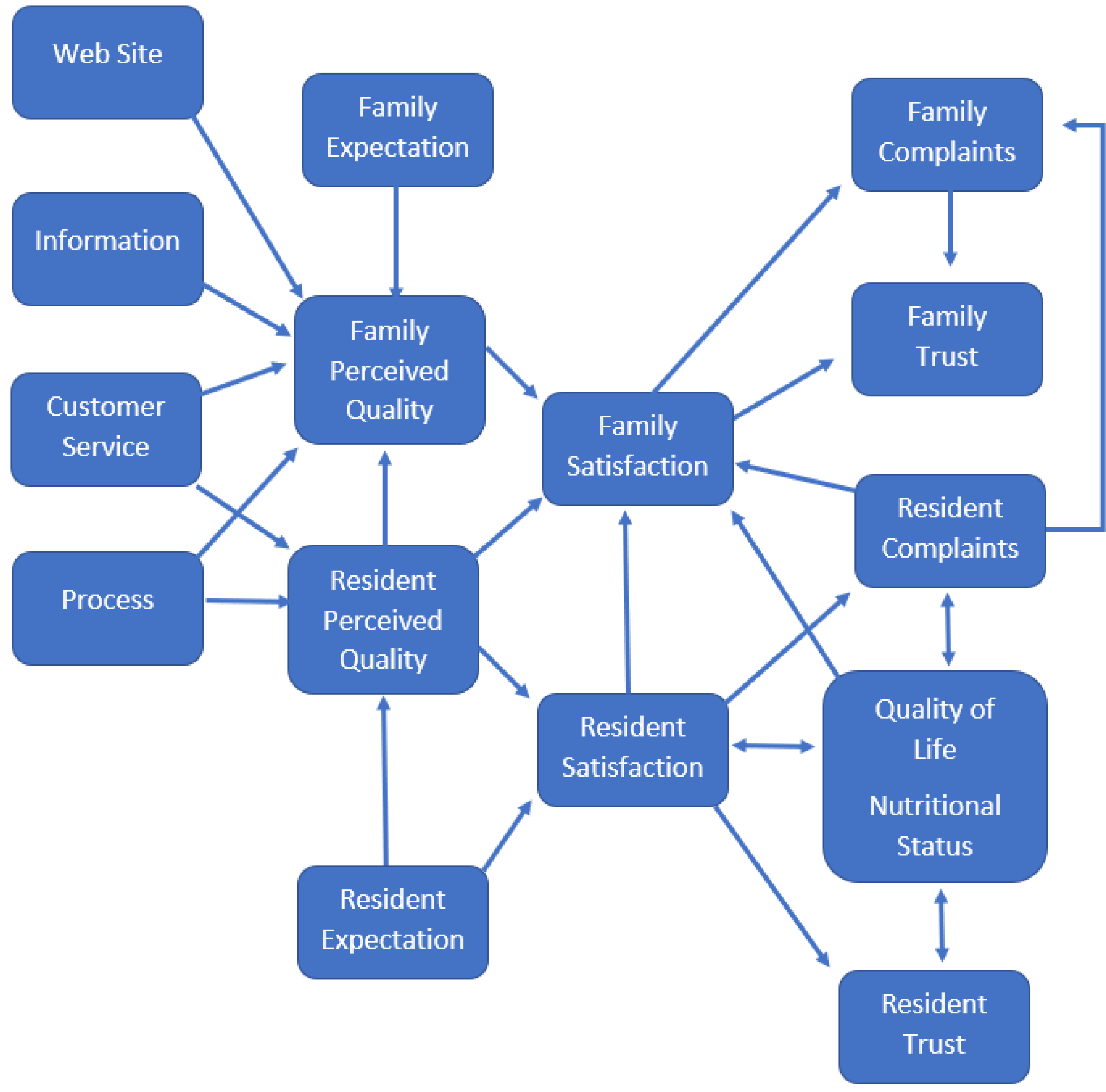


Figure 20: Proposed model of family satisfaction with food service in residential aged care homes (adapted from ACSI and QNO-LTC)[20,69-71]

Prior to entry into the aged care system, families are often very involved in the process of choosing an appropriate RACH. Consequently, the usefulness of the corporate website and clarity of information is highly relevant to external consumers. Indeed, the branding, marketing, and information available on the website help to inform and shape initial family expectations. Once a home has been chosen for the relative, the customer service and staff interaction contribute to how family and the resident perceive quality. Family not only have direct interaction with staff but can also observe how staff interact with their relative.

The processes specific to food service influencing factors such as food quality, food quantity, and staff supports directly impact both parties. As discussed, residents are the direct consumers of the outputs of the food service system; however, if residents are displeased, this information flows through to the family. Additionally, the family may have their own preference for the way mealtimes are conducted, especially where cultural or religious considerations are important. These elements shape the satisfaction of both parties; however, in this instance, resident satisfaction and resident nutritional status are additional antecedents that directly impact family satisfaction. For example, where a resident is dissatisfied with the food service, they may voice their complaints to their relative, thereby decreasing family satisfaction. Similarly, a decrease in nutritional status and quality of life due to poor food service can impact family satisfaction independent of resident satisfaction.

8.2.2 STAKEHOLDER INTERVIEWS

8.2.2.1 DATA COLLECTION

Family satisfaction with food services in RACHs is an emerging area of research; therefore, interviews with family members are a vital form of intelligence to help researchers understand the factors important to that group. Family members were recruited through the organisations that had participated in the validation of the resident FSSQ. An introductory email was sent to each site manager explaining the purpose of the study and requesting assistance to promote the study. Site managers were given a copy of the recruitment flyer and asked to display it in a prominent position in the reception area. They also agreed to email a digital copy of the flyer and the participant information sheet to family members on their database (Appendix K).

8.2.2.2 DATA MANAGEMENT

Semi-structured interviews were conducted between September and November 2020, a copy of the interview schedule is shown in Appendix L. Interviews were conducted remotely, either by telephone or teleconferencing, and recorded using a digital device and transcribed by the primary researcher within twenty-four hours to ensure maximum reflexivity and

immersion in the data. Once transcribed, interviews were de-identified, and the transcripts underwent content analysis. An example transcript can be seen in Appendix M. The goal of qualitative description is to explore the who, what, where, and why of the experience in question.[269] This is in contrast to other types of qualitative analysis, such as phenomenology or grounded theory, where the purpose is to interpret or ascribe meaning. Qualitative description stays close to the data and is therefore ideal for item generation. Coding was conducted using NVivo (released in March 2020) to explore commonalities and differences between participants and to understand the manifest variables. The code book highlighting the common concepts together with examples of participant quotes can be viewed in Table 35.

Table 35: Code Book Containing Codes and Participant Quotes from the Qualitative Interviews Conducted with Family Members

Code Name	Description	Example Participant Quote
Appearance	Quotes related to the plating of the food, the visual appearance of the meal.	If it hasn't got any colour, if it's bland it might put them off. If it doesn't look like something they would recognise, that might put them off.
Assistance to eat	Quotes related to residents who require assistance to eat.	Sometimes she's got to ring the bell and ask them to come back because she can't do something ummm yeah but I think generally they do know now to cut it up for her.
Autonomy	Quotes related to residents keeping their autonomy within the home e.g., being able to make their own cup of coffee rather than waiting to be offered at mid-meals.	There was space dedicated for a bar fridge and she's even got a little kitchenette it's got a sink and some cupboards and you could plug a kettle or toaster in if you so chose.
Bringing in food	Quotes related to resident's having food brought into the home	We bought her a little fridge which we are allowed to do, this is prior to the pandemic and so I took her shopping and we bought some savoury bikkies and a little bit of cheese and she was going to give herself

Code Name	Description	Example Participant Quote
	e.g., by family, take away.	you know half past three in the afternoon she was going to make her own snacks.
Celebrating with food	Quotes related to catering around special occasions.	Food brings family together and it would be less welcoming to go to see Mum for Mother's Day or you know to have a Christmas visit if food wasn't there.
Choice	Quotes related to food choices (or lack of).	Well I think if they could see it before it was presented to them they would be able to choose, they need more choice in that what they have on their plate.
Cultural food	Quotes related to the cultural appropriateness of foods offered in the home.	I sort of hoped that it would be similar to what she most enjoyed when she was home umm I knew that culturally it was umm different but ummm you know Mum wouldn't easily be identified as umm as you know coming from Italian parents at all.
Dietary requirements	Quotes relating to meeting resident dietary requirements.	Umm she doesn't like tomato but they don't seem to not give her tomato she will always have the tomato soup if it is put in front of her, she will always have the pasta with tomato if it is put in front of her (yup) but if she has a fair bit of it she will get itchy skin.
Dining companion	Quotes relating to the seating arrangements and choice of dining companion.	I know that when somebody dies and someone goes into their room you take their place, so you have no choice of who you sit with (yup) and unless there is a confrontation or some reason to move seats you stay there for the rest of your life (yup). Ummm I think there should be more choice of people you sit with, even though when you first get there you have no idea who the other people are.
Dining environment	Quotes related to the various aspects of the dining room environment, e.g., sound levels, decor, layout.	Look it probably is just the flooring they have padded upholstery so you know it's not that they have horrible kitchen chairs or anything like that.
Enjoyment	Quotes related to the enjoyment of food,	I think she used to complain a lot in the beginning, now she's gotten breakfast and evening meal organised she just makes

Code Name	Description	Example Participant Quote
	looking forward to mealtimes etc.	herself eat lunch, she doesn't want to go she says I don't leave my room until you know just before half past I said do you ever look up on the menu board to see what's coming, she said what's the point you know it's going to be awful.
Enough time to eat	Quotes related to giving residents enough time to complete their meals without feeling rushed.	They are hurried along because they are the last ones to get their meals and they are the closest to get out the door so they do get hurried along.
Expectations	Quotes related to family expectations prior to entering a RACH.	So my expectation was that the lunches and dinners would be quite varied and also there would be options within those settings so the Mum could choose which entrees, desserts and mains she would be having.
Family feedback	Quotes related to family members providing feedback to the RACH.	I've made some comments about trying to introduce more fruit into Mum's diet because I know that's what she used to enjoy so there's been some comments about that and how to do that umm so I notice that they actually did follow through.
Family input or involvement	Quotes related to family providing input to the home, assisting residents within the home or advocating for residents.	I don't feel like I can influence umm what she has to be honest, in any yeah in any significant way umm I don't want you know what you don't want is to make things worse for your Mum or your Dad.
Family sharing meals	Quotes related to family being able to join residents at mealtime.	I think certainly one is welcome to at the home and they you know they do that for Christmas and certain things you know and I could do that I wouldn't do it in a million years and she wouldn't want me to because she prefers to go out because she thinks that the food offerings are terrible.
Feeling welcome	Quotes related to family members feeling welcome during visits.	They wouldn't even let me have a cup of tea. Some of the girls will now but umm no. I couldn't even go and make myself a cup of tea, I had to stay in the room.

Code Name	Description	Example Participant Quote
Food preferences	Quotes related to food likes, dislikes and preferences.	Or is there something that you get for example something that you get for morning tea or afternoon tea that you particularly like and you'd like more often because you don't know what you like until it's served to you and Mum might say you know she particularly likes chocolate sponge but isn't that keen on the lemon well lets give her the chocolate more often.
Meal Timing	Quotes related to the timing of meals in aged care homes.	She will have gone down for tea on Saturday night but I think it's a long time between 5.30 at night and 8.30 the next morning, I think that is too long to go.
Nutrition	Quotes related to the nutritional value of meals.	Ummm I'm satisfied that she's not going hungry, not satisfied that it is not nutritious, it's over cooked, it's I would say I am not satisfied, no.
Portion Size	Quotes relating to portion size.	Because she really likes ice cream they are more than happy to give her a second serve and an extra large portion at that and that as you mentioned before it's personalised I think.
Quality	Quotes relating to the quality of the food and meals provided in aged care homes.	I'd probably say it's poor to moderate, umm quality ahh because it looks like it's been prepared a long time before so nutritionally I don't know about the value that makes me question the nutritional value.
Resident participation	Quotes relating to resident input and participation within the food system e.g., menu planning.	I suppose it unifies people if they are all preparing a meal together and then sharing it together as it would for anyone. I have heard of it's not a regular thing but some of the activities that they offered have included cooking so I think there were biscuits at one point that a group of interested residents made and then shared.
Social aspects of dining	Quotes relating to the social aspects of dining.	I was quite pleased to see that there was an eating area, a dining area in each because it's a large home (yes it is) ahhh in each of the areas and I was hopeful that that would be umm allowed for because

Code Name	Description	Example Participant Quote
		eating is also a social event (yes) and I thought it would be because she goes to every meal, she has none in her room, would be one of the ways that she might socialize a little bit because that's part of our family culture that you know we socialise over a meal.
Staff Attitude	Quotes related to the attitude staff have towards residents at mealtimes.	You know the staff are cheerful umm and they try to present things in a cheerful way.
Staffing	Quotes related to staffing e.g., understaffing at mealtime, staff training.	Ahhh that's in her room for morning and afternoon tea so mmm no, the staffs too damn busy (yup) umm and yes they put the soup down and they turn and walk away (ok) umm they're onto the next one, onto the next one. It's just like yep this mass production, like the army just walk along with your tray and put up with it and no if something is put in front of you and you don't want it it's too late because the staff are already back at the bain marie by then. If you say 'I'd like a little bit more of this' it won't happen because by that time it's all gone or there's no-one to ask (yup).
Taste	Quotes related to the taste of meals.	And nobody's going drop dead because you put a pinch of salt in the water that you cooking your vegetables in (no, they're not) and yet every aged care home I've been into they don't do that, they don't flavour as they cook and the end result is as you said bland, bland food that residents are not excited about eating.
Temperature	Quotes related to the temperature of meals.	They're cold, they're always cold, see Mum and Dad don't go to the dining room, they have it in their room so what happens is they are last because they sit everyone down and they get their meals and then when a person's free they deliver the meals to the people in their room.

Code Name	Description	Example Participant Quote
Texture modified	Quotes relating to texture modified meals.	I really appreciate that even though Mum has the dysphagia obstacle if you like that they still manage to offer her meals that are commensurate with the other diners and that are still tasty and offer mum variety.
Value for money	Quotes relating to perceived value for money or cost/benefit	I think Christmas Day there was a glass of wine on offer umm ahhh but you know even those kinds of things it's their home (yes) you've paid six hundred thousand dollars for a room.
Variety	Quotes relating to the variety of meals offered.	I think she'd like, she'd like yoghurt and fruit for breakfast, she has too much repetition with porridge…it just comes to mind (yup) porridge for a whole year has just become a bit much.

8.2.3 NARRATIVE LITERATURE REVIEW

8.2.2.2 DATA COLLECTION

The literature review conducted in Chapter Three demonstrated that there were no existing questionnaires to measure family satisfaction with the food services, identifying an important gap in knowledge and research. To assist with item generation, an additional, more focussed search of the literature was conducted on Medline (via Ovid) and ProQuest in November 2021 to identify published articles relevant to family members' experiences with food services in RACHs. Medline was chosen as it indexes peer-reviewed scientific articles accurately reflecting the current breadth of research in this field. Conversely, ProQuest was searched as it also indexes grey literature and has the potential to explore the anecdotal and lived experience of family members placing a loved one into an aged care home. The search strategy was similar to the original literature review, wherein appropriate terms were combined with Boolean operators (Appendix N).

8.2.2.3 STUDY SELECTION

Studies were eligible for inclusion if they explored family members' engagement or interaction with the food service within RACHs. Studies that explored multiple domains of family satisfaction with aged care homes were included as long as they discussed meals and dining. Quantitative studies were included if they contained a qualitative component, such as an open-ended questionnaire, that allowed family members to contribute their opinion or perspective. Studies conducted in a palliative care setting were excluded. No date or language exclusions were applied.

8.2.2.3 DATA EXTRACTION

The search yielded 111 results in Medline and 505 results in ProQuest. After removing duplicates (n=34), the remaining citations were screened by title and abstract, resulting in 30 studies being included for full-text review. After exclusions, 16 qualitative studies explored, to varying extents, the mealtime perspectives of family members who have placed a relative in residential aged care. An additional four qualitative studies and one report were identified in the pool of excluded studies from the original literature review conducted in Chapter Three. Consequently, data from 20 articles were used to inform item generation (Figure 21).

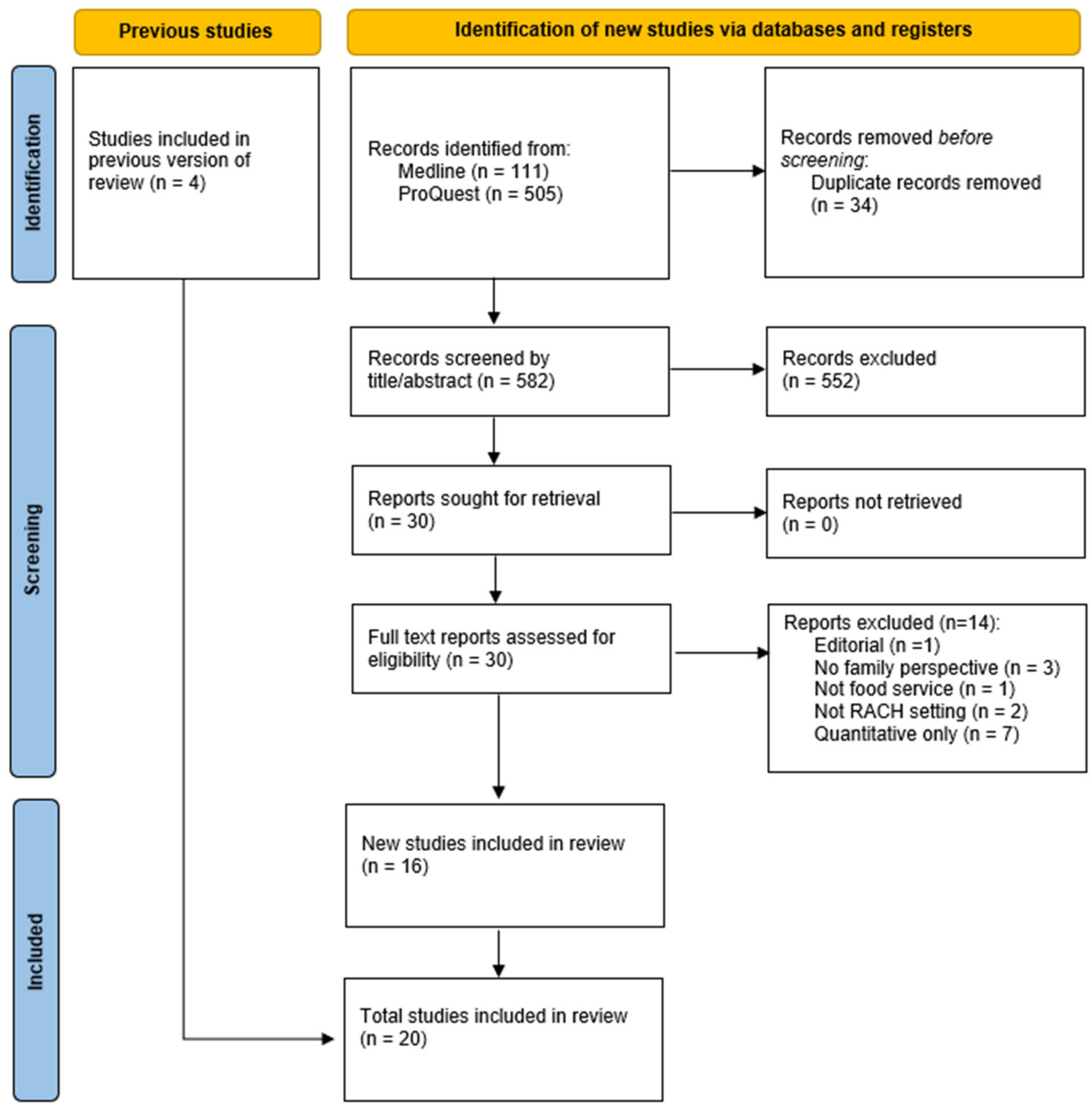


Figure 21: PRISMA Flow Diagram of the literature search and refinement process for a narrative review of questionnaires intended to measure food service satisfaction of family members who have a relative in RACHs

8.2.4 RESULTS

8.2.4.1 STAKEHOLDER INTERVIEWS

A total of nine family members participated in this study; the characteristics of the participants and the residents are shown in Table 36. Participants were predominantly female (n=8), aged 62 - 70 years and retired (n=7). Most participants (n=7) were a child of the relative living in the RACH with visitations occurring at least 1-2 times a week.

Table 36: Demographic characteristics of the participating family members (n=9) and the RACH residents

	n	%	Mean (SD)
Gender:			
- Female	8	89	
- Male	1	11	
Year of birth:			
- 1949	2	22.2	
- 1951	1	11.1	
- 1953	2	22.2	
- 1954	1	11.1	
- 1955	1	11.1	
- 1958	1	11.1	
- Missing	1	11.1	
Country of birth:			
- Australia	8	88.9	
- England	1	11.1	
Relationship to resident			
- Mother	6	66.7	
- Mother and Father	1	11.1	
- Aunt	1	11.1	
- Spouse	1	11.1	
Age of resident (years)			91.11 (5.6)
Resident Length of Stay (months)			16.78 (13.48)
Frequency of visits (per week)			
- 1 -2	3	33.3	
- 3-4	3	33.3	
- 5-6	3	33.3	
Occupation			
- Retired	7	77.8	
- Fulltime employment	2	22.2	

8.2.4.2 NARRATIVE LITERATURE REVIEW

The narrative literature review yielded 20 studies that explore the family member's perspectives of the meals offered in RACHs. Many studies focussed exclusively on one aspect of care, for example, four studies explored the cultural appropriateness of foods,[205,238,267,270] four were focussed on dementia,[186,266,271,272] three on the importance of culturally appropriate foods for residents with dementia,[203,273,274] and two focussed on texture modified food and dysphagia.[237,275] The remaining seven studies look at food service satisfaction from the family perspective in a more generalised manner.[43,220,230,243,276-278] The family-related aims and key outcomes from each of the studies are shown in Table 37.

Table 37: Summary of the qualitative research exploring family member perspectives of the food and food services in residential aged care homes identified during the supplementary search of the literature

Author/year	Country	Data collection	Population	Research Aim	Key Findings
Aschieri, Barello and Durosini 2020[267]	Italy	In-depth semi-structured interviews	Family (n=37)	To explore the perspective of Italian family caregivers who placed a resident in a nursing home.	Family value staff patience and assistance at mealtime. Family value being able to visit residents during mealtime. Family concerns regarding staffing levels at mealtime.
Bernoth, Dietsch & Davies 2013[243]	Australia	In-depth interviews	Family and friends of RACH residents (n=43)	To explore how family perceive the delivery of nutrition and hydration to RACH residents.	Dining areas are unsafe and understaffed at mealtime. Family complained about poor quality meals, limited quantity, variety, and the lack of culturally appropriate food.
Girard & Mabchour 2019[238]	Canada	Semi-structured interviews	Family (n=24) of immigrant residents(n=26)	To explore the meal context of immigrant residents living in Quebec nursing homes.	Family value the social aspects of dining, flexible mealtimes. Family expectations include the appearance, taste, texture, temperature, quantity and cultural appropriateness of food.
Hanssen & Kuven 2016[203]	South Africa, Scandanavia & Norway	In-depth interviews	Family (n=23)	To understand the meaning of traditional foods for residents with dementia.	Family believe traditional foods bring joy to residents, invoke nostalgia and increase appetite.

Author/year	Country	Data collection	Population	Research Aim	Key Findings
Keller and Duizer 2014[237]	Canada	In-depth interviews	Residents (n=15) and family (n=4)	To explore the consumers' perception of texture modified food in RACHs.	Family expect texture modified meals to be varied, look appetizing and taste good.
Kusmaul & Tucker 2020[276]	U.S.A.	Semi-structured interviews	Family (n=8) of residents (n=10)	To examine how different stakeholders in nursing homes experience choice and autonomy regarding food in the nursing home.	Family value staff consistency believing this improved staff knowledge of resident preferences. Family value variety and choice, even when the resident has special dietary requirements.
Lea et al. 2018[272]	Australia	Semi-structured interviews	Family (n=1) of resident (n=1) with dementia	To identify barriers to delivering person-centred nutrition and hydration to residents with dementia.	Staff place food and drink out of reach of the resident. Staff did not honour resident likes/dislikes.
Lopez & Amella 2011[266] Lopez & Amella 2012[271]	U.S.A.	Semi-structured interviews	Family caregivers (n=8) of nursing home residents with dementia	To explore the experiences of family who provide mealtime assistance to residents with dementia.	Family assist at mealtime to ease staffing burdens and ensure adequate nutrition. Family want meals to be homelike and nurturing, will bring in food to recreate holiday celebrations.

Author/year	Country	Data collection	Population	Research Aim	Key Findings
Tsai, Tsai et al. 2020[230]	Taiwan	Semi-structured interviews	Family (n=18) of residents (n=18)	To understand the motivation of family members who visit residents during mealtime.	Family members brought in culturally appropriate foods. Family honoured filial obligations by feeding residents. Family assist at mealtime to ease staffing burdens and ensure adequate nutrition.
Milte et al. 2017[186]	Australia	Semi-structured interviews	Family (n=6) of residents with dementia	To explore how family perceive the food and dining experience of residents with dementia.	Family want RACH to meet individual needs and preferences. Family want residents to have variety and choice (including dignity of risk). Family value the social aspects of dining.
Philpin et al. 2011[220] Philpin et al. 2013[277]	Wales	Focus groups, semi-structured interviews	Family caregivers (n=10) of care home residents	To explore the perspective of family on residents' meals and dining.	Family prefer residents to socialise in the dining room. Family members value cooked meals, family style dining, and a positive staff attitude.

Author/year	Country	Data collection	Population	Research Aim	Key Findings
Rantz et al. 1999[278]	U.S.A.	Focus groups	Family (n=80)	To explore the dimensions of quality care in RACH from the consumer perspective.	Family expectations include good quality food, honouring resident likes/dislikes and having adequate staff to assist residents at mealtime. Family bring in food to cater for resident preferences, increase variety and ensure food security.
Rosendahl, Söderman and Mazaheri 2016[273]	Sweden	In-depth semi-structured interviews	Family (n=5) of residents with dementia	To explore the experiences of family members providing care to immigrant residents with dementia in Swedish care homes.	Family bring in traditional/cultural foods when the home is unable to cater to individual needs/preferences.
Russel 2017[43]	Australia	Open-ended questionnaire	Family or friends (n= 174)	To explore the factors that family and friends deem important in the care provided by RACHs.	Family value good relationships with management and staff and being included in care management. Family value staff who assistant residents with patience and care. Family encourage resident participation in cooking activities/meal preparation.

Author/year	Country	Data collection	Population	Research Aim	Key Findings
Sagbakken, Ingebretsen & Spilker 2020[274]	Norway	Semi-structured interviews	Family (n=12)	To explore the barriers to delivering culturally appropriate care to older immigrants with dementia	Family value traditional and familiar foods being provided. Family bring in traditional/cultural foods when the home is unable to cater to individual needs/preferences.
Shune & Linville 2019[275]	U.S.A.	Semi-structured interviews	Family (n=3) of residents (n=3) with dysphagia	To explore the dining experience of residents with dysphagia.	Family value socialisation and individualisation. Family view staff engagement and support essential at mealtime. Lack of staff skill and training a barrier to successful dining.
Wu & Barker 2008[205]	U.S.A.	Semi-structured interviews	Family members (n=9) of Chinese residents (n=7)	To describe how the family of Chinese residents living in American nursing homes perceive their mealtime experience.	Family members brought in culturally appropriate foods. Family honoured filial obligations by feeding residents.
Xiao et al. 2017[270]	Australia	Sem-structured interviews	Family (n=7)	To explore family members perceptions about cultural diversity in the RACH.	Family members expect variety and that culturally appropriate meals be available. Family bring in traditional/cultural foods when the home is unable to cater to individual needs/preferences.

8.2.4.3 KEY CONCEPTS DERIVED FROM INTERVIEWS AND LITERATURE

Qualitative analysis of the interviews and peer-reviewed literature revealed five key concepts that appear important to family member satisfaction with the food service: (1) food quality and quantity; (2) culturally appropriate foods; (3) choice, variety, autonomy, and participation; (4) dining environment and atmosphere; (5) staff attitude and organisational attitude.

8.2.2.2.1 CONCEPT ONE: FOOD QUALITY AND QUANTITY

Research conducted with families suggests they have similar expectations to residents regarding the quality and quantity of food.[43,237,243] Both family and residents expect a 'proper meal' to be served; that is, a home-style meal that is hot, well presented and flavoursome.[21,238,266,277] Within the peer-reviewed literature, family dissatisfaction with the quality of meals was frequently noted, with relatives describing the food as bland, tasteless, unappealing and cold.[43,237,243,275]

Bernoth et al[243] conducted interviews with family and friends of residents (n=43) to explore their experiences with the meals served in RACHs. One participant complained their relative had spent AU$400,000 for a room in a RACH and was being served *"two dead frankfurts and a blob of sauce"* for the evening meal. Indeed, families frequently complained about the appearance,[243] especially where their loved one was being served texture-modified meals.[237,275]

During the interviews, family members expressed dissatisfaction with several aspects of the food services. Many indicated the food was too cold, bland, and boring. The temperature was a common complaint from family members; one participant (P1) stated: *"They're cold, they're always cold… Mum says her meal is always cold and swimming in water".* Another (P3) shared their observations about breakfast "*cold scrambled eggs is not really appetising and neither is soggy toast*" and (P5) discussed the lunch served to their relative: *"the meat's awful and it's cold".* Temperature is a common theme in the literature, with many family

members complaining that the food served to their relatives was cold, particularly at the evening meal when there is less staff to assist with serving.[43,186,278]

Taste was another area where families felt homes could perform better, many participants felt the food was overly bland and not enticing.[243] One participant shared (P5): *"they don't flavour as they cook and the end result is bland, bland food that residents are not excited about eating"* and another (P3) stated: *"the veggies are a bit boring, often overcooked, she likes a bit more salt on her food because it is very bland."*

Shippee et al[263] administered a nursing home satisfaction questionnaire to 16,790 family members and found that resident enjoyment of the food had the highest correlation with family satisfaction. It is, therefore, reasonable to assume that many of the same factors important to residents, such as appearance, taste, temperature, quality, and quantity are also relevant to family satisfaction.

8.2.2.2.1 CONCEPT TWO: FAMILIAR, FAVOURITE AND PREFERRED FOODS

The cultural appropriateness of foods offered by the home also appears to be strongly correlated with family satisfaction.[43,203,238,267,270,273,274,279,280] Some families believe that traditional and familiar foods bring a sense of joy and belonging and may invoke nostalgic memories. In contrast, others feel that traditional foods may increase the resident's appetite and desire to eat.[203] Runci et al.[280] surveyed family members (n=83) of Greek or Italian residents living in either a mainstream or ethno-specific RACH. When the resident was in an ethno-specific home with culturally appropriate meals, the level of family satisfaction was higher (7% very satisfied in mainstream vs 44% in ethno-specific homes).

Although many of the studies looked at cultural and traditional foods from the perspective of immigrant residents, the literature on resident satisfaction also suggests that, regardless of nationality, residents prefer familiar foods that are part of their traditional dietary pattern.[203,204] It is therefore not unreasonable to expect that family members, regardless of

cultural origin, appreciate when homes can provide their loved ones with familiar foods. Indeed, family members appreciate it when the home allows them to bring in foods from outside the home to ensure their relatives have access to familiar, favourite, and traditional foods.[43,230,265,270]

Lastly, families expressed satisfaction when staff consulted residents about their preferences and were willing to arrange celebratory food (e.g., birthday cake) for special occasions.[43] Where the home does not mark special occasions with food, the family may wish to bring in their own dishes to recreate holiday celebrations,[266] linking this item to the one above. During the qualitative interviews, family members were asked whether the homes made an effort to celebrate special events with food. One participant (P6) said, *"Yes, I was fortunate enough to go to the November birthdays which is [my] mother-in-law's month birthday and all of the residents that have their birthday that month they put on a special high tea with the China cups, the beautiful teapots umm cakes and savories, no it's beautiful."*

8.2.2.2.3 CONCEPT THREE: CHOICE, VARIETY, AUTONOMY AND PARTICIPATION

Choice and variety are often discussed in the context of the food itself, and there can be no doubt that family members expect their relatives to be offered a wide variety of meals.[43,186,270,276] Importantly, families feel that residents on a texture-modified diet[275] or residents with other special dietary requirements[276] should also be offered greater choice and variety. This includes ensuring residents are extended the dignity of risk, that is, allowing them to make informed choices about the items they consume even if existing dietary management plans contraindicate those choices.[186] Beyond the food on the plate, choice also encompasses the ability to choose your dining companion,[186] the timing of meal service,[238] and the option to participate in setting the table, clearing away, and meal preparation.[43]

During the qualitative interviews, family members expressed a broad range of opinions regarding the timing of meals. Some felt that it was well suited to the routine the resident

adhered to when living in their own home; others felt it was starkly different, which meant it felt inflexible and rigid. In the report by Russell,[43] participants were concerned the evening meal was too early and too close to the afternoon mid-meal snack.[43] A concern arising from both resources was that the evening meal was so early that there was an overly long period of time between dinner and breakfast, leaving the relative without access to food.[43] During the interviews, one participant (P1) stated: "*We've asked for her to have her breakfast earlier because when you've eaten at five o'clock at night and you don't have anything else until nine o'clock in the morning, that's a long time and she's hungry*." One of the strategies family members have to address this concern is to bring food in from outside the home; this increases the variety available to the resident[205,230,266,270,271,273,274] and ensures a level of food security and autonomy between scheduled mealtimes.[43,278]

When individuals enter residential aged care, there is an expectation they surrender their autonomy and acclimate to institutionalised life. Family members, however, recognise that autonomy and participation are ways for their relatives to retain their sense of self, the personhood they had before entering the home.[43] Some families felt it was important that residents could choose to participate in meal or snack preparation because it provides them with a meaningful activity and maintains a sense of continuity from their previous life.[43] This was also discussed in the interviews with family members, with one participant (P6) stating, *"I think it would be wonderful, yes. If they can be involved in cooking especially the ones that still can do it, that would be really good. They would feel special and because if they have cooked all their lives and then all of a sudden it stops, if it was a pleasure for them, I think that would be really enriching for them."*

8.2.2.2.5 CONCEPT FOUR: DINING ATMOSPHERE

Family members have indicated they appreciate a warm and welcoming environment where residents can eat together. Dining spaces should be small and cosy, emulating a home-like environment, and the dining room should be clean and well maintained, including the table setting, crockery, and cutlery.[43] The tables and seating should be organised in such a

manner as to facilitate resident socialisation, and seating options should be flexible to minimise the institutional feel of community dining.[43] Indeed, socialisation was a consistent theme in the literature, family members prefer when their relative enjoys meals with other residents in the community dining area.[43,220,275,277] Additionally, many families like to visit their relative at mealtime; either to share a meal together or to provide them with encouragement and assistance to eat.[205,266,267,271] Consequently, making family members feel welcome to remain in the community dining room at mealtime, or providing a smaller intimate space for family meals, would be appropriate.

8.2.2.2.6 CONCEPT FIVE: STAFF AND ORGANISATIONAL ATTITUDES

Staff attitude, availability, and training are all concepts that family members feel are important aspects of resident care. Family members expect staff to be respectful and polite when engaging with residents.[43] Additionally, they expect staff to be patient and kind when assisting residents at mealtimes,[43,267] and perceive staff engagement and support as essential to creating a pleasant dining experience.[275]

The safety of the dining areas, especially due to a lack of staffing, appears to be a concern for many family members.[243,267] Families complain that staffing levels are inadequate at mealtimes and residents are left unsupervised,[43,243,267] a situation that can have tragic consequences. In the study by Bernoth et al[243] a family member reported witnessing their relative fall out of an unsecured wheelchair resulting in extensive bruising and skin tears. Reports of food and drink being placed out of reach of the resident and staff pressuring residents to finish their meal quickly are common.[243,272] During the interviews one participant (P3) felt her mother was rushed at mealtimes: *“They are expected to finish their meal and get out of there quick so she doesn’t have long to eat her meal because they are all ready to take them back to their rooms by them.”* One of the most commonly cited reasons for family members visiting during mealtimes is to ease the burden on staff and ensure their relative receives adequate nutrition. [230,266,271]

Staff training is another important area, family have noted the presence of unsuitable and unskilled staff, something they perceive arising from government incentives to lower unemployment.[43] In the report by Russel[43] one participant stated, "*Aged care has become a dumping ground for people who can't get jobs anywhere else.*" As staff working in a RACH are greatly responsible for the health and well-being of the residents, the family believe they should be well trained and receive ongoing training and upskilling from their employer.[43] During the interviews, several family members commented on the level of staff skill and training, with one participant (P4) stating, *"there aren't enough staff to do that and they're not the sort of staff that are trained to do that."*

Family members expect staff, and the organisation as a whole, to communicate with them regarding any issues that impact their relative's health or well-being.[43,186] They expect individual staff and the organisation to work with them collaboratively to ensure the best quality of care.[43] During the interviews, family members also indicated they appreciated it when staff involved them in the resident's care. One participant (P4) indicated communication with the staff was paramount: *"Consulting with the carers obviously, including the carers in meals occasionally so that you know you're getting the hands-on feedback and based on direct experience."*

Finally, the way staff and the organisation respond to feedback and input was a concern for family members.[43] During the interviews, many participants felt the staff gave them lip service; that is, they listened with the intent to placate, not to act. For example, one participant tried to complain about the blandness of the food (P7): *"Mum got quite upset about it over a period and I said something to a few people… I said it's tasteless, there's no flavour in anything and the response I got back from the woman who I think was a senior nurse… well some of our guests say that they're just too spicy... and I thought oh well this isn't going to go anywhere."*

8.2.4.4 ITEM GENERATION

Based on the intelligence gathered from the stakeholder interviews and published literature, the following items are suggested for inclusion in a family FSSQ. Thirty-five items were devised to address the manifest variables of (1) food quality and quantity; (2) familiar and favourite foods; (3) choice, variety, autonomy, and participation; (4) dining atmosphere; (5) staff attitude and organisational attitude. Additionally, three global satisfaction ratings that address overall satisfaction with the food and meals, overall satisfaction with the staff, and value for money are also proposed (Table 38).

Table 38: Proposed items for inclusion in a Family Food Service Satisfaction Questionnaire

Manifest Variables	Items
Food Quality and Quantity	1. Are you happy with the quality of meals being offered to your family member? 2. Do you think the meals offered to your family member look appetising? 3. Do you think the hot dishes are served at an appropriate temperature? 4. Do you think your family member is being offered the right amount of food (not too much, not too little)? 5. Do you think the meals your family member is served are nutritious?
Familiar and Favourite Foods	6. Does the home allow you to bring in food for your family member? 7. Does the home celebrate special events with food? E.g., Birthday, Christmas, Mother's/Father's Day, Easter 8. Does the home cater to your family member's cultural or religious preferences? 9. Does the home provide foods that your family member enjoys eating? 10. Does the home cater to your family member's dietary needs or preferences? (e.g., vegetarian, gluten free)

Manifest Variables	Items
	11. Does the home review and update your family member's food likes and dislikes?
Choice, Variety, Autonomy and Participation	12. Does the home offer your family member alternate choices at main meals? 13. Are you happy with the variety of meals being offered to your family member? 14. Are you happy with the timing of meals offered to your family member? 15. Does the home allow your family member to participate in cooking activities or meal preparation? 16. Does the home allow your family member to participate in setting up the dining room before meals (e.g., folding napkins, setting the table)? 17. Does the home allow your family member to participate in tidying the dining room after meals? (e.g., clearing dishes) 18. Does the home provide facilities for your family member to make their own drinks or snacks e.g., a kettle or toaster in their room or in a common area? 19. Are there adequate food storage facilities (e.g., bar fridge) in your family member's room?
Dining Atmosphere	20. Does the home make you feel welcome to share a meal with your family member? 21. Is the dining room kept in a clean and tidy state? 22. Do the seating arrangements in the dining room encourage resident interaction and socialisation? 23. Does the home provide a comfortable place to share a meal with your family member?
Staff Attitude	24. Are the staff friendly and polite when they serve food to your family member? 25. Do the staff encourage your family member to eat at mealtime? 26. Do the staff provide assistance to your family member when needed (e.g., cutting up food)?

Manifest Variables	**Items**
	27. Do the staff give your family member plenty of time to finish their meal without feeling rushed? 28. Do the staff ask for your input or advice regarding the meals served to your family member? 29. Do you think the staff who prepare the meals are adequately trained? 30. Do you think the staff who serve the meals are adequately trained?
Organisational Attitude	31. Does the home listen if you make a suggestion or complaint? 32. Does the home act on your suggestions or complaints? 33. Does this home seek feedback from your family member regarding the meals and food services? 34. Do you feel comfortable providing feedback to the home? 35. Does the home include you to as an active participant in the nutritional care of your family member?
Global Measures	• Overall, how would you rate the food and meals at this home? • Overall, how would you rate the staff involved with the service of food at this home? • Thinking about the cost involved in living in an aged care home, do you feel like your family member is receiving value for money when it comes to catering?

8.2.5 INTRODUCTION AND INSTRUCTIONS

As described in Chapter Two, the beginning of the FSSQ should contain an introductory passage introducing the purpose of the questionnaire to the respondent, a definition of food service, and a guide for how long the questionnaire would take to complete.

"Thank you for agreeing to take part in the Food Service Satisfaction Questionnaire for family members who have a relative living in an aged care homes. This questionnaire asks

you about your satisfaction with the food service based on your observations and perceptions of the meals provided to your relative. In this questionnaire, food service is defined as the ***provision, serving and preparation of food or meals***.

For each item in the questionnaire, please select which answer best describes ***how true each statement is for you.*** This questionnaire should take around 15 minutes to complete. Be assured that your responses will remain anonymous. You do not have to complete this questionnaire if you decide that you do not want to."

8.2.4 RESPONSE SCALE

To remain congruent with the resident version of the FSSQ, a similar response scale should be adopted with the inclusion of a neutral response category (e.g., 'unsure' or 'don't know'). Additionally, as the questionnaire is intended to be self-completed, respondents should have the option of 'not applicable' to indicate when an item is not relevant to their situation, instead of leaving the response blank.

8.2.6 OTHER CONTENT

In addition to the introductory paragraphs, the front page of the questionnaire should also contain a series of brief demographic questions asking participants to indicate their gender, age, relationship to the resident, length of residency, and frequency of visitation.

8.2.5 DISCUSSION

The development of this novel FSSQ for family members was informed by (1) the COSMIN® benchmarks for excellence, (2) qualitative peer-reviewed literature, and (3) semi-structured interviews conducted with family members who have a relative permanently residing in residential aged care. In addition, the design of the family FSSQ was underpinned by consumer satisfaction theories, drawing upon the ACSI[69-71] and the QNOM-LTC.[32] The proposed family satisfaction model helps explain how family and resident satisfaction are uniquely individual, but also intrinsically entwined. The result is a 35-item pilot FSSQ that addresses the manifest variables identified in the literature and family member interviews.

These are: (1) food quality and quantity; (2) culturally appropriate foods; (3) choice, variety, autonomy, and participation; (4) dining environment and atmosphere; (5) staff attitude and organisational attitude.

Following generation of an item pool, the next stage is to determine the overall layout, response scale, and any instructions or other matter to assist participants in completing the questionnaire. To remain congruent with the resident version of the FSSQ, a similar frequency scale was adopted, however the addition of a neutral or soft option is appropriate in this population as they are less prone to acquiescence bias. Additionally, as the questionnaire is intended to be completed online, respondents should have the option of 'not applicable' to indicate when an item is irrelevant instead of leaving the response blank. As mentioned in Chapter Two, many residents currently residing in RACHs belong to the silent generation and are prone to response or acquiesce bias. The intended population for the family FSSQ would likely be the 'Baby Boomers' or 'Generation X', who appear more willing to complain when dissatisfied.[222,281]

The pilot questionnaire is now ready to present to an expert panel to establish content and face validity (Appendix O). The panel should include 5-10 individuals who have clinical or practical expertise in the area (e.g., food service dietitians, RACH site managers, food service managers), academics who have published in the field (e.g., dietitians, geriatricians) and persons with knowledge of questionnaire design (e.g., statisticians).[88] Once the panel has provided feedback, the questionnaire can be refined and then tested among a small number of stakeholders (n=10) to obtain their opinions on the clarity, content, and relevance of the questionnaire.

8.2.5.1 STRENGTHS AND LIMITATIONS

Some limitations arose due to the novel nature of this study. Firstly, there are no well-developed constructs for explaining consumer satisfaction with institutionalised food service and none explaining the interaction between family and resident satisfaction. Subsequently,

a new model has been proposed; however, further research is recommended to explore how well the model predicts family satisfaction. In addition, there is a paucity of research exploring family member perspectives of the food in RACHs, with most focussing on the cultural appropriateness of food. To supplement this intelligence, interviews with family members were conducted; however, the participants were predominantly Caucasian women. Future research should include a broader perspective, including the experiences of men, spouses, and close family friends, all of whom may be required to act as proxies. Despite these limitations, this questionnaire was developed with a sound methodology and followed established guidelines for scale design and development.

8.2.5.2 CONCLUSION

Residents are the primary consumers of the food service in RACHs; as such, every effort should be made to understand their perspective. However, various cognitive, physical, and psychosocial barriers can prevent residents from directly providing feedback directly to the RACH. In this situation, family members must act as proxies and advocate to the RACH on behalf of the resident, an interaction fundamentally different from that of the resident. Additionally, there is a level of care and concern family members have towards their relatives. Consequently, family member satisfaction is inherently influenced by the quality of care their relative receives. Evidence suggests that when family members are given a resident questionnaire to complete, there is a poor level of agreement, potentially because it puts the family member in the proxy-patient position. Instead, it is better to obtain feedback from the proxy-proxy perspective, where family members can provide feedback based on their own observations and interactions. Until now, no food service satisfaction questionnaires have been designed to measure family satisfaction. Once the questionnaire has undergone psychometric testing, it will provide homes with an additional form of feedback that can be used for quality improvement and accreditation purposes.

8.4 CHAPTER SUMMARY

This chapter outlined the design of a novel questionnaire intended to measure family members' satisfaction with the food and food service within the RACH in which their relative resides. The ACSI[69-71] model of consumer satisfaction was used as the theoretical model. In addition, stakeholder interviews and peer-reviewed articles were used to understand family member perspectives and inform item generation. The result is a 35-item questionnaire ready to be presented to an expert panel to establish content and face validity. No other food service satisfaction questionnaire has been designed to measure family satisfaction; this constitutes another original contribution of this thesis. At the time of thesis submission, a Flinders University Honours Student under the current supervisory team was progressing the family FSSQ through content and face validity in preparation for psychometric testing in October 2022.

CHAPTER 9: DISCUSSION AND CONCLUSION

This thesis explores food service satisfaction in residential aged care homes. This final chapter reiterates the major findings linking the outcomes to the research questions identified in Chapter One. Finally, conclusions on the implications of this work and directions for future research are discussed.

9.1 INTRODUCTION

Although many countries encourage and support ageing in place,[282] the illness and disability common with ageing[6] means many older adults require the specialised support of long-term residential aged care. Globally, these services have different labels, including Skilled Nursing Facilities (US), Long Term Care (Canada, US), Care Homes (UK), and Residential Aged Care Homes (Australia). These facilities traditionally operate on a medical model and provide clinical and hospitality services for residents in their care. Clinical services are directly relatable to residents' health and personal care, such as medication, pain management, falls, and pressure sores.[18] Hospitality services include the other aspects underpinning resident care, such as laundry services, activities, and meals.[18]

The food service in RACHs is often considered through a clinical lens, with mealtimes simply a vehicle for ensuring residents receive 'adequate nutrition and hydration', that is, a task to be completed.[283] From the resident perspective, however, mealtimes become a central part of institutionalised life[38,40,175,195,198,284] and, for many, are the highlight of the day.[42,195,196] Within the routine and repetition of an aged care home, meals become a way for residents to mark the passage of time and provide relief to boredom and loneliness.[20,198,212,284,285] Residents who experience a disappointing or unsatisfying dining experience are confronted with this reality on a daily basis,[40] thereby impacting their well-being and quality of life.[32,38,41,198]

Resident satisfaction with meals and the dining experience has been shown to be a major determinant in overall RACH quality[110] and overall consumer satisfaction with the aged care provider.[111,112] Importantly, resident dissatisfaction has been linked to poor health outcomes such as decreased nutritional status and unintentional weight loss.[32] The prevalence of malnutrition in Australian RACHs remains persistently high (50%), contributing to diminished immunity, poor wound healing, decreased mobility, increased falls, and hospital admissions.[286] Research suggests that malnutrition can add approximately AU$1800 to the cost of admission,[287] increasing the economic burden to RACHs and the broader health care system.

It is well established that malnutrition is multifactorial,[128,193,199,288]; however, logic suggests that food has zero nutritional value if left uneaten and residents are far more likely to eat if presented with food, they enjoy in an environment conducive to eating. A study amongst Finnish nursing home residents (n=2424) demonstrated that dementia, constipation, functional ability, dysphagia and food consumption all predicted malnutrition. When residents consumed less than half the food on their plate, it increased their risk of malnutrition threefold (OR 3.03; 95% CI 2.21-4.15).[193] Similarly, where residents are dissatisfied with the food service in their RACH this increases the risk of malnutrition by almost 20 times.[37] Therefore, understanding the food service factors that contribute to increased satisfaction and consequently increased consumption is necessary to address the problem.

In addition to serious health consequences, consumer dissatisfaction may also result in poor review ratings and referrals, which can also have economic consequences for aged care providers.[179] Family and resident dissatisfaction can impact national quality rankings such as the Centers for Medicare and Medicaid Services (CMS) Five-Star Quality Rating System.[165] In Australia, the Department of Health is developing a similar star rating for RACHs that includes the consumer experience as one of the four cornerstones of quality.[180] Consequently, it is important that RACHs have access to valid and reliable food service

satisfaction questionnaires to reflect the level of resident satisfaction with their services accurately.

As mentioned in Chapter One the Quality Standards[18] were updated in July 2019 to embrace a person-centred model that positions residents as the central agents in their own care. The revision fundamentally changed the way food in RACHs is framed. Although the focus is still to ensure residents are provided with sufficient nutrition and hydration to reduce the risks of malnutrition, clearer guidance is given to homes as to the psychosocial importance of meals. The Quality Standards[18] now recognise the importance of the dining experience to resident wellbeing. Additionally, the connection between food, mood and identity is acknowledged therefore honouring resident food preferences, including cultural and religious, has prominence in the Quality Standards.[18] Consequently, it is no longer appropriate to simply serve sufficient energy and nutrients to prevent malnutrition, meals must now support a sense of wellbeing and belonging.

Another important change to the Quality Standards[18] is the requirement for RACHs to have systems in place to support stakeholders to make a complaint and give feedback. Additionally, the aged care provider should regularly seek input from all stakeholders and use that intelligence to inform continuous quality improvements. This puts aged care providers in an interesting predicament. Although required to provide evidence that they are seeking feedback from consumers, there are no valid and reliable methods available to RACHs to gather said feedback. As identified during the literature review in Chapter Three, the existing FSSQs predate the change to person-centred care and therefore may not accurately reflect the current Quality Standards.[18] This places RACHs in the undesirable position where they must create their own surveys. As highlighted in Chapter Four, it is unlikely user-created surveys have undergone any psychometric testing and therefore may not provide reliable information. Consequently, how can RACHs be expected to provide evidence of seeking and acting on feedback without the appropriate tools?

When the Quality Standards[18] were implemented in 2019, the manner in which accreditation was conducted also changed. Previously, agents from the ACQSC would conduct routine inspections of the home to ensure that RACHs were meeting minimum standards for resident care and safety, including key medical outcomes such as pressure wounds and falls. Agents from the ACQSC now enter the RACH unannounced and proceed to interview approximately 10% of the residents. Using the 10-item Consumer Experience Survey, they then determine which areas of care are of the most concern from the consumer perspective. When the results from over 31,000 resident interviews conducted across 2,070 RACHs during 2017-2019 were compiled, only 38% of residents stated they were always happy with the food.[251] Although this can provide a national overview of the global satisfaction of residents with the food in RACHs, this type of survey does little to inform food service quality improvement activities. For the 62% who were not always satisfied with the food there is no mechanism for them to provide detailed feedback as to which aspects they were unsatisfied with. Once again RACHs are in the position where they are required to use feedback from consumers to improve the quality of care, yet the feedback provided is not detailed enough to inform the kitchen manager of where improvements can be made to the food service.

When discussing food service in RACHs it would be remiss not to mention the Royal Commission into Aged Care Quality and Safety.[158] This investigation was established in October 2018 to examine the *“many failures and shortfalls in the Australian aged care system.”* The Royal Commission received over 10,000 submissions, one quarter of those contained complaints related to the food and dining experience of residents living in RACHs. Consequently, the Royal Commissioners made 148 recommendations for urgent action, including *“A plan to deliver, measure and report on high quality aged care, including independent standard-setting, a general duty on aged care providers to ensure quality and safe care, and a comprehensive approach to quality measurement, reporting and star ratings.”*

In response to the Royal Commission, Australia's Federal Government has made necessary changes to improve the food and nutrition in aged care. In July 2021, an additional $10 per resident per day was given to aged care providers. To be eligible for the Basic Daily Fee supplement, RACHs are required to report their food expenditure to the Department of Health on a quarterly basis.[289] Additional actions being taken to improve the food in RACHs include increasing the number of residents surveyed during accreditation, an introduction of a star rating system and another review of the Quality Standards.[18] Despite the number of activities the Government are implementing to improve the quality of food, RACHs still lack appropriate and informative tools with which to measure resident satisfaction with the food service. Once again, RACHs are placed in a predicament where they are required to make improvements yet lack the tools to do so.

As highlighted above, providing RACHs with valid and reliable methods of measuring change and obtaining stakeholder feedback is relevant and urgently necessary. Due to the lack of questionnaires available to measure food service satisfaction, aged care providers are creating their own surveys based on their own beliefs and perspectives regarding resident satisfaction (Chapter Four). Not only is this method scientifically unsound, this creates a large amount of variance between providers as no two questionnaires would be alike. The solution is to provide every RACH in Australia with the same valid and reliable food service satisfaction questionnaire. This would create standardisation across every RACH and allow the data collected to be used as a national quality indicator and benchmarking platform. The products of this thesis are intended to contribute to a toolkit RACHs can use to measure satisfaction across a range of stakeholders engaging with the food service system.

9.2 SUMMARY OF MAJOR FINDINGS

The systematic literature review conducted in Chapter Three answered (RQ1): What is the validity and reliability of food service satisfaction questionnaires currently available to RACHs? The results identified three discrete consumer (resident) FSSQs available to aged care homes, two from America[32,121] and one from Australia.[123] Importantly, no questionnaires were found that measure family or proxy satisfaction with the food services in RACHs. In addition to the resident questionnaires, two organisational (staff) FSSQs were found, one from Canada[125] and one from Australia.[45] Critical appraisal of the existing FSSQs using the COSMIN® tool showed that none have adequately established validity and reliability. Additionally, the most recent resident FSSQ is over 10 years old, during which time the aged care standards within many countries have changed to embrace a person-centred model of care.[18,133,290] The literature review, published in the Journal of the Academy of Nutrition and Dietetics, was the first to identify and critically appraise FSSQs for consumers and organisational stakeholders.[68] This review highlighted the need to provide RACHs with valid and reliable ways to measure consumer food service satisfaction.

The development of any new questionnaire rests on three assumptions: (1) the intended stakeholder uses questionnaires for data collection; (2) existing questionnaires are not methodologically sound; and (3) the intelligence gathered by the questionnaire is useful to the stakeholder. The literature review addressed the second assumption, confirming the existing FSSQs have methodological flaws thereby providing justification for developing a psychometrically sound instrument. Until now, no research has explored the remaining assumptions, which informed the second research question (RQ2): What methods are currently used by RACHs within South Australia to measure food service satisfaction? One previous study by Castle et al[80] explored a similar concept; however, it was concerning the use of general nursing home satisfaction surveys rather than FSSQs and was conducted 15 years ago in one region in America. No similar research had been conducted in Australia or globally to understand how RACHs gather and use resident food service satisfaction data.

Although the study conducted in Chapter Four only represents a small number of RACHs (n=20) and providers (n=5), the results show that most homes (95%) gather satisfaction data from their residents. Additionally, food service managers indicated they found the information to be moderately (20%) to extremely useful (80%), especially for the purpose of quality improvement. These findings give weight to the remaining assumptions; that is, RACHs do routinely use satisfaction questionnaires, and they find the data collected to be useful. Together, the results of the literature review and the Aged Care Home Food Service Questionnaire support the development of two consumer FSSQs, one for residents and one for family members.

Chapter Five answers the third research question (RQ3): What factors relating to food service are important to include in a questionnaire intended to measure resident satisfaction with the dining experience in RACHs? To answer this question, qualitative interviews and peer-reviewed literature were analysed and mapped against the themes identified by Robinson et al[79]: (1) satisfaction with food; (2) food likes/dislikes; (3) choice/variety; (4) dining companion; (5) dining atmosphere; and (6) staff attitude. A preliminary questionnaire containing 35 food and food service items was submitted to an expert panel and pre-tested with residents to determine clarity, content, and relevance. After some refinements, the preliminary FSSQ was administered to residents (n=387) living in RACHs (n=20) in South Australia.

Chapter Six answers the fourth research question (RQ4): How does the resident experience in RACHs in South Australia compare to the food service domain of the Aged Care Quality Standards? The item responses obtained from the 387 residents who participated in this study were compared to key actions and evidence highlighted in Standard 4: Services and supports for daily living. The results highlight areas where RACHs are performing consistently well (staff supports), where there are inconsistencies (resident choice and

variety) and where they are not yet meeting the Quality Standards[18] (meal timing and resident participation).

Chapter Seven answers the fifth research question (RQ5): Can the validity and reliability of a newly developed resident food service satisfaction questionnaire be established? To establish construct validity, a PCA was conducted using a rigorous statistical methodology. The result was a 25-item, three-factor questionnaire that explores the major determinants of food service satisfaction. Factor one is related to good food and food service and contains items related to taste, temperature, food likes, dislikes, and preferences. Factor two is concerned with resident choice and food availability, and Factor three includes items related to resident participation and staff assistance. In addition to demonstrating construct validity, the questionnaire met or exceeded requirements for establishing intra-rater reliability and temporal stability. The final version is quick to complete and, most importantly, simple for RACH staff to use and interpret. Not only is this the first resident FSSQ to meet the COSMIN® benchmarks for excellence; importantly, it also incorporates aspects of person-centred care embedded in the Quality Standards.[18] Consequently, RACHs can not only use the FSSQ for quality improvement purposes but also as evidence during accreditation. Such a tool is not currently available to support RACHs.

The final gap this thesis addresses is the lack of any measure of family or proxy satisfaction with food service in RACHs. Family members interact with the food services in their own right, and they can act as proxies in situations where the resident cannot provide meaningful feedback directly to the home. However, research has consistently shown that when residents and proxies are given the same questionnaire to complete, proxies will inaccurately estimate resident satisfaction. Therefore, family members require a FSSQ that has been designed with their unique perspective, which leads to the final research question (RQ6): What factors relating to food service should be included in a questionnaire intended

to measure family members satisfaction with the dining experience offered to their relatives living in a RACH?

To understand the determinants of family satisfaction with the food and food service, a review of the literature and qualitative interviews were conducted (Chapter Eight). After synthesising the data, 35-items relating to five major themes were identified: (1) food quality and quantity; (2) familiar and favourite foods; (3) choice, variety, autonomy, and participation; (4) dining atmosphere; and (5) staff attitude and organisational attitude. Although some of the themes are aligned with the resident questionnaire (e.g., Are you happy with the quality of meals being offered to your family member?), many items specifically pertain to the family member/RACH interaction (e.g., Does the home include you as an active participant in the nutritional care of your family member?). The proposed questionnaire is ready to be presented to an expert panel for review and preliminary testing among family members to establish content and face validity.

9.3 STRENGTHS AND LIMITATIONS

The strengths and limitations of the individual studies have been presented in the discussion of the corresponding chapters. There are, however, broader strengths and limitations to the thesis overall that warrant further discussion.

9.3.1 THESIS STRENGTHS

A strength of this thesis is the robust approach used to develop the resident and family member FSSQs. An essential process in designing any questionnaire is a strong understanding of the underlying construct, i.e., consumer satisfaction. Without understanding the construct, it is difficult to identify the latent and manifest variables which are used to inform item generation. The two questionnaires developed in this thesis use the ACSI as the foundation, a model recognised as the gold standard for consumer satisfaction. However, given that the ACSI model was not intended for institutionalised settings, it was expanded to

include known antecedents and consequences of consumer satisfaction to propose a novel adaptation. This new model appears to be the first to combine consumer satisfaction theories with the unique conditions that impact consumer satisfaction with RACH food service.

Both questionnaires included stakeholder consultation during the design and development stages. Survey research that relies solely on published literature runs the risk of being conducted in an information silo; that is, no new information can be garnered beyond that which has been published. This is especially true where the body of literature is dated, as is the case with the existing resident FSSQs. To counter this, qualitative interviews with stakeholders were conducted, making it possible to explore new concepts and emerging ideas. Although stakeholder consultation should be best practice during questionnaire design, time restraints often mean researchers are limited to conducting a literature review. The scope and length of this project meant that qualitative explorations were possible, thereby strengthening the content and face validity of both questionnaires.

Another strength of this investigation is that the resident FSSQ appears to be the first of its kind to meet or exceed all tests of validity and reliability. The methodology used throughout was informed by the COSMIN® benchmarks for excellence and the writings of established authors in the field of statistics and scale development. Additionally, having a statistician on the expert panel ensured appropriate sample size calculations and informed the statistical methodology.

9.3.2 THESIS LIMITATIONS

Although the originality of this thesis is a strength, this also highlights some unavoidable limitations. Any research being conducted in a newly emerging field is limited by the scope of inquiry conducted by previous researchers. For example, to date, there are no robust models or theories that can be used to explain or underpin consumer satisfaction with institutionalised food services. Consequently, to conceptualise the antecedents and

consequences of resident and family satisfaction, it was necessary to make some assumptions that have not yet been tested.

Another limitation that should be addressed is selection bias; all participating homes were conveniently located in South Australia. Although every effort was made to ensure a broad representation from high to low economic advantage, the five corporations that agreed to participate and provide access to their residents are all corporations that historically perform well during accreditation. In addition, none of the participating corporations or individual sites had active sanctions, or non-compliance notices levied against them, indicating they are, at the very least, meeting minimum care requirements. Consequently, residents living in under-performing RACHs were not included in this research which could potentially skew the results.

A similar limitation is the homogeneity of both samples. Participants were predominantly white, and all homes were Euro-centric; that is, they served meals traditionally associated with British and Australian dietary patterns. No ethno-centric homes were included in the sample, and no people of colour or Indigenous Australians were interviewed. Consequently, it is not known how well the resident FSSQ will translate to populations where English is a second language. Additionally, residents and families who participated in the qualitative interviews may introduce self-selection bias,[291] i.e., individuals who were motivated (and therefore perhaps highly dissatisfied) may have volunteered.

Finally, there were two aspects of the resident FSSQ that were not able to be tested; inter-rater reliability and responsivity to change. Understandably, the global pandemic meant that RACHs had to focus on resident health and well-being. Consequently, all non-essential personnel (including researchers) were denied access to sites. While this created new opportunities, such as the family interviews which were conducted remotely, it was not possible to determine how well the FSSQ performs when administered by different staff. Additionally, it was not possible to implement an intervention and use the resident FSSQ as

a pre- and post- measure of satisfaction. Consequently, it is not known how well the instrument will perform in these areas.

9.4 IMPLICATIONS FOR PRACTICE

The culture shift in aged care from a medical model to a person-centred model means that we must re-evaluate how we have traditionally measured food service satisfaction in aged care homes. Older studies have looked at determinants of food service satisfaction in acute and short-stay settings and translated those elements into residential aged care. Although certain factors such as taste, temperature, and presentation are universal to meal satisfaction, the unique conditions of living in a residential aged care home require a different lens. Additionally, the existing instruments were developed and designed over a decade ago when the medical model was dominant, and residents were expected to acclimatise to institutionalised food. Until now, food service satisfaction questionnaires have not focussed on individual needs and preferences nor asked residents if they wish to participate in everyday activities such as meal preparation.

Consumer feedback has always been an important component during quality improvement; it makes sense to understand the consumers' needs and cater to those to increase satisfaction. In the RACH setting this is even more important as satisfaction with the food and food services has been linked to the nutritional status of residents.[38] Improving the quality of the meals may increase resident intake and help prevent unintentional weight loss; thereby reducing associated costs (e.g., nutritional supplements, hospital admissions) to the RACH.[292] Additionally, external accreditation organisations, such as the ACQSC, are now using consumer (resident and family) satisfaction ratings as part of a quality rating system. Providing aged care homes with a user-friendly measure of resident satisfaction with the food and dining empowers site administrators and food service managers to gather meaningful data for the purposes of quality improvement, benchmarking, and accreditation.

Additionally, the development of a world first family FSSQ will allow RACHs to gather feedback from the perspective of relatives. When residents are not able to exert their own agency or provide feedback to the home directly, family members are considered reliable sources who can help the home understand the resident's needs and preferences. Previously, however, family members were required to answer questionnaires intended for the resident. This does not provide them with an opportunity to share their perceptions around the quality of meals and care provided to their loved one. Additionally, family members interact with RACHs as their own agents and should be provided feedback mechanisms to reflect their experiences and interactions with the home.

9.5 FUTURE DIRECTIONS

9.5.1 RESIDENT QUESTIONNAIRE

Designing and testing any questionnaire is an iterative process undertaken to improve and refine the instrument. Consequently, although the FSSQ exceeds benchmarks for validity and reliability, there are still areas for future research that should be considered.

There were multiple reasons why the FSSQ was interviewer-administered; (1) it helped to overcome literacy barriers; (2) it increased the response rate[293]; (3) it allowed the interview to explain any unclear items thereby increasing the validity of results[293]; and (4) the interviewer was able to check for completion before concluding the interview which reduced the incidence of missing data. Consequently, establishing intra-rater reliability of the questionnaire was a straightforward process. In practice, multiple individuals will be administering the questionnaire therefore, it is important to establish inter-rater reliability. Accordingly, the questionnaire should be administered by two or more interviewers to a minimum sample of 100 residents each. This will indicate how reliably different interviewers can use the instrument, an important factor especially considering the cultural diversity in aged care staff.

The strict statistical methodology employed during the PCA provided a robust framework for item reduction. However, best practice in survey research states that the reduced 25-item FSSQ should also be tested among the target population so that tests for validity and reliability can be conducted again. Theoretically, no further item reduction would occur; however, re-testing would allow for hypothesis testing, another form of validity that has not yet been undertaken. When factor analysis or hypothesis testing are conducted as the sole measure of validity, this is less robust than when both have occurred. Consequently, it is recommended that the FSSQ continue to be used in both research and practice settings to strengthen validity further.

Due to lockdowns arising from COVID-19, it was not possible to establish that the FSSQ is responsive to change. Accordingly, the 25-item FSSQ should be used in conjunction with a small food service intervention as a pre- and post- measure of change, such as implementation of a bedside photo menu. Given resident expectations help to shape food satisfaction, and the dining experience begins with the visual representation of a meal (i.e., we eat with our eyes first), a bedside photo menu would be a simple and manageable intervention to test responsivity. This would provide residents with a realistic photo representation of the meal options for each day, allowing individuals to choose based on visual presentation. A photo menu could also be used as a quality improvement guide; for example, it could be used as a plating guide in the central kitchen. Additionally, it would aid staff in communicating with residents, particularly where there is a language barrier.

The final area for consideration with the resident FSSQ is developing a format that is easy-to-use in a practical setting. It seems unwieldy for homes to collect resident food service satisfaction data using a paper questionnaire as this would require manual printing, data entry, and collating. Therefore, it is recommended that the FSSQ be digitised; this would allow care staff to administer the FSSQ to residents using a mobile device (e.g., digital tablet). Data can then be collated, interpreted, and displayed within the digital application providing clear results for the food services manager.

9.5.2 FAMILY QUESTIONNAIRE

A novel family FSSQ is ready to be presented to an expert panel and family members to establish content and face validity; once completed, full administration of the FSSQ can commence. The family FSSQ is intended to be self-administered; consequently, it can be converted into a digital questionnaire using survey software (e.g., Qualtrics) and emailed to family members. As the pilot questionnaire contains 35-items, a minimum sample size of 350 family members would be required to adequately power the statistical analysis.

9.5.3 AGED CARE HOME FOOD SERVICE QUESTIONNAIRE

The Aged Care Home Food Service Questionnaire was conveniently administered to the RACHs who agreed to participate in testing the validity and reliability of the FSSQ. Although the number of homes was small (n=20) and the number of aged care providers smaller again (n=5), it still provided a unique and valuable snapshot into how RACHs measure consumer food service satisfaction. Currently, in Australia, there are 830 providers who oversee 2,704 individual aged care homes; administering the questionnaire to this wider audience would provide valuable insight into the ways aged care providers gather consumer satisfaction data. Additionally, asking RACHs to provide a copy of the questionnaire(s) they are currently using would provide a better understanding of how robustly user-created surveys measure the construct of food service satisfaction. This intelligence can be used to inform policy with the goal of implementing standardised measures across all RACHs. Ideally, the FSSQ could be adopted at a national level such that it was embedded into every RACH in Australia thereby facilitating nationwide benchmarking and quality reporting.

9.5.4 EXPLORING FOOD SERVICE SATISFACTION IN RACHS

Due to the lack of exploration into food service satisfaction in residential aged care homes, the proposed consumer satisfaction models are hypothetical. Consequently, the theory of food service satisfaction within institutionalised settings is an area of research that warrants more attention. For example, residents may feel satisfied ‘given the circumstances’, an

example of the latitude they provide knowing they are within an institutionalised food service system.[40] One potential line of future exploration is: “Do consumers of the food provided in residential aged care homes make allowances for low quality meals and food service to lower expectations and thereby decrease disconfirmation?”

9.6 CONCLUSION

As an area of research, satisfaction appears to have begun in the early 1970s with the exploration of job satisfaction among RACH staff.[294] Throughout the 1980s a rise in market research into consumer satisfaction occurred[46] while at the same time, academic research into consumer satisfaction with RACHs began to grow.[30,295,296] It was not until the 1990s that the construct of food service satisfaction began to be explored,[110,297] and in 2004, the first FSSQs were published.[32,121] For the first time, RACHs had specialised instruments allowing them to measure resident satisfaction with the food and food services. However, over the past 20 years, the way in which RACHs operate has shifted from a medical model to a person-centred model of care. This fundamentally changes the lens through which resident satisfaction with the food and food service should be viewed.

This thesis began in 2018 with the aim of developing a toolkit of instruments that RACHs could use to measure changes to food service satisfaction for consumer and organisational stakeholders. Shortly after, the Australian Government released the draft guidance for the proposed update to the Aged Care Quality and Safety Standards, which positions consumer dignity and choice at the centre of care.[18] Additionally, in October 2018, the Royal Commission into Aged Care Quality and Safety commenced an investigation that received over 10,000 submissions, one-quarter were related to food and dining. This led to a shift away from organisational stakeholders to an increased focus on consumer satisfaction.

This thesis demonstrates a clear and urgent need to provide RACHs with valid and reliable tools to measure consumer satisfaction. Consequently, the key outcomes of this thesis are: (1) a 25-item resident FSSQ that is psychometrically sound, simple to use, and easy to

interpret; and (2) a 35-item family FSSQ that is ready to be presented to an expert panel and family members to establish content and face validity.

In conclusion, this thesis strengthens our understanding of consumer food service satisfaction in the aged care setting and provides original and valuable contributions to existing knowledge. The questions arising from this thesis provide direction for future research opportunities that have the potential to influence policies around the measurement and reporting of consumer satisfaction data.

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11. APPENDICES

Appendix A	Ethics Approval
Appendix B	Signed Co-Authorship Approval
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Appendix O	Preliminary Version of the Family Food Service Satisfaction Questionnaire

APPENDIX A: ETHICS APPROVAL

FINAL APPROVAL NOTICE

Project No.:	**6929**
Project Title:	Satisfaction of food service in aged care facilities: Development of a toolkit of instruments for measurement of change
Principal Researcher:	Prof Michelle Miller
Email:	michelle.miller@flinders.edu.au
Approval Date:	17 June 2015
Ethics Approval Expiry Date:	**31 December 2019**

The above proposed project has been **approved** on the basis of the information contained in the application, its attachments and the information subsequently provided with the addition of the following comment(s):

Additional information required following commencement of research:

1. Permissions
   Please ensure that copies of the correspondence granting permission to conduct the research from the individuals and/or organisations to be involved (i.e., Aged Care Facilities) are submitted to the Committee *on receipt*. Please ensure that the SBREC project number is included in the subject line of any permission emails forwarded to the Committee. Please note that data collection should not commence until the researcher has received the relevant permissions (item D8 and Conditional approval response – number 2).

RESPONSIBILITIES OF RESEARCHERS AND SUPERVISORS

1. **Participant Documentation**
   Please note that it is the responsibility of researchers and supervisors, in the case of student projects, to ensure that:
   - all participant documents are checked for spelling, grammatical, numbering and formatting errors. The Committee does not accept any responsibility for the above

mentioned errors.

- the Flinders University logo is included on all participant documentation (e.g., letters of Introduction, information Sheets, consent forms, debriefing information and questionnaires – with the exception of purchased research tools) and the current Flinders University letterhead is included in the header of all letters of introduction. The Flinders University international logo/letterhead should be used and documentation should contain international dialling codes for all telephone and fax numbers listed for all research to be conducted overseas.
- the SBREC contact details, listed below, are included in the footer of all letters of introduction and information sheets.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number 'INSERT PROJECT No. here following approval'). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au.

2. Annual Progress / Final Reports

In order to comply with the monitoring requirements of the *National Statement on Ethical Conduct in Human Research (March 2007)* an annual progress report must be submitted each year on the **17 June** (approval anniversary date) for the duration of the ethics approval using the report template available from the Managing Your Ethics Approval SBREC web page. *Please retain this notice for reference when completing annual progress or final reports.*

If the project is completed *before* ethics approval has expired please ensure a final report is submitted immediately. If ethics approval for your project expires please submit either (1) a final report; or (2) an extension of time request and an annual report.

Student Projects

The SBREC recommends that current ethics approval is maintained until a student's thesis has been submitted, reviewed and approved. This is to protect the student in the event that reviewers recommend some changes that may include the collection of additional participant data.

Your first report is due on **17 June 2016** or on completion of the project, whichever is the earliest.

3. Modifications to Project

Modifications to the project must not proceed until approval has been obtained from the Ethics Committee. Such proposed changes / modifications include:

- change of project title;
- change to research team (e.g., additions, removals, principal researcher or supervisor change);
- changes to research objectives;
- changes to research protocol;
- changes to participant recruitment methods;
- changes / additions to source(s) of participants;
- changes of procedures used to seek informed consent;
- changes to reimbursements provided to participants;
- changes / additions to information and/or documentation to be provided to potential participants;
- changes to research tools (e.g., questionnaire, interview questions, focus group questions);
- extensions of time.

To notify the Committee of any proposed modifications to the project please complete and submit the *Modification Request Form* which is available from the Managing Your Ethics Approval SBREC web page. Download the form from the website every time a new modification request is submitted to ensure that the most recent form is used. Please note that extension of time requests should be submitted prior to the Ethics Approval Expiry Date listed on this notice.

Change of Contact Details

Please ensure that you notify the Committee if either your mailing or email address changes to ensure that correspondence relating to this project can be sent to you. A modification request is not required to change your contact details.

4. **Adverse Events and/or Complaints**

Researchers should advise the Executive Officer of the Ethics Committee on 08 8201-3116 or human.researchethics@flinders.edu.au immediately if:

- any complaints regarding the research are received;
- a serious or unexpected adverse event occurs that effects participants;
- an unforseen event occurs that may affect the ethical acceptability of the project.

Kind regards
Andrea

Mrs Andrea Fiegert and Ms Rae Tyler
Ethics Officers and Executive Officer, Social and Behavioural Research Ethics Committee
Andrea - Telephone: +61 8 8201-3116 | Monday, Tuesday and Wednesday
Rae – Telephone: +61 8 8201-7938 | ½ day Wednesday, Thursday and Friday

Email: human.researchethics@flinders.edu.au
Web: Social and Behavioural Research Ethics Committee (SBREC)

Manager, Research Ethics and Integrity – Dr Peter Wigley
Telephone: +61 8 8201-5466 | email: peter.wigley@flinders.edu.au
Research Services Office |Union Building Basement
Flinders University
Sturt Road, Bedford Park | South Australia | 5042
GPO Box 2100 | Adelaide SA 5001

CRICOS Registered Provider: The Flinders University of South Australia | CRICOS Provider Number 00114A
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please inform the sender by reply email and delete all copies of this message.

APPENDIX B: SIGNED CO-AUTHORSHIP APPROVAL

Office of Graduate Research
Room 003, Registry Building
Bedford Park, SA 5042
GPO Box 2100, Adelaide 5001 Australia
Email: hdr.exams@flinders.edu.au
Phone: (08) 8201 5961
Website: https://students.flinders.edu.au/my-course/hdr
CRICOS Provider: 00114A

CO-AUTHORSHIP APPROVALS FOR HDR THESIS EXAMINATIONS

In accordance with Clause 5, 7 and 8 in the HDR Thesis Rules, a student must sign a declaration that the thesis does not contain any material previously published or written by another person except where due reference is made in the text or footnotes. There can be no exception to this rule.

a. Publications or significant sections of publications (whether accepted, submitted or in manuscript form) arising out of work conducted during candidature may be included in the body of the thesis, or submitted as additional evidence as an appendix, on the following conditions:
   I. they contribute to the overall theme of the work, are conceptually linked to the chapters before and after, and follow a logical sequence
   II. they are formatted in the same way as the other chapters (i.e. not presented as reprints unless as an appendix), whether included as separate chapters or integrated into chapters
   III. they are in the same typeface as the rest of the thesis (except for reprints included as an appendix)
   IV. published and unpublished sections of a chapter are clearly differentiated with appropriate referencing or footnotes, and
   V. unnecessary repetition in the general introduction and conclusion, and the introductions and conclusions of each published chapter, is avoided.

b. Multi-author papers may be included within a thesis, provided:
   I. the student is the primary author
   II. there is a clear statement in prose for each publication at the front of each chapter, recording the percentage contribution of each author to the paper, from conceptualisation to realisation and documentation, in accordance with the Research Publication, Authorship and Peer Review Policy, and
   III. each of the other authors provides permission for use of their work to be included in the thesis on the Co-authorship form below.

c. Papers where the student is not the primary author may be included within a thesis if a clear justification for the paper's inclusion is provided, including the circumstances relating to production of the paper and the student's position in the list of authors. However, it is preferable to include such papers as appendices, rather than in the main body of the thesis.

STUDENT DETAILS

Student Name	Morgan Pankhurst
Student ID	2138148
College	College of Nursing and Health Sciences
Degree	Doctor of Philosphy
Title of Thesis	Measuring Consumer Food Service Satisfaction in Residential Aged Care Homes

Student Name Morgan Pankhurst
Student ID 2138148

CO-AUTHORSHIP APPROVALS FOR HDR THESIS EXAMINATION

PUBLICATION 1

This section is to be completed by the student and co-authors. If there are more than four co-authors (student plus 3 others), only the three co-authors with the most significant contributions are required to sign below.

Please note: A copy of this page will be provided to the Examiners.

Full Publication Details	Pankhurst M, Yaxley A, Miller M. Identification and Critical Appraisal of Food Service Satisfaction Questionnaires for Use in Nursing Homes: A Systematic Review. J Acad Nutr Diet. 2021;121(9):1793-1812.e1. doi: 10.1016/j.jand.2021.05.017
Section of thesis where publication is referred to	Chapter 3: Review of the Literature

Student's contribution to the publication

80	%	Research design
80	%	Data collection and analysis
80	%	Writing and editing

Outline your (the student's) contribution to the publication:

I contributed to the design of the research question and liased with the research librarian to create the search strategy. Screening against inclusion/exclusion criteria was conducted by myself and the second author (AY), we also conducted the quality appraisal on included articles. The first draft was written by myself, with edits and revisions conducted under the supervision of both co-authors (AY & MM).

APPROVALS

By signing the section below, you confirm that the details above are an accurate record of the students contribution to the work.

Name of Co-Author 1	Professor Michelle Miller	Signed	[signature]	Date	26/7/22
Name of Co-Author 2	Dr Alison Yaxley	Signed	[signature]	Date	26.07.22
Name of Co-Author 3		Signed		Date	

Student Name Morgan Pankhurst
Student ID 2138148

CO-AUTHORSHIP APPROVALS FOR HDR THESIS EXAMINATION

PUBLICATION 2

This section is to be completed by the student and co-authors. If there are more than four co-authors (student plus 3 others), only the three co-authors with the most significant contributions are required to sign below.

Please note: A copy of this page will be provided to the Examiners.

Full Publication Details	Pankhurst M, Yaxley A, Miller M. A snapshot of food service in aged care homes under the new standards. Nutr Diet. 2020;77(S1):83. doi: 10.1111/1747-0080.12627
Section of thesis where publication is referred to	Chapter 4: Administration of the Resident Food Service Satisfaction Questionnaire (Item Performance

Student's contribution to the publication		
	80 %	Research design
	80 %	Data collection and analysis
	80 %	Writing and editing

Outline your (the student's) contribution to the publication:

The conference presentation was conceived and designed by MP, AY and MM. MP drafted the initial abstract, AY and MM provided critical review and feedback. All authors read and approved the final abstract.

APPROVALS

By signing the section below, you confirm that the details above are an accurate record of the students contribution to the work.

Name of Co-Author 1 Professor Michelle Miller Signed Date 26/7/22

Name of Co-Author 2 Alison Yaxley Signed Date 26.07.22

Name of Co-Author 3 Signed Date

APPENDIX C: LITERATURE REVIEW SEARCH STRATEGIES

C:1 MEDLINE (VIA OVID)

#	Search Options
1	residential facilities/ or exp assisted living facilities/ or exp homes for the aged/ or exp Nursing Homes/
2	((extended care adj2 (facility or faculties)) or (geriatric adj2 (home or homes or facility or faculties or institution*)) or (long-term care adj2 (facility or faculties or institution* or setting* or resident* or provider*)) or (LTC adj2 (facility or faculties or institution* or setting* or resident* or provider*)) or (longterm care adj2 (facilit* or institution* or setting* or resident* or provider*)) or (residential adj2 (home or homes or care or facility or faculties)) or (long-stay adj2 (facility or faculties or institution* or resident*))).mp. or (Nursing home* or Institutionali* or institutional care or nursing facilit* or LTCF or care home* or rest home* or green house* or Eden alternative* or wellspring or formal care or aged care or dementia care unit*).ti,ab,kw.
3	1 or 2
4	food services/ or menu planning/ or diet/ or nutrition assessment/
5	nutrition assessment/
6	(food* or meal* or cater* or catering or nutrition* or hydrat* or kitchen or foodservice* or food-service*).ti,ab,kw.
7	4 or 5 or 6
8	Personal Satisfaction/ or Job Satisfaction/ or "surveys and questionnaires"/ or nutrition surveys/ or diet surveys/ or attitude/ or perception/
9	((personal* or participant* or lived) adj2 (experience or experiences or perception* or perceptive or perspective*)).ti,ab,kw.
10	(satisf* or fulfil* or happy or contentment or contented or enjoy* or attitude* or belie* or thought* or experience*).ti,ab,kw.
11	8 or 9 or 10
12	3 and 7 and 11
13	(child* or paediatric*).ti,ab,kw.
14	12 not 13

C:2 CUMMULATIVE INDEX OF NURSING AND ALLIED HEALTH LITERATURE

#	Search Options
S16	S12 NOT S15
S15	S13 OR S14
S14	AB child* OR paediatric* OR pediatric* OR infant* OR palliative
S13	TI child* OR paediatric* OR pediatric* OR infant* OR palliative
S12	S4 AND S8 AND S11
S11	S9 OR S10
S10	TX survey* OR questionnaire* OR instrument OR tool OR psychometric*
S9	(MH "Scales") OR (MH "Surveys") OR (MH "Questionnaires")
S8	S5 OR S6 OR S7
S7	AB ((personal* OR participant* OR lived) N2 (experience OR experiences OR perception* OR perceptive OR perspective*)) OR satisf* OR fulfil* OR happy OR contentment OR contented OR enjoy* OR experience*
S6	TI ((personal* OR participant* OR lived) N2 (experience OR experiences OR perception* OR perceptive OR perspective*)) OR satisf* OR fulfil* OR happy OR contentment OR contented OR enjoy* OR experience*
S5	(MH "Personal Satisfaction") OR (MH "Consumer Satisfaction") OR (MH "Personal Satisfaction")
S4	S1 OR S2 OR S3
S3	AB ((“extended care” N2 (facility OR facilities)) OR (geriatric N2 (home OR homes OR facility OR facilities OR institution*)) OR (“long-term care” N2 (facility OR facilities OR institution* OR setting* OR resident* OR provider*)) OR (LTC N2 (facility OR facilities OR institution* OR setting* OR resident* OR provider*)) OR (“longterm care” N2 (facilities OR facility OR institution* OR setting* OR resident* OR provider*)) OR (“long term care” N2 (facilities OR facility OR institution* OR setting* ...
S2	TI ((“extended care” N2 (facility OR facilities)) OR (geriatric N2 (home OR homes OR facility OR facilities OR institution*)) OR (“long-term care” N2 (facility OR facilities OR institution* OR setting* OR resident* OR provider*)) OR (LTC N2 (facility OR facilities OR institution* OR setting* OR resident* OR provider*)) OR (“longterm care” N2 (facilities OR facility OR institution* OR setting* OR resident* OR provider*)) OR (“long term care” N2 (facilities OR facility OR institution* OR setting* ...
S1	(MH "Residential Facilities") OR (MH "Nursing Homes") OR (MH "Housing for the Elderly")

C:3 SCOPUS

((“extended care” W/2 (facility OR facilities)) OR (geriatric W/2 (home OR homes OR facility OR facilities OR institution*)) OR (“long-term care” W/2 (facility OR facilities OR institution* OR setting* OR resident* OR provider*)) OR (LTC W/2 (facility OR facilities OR institution* OR setting* OR resident* OR provider*)) OR (“longterm care” W/2 (facilities OR facility OR institution* OR setting* OR resident* OR provider*)) OR (“long term care” W/2 (facilities OR facility OR institution* OR setting* OR resident* OR provider*)) OR (residential W/2 (home OR homes OR care OR facility OR facilities)) OR (long-stay W/2 (facility OR facilities OR institution* OR resident*)) OR (“nursing home*” OR institutionali* OR “institutional care” OR “nursing facility” OR “nursing facilities” OR LTC OR “care home*” OR “rest home*” OR “formal care” OR “aged care”)) AND ((personal* OR participant* OR lived) W/2 (experience OR experiences OR perception* OR perceptive OR perspective*)) OR satisf* OR fulfil* OR happy OR contentment OR contented OR enjoy* OR experience* AND survey OR questionnaire* OR instrument OR tool OR psychometric* AND NOT child* OR paediatric* OR pediatric* OR infant* OR palliative

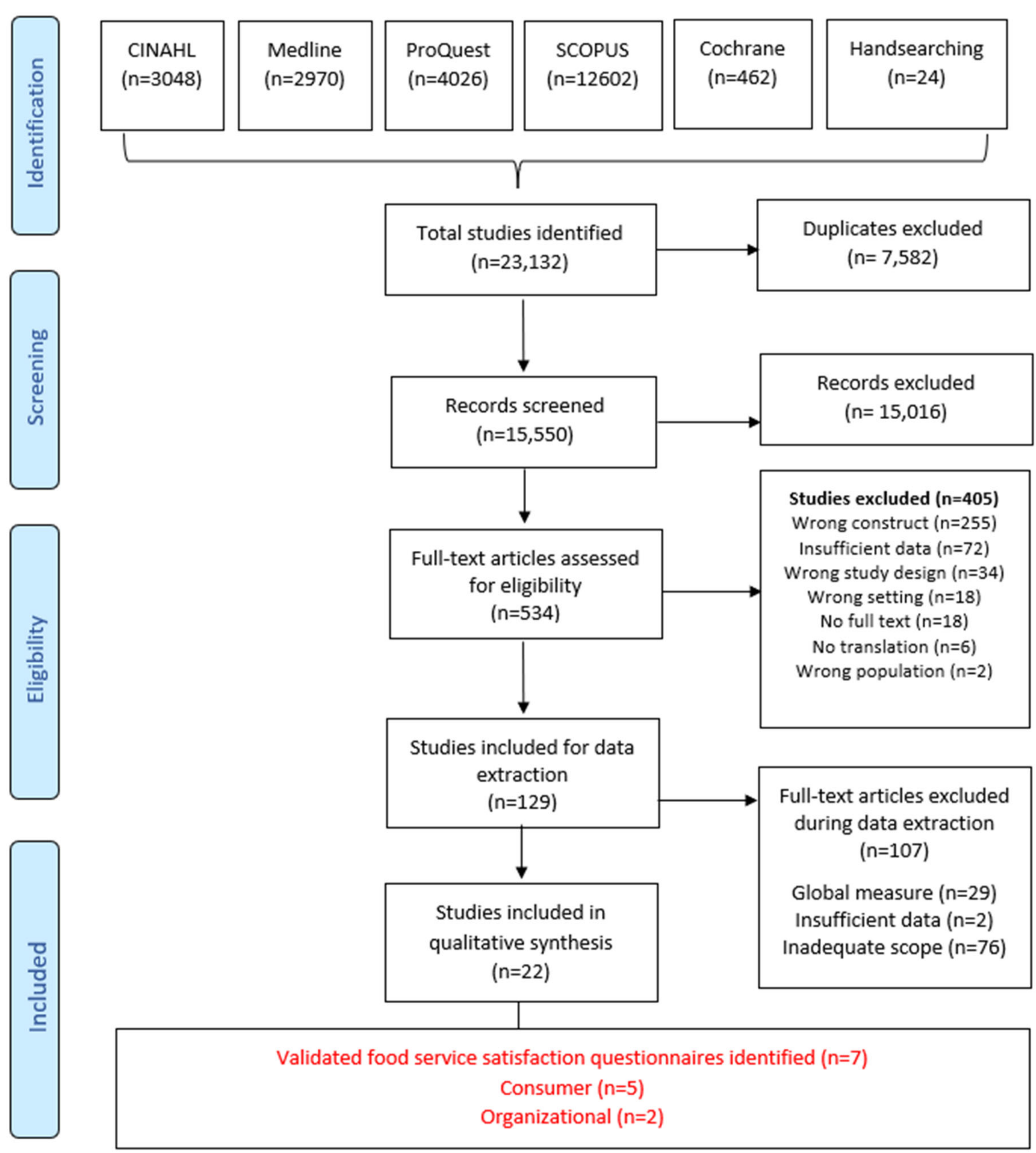
C:4 PROQUEST

(noft((("extended care" NEAR2 (facility OR facilities)) OR (geriatric NEAR2 (home OR homes OR facility OR facilities OR institution*)) OR ("long-term care" NEAR2 (facility OR facilities OR institution* OR setting* OR resident* OR provider*)) OR (LTC NEAR2 (facility OR facilities OR institution* OR setting* OR resident* OR provider*)) OR ("longterm care" NEAR2 (facilities OR facility OR institution* OR setting* OR resident* OR provider*)) OR ("long term care" NEAR2 (facilities OR facility OR institution* OR setting* OR resident* OR provider*)) OR (residential NEAR2 (home OR homes OR care OR facility OR facilities)) OR (long-stay NEAR2 (facility OR facilities OR institution* OR resident*)) OR ("nursing home*" OR institutionali* OR "institutional care" OR "nursing facility" OR "nursing facilities" OR LTC OR "care home*" OR "rest home*" OR "formal care" OR "aged care"))) AND noft(((personal* OR participant* OR lived) NEAR2 (experience OR experiences OR perception* OR perceptive OR perspective*)) OR satisf* OR fulfil* OR happy OR contentment OR contented OR enjoy* OR experience*) AND (Survey* OR questionnaire* OR instrument OR tool OR psychometric*) NOT noft(child* OR paediatric* OR pediatric* OR infant* OR palliative))

C:5 COCHRANE DATABASE OF SYSTEMATIC REVIEWS

((“extended care” near/2 (facility OR facilities)) OR (geriatric near/2 (home OR homes OR facility OR facilities OR institution*)) OR (“long-term care” near/2 (facility OR facilities OR institution* OR setting* OR resident* OR provider*)) OR (LTC near/2 (facility OR facilities OR institution* OR setting* OR resident* OR provider*)) OR (“longterm care” near/2 (facilities OR facility OR institution* OR setting* OR resident* OR provider*)) OR (“long term care” near/2 (facilities OR facility OR institution* OR setting* OR resident* OR provider*)) OR (residential near/2 (home OR homes OR care OR facility OR facilities)) OR (long-stay near/2 (facility OR facilities OR institution* OR resident*)) OR (“nursing home*” OR institutionali* OR “institutional care” OR “nursing facility” OR “nursing facilities” OR LTC OR “care home*” OR “rest home*” OR “formal care” OR “aged care”)) AND ((personal* OR participant* OR lived) near/2 (experience OR experiences OR perception* OR perceptive OR perspective*)) OR satisf* OR fulfil* OR happy OR contentment OR contented OR enjoy* OR experience* AND Survey* OR questionnaire* OR instrument OR tool OR psychometric* AND NOTchild* OR paediatric* OR pediatric* OR infant* OR palliative

APPENDIX D: PRISMA FLOW DIAGRAM DETAILING THE RESULTS OF THE ORIGINAL LITERATURE REVIEW PUBLISHED IN 2020[68]



PRISMA Flow Diagram of the original literature search and refinement process for a systematic review of food service satisfaction questionnaires used in Residential Aged Care Homes (RACHs)

APPENDIX E: DETAILS OF EXCLUDED STUDIES

Details of the general satisfaction questionnaires identified during the literature review that measure consumer satisfaction in a residential aged care setting and the extent to which they explore food service satisfaction.

Citation (Alphabetical)	Country	Instrument name	Respondent	# food questions	Questionnaire domains, items	Food service questions	Food service domains identified by Robinson et al. [79]	Response format
Anderson et al 2008[298]	AU	Resident Satisfaction Questionnaire (SF)	R F	5	6 subscales, 24 items Room Home Social interaction Meals service Staff care Resident involvement	How would you rate the following: • Variety of food • Amount of food • Temperature of food • Meal times • The dining room	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety (4) dining atmosphere ~~(5) dining companion~~ ~~(6) staff attitude~~	3 and 4 pt scale
Barsanti et al 2017[299]	Italy, CA	Long-Term Care Resident Evaluation Survey (LTCRES) (modified)	R	1	12 subscales, 66 items Comfort Privacy Spiritual Security Food Activity Staff Dignity Autonomy Relationships Clinical care Global satisfaction	When you are hungry is food available? (Canadian version) Are you allowed to have a snack if you are hungry during the day? (Tuscan version)	~~(1) satisfaction with food~~ ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	3 pt scale Yes, Sometimes, No, N/A, D/K

Beck et al 2005[300]	U.S.A.	Resident Experience and Assessment of Life (REAL) developed by Vital Research	R	5	7 subscales, N/R Autonomy Communication Companionship Environment Safety Help Quality of life	Do you get a variety of foods here? Do you get fresh fruits and vegetables here? Is food served at the right temperature? Do you have enough time to finish your meal? Do you get the help you want eating?	(1) satisfaction with food (2) food likes/dislikes (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ (6) staff attitude	N/R
Berglund 2007[301]	Sweden	N/R	R F S	3	6 Subscales, 19 items Information Contact Influence Living conditions Treatment Caring/nursing	Comfortable milieu during meals Help with feeding Satisfied with food	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ (4) dining atmosphere ~~(5) dining companion~~ (6) staff attitude	Yes/no Satisfied/not satisfied Good/bad
Bishop et al 2008[302]	U.S.A.	Short Quality of Life Survey (modified)	R	2	11 domains, 14 items Comfort Security Meaningful activity Relationships Functional Competence Enjoyment Privacy Dignity Autonomy Security Spiritual well-being	Do you like the food? Do you enjoy mealtimes?	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	Mostly yes Mostly no
Boldy, Chou & Lee 2004[303]	AU	Resident Satisfaction Questionnaire (SF)	R	5	6 subscales, 24 items Room Home Social interaction Meals service Staff care Resident involvement	How would you rate the following: • Variety of food • Amount of food • Temperature of food • Meal times • The dining room	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety (4) dining atmosphere ~~(5) dining companion~~ ~~(6) staff attitude~~	3 and 4 pt scale

Boldy, Davison & Duggan 2015[304]	AU	Resident Satisfaction Questionnaire (LF) (modified)	R	6	11 subscales, 86 items Residential care Care by staff Individual needs Your room Residential centre Social life Community links Chaplaincy services Resident services Resident involvement Overall view	How would you rate the following: • Variety of food • Amount of food • Temperature of food • Meal times • Staff help provided at meal times • The dining room	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety (4) dining atmosphere ~~(5) dining companion~~ (6) staff attitude	4 pt scale
Boldy & Grenade 2002[305]	AU	Resident Satisfaction Questionnaire (LF)	R	6	11 subscales, 66 items Moving to the home Your room/unit Home Passing the time Social life Links with the community Resident services Staff care Resident involvement Other issues Overall views of the home	How would you rate the following: • Variety • Overall amount of food • Temperature of food • Meal times • Help from staff at meal times • The dining room	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety (4) dining atmosphere ~~(5) dining companion~~ (6) staff attitude	4 pt scale
		Resident Representative Satisfaction Questionnaire	F	6	11 subscales, 65 items Moving to the home Your relative/friend's room/unit Home Passing the time Social life Links with the community Resident services Staff care Involvement in the home Other issues Overall views of the home	How would you rate the following: • Variety • Overall amount of food • Temperature of food • Meal times • Help from staff at meal times • The dining room	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety (4) dining atmosphere ~~(5) dining companion~~ (6) staff attitude	4 pt scale

Buckinx et al 2017[131]	Belgium	N/R	R	14	2 subscales, 14 items Dining room Meals	Is the dining room cosy? Is the dining room noisy? Is the dining room spacious? Is the dining room comfortable? Is the dining room brightly lit? Is the dining room filled with good smells? Are you satisfied with the meal? Are you satisfied with the setting? Are you satisfied with the temperature of the meal? Are you satisfied with the quantity served? Are you satisfied with the diversity of the meals? Are you satisfied with the taste of the meals? Are you satisfied with the presentation of the dish? Are you satisfied with the quality of the service?	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety (4) dining atmosphere (5) dining companion (6) staff attitude	Yes/no VAS
Carrier, Ouellet & West 2007[128]	CA	The Dining Experience Questionnaire	R	11	11 items	Not satisfied with the food Food temperature inadequate Leaves food on plate Food preferences not respected Overall food satisfaction (temperature, variety, taste, smell) Dishes, lids, packages difficult to manipulate	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	Dichotomous

Castle 2006[161]	U.S.A.	N/R	R F		5 subscales, 16 items Amenities Technical Quality Art of Care Efficacy Global Satisfaction	Rate the quality of meals	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Castle & Bost 2009[306]	U.S.A.	Nursing Facility Family Satisfaction Questionnaire (NF-FSQ)	F	3	7 subscales, 22 items Admission Activities Autonomy/Privacy Physical environ. Safety/security Caregivers Meals/food	Rate the food in this facility Rate the variety of food served Rate whether you think your family member enjoys the food	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	10 pt VAS
		Nursing Facility Resident Satisfaction Questionnaire (NF-RSQ)	R	3	7 subscales, 22 items Admission Activities Autonomy/Privacy Physical environ. Safety/security Caregivers Meals/food	Rate the food in this facility Rate the variety of food served Rate whether you enjoy the food	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	10 pt VAS
Castle 2004[307]	U.S.A.	Nursing Facility Family Satisfaction Questionnaire (NF-FSQ)	F	3	7 subscales, 22 items Admission Activities Autonomy/Privacy Physical environ. Safety/security Caregivers Meals/food	Rate the food in this facility Rate the variety of food served Rate whether you think your family member enjoys the food	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	10 pt VAS

Castle et al 2018[308]	U.S.A.	CAHPS® Nursing Home Survey: Discharged Resident Instrument NHCAHPS-D	R	3	11 subscales, 39 items Meals Comfort and cleanliness Safety and security Medication and pain management Nursing home staff Services Nursing environment Visitors Medical care and ability Autonomy Leaving the nursing home	What number would you use to rate the food at the nursing home? Did you ever eat in the dining room? When you ate in the dining room in the nursing home, what number would you use to rate how much you enjoyed mealtime?	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ (4) dining atmosphere ~~(5) dining companion~~ ~~(6) staff attitude~~	10 pt scale
Chambers et al 1996[309]	U.K.	Residents' Questionnaire about Satisfaction with Care	R	1	11 items	(Is there) always something you like to eat at mealtimes?	~~(1) satisfaction with food~~ (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	3 pt scale
Chong & Chi 2001[310]	Hong Kong	Scale on Domains of Resident Satisfaction (SDRS)	R	3	9 subscales, 28 items Psychosocial care Staff attitude Cleanliness Communal living Residents' relationships Choice of food Autonomy Privacy Home like environ	Food is good Food and cutlery are clean There are choices of main dish	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale

Chou, Boldy & Lee 2001[81]	AU	Resident Satisfaction Questionnaire Short Form (RSQ)	R	5	6 subscales, 24 items Room Home Social interaction Meals service Staff care Resident involvement	How would you rate the following: • Variety of food • Amount of food • Temperature of food • Meal times • The dining room	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety (4) dining atmosphere ~~(5) dining companion~~ ~~(6) staff attitude~~	3 and 4 pt scale
Chou, Boldy & Lee 2002[311]	AU	Resident Satisfaction Questionnaire Short Form (RSQ)	R F	5	6 subscales, 24 items Room Home Social interaction Meals service Staff care Resident involvement	How would you rate the following: • Variety of food • Amount of food • Temperature of food • Meal times • The dining room	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety (4) dining atmosphere ~~(5) dining companion~~ ~~(6) staff attitude~~	3 and 4 pt scale
Chou, Boldy & Lee 2003[241]	AU	Resident Satisfaction Questionnaire Short Form (RSQ)	R	5	6 subscales, 24 items Room Home Social interaction Meals service Staff care Resident involvement	How would you rate the following: • Variety of food • Amount of food • Temperature of food • Meal times • The dining room	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety (4) dining atmosphere ~~(5) dining companion~~ ~~(6) staff attitude~~	3 and 4 pt scale

Cmen, Soydan & Cetin 2010[312]	Turkey	N/R	R	15	4 subscales, 42 items Nutrition services Health services Social services General administrative services	Are you satisfied with the: Taste of the food? Appearance of the food? With the food? The warmth of the food? The time when meals are distributed? With the food? The way food is distributed? Adequacy and cleanliness of cutlery, spoons and plates? The effectiveness of diet experts and your diet? The appearance, attitude and behaviour of the staff distributing food? Quality of food served? The food is of good quality so that you do not receive it anywhere else? The other companions at your table? Your seat in the dining room? Quantity and quality of meals?	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety (4) dining atmosphere (5) dining companion (6) staff attitude	5 pt scale
Cooke et al 2013[9]	U.S.A./CA	Ohio RCF Resident Satisfaction Survey (modified)	R	6	10 subscales, 42 items Activities Choice Care and services Employee relations Employee responsiveness Communications Meals and dining Laundry Facility environment Resident environment	Do you get enough to eat? Is the food here tasty? Can you get the foods you like? Is your food served at the right temperature? Do you like the way your meals are served here? Can you get snacks and drinks whenever you want to?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	4 pt scale

Davis, Sebastian & Tschetter 1997[176]	U.S.A.	Nursing Home Service Quality Inventory	R	3	4 subscales, 32 items Staff and environmental responsiveness Dependability and trust Personal control **Food-related services and resources**	There is a variety of food is available to accommodate resident preferences. There is plenty of food at mealtime. Food is served at the proper temperature. Food is attractive and fresh. There are adequate staff to provide quality care.	(1) satisfaction with food (2) food likes/dislikes (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ (6) staff attitude	7 pt scale
Donini et al 2013[130]	Italy	N/R	R	7	2 subscales, 16 items Perceived food quality Perceived nutritional support quality	Is food important for your health? Do you think that the offered menu is designed for your health? Do you think that the menu provided to you is sufficient? Is the received food palatable? Is the mealtime agreeable? Is the staff ready to change the menu? Is the staff ready to give assistance at mealtime?	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ (6) staff attitude	7 pt scale
Ejaz et al 2002[313]	U.S.A.	N/R	F	1	2 subscales, 10 items Service/care areas Staff areas	Please check the box that indicates whether improvement is needed with the food at the nursing home.	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	3 pt scale

Ejaz et al. 2003[314]	U.S.A.	N/R	F	5	13 subscales, 62 items Admissions Social services Activities Choice Reception/phone Direct care Professional Nurses Therapy Administration Meals/Dining Laundry Environment General Questions	Are foods served at the right temperature? Can the resident get the foods he or she likes? Are there times when the resident doesn't get enough to eat? Does the resident think that the food is tasty? Overall, are you satisfied with the food in the facility?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Fatin-Izzaty & Noraida 2018[315]	Selangor	Satisfaction with Food Related Life (SWFL)	R	7	7 items	My life in relation to food and meals is close to my ideal With regard to food, the conditions of my life are excellent I am generally pleased with my food Food and meals give me satisfaction in daily life Food and meals are positive elements When I think of my next meal, I only see problems, obstacles and disappointments I wish my meals were a much more pleasant part of my life	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale

Forder et al 2021[316]	AU	RAC Consumer Experience Survey	R F	7	5 subscales, 28 items Experience Care Environment Lifestyle Meals	I like the food here I am happy with the choices on the menu I receive the meals that I order I am satisfied with the portion sizes of my meals I am satisfied with the presentation of my meals I am satisfied with the flavour of my meals I am satisfied with the temperature of my meals	(1) satisfaction with food (2) food likes/dislikes (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	4 pt scale
Frentzel et al. 2012[317]	U.S.A.	CAHPS Nursing Home Survey Family Member Survey	F	4	4 subscales, 21 items Meeting basic needs, help with eating, drinking, toileting Nurses and aides' kindness and respect towards family members How well the NH provides info and encourages family involvement NH staffing, care of belongings and cleanliness	In the last 6 months, during any of your visits, did you help your family member with eating? Was it because the nurses or aides either didn't help or made him or her wait too long? In the last 6 months, during any of your visits, did you help your family member with drinking? Was it because the nurses or aides either didn't help or made him or her wait too long?	~~(1) satisfaction with food~~ ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ (6) staff attitude	4 pt scale
Gardiner 1999[318]	Scotland	N/R	R	3	21 items	Choice of dining area Amount of food Choice of food	~~(1) satisfaction with food~~ ~~(2) food likes/dislikes~~ (3) choice/variety (4) dining atmosphere ~~(5) dining companion~~ ~~(6) staff attitude~~	Dichotomous

Gasquet, Gaudebout & Falissard 2003[160]	France	Nursing Home Satisfaction Questionnaire	F	7	4 subscales, 23 items Room comfort Meal provision Information Medical/nursing care	Satisfaction with: • Quality of meals • Diversity of dishes • Temperature of dishes • Appearance of dishes • Seasoning of dishes Taking into account patient's tastes Overall satisfaction	(1) satisfaction with food (2) food likes/dislikes (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Hefele et al 2018[179]	U.S.A.	Quality of Life & Satisfaction With Care Survey: Family	F	3	9 subscales, 43 items Comfort Security Meaningful activity Relationships Functional competence Enjoyment Privacy Dignity Autonomy	(Does your family member) Like the food here? Enjoy mealtimes here? Get their favourite foods here?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ (4) dining atmosphere ~~(5) dining companion~~ ~~(6) staff attitude~~	Dichotomous
		Maryland Nursing Facility Family Survey	F	1	5 subscales, 25 items Staff and Administration Care Provided to Residents Food and Meals Autonomy and Residents' Rights Physical Aspects of the Nursing Home	If you helped the resident with eating or drinking during any of your visits, how often did you help with eating or drinking because the nurses or nursing assistants were not available to help or made him or her wait too long?	~~(1) satisfaction with food~~ ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ (6) staff attitude	4 pt scale
Higgs et al 1998[319]	U.K.	N/R	R	4	5 subscales, 36 items Relations with staff Autonomy Amenities Privacy Social environment	Enough food Food served hot enough Food taste good Sit at table with whom you wish	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ (5) dining companion ~~(6) staff attitude~~	Dichotomous

Hodlewsky & Decker 2002[320]	U.S.A.	N/R	R	1	15 items	Overall, how is the facility doing in providing good-tasting meals?	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Ipsos MORI[321]	UK	Your Care Rating	F R	2	4 subscales, 22 items Staff and care Home comforts Choice and having a say Quality of life	The food served at mealtimes is of good quality. The menu offers a variety of choices each day.	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Irving 2015[264]	AU	Family Perceived Involvement in Individualised Long-Term Care Instrument	F	1	18 items	I am able to dine with my family member if I want to	~~(1) satisfaction with food~~ ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ (5) dining companion ~~(6) staff attitude~~	4 pt scale
Jeon et al 2018[322]	AU	Care Recipient Feedback Survey	R F	3	6 subscales, 47 items About you Management and Staff In the Home and Meals Communication Lifestyle Visitors	I am satisfied with the meal choices offered I am satisfied with the quality of the food I have easy access to food and drinks between meals	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Jeon et al. 2019[322]	AU	Care Recipient Feedback Survey	R F	3	6 subscales, 47 items About you Management and Staff In the Home and Meals Communication Lifestyle Visitors	I am satisfied with the meal choices offered I am satisfied with the quality of the food I have easy access to food and drinks between meals	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale

Jeong and Seo[132]	Korea	Satisfaction With Food-Related Life (SWFL)	R	5	5 items	Food and meals are positive elements in my life I am generally pleased with my food My life in relation to food and meals is close to my ideal With regard to food, the conditions of my life are excellent Food and meals give me satisfaction in daily life	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Josefsson et al 2017[323]	Sweden	Open Comparisons Survey of Elderly Care	R	1	N/R	In general, how does the food taste?	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	N/R
Kane et al 1982[324]	U.S.A.	Satisfaction with Nursing Home Scale	R	1	6 subscales, 114 items Cognitive domain Satisfaction domain Affective domain Activities and social contact Activities of daily living Physical	The food is good	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	3 pt scale
Kane et al. 2003[325]	U.S.A.	Quality of Life & Satisfaction With Care Survey: Resident	R	3	10 subscales, 45 items Comfort Security Meaningful activity Relationships Functional competence Enjoyment Privacy Dignity Autonomy Spiritual well-being	Do you like the food here? Do you enjoy mealtimes here? Can you get favourite foods here?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ (4) dining atmosphere ~~(5) dining companion~~ ~~(6) staff attitude~~	Dichotomous

Kane et al 2004[326]	U.S.A.	Quality of Life & Satisfaction With Care Survey: Resident	R	3	10 subscales, 47 items Comfort Security Meaningful activity Relationships Functional competence Enjoyment Privacy Dignity Autonomy Spiritual well-being	Do you like the food here? Do you enjoy mealtimes here? Can you get favourite foods here?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ (4) dining atmosphere ~~(5) dining companion~~ ~~(6) staff attitude~~	Dichotomous
		Quality of Life & Satisfaction With Care Survey: Family	F	3	9 subscales, 43 items Comfort Security Meaningful activity Relationships Functional competence Enjoyment Privacy Dignity Autonomy	(Does your family member) Like the food here? Enjoy mealtimes here? Get their favourite foods here?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ (4) dining atmosphere ~~(5) dining companion~~ ~~(6) staff attitude~~	Dichotomous
Kazerooni et al 2019[327]	Iran	N/R	R	2	5 subscales, 27 items Responsiveness and hospitality Courtesy and personal approach Inclusive and care access System orientation Safety	I have a variety of food and drinks that I can choose from. That I can decide when I eat.	~~(1) satisfaction with food~~ ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Kleinsorge & Koenig 1991[328]	U.S.A.	Consumer Satisfaction Instrument	F	4	6 subscales, 31 items Nurse/aide Administration Staff Empathy Food Housekeeping Home Issues Overall assessment	A variety of meals are provided The dietitian is easy to talk with The food is good tasting The food servers are pleasant I am satisfied with the dietary service	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ (6) staff attitude	5 pt scale

Koenig & Kleinsorge 1994[329]	U.S.A.	Consumer Satisfaction Instrument	R	4	6 subscales, 31 items Nurse/aide Administration Staff Empathy Food Housekeeping Home Issues Overall assessment	A variety of meals are provided The dietitian is easy to talk with The food is good tasting The food servers are pleasant I am satisfied with the dietary service	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ (6) staff attitude	5 pt scale
Kruzich, Clinton & Kelber 1992[330]	U.S.A.	Satisfaction with Nursing Home Scale	R	1	17 items	The food is good here	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	3 pt scale
Kwak, Lee & Kim 2017[331]	Korea	CQ-index® Nursing, Care & Home Care (VV&T) translated into Korean	R	2	5 subscales, 23 items Quality of care facilities Physical well-being Quality of caregiving Living conditions Participation	Satisfaction with meals Satisfaction with feeding assistance	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Lee, Lee & Woo 2005[332]	Hong Kong	Chinese Version of the Satisfaction with the Nursing Home Instrument (SNHI-C)	R	2	6 subscales, 29 items Respect for resident's values and preferences Information Physical care Psychological care Involvement of family Satisfaction with environment	Do you have some choices as to what you eat? Are you satisfied with the following aspects of your environment? (Food)	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	Dichotomous

Lee et al 2006[333]	Hong Kong	Chinese Version of the Satisfaction with the Nursing Home Instrument (SNHI-C)	R	2	6 subscales, 29 items Respect for resident's values and preferences Information Physical care Psychological care Involvement of family Satisfaction with environment	Do you have some choices as to what you eat? Are you satisfied with the following aspects of your environment? (Food)	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	Dichotomous
Li et al 2022[334]	China	Ohio Long-term Care Resident Satisfaction Survey (Chinese)	R	4	7 subscales, 37 items Moving in Spending time Care and services Caregivers Meals and dining Environment Facility culture	Get favourite food Menus change often Like the food Look forward to mealtime	(1) satisfaction with food (2) food likes/dislikes (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	4 pt scale D/K
Literas, Novarro & Fontanals 2010[335]	Spain	N/R	R	1	3 subscales, 23 items Residential services and care Personal environment Interpersonal relationships	The food is good?	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	N/R
Liu et al 2018[336]	China	N/R	R	1	12 items Dining Accommodation Activity space Hygiene Barrier-free facilities Gym and rehabilitation Comfort of the room Bathing Going to the toilet Attitudes of nursing staff Professional skills of nursing staff Scheduled activities	N/R (can be assumed it is one question with global rating)	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	3 pt scale

Lobos et al 2019[337]	Ecuador	Satisfaction with Food Related Life (SWFL)	R	7	7 items	My life in relation to food and meals is close to my ideal With regard to food, the conditions of my life are excellent I am generally pleased with my food Food and meals give me satisfaction in daily life Food and meals are positive elements When I think of my next meal, I only see problems, obstacles and disappointments I wish my meals were a much more pleasant part of my life	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Lum et al 2008[338]	U.S.A.	Family Satisfaction with Resident's Care	F	3	5 subscales, 25 items General amenities Social environment Physical environment and privacy Autonomy Health care	High quality food and menus The atmosphere and services at meal time Does the nursing home make it possible for residents to make use of a kitchen or get food?	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ (4) dining atmosphere ~~(5) dining companion~~ (6) staff attitude	5 pt scale
Market Decisions Research[339]	U.S.A.	Maryland Nursing Facility Family Survey	F	1	6 subscales, 19 items Overall experience Staff and administration Food and meals Autonomy & resident rights Physical aspects of the nursing home Care provided to residents	If you helped the resident with eating or drinking during any of your visits, how often did you help with eating or drinking because the nurses or nurses' assistants were not available to help or made him or her wait too long?	~~(1) satisfaction with food~~ ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ (6) staff attitude	4 pt scale
Mattiasson & Andersson 1997[340]	Sweden	Satisfaction with Nursing Home Scale (modified)	R	1	5 subscales, 21 items Security Attention Social relations Activities Routines	Do you have a flexible meal schedule?	~~(1) satisfaction with food~~ ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	4 pt scale

Michalik et al 2018[341]	EU	N/R	R	7	29 items	Evaluation of meals: • Tasty/unsavoury • Varied/of little variety • Too small/too big • Served aesthetically/not served aesthetically • Warm/Cold Possibility to receive an additional meal Possibility to prepare a meal on one's own	(1) satisfaction with food (2) food likes/dislikes (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	6 pt scale
Morris et al. 2018[342]	International	interRAI Self-Reported Quality of Life survey for LTCF (SQOL-LTCF)	R	3	5 subscales, 34 items Social life Personal control Food scale Caring staff Staff responsiveness	Enough meal variety Enjoy mealtimes Get favourite foods	~~(1) satisfaction with food~~ (2) food likes/dislikes (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Mostyn et al 2000[343]	U.S.A.	Nursing Home Questionnaire	R	4	4 subscales, 25 items Facility care and services Comfort and cleanliness Nursing Food service	Flavour of food Temperature of food Menu alternatives Courtesy of food service staff	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ (6) staff attitude	5 pt scale
Moxey et al 2002[344]	U.S.A.	N/R	R	1	17 items	Do you think the food is good here?	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	3 pt scale

Mutran et al 2001[345]	U.S.A.	N/R	R	1	3 subscales, 9 items	How often he/she receives food that s/he likes	~~(1) satisfaction with food~~ (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	4 pt scale
Nwakasi et al 2022[346]	U.S.A.	Ohio Family Satisfaction Survey (OFSS)	F	3	7 subscales, 30 items Moving in Spending time Care and services Caregivers Meals and dining Environment Facility culture	Is there a lot of variety in the meals? Are you included in mealtimes if you want to be? Is the food good?	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ (5) dining companion ~~(6) staff attitude~~	4pt scale D/K or N/A
Norton et al 1996[347]	Canada	The Long-Term Care Resident Evaluation Survey (LTCRES)	R F	9	7 subscales, 62 items Living environment Food Activity Staff Dignity Autonomy Medical care and treatment	Are there enough different kinds of food to choose from? Can you get the type of foods you like to eat? Is the taste of the food o.k.? Is the temperature of the food o.k.? Are you given the right amount of food? When you are hungry is food available? Do you get help to eat when you need it? Are you given enough time to eat? Can you choose who to eat with?	(1) satisfaction with food (2) food likes/dislikes (3) choice/variety ~~(4) dining atmosphere~~ (5) dining companion (6) staff attitude	3 pt scale

Okkels et al 2021[348]	Denmark	Satisfaction with Food-related Life (SWFL)	R	5	5 items	Food and meals are very positive elements in my life I am very pleased with my food My life in relation to food and meals is close to ideal With regard to food the conditions of my life are excellent Food and meals give me a lot of satisfaction on daily life	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Ott & Han Van 2005[349]	Netherlands	N/R	R	3	4 subscales, 12 items Quality of food Quality of care providers: behaviour Quality of care providers: expertise Quality of care providers: promptness	The quality of the food The presentation of the food Availability of food during the course of the day	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	N/R
Owen & Mattessich 1989[296]	U.S.A.	Resident Satisfaction Questionnaire	R	1	6 subscales, 43 items Admission and orientation Facility characteristics Satisfaction with care Satisfaction with services Specific problems/concerns Overall assessment	The quality of food you are offered at mealtime. The variety of food you are offered at mealtime.	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	3 pt scale
Paulus & Jans 2005[250]	Belgium	Resident Satisfaction Questionnaire	R	1	16 items	Rate how satisfied you are with the meals	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	4 pt scale

Rankin 1982[295]	U.S.A.	N/R	R	5	10 subscales, 43 items Nursing care Menus Housekeeping Laundry Maintenance Activities Social services Rehabilitation Office staff Admission	Is the food well prepared? Are your meals well served? Are your meals colourful and tasty? Do you enjoy the cookouts and barbecues during the summer months? Do you have any suggestions to improve the preparation or serving of meals?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	4 pt scale
Reid, Chappell & Gish 2007[350]	Canada	Family Perceived Involvement in Individualised Long-Term Care Instrument	F	1	18 items	I am able to dine with my family member if I want to	~~(1) satisfaction with food~~ ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ (5) dining companion ~~(6) staff attitude~~	4 pt scale
Roberts et al. 2018[351]	U.S.A.	2012 Ohio Family Satisfaction Survey	F	5	10 subscales, 48 items Admissions Social services Activities Choices Direct care & nursing staff Therapy Administration Meals and dining Laundry Environment General	Does the resident think that the food is tasty? Are foods served at the right temperature? Can the resident get the foods he/she likes? Does the resident get enough to eat?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Ross, Carswell & Dalziel 2001[265]	Canada	FAMCARE scale (modified)	F	1	12 items	How satisfied are you with meal preparation and services?	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	3 pt scale

Runci et al 2014[280]	AU	Family Satisfaction Questionnaire	F	1	10 items	How satisfied are you with the cultural appropriateness of the food provided?	~~(1) satisfaction with food~~ (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Ryden et al 2000[352]	U.S.A.	Satisfaction with the Nursing Home Instrument	R	2	6 subscales, 29 items Respect for resident's values and preferences Information Physical care Psychological care Involvement of family Satisfaction with environment	Do you have some choices as to what you eat? Are you satisfied with the following aspects of your environment? (Food)	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	Dichotomous
Sanchez et al. 2016[353]	France	N/R	R	1	10 items	How would you rate the meal quality?	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	10 pt scale
Sangl et al. 2007[354]	U.S.A.	CAHPS® Instrument for Nursing Home Residents (NHCAHPS)	R	2	10 subscales, 32 items Rating of NH experience/environment Getting needed care from NH Getting care without long wait Courteous, respectful treatment Communication with nurses and nurses' aides Getting needed care from doctors Global care ratings Overall NH rating Eye, ear and dental care Quality of life Global QOL rating	How do you rate the food? How do you rate mealtimes?	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ (4) dining atmosphere ~~(5) dining companion~~ ~~(6) staff attitude~~	10 pt scale

Sasson 2001[355]	U.S.A.	Nursing Home Resident Questionnaire (NHRQ)	R	1	14 items	The food here is good	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	3 pt scale
Shippee et al 2015[356]	U.S.A.	Quality of Life & Satisfaction With Care Survey: Resident	R	3	10 subscales, 45 items Comfort Security Meaningful activity Relationships Functional competence Enjoyment Privacy Dignity Autonomy Spiritual well-being	Do you like the food here? Do you enjoy mealtimes here? Can you get favourite foods here?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ (4) dining atmosphere ~~(5) dining companion~~ ~~(6) staff attitude~~	Dichotomous
Shippee et al 2017[263]	U.S.A.	Minnesota Family Satisfaction with Resident Nursing Home Care	F	3	4 subscales, 35 items Care Staff Environment Food	Please grade each of the following items: • Quality of food served to the resident • Menu choice of food available to the resident Atmosphere at mealtime	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety (4) dining atmosphere ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
		Quality of Life & Satisfaction With Care Survey: Resident			10 subscales, 45 items Comfort Security Meaningful activity Relationships Functional competence Enjoyment Privacy Dignity Autonomy Spiritual well-being	Do you like the food here? Do you enjoy mealtimes here? Can you get favourite foods here?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ (4) dining atmosphere ~~(5) dining companion~~ ~~(6) staff attitude~~	Dichotomous

Shippee et al 2018[357]	U.S.A.	Minnesota Family Satisfaction with Resident Nursing Home Care Ohio Department of Ageing Family Satisfaction Survey	F	1	6 items in each survey that covered key domains: Perceived staff attitudes toward the resident Food choices Activities Facility cleanliness Autonomy Recommend facility to others	Menu choice of food available to the resident? (Minnesota) Can the resident get the foods he or she likes? (Ohio)	~~(1) satisfaction with food~~ (2) food likes/dislikes (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Shippee et al 2020[357]	U.S.A.	Minnesota Family Satisfaction with Resident Nursing Home Care Ohio Department of Ageing Family Satisfaction Survey	F	1	6 items in each survey that covered key domains: Perceived staff attitudes toward the resident Food choices Activities Facility cleanliness Autonomy Recommend facility to others	Menu choice of food available to the resident? (Minnesota) Can the resident get the foods he or she likes? (Ohio)	~~(1) satisfaction with food~~ (2) food likes/dislikes (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Simon 2014[358]	Germany	The Paderborn Satisfaction Questionnaire (PPSQ-SC) for Relatives	F	1	3 subscales, 26 items Responsiveness of staff Relationship with staff Living conditions	Satisfaction with meals	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	6 pt scale

Soberman et al 1997[359]	Canada	The Long-Term Care Resident Evaluation Survey (LTCRES)	R	9	7 subscales, 62 items Living environment Food Activity Staff Dignity Autonomy Medical care and treatment	Are there enough different kinds of food to choose from? Can you get the type of foods you like to eat? Is the taste of the food o.k.? Is the temperature of the food o.k.? Are you given the right amount of food? When you are hungry is food available? Do you get help to eat when you need it? Are you given enough time to eat? Can you choose who to eat with?	(1) satisfaction with food (2) food likes/dislikes (3) choice/variety ~~(4) dining atmosphere~~ (5) dining companion (6) staff attitude	3 pt scale
Solly & Wells 2021[360]	AU	Consumer Experience Report	R F	1	10 items	Do you like the food here?	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Spangler et al 2019[361]	Sweden	Brukarunder-sökningen	R	2	27 items	Questions 4 and 5 addressed the existence of meal-related routines, and the documentation of meal preferences in the residents' action plans	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5pt scale
Stanic, Hinek & Barna 2018[362]	Croatia	N/R	R	1	10 items	Specialised and varied nutrition	~~(1) satisfaction with food~~ ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	4 pt scale

Straker & Ejaz 2001[363]	U.S.A.	Ohio Nursing Home Resident Satisfaction Survey (ONHRSS)	R	5	9 subscales, 49 items Social services Activities Choice Direct care and nurse assistants Administration Meals and dining Laundry Environment Overall satisfaction	Is the food tasty here? Are the foods served at the right temperature? Can you get the foods you like? Are there times you don't get enough to eat? Overall, are you satisfied with the food here?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	Dichotomous
Straker et al 2007[12]	U.S.A.	Ohio Nursing Home Resident Satisfaction Survey (ONHRSS)	R	5	9 subscales, 48 items Social Services Activities Choice Administration Resident Environment Facility Environment Meals & dining Laundry Direct Care & Nursing Overall Satisfaction	Is the food tasty here? Are the foods served at the right temperature? Can you get the foods you like? Overall, are you satisfied with the food here? Are there times you don't get enough to eat?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	Dichotomous
Straker & Ejaz 2007[364]	U.S.A.	2006 Ohio Nursing Home Family Satisfaction Survey	F	5	10 subscales, 54 items Admissions Social services Activities Choices Direct care & nursing staff Therapy Administration Meals and dining Laundry Environment General	Does the resident think that the food is tasty? Are foods served at the right temperature? Can the resident get the foods he/she likes? Does the resident get enough to eat? Overall, are you satisfied with the food in the facility?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale

Straker et al 2009[365]	U.S.A.	2008 Ohio Nursing Home Family Satisfaction Survey	F	5	10 subscales, 54 items Admissions Social services Activities Choices Direct care & nursing staff Therapy Administration Meals and dining Laundry Environment General	Does the resident think that the food is tasty? Are foods served at the right temperature? Can the resident get the foods he/she likes? Does the resident get enough to eat? Overall, are you satisfied with the food in the facility?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Straker et al. 2011[366]	U.S.A.	2010 Ohio Nursing Home Family Satisfaction Survey	F	5	10 subscales, 54 items Admissions Social services Activities Choices Direct care & nursing staff Therapy Administration Meals and dining Laundry Environment General	Does the resident think that the food is tasty? Are foods served at the right temperature? Can the resident get the foods he/she likes? Does the resident get enough to eat? Overall, are you satisfied with the food in the facility?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Straker et al 2013[367]	U.S.A.	2012 Ohio Nursing Home Family Satisfaction Survey	F	5	10 subscales, 48 items Admissions Social services Activities Choices Direct care & nursing staff Therapy Administration Meals and dining Laundry Environment General	Does the resident think that the food is tasty? Are foods served at the right temperature? Can the resident get the foods he/she likes? Does the resident get enough to eat?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale

Straker et al 2015[368]	U.S.A.	2014 Ohio Nursing Home Family Satisfaction Survey	F	5	12 subscales, 49 items Admissions Social services Activities Choice Direct care/Nurse Aides Therapy Administration Meals and dining Laundry Resident environment Facility environment General	Does the resident think that the food is tasty? Are foods served at the right temperature? Can the resident get the foods he/she likes? Does the resident get enough to eat?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Straker et al 2016[369]	U.S.A.	Ohio Nursing Home and Residential Care Facility Satisfaction: Resident	R	5	7 subscales, 32 items Moving in Spending time Care and services Caregivers Meals and dining Environment Facility Culture	Can you get the foods you like? Is there a lot of variety in the meals? Do you have input into the food that is served? Do they serve really good food here? Do you look forward to mealtimes?	(1) satisfaction with food (2) food likes/dislikes (3) choice/variety (4) dining atmosphere ~~(5) dining companion~~ ~~(6) staff attitude~~	Dichotomous
		Ohio Nursing Home and Residential Care Facility Satisfaction: Family	F		7 subscales, 47 items Moving in Spending time Care and services Caregivers Meals and dining Environment Facility Culture	Is there a lot of variety in the meals? Are you included in mealtimes if you want to be? Is the food good?	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ (5) dining companion ~~(6) staff attitude~~	Dichotomous
Straker et al 2017[370]	U.S.A.	2016 Ohio Nursing Home Family Satisfaction Survey	F	3	6 subscales, 32 items Moving in Spending time Care and services Meals and dining Environment Facility culture	Is there a lot of variety in the meals? Are you included in mealtimes if you want to be? Is the food good?	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ (5) dining companion ~~(6) staff attitude~~	5 pt scale

Straker et al 2019[371]	U.S.A.	2018 Ohio Nursing Home Family Satisfaction Survey	F	3	6 subscales, 32 items Moving in Spending time Care and services Meals and dining Environment Facility culture	Is there a lot of variety in the meals? Are you included in mealtimes if you want to be? Is the food good?	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ (5) dining companion ~~(6) staff attitude~~	5 pt scale
Teare & Rashkovan 2004[372]	Canada	Long Term Care Resident Evaluation Survey (LTCRES)	R	9	Living environment Food Activity Staff Dignity Autonomy Medical care and treatment	Are there enough different kinds of food to choose from? Can you get the type of foods you like to eat? Is the taste of the food o.k.? Is the temperature of the food o.k.? Are you given the right amount of food? When you are hungry is food available? Do you get help to eat when you need it? Are you given enough time to eat? Do you get the food you ordered?	(1) satisfaction with food (2) food likes/dislikes (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ (6) staff attitude	3 pt scale
		Long Term Care Family Survey	F	1	Global Environment Communication Care and services	It is important that residents are treated according to their specific needs, are encouraged to be independent, are offered appropriate activities and that the proper amount of time is taken to feed them. How would you rate the facility at providing this type of individualised care to your family member?	~~(1) satisfaction with food~~ ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ (6) staff attitude	5 pt scale

Triemstra et al 2010[373]	Netherlands	CQ-index® Nursing, Care & Home Care (VV&T)	R	6	10 subscales, 68 items Care/life plan Communication and information Physical well-being Care-related safety Domestic and living conditions Participation Mental well-being Safety living/residence Sufficient and competent staff Coherence in care	Do the hot meals look well cared for? Are the meals tasty? How often do you have a choice of meals? Can you choose when to have dinner? Can you choose where you would like to have dinner? Is there a pleasant atmosphere at meal times?	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety (4) dining atmosphere ~~(5) dining companion~~ ~~(6) staff attitude~~	4 pt scale
			F	4	10 subscales, 61 items Care/life plan Communication and information Physical well-being Care-related safety Domestic and living conditions Participation Mental well-being Safety living/residence Sufficient and competent staff Coherence in care	Do the meals look well cared for? Is there enough help at dinner time? Is there enough time to finish your dinner? Are the meals sufficiently spread out over the day?	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ (6) staff attitude	4 pt scale
Van Haitsma et al 2014[229]	U.S.A.	Person Centred Care Tool	R	1	2 subscales, 16 items Daily preferences Activity preferences	How important is it to you to have snacks available between mealtimes?	~~(1) satisfaction with food~~ ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	3 pt scale

Van Maris et al 1996[374]	Canada	The Long-Term Care Resident Evaluation Survey (LTCRES)	R	9	7 subscales, 62 items Living environment Food Activity Staff Dignity Autonomy Medical care and treatment	Are there enough different kinds of food to choose from? Can you get the type of foods you like to eat? Is the taste of the food o.k.? Is the temperature of the food o.k.? Are you given the right amount of food? When you are hungry is food available? Do you get help to eat when you need it? Are you given enough time to eat? Can you choose who to eat with?	(1) satisfaction with food (2) food likes/dislikes (3) choice/variety ~~(4) dining atmosphere~~ (5) dining companion (6) staff attitude	3 pt scale
Walkerdon & Campbell 1999[375]	AU	Resident Satisfaction Questionnaire (LF)	R	6	10 subscales, 50 items Moving to the home Passing the time Social life Links with the community Resident services Staff care Resident involvement Other issues	How would you rate the following: • Variety of food • Amount of food • Temperature of food • Meal times • Staff help provided at meal times • The dining room	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety (4) dining atmosphere ~~(5) dining companion~~ (6) staff attitude	3 or 4 pt scale
Wang et al 2016[376]	Singapore	Minnesota QOL Questionnaire (modified)	R	2	5 subscales, 18 items Comfort Dignity Food enjoyment Autonomy Security	Do you like the food here? Do you enjoy eating with the other residents? What is your favourite food? Can you get it here?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ (5) dining companion ~~(6) staff attitude~~	Dichotomous

Wells 2017[157]	AU	Consumer Experience Report	R F	1	10 items	Do you like the food here?	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Wells et al 2019[177]	AU	Consumer Experience Report	R	1	10 items	Do you like the food here?	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
Westbrook & Legge 1991[377]	AU	N/R	F	1	6 items	From what you have observed and from what (the aged person) has said how satisfied or dissatisfied would you say that (the aged person) is with the food?	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	6 pt scale
Westbrooke & Legge 1992[378]	AU	N/R	F	1	6 items	From what you have observed and from what (the aged person) has said how satisfied or dissatisfied would you say that (the aged person) is with the food?	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	6 pt scale
Westergren et al 2020[379]	Sweden	Next of Kin Participation in Care	F	2	7 subscales, 37 items Trusting the staff Being present Conversations and information Relationship with the staff Completing a task Respected for one's knowledge Care team	Gets enough to eat? Gets enough to drink?	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale

Wheatley et al 2007[380]	U.S.A.	2002 Ohio Nursing Home Resident Satisfaction Survey	R	5	9 subscales, 48 items Social services Activities Choice Direct care Administration Meals/dining Laundry Environment Overall satisfaction	Is the food tasty here? Are the foods served at the right temperature? Can you get the foods you like? Are there times you don't get enough to eat? Overall, are you satisfied with the food here?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	4 pt scale
Williams, Straker & Applebaum 2016[381]	U.S.A.	2010 Ohio Department of Ageing Family Satisfaction Survey	F	5	11 subscales, 54 items Admissions Social services Activities Choices Direct care & nursing staff Therapy Administration Meals and dining Laundry Environment General	Does the resident think that the food is tasty? Are foods served at the right temperature? Can the resident get the foods he/she likes? Does the resident get enough to eat? Overall, are you satisfied with the food in the facility? Are the public areas e.g. dining hall, quiet enough?	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ (4) dining atmosphere ~~(5) dining companion~~ ~~(6) staff attitude~~	4 pt scale
		2009 Ohio Nursing Home Resident Satisfaction Survey	R	N/R	10 subscales, 50 items Activities Administration Choice Direct care and nurse assistants Environment Laundry Meals and dining Social services Therapy Overall/general satisfaction	N/R (proprietary)	N/R	N/R

Wodchis, Wilson & Murray 2015[262]	Canada	The Long-Term Care Resident Evaluation Survey (LTCRES)	R	9	7 subscales, 62 items Living environment Food Activity Staff Dignity Autonomy Medical care and treatment	Are there enough different kinds of food to choose from? Can you get the type of foods you like to eat? Is the taste of the food o.k.? Is the temperature of the food o.k.? Are you given the right amount of food? When you are hungry is food available? Do you get help to eat when you need it? Are you given enough time to eat? Do you get the food you ordered?	(1) satisfaction with food (2) food likes/dislikes (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ (6) staff attitude	3 pt scale
Wood et al 2021[382]	U.S.A.	Ohio Long-Term Care Family Satisfaction Survey	F		7 subcales, 32 items Moving in Spending time Care and services Caregivers Meals and dining Environment Facility culture Overall	Is there a lot of variety in the meals? Are you included in mealtimes if you want to be? Is the food good?	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ (5) dining companion ~~(6) staff attitude~~	4pt scale D/K or N/A
Yeh, Lin & Lo 2003[383]	Taiwan	Satisfaction with Nursing Home Scale (Chinese modification)	R	1	17 items	The food is delicious	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	3 pt scale

Yeh, Sehy & Lin 2002[384]	Taiwan	Satisfaction with Nursing Home Scale (Chinese modification)	R	1	17 items	The food is delicious	(1) satisfaction with food ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	3 pt scale
Yeung et al 2017[385]	NZ	N/R	F	2	9 subscales, 32 items Family involvement Individual patient support Nursing care Medical attention Activities Cleanliness Meals Resident safety Overall satisfaction	Impression of the general quality of the meals provided. Catering for medical/cultural dietary needs.	(1) satisfaction with food (2) food likes/dislikes ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale D/K
Yeung et al 2016[386]	NZ	Eden Warmth Survey	R	2	3 subscales, 27 items EWS-R scale Overall Satisfaction nursing care, medical attention, individual patient support, activities and meals	I can choose what I want to eat. Your impression of the general quality of meals provided.	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	5 pt scale
You et al 2016[387]	U.S.A.	Maryland Nursing Facility Family Survey	F	1	6 subscales, 19 items Overall experience Staff and administration Food and meals Autonomy & resident rights Physical aspects of the nursing home Care provided to residents	If you helped the resident with eating or drinking during any of your visits, how often did you help with eating or drinking because the nurses or nurses' assistants were not available to help or made him or her wait too long?	~~(1) satisfaction with food~~ ~~(2) food likes/dislikes~~ ~~(3) choice/variety~~ ~~(4) dining atmosphere~~ ~~(5) dining companion~~ (6) staff attitude	4 pt scale

Zinn, Lavizzo-Mourey & Taylor 1993[388]	U.S.A.	The Nursing Home Resident Satisfaction Scale	R	1	4 subscales, 11 items Physician services Nursing services Environment Global satisfaction	Do you enjoy mealtime (presentation, service, choice, taste)?	(1) satisfaction with food ~~(2) food likes/dislikes~~ (3) choice/variety ~~(4) dining atmosphere~~ ~~(5) dining companion~~ ~~(6) staff attitude~~	4 pt scale

Abbreviations: R= resident; F = family; N/R = not reported; VAS = Visual Analogue Scale; D/K = Don’t Know; struck out = domain not addressed

APPENDIX F: AGED CARE HOME FOOD SERVICE QUESTIONNAIRE

Aged Care Home

Food Service Questionnaire

Date: __ / __ / __

Thank you for agreeing to allow your residents to take part in the Food Service Satisfaction Questionnaire. As part of this study we would like to understand more about your home and how you obtain feedback from residents regarding the food service in their home. This questionnaire should take around 15 minutes to complete. Be assured that your responses will remain anonymous. You do not have to complete this questionnaire if you decide that you do not want to.

1. **How many residents does your kitchen usually cater for?** ....

2. **What type of kitchen do you have in your home?**
   - ☐ Fresh cook
   - ☐ Cook chill
   - ☐ Cook freeze
   - ☐ Other ....

3. **What is your usual menu length cycle?** ....

4. **How many menu changes do you usually have per year?**..................................

5. **What style of menu do you offer residents?**
   - ☐ Selective (different choices for soup, main *and* dessert)
   - ☐ Semi-selective (different choices for main only):
     Please indicate which choice: ☐ sandwich ☐ soup ☐ salad ☐ alternative hot dish
   - ☐ Non-selective (set menu)
   - ☐ À la carte
   - ☐ Other ....

6. **How do residents order their meals?**
   - ☐ Order ahead using paper menu
   - ☐ Order at time of service
   - ☐ Buffet style
   - ☐ Other ....

7. **How far ahead do residents order their meals?**..

8. **Are residents able to choose different serving sizes?** e.g. small/medium/large
   ☐ Yes ☐ No

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9. **Do you ask your residents to complete a *food service* satisfaction survey?**
   ☐ Yes ☐ No ☐ Unsure
   ☐ We use a general nursing home satisfaction survey to capture this information

10. **If YES, please indicate which food service satisfaction survey you currently use in your home:**
   ☐ A survey developed by our team
   ☐ A survey developed by our head office
   ☐ The survey in the NSW Best Practice Food and Nutrition Manual for Aged Care
   ☐ The Resident Foodservice Satisfaction Questionnaire (developed by The University of Queensland)
   Other ....

11. **How frequently do you ask your residents to complete a food service satisfaction survey?**
   ☐ Monthly ☐ Quarterly
   ☐ Annually ☐ Other ....

12. **Please indicate whether you use any other method to obtain feedback from your residents regarding the food service:**
   ☐ Suggestion box
   ☐ Verbal feedback
   ☐ Resident focus group
   Other ....

13. **How useful do you think the feedback obtained from residents is?**
   ☐ Extremely useful ☐ Moderately useful ☐ Not very useful

14. **Have you made changes to your food service based on resident feedback?**
   ☐ Yes ☐ No ☐ Unsure

15. **How do you use the feedback you obtain from residents?**
   ☐ For accreditation purposes
   ☐ For marketing purposes
   ☐ For quality improvement
   ☐ Other ....

16. **Do you share the feedback you obtain from residents with anyone?**
   ☐ Corporate
   ☐ Residents
   ☐ Staff
   ☐ Family
   ☐ Other ....

Organisation #AGE___ ___ ___ ___

APPENDIX G: LETTER OF INTRODUCTION

Dr Alison Yaxley

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Food Service Placement Coordinator
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CRICOS Provider No. 00114A

24th January, 2019

LETTER OF INTRODUCTION

Dear Residential Manager,

I hold the position of Course Coordinator of the Master of Nutrition and Dietetics, Lecturer and Food Service Placement Co-ordinator in Nutrition and Dietetics, College of Nursing and Health Sciences at Flinders University. This letter is to introduce Morgan Pankhurst who is a PhD candidate in Nutrition and Dietetics. She will produce her student card, which carries a photograph, as proof of identity. I am one of Morgan's PhD supervisors.

Morgan is undertaking research leading to the production of a thesis and other publications such as journal articles and conference presentations, on the subject of food service in residential aged care facilities.

She would like to invite you to assist with this project by giving permission to recruit residents and food service managers of your facility to complete a short questionnaire covering certain aspects of this topic. It is estimated the questionnaires will take participants approximately 30 minutes to complete and Morgan will be available to assist residents if required. Some residents will be asked to repeat the questionnaire on another occasion but in total no more than one hour over two occasions would be required.

Be assured that any information provided will be treated in the strictest confidence and none of the participants will be individually identifiable in the resulting thesis, or other publications. Your facility and the residents are, of course, entirely free to discontinue participation at any time or to decline to answer particular questions. If you would like to consent to your facility being involved, please respond to this email and Morgan will then contact you directly to discuss a suitable strategy for engaging with your residents.

Any enquiries you may have concerning this project should be directed to me at the address given above or by telephone on (08) 7221 8849, fax (08) 8204 6406 or e-mail alison.yaxley@flinders.edu.au.

Thank you for your attention and assistance.

Yours sincerely

Dr. Alison Yaxley
Lecturer in Nutrition and Dietetics
MND Course Coordinator, Food Service Placement Coordinator
College of Nursing & Health Sciences

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 6929). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au

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APPENDIX H: EXAMPLE TRANSCRIPT FROM THE QUALITATIVE INTERVIEWS CONDUCTED BY MILTE ET AL[186]

A <Laughter> Yeah I was in the fire brigade for many years.

Q Were you, yeah?

A Yeah I was an employed member on the board for quite a few years.

Q Oh really.

A The fire brigade's board that is appointed by the government and…

Q That's working now.

A … I had this--be answerable to all the employees, every damn one of them, you know, so. I had a good time and I enjoyed it and…

Q How many years did you do that for?

A Well, I'm not sure just how many years I did--I actually did that, but I was in the service for over 30 years. And in those days when I first joined it was 24 hours on, 48--no 24 hours--48 hours on, then 24 off.

Q Oh wow.

A Two on, one off.

Q And where were you based?

A In headquarters. That's 100--168 hours a week I think, it might be less than that, but I don't know, it's a lot of time. They weren't all working time, we'd sleep there and like so.

Q But, you're on call?

A Yeah you're on call.

Q You have to be ready to go?

A Oh yes, like you'd walk out see when you were on leave and a phone would ring somewhere and you'd jump out of your skin, ready to jump and run <laughs>.

Q Couldn't quite shut down <laughs>?

A Yeah, didn't know where it'd come from, just the bell rang. It rang, which way? Which way? Where do you want me? Yeah, yeah.

Q Okay, well you said that you think food is important.

A Very important indeed it is.

Q Yeah, can..?

A	Well here, I'm perhaps a little bit too forthright on food. I reckon it's very poorly done for what the number of people that are doing it and the facilities they've got, it's should be a lot, lot better than that, easier than that. The food is unimaginative, there's not too much imagination going into it. It's very, very droll and ordinary, ordinary food pretty well every day and overcooked in the main. That's one of my main complaints about it. I know it's not cooked here and I don't know where it is cooked and how many times it's been heated up when it gets here.

Q	So, they bring it here.

A	I don't know, but it tastes to me tasteless, well I have used the word "tasteless crap." <Laughs> And not that I'm an expert on crap, I don't know.

Q	<Laughs> No, so with the food, when you're saying it's overcooked, is it the vegetables or the meat or..?

A	I don't eat much of the vegetables at all, I eat the onion.

Q	Onion yeah.

A	And that's about all sometimes. The meat is tough, overcooked tough.

Q	Oh I see, the meat, yeah.

A	You know it goes dry, yeah. And that's just my view, but I was brought up with a butcher, my dad was a butcher and I worked with butchers, I've got a… a brother-in-law with who's a butcher, so I knew them pretty well. I used to go out killing with my dad. Have you ever done that?

Q	No, I haven't actually.

A	No, it's a good experience, I went at you know at 11, 12 and had to hold the dog while he got a cow, which had probably been given to him or he'd paid very little for it, depression days and he'd shoot the thing in the paddock. You've got to dive in and cut its throat so it'll bleed and then keep the dogs off, so.

Q	Yes definitely, don't want the dogs to get it.

A	Oh dear, oh dear, oh dear.

Q	Well, it sounds like you used to work for your supper.

A	Well, I didn't know, didn't--it wasn't called work, go and help Dad.

Q	Just every day.

A	If he wanted you, he'd take you. And generally I'd be sitting in the back coming home with the lumps of meat or hide and all that sort of thing, all tied up with me in there and we did that for years. And it was an experience I suppose and I've been lucky with my experiences, but that was one I always sort of remember, I didn't like it one little bit and there was no possibility of me becoming a butcher, even though my dad was one, no I wasn't going to be one.

Q	No, not a butcher.

A	It wasn't for me.

Q So, what sort of things did you used to eat when you were at home? What sort of things did you enjoy?

A Oh well, it's depression times, you've got to remember that and my mum didn't spend a lot of money, probably didn't have a lot of money. And she was a really good cook and my dad was a butcher, so she'd get what she wanted out of that, but--and the meals, we were very lucky. I think the meals that we had when mum was battling were a lot better than the ones I get here. I thought they were, but of course it might be me. I've changed a lot in that time, because I come in the fire brigade, I was there for 30 years and they had an employed cook there.

Q Oh, so they used to cook for you?

A Oh yes, oh yes the cook would. Actually the cook was--you follow racing?

Q Yes, racing.

A You do?

Q Yeah.

A You'd have heard of a jockey from <state> who was pretty good, called… oh dear oh dear… Oh he was a good jockey.

Q Oh was he?

A Oh yeah, he was the son of our cook.

Q Oh really?

A <name>--<name> somebody.

Q <name>, oh I'll have to---my dad'll probably remember him, I'll have to ask.

A Yes, well he'd know, yeah, yes, yeah <name> something.

Q He likes the horses.

A And our cook was also… the same surname.

Q There you go and what sort of things did he used to cook you for meals?

A Well, he was a pretty good cook I think, because he used to cook something a little bit different every day and he--but here it was something a bit different, but the pepper oh my God.

Q Lots of pepper?

A Too much for me, I don't like too much pepper, I like to taste the food, but he--<name> was a--not <name> was a--ooh I nearly had it then. He was a pretty good cook and he could… Only a little fella, he was only a little bloke.

Q You'd expect that wouldn't you.

A We used to do some terrible things to him.

Q Did you?

A Oh yes.

Q Play tricks on him.

A No, no we just grabbed him and go to put him in the pot. We picked him up easy <laughter>.

Q Yeah, yeah <laughter> oh gosh.

A But he stayed there for a long time, he must've enjoyed it.

Q He must've thought it was alright.

A Yes, yes, yes.

Q So, you mentioned that you think that food's really important.

A It's important, but it's not very good here, in my opinion. I see the old ladies here wolf it all up, you know. And I think well I can't do it, look I have one mouthful and I've chewed it until it went dry and I couldn't take another mouthful, it was…

Q So, do you have any special foods that you really like to eat or don't like to eat?

A Oh no, I eat most foods.

Q You eat most foods?

A Yes, yes, yeah but it's been badly cooked here, it's been overcooked, invariably overcooked.

Q And do you have much choice?

A We don't get any choice here; we take it or leave it.

Q And would that be important to you?

A No, not really. Well, they'll offer to give me a different meal many times here and I said, no. And with a lot of the blokes--and this is another thing at this place, you'll find a lot of the blokes have sandwiches all the time. I've never seen that before.

Q No, okay.

A Most people eat what's on the menu and take it as good as gold. But, here I reckon there's five or six each day have sandwiches.

Q Have sandwiches.

A So, that says something about the cooking. I was always brought up see--well I can cook myself pretty good too.

Q You used to cook for yourself?

A Yeah and the fire brigade blokes at certain times; I was the Sunday cook sometimes at headquarters when the cook would be on leave and if I was on duty I'd be the Sunday cook for lunch.

Q Oh I see.

A And the peggie would be the tea man. You know what a peggie is?

Q No.

A The assistant to the cook, but he was alright, he was a nice man too.

Q Cook's assistant?

A The cook's aide, yes and the cook would get everything ready, but then at teatime he'd go home, because he'd done his work for the day and the peggie would have to get the tea ready, but it was all there for him.

Q So, he'd just have to do the few little things?

A Serving--serving out, yeah it'd all be there for him. Yes, so that was the interesting time I suppose, but the food today is not as good as it should be, because these people are taught how to cook and we weren't, you know, *0:07:59.1. And the food to me is overcooked and once it's overcooked food gets tasteless, there's nothing you can do about that, just stop overcooking it.

Q And what about things like, do you tend to have more roast and meat and veg or would you have casseroles?

A There's been more casseroles lately than I ever remember, but they can hide it in that and boil the hell out of it. And at one time we used to have a lot of roasts in the brigade meals and if they were any good they'd roast it at lunchtime and if not, then you'd have it cold in the summertime or they heat it up. Very rarely they'd have any boiling or anything like that, like the stuff we do at the moment, filling it up with all sorts of stuff you can't get rid of and I eat one mouthful and oh I can't eat that rubbish. It's like that. Luckily I'm a bloke that doesn't put on weight much and I don't need it, so. But, I would say and I've said--blokes have heard me say it in the mess room, I give them one out of ten for some of the meals, maybe if they're real good, maybe four out of ten; never ten, never, not so far anyhow. And yes, it's the way the blokes don't care, they've not been taught to do this. Oh I nearly had his name again then, the cook.

Q It'll come back to you by the end.

A Yeah it'll come back to me, yeah but no-one will be here but me. We used to have a go at him all the time, but he knew, he was a good cook and he knew it.

Q He was good, yeah. So, what about more modern types of foods?

A What like?

Q Do you ever eat pasta or rice dishes; did you used to like that?

A Oh they come out with the square bits of pasta, about that blooming thick and nothing in them, it's like pastry and stuff. I cut the stuff from round it and that goes back, I don't eat that rubbish.

Q You don't like that?

A Well, I wouldn't eat it anyway, because it's not healthy. I wouldn't eat those thick pastry stuff.

Q So would it be more--what would you consider healthy and good food for you?

A Well, if you've got to braise, okay braise it, but don't over-braise it. You know, they do it over and over and then put it away and then use it again tomorrow, same braise, no it's no good, it's no good. So, I was brought up and my mum was a good cook I think. Had to be in those days, the depression days, you couldn't go and buy fresh food all the time, even though my dad was a butcher and she was a good cook that way. But, I was brought up, you know, knowing that food was good and then I had to do my share of cooking in the brigade and I was the alternative cook for when the cook was on leave on Sundays and holidays, I did the job of doing the cooking that day.

Q So you could cook a bit?

A Yes, yes and of course I used to fight a bit too and nobody was, you know, brave enough to complain about my cooking <laughter>.

Q There you go.

A Yeah, so anyhow I used to say…

Q So, did you do boxing?

A Yes.

Q Oh I see.

A Yeah, yeah, I mean not for long, I was lucky I--well, I got too big headed. I suppose that happens with lots of boxers. I had the--well, there I am there.

Q Oh wow, look at that.

A I just remembered that was there. Ended up I think 15 or 18 fights or something and I only got beaten in the last two.8

Q You look brilliant, wow.

A Because I wasn't--I was 17 then and I wasn't training properly and I knew that. I was running round with the girls, I wasn't supposed to do that.

Q Lots of things to do when you're 17.

A Yeah there would be and of course being in the news a bit, I didn't find it very hard to get them either, you know.

Q No, no.

A So, anyhow I got beaten in the last fight--the last fight I had I got beaten by this fella I'd beaten before pretty easy and so I didn't have to try I didn't think. He'd improved and I hadn't and he was fitter than me too. So, he give me a bit of a hiding and they stopped the fight and I thought well that's it, I get trained now and do it properly or give it up. And I trained and trained and trained and I was as fit as a fowl, you know, I could do anything. I couldn't get a fight. No, I think they sort of watched me training and they went keep away from this guy, he's dangerous.

Q There you go.

A And so I thought, oh alright give it up now.

Q Give it up yeah.

A And I did and I'm not sorry, I'm not sorry.

Q No, you had your go.

A I had my time yeah; I had a great time really. This'll help you to understand what I'm talking about I think, [papers shuffling] yes that's the one as well. And luckily, I used to tell the kids stories like I'm talking to you now and they'd say, "You should write these things down." And I'd go, "Oh no." You do that when you're a young fella, I was youngish, you know 30-something, I couldn't be bothered. Oh and they'd keep at me and so anyhow I did.

Q Oh you did.

A And there we are.

Q Oh that's the photo.

A And that's all the stories.

Q That's brilliant, that's a great idea.

A Anyway they've got it now, they've all got copies of that

Q Oh that's wonderful

A Yeah, yeah.

Q It's a really good idea. So, you were training a couple of days a week?

A Oh yes at least that, three days a week, which you went out the stadium, which would be Mondays, Thursdays and Sundays--no Tuesdays, Thursdays, Sundays.

Q So, you were busy?

A Yes.

Q There you go. And here's a little bit about your meals as well.

A Yes, yes.

Q How much you were charging.

A That's right, yes.

Q Five pounds.

A <Laughs> Yeah, well that was our wages a week, five pound. So, we used <inaudible> *0:13:52.0 to be a member of mess if you were at headquarters and I think we charged 30 shillings a fortnight, because that was three meals a day and breakfast as well, when you know, that's a…

Q Very interesting.

A Yes and looking back on it now, it's all changed now of course, they're back to 40 hours a week. Now we used to do 112; 112 hours a week. That includes sleeping time of course. So, if something happened and we'd come out and we had to have an extra day off, you'd get someone to stand in for you. You had to either pay him back with cash or time and if you were prepaying, like the person was going to stand by for you for the weekend and you had the day off on the Wednesday say, you had to get in that day and stay in the whole week to get the weekend off. And it wasn't just an eight-hour day; it was a 24-hour day.

A So, it was a lot of effort to get that time off?

A Oh yes it was. We didn't work that hard of course, but we were running round the block and all that sort of thing and exercising in the gym in what we called passive time.

Q What was that?

A Passive time started after lunch, you didn't work till teatime and that was--only you went out and swept the floor and then had your meal and more passive time right through the night and we weren't overworked.

Q So, they looked after you.

A Yeah well they had to I suppose, they weren't paying us much.

Q Yeah and you had to be ready to go didn't you?

A Oh yeah, we were ready to go, that's one thing you were ready, all the time. So, it's something, it's a cash register ding, you're walking up the street, you're on a leave, a cash register, "ding!" Oh you jump, what was that? Oh not that. 'Cause you thought, like a bell goes off…

Q You're thinking it's a fire.

A … and you run and if you miss it, then you're--doesn't really applies because you weren't quick enough.

Q You'd be in trouble.

A Oh you were suspended.

Q In trouble.

A Suspended, yeah, yes. But, they were good old days and I'm lucky I had a sample of it and <name> was the chief officer. Excuse me a moment.

Q Yeah is he in there?

A I've got a letter in here. Also <name>, do you remember he was premier of <state>?

Q Oh okay.

A Remember <name>?

Q Yeah.

A You don't, I bet you don't.

Q No, I was probably…

A There he is there, there when I retired.

Q Oh wow, look at that.

A Yeah, <name> is on the fire brigade board--oh no he was head of <name> Football Club or the state football club, whatever it was. I was with him; I worked on there in that job as well.

Q Oh wow.

A So, I was on the--well, I'm a life member of the Football League now, still am and <name>, a nice fella, been dead for a few years now, but a real nice bloke, I've always got on well with him and he came in to see me when I retired. It was nice of him to do that.

Q That's lovely.

A Yes.

Q Very nice. There you go, well you've had a very…

A Interesting, yeah.

Q … vibrant life.

A Yes, I've had an interesting life.

Q Done lots of things.

A Told lots of lies and you don't know whether I told you lies today or not do you <laughs>?

Q No, no I have to take your word for it.

A Yeah of course you do, I didn't--I don't tell lies. That's one we were told when--that's me on my…

Q When you were growing up.

A Driving a tractor.

Q Oh on your tractor.

A We're driving horses, I'm back here. That's the boss' wife here. I'm here driving horses.

Q Oh wow.

A And I used to be able to tell you all their names at one time, I can't now.

Q You're lucky you have these photos.

A And that I had the experiences, yes. Yeah, that's me on my horse. My mum's holding me.

Q Oh beautiful, look at that.

A <Laughs> I must've been about 12 months old.

Q <Laughter> Look at you done up there.

A Yes, yes, yes.

Q Looking wonderful.

A So, all in all I've had a very lucky life.

Q A very interesting life.

A Very interesting life. Oh that's in <country> I think. Does it say there?

Q <city>, yes.

A Yeah, yeah.

Q In the Greyhound.

A Yeah I'm a life member of the Greyhound Association.

Q Oh yes, yeah.

A They sent me across to <country> for that, to do the presentation on the *0:17:55.6.

Q Oh wow.

A This was <city>

Q Yes, wow there you go.

A Yeah.

Q And that's <state>

A That's the fire brigade, yeah that's <location>, so me up here.

Q Yeah.

A And I liked down in <location> yeah.

Q There you go. They look very smart in the jumpers.

A Oh yeah, well there's the fire brigade there. I think I must have taken that photo, because I was certainly in that day.

Q Oh you must've been taking the photo.

A I must've taken the photo yeah. That's the old <fire> Station.

Q Yeah.

A That's <bar name>, the bar at <bar name>, I must've been there. There I am on the branch. There's…

Q And that's you ready to go?

A No, that's a bloke called <name>.

Q Okay.

A He was just posing that, it's <name> the heavyweight boxing champion was there in Australia. That's the old headquarters front, so got that.

Q That's in <location> isn't it?

A Yes, still there. We saw those earlier and we saw that one earlier.

Q And we're back to the start.

A Yeah and chatter, chatter, chatter, the whole way through.

Q There you go.

A After I'd done it all…

Q It's wonderful to have the photos.

A I thought well it's a--you know, I remember saying something at the back here. [Paper shuffling] Yeah over here.

Q Oh that's the…

A Version.

Q … about the fire brigade is it?

A Oh it's still all the fire brigade, none of them outside. Well apart from--well there's some of me with the medals I won.

Q Oh wonderful.

A That's, I know what it says on there.

Q For a mineshaft rescue.

A Yes, yes, yeah. Well it wasn't a rescue, I got the body out; they were dead.

Q Oh sad.

A He fell in. Yeah, yes a sad story, because he was young, he was only 21.

Q Yes.

A And had driven up to the hills and looking over the city and with his mates and that, so I think go as part of a party. And they all said he was out there and he lost the other party and from where he was standing to his car, there was this hole in the ground, nothing around it.

Q Oh goodness.

A And he walked straight in, 360-odd feet he fell. Yeah and they called out--the brigade out to find him the next morning and I was the bloke called out, because I was the senior. I was the only senior fireman in the brigade at the mome--at that time. And we went up there and they sent me down on a rope first that was only--nowhere near long enough, about 200 or 300 feet was nowhere near, so I said, "No, we have to get a car--a truck to come up with a towing rope on it. You'll have to take me down, there's a lot longer to go." So, brought it up, we were at 365 feet I think it was. He was down the bottom, but I had no communication. And these mineshafts they go all over the place, but especially when they're built 150 years, but the mines have taken on the least resistance. And the--so I had to come back up again once I'd found him and tell them that he was there and that he was dead. Well way back the old chief office, I always thought he was a bloody fool. Telling him this poor bugger had gone 365 feet; he said, "And is he dead?"

Q Oh <laughter> yeah.

A You know whole the top of his head was gone, he was dead alright, yeah, yeah. Anyhow we put the rope on him and brought him up and I got all the publicity that's been put in the book there.

Q You got some medals too.

A Oh yeah I got them, yeah. I've not brought them here. Luckily my son has got them.

Q Oh yes it's good to keep stuff like that in your family.

A Oh you can't buy it, you can't go and buy it.

Q You want to keep it safe. [Interruption - Knock at door].

A Hello.

A2 Hello, good morning.

Q Hello.

A2 A cuppa.

Q Would you like..?

A What's the time?

A2 Yeah alright.

A Have you got one too?

Q No, I'm fine thanks.

A Yeah, yeah, he brews it here while you wait. Don't pay notice of the hat; I assume he's got the hat on has he?

Q Yes <laughter> he's got the hat.

A I'll see how he knows that, I've frighten the hell out of him, he's going to wear it.

A2 Just put it on here then. Two-and-a-bit?

A Two-and-a-bit.

A2 Yeah.

A Two-and-a-bit sugar <laughs>.

Q Oh people like their cup of tea very specific don't they?

A Oh yes, yes, oh yes indeed. He knows see, see two-and-a-bit means two-and-a-bit sugar, yes and it doesn't matter if the bit's a bit bigger than it should be either.

Q No, your cup of tea you like how you like.

A Thank you man, thank

A2 There it is. See you.

A See you.

A2 Would you like to have one?

Q Oh no I'm alright thank you.

A I asked her and she said, "No." She must've heard about your tea <laughs>.

A2 Thank you.

Q Thank you. [Door closes] So, Don thinking about food and meals.

A Yes.

Q Is it important the social aspect of meals to you, so sitting down and having a chat to people?

A Oh I love to do that.

Q Yeah.

A But it doesn't have to be meals.

Q No, so that could happen at any time?

A I'd do it with a cup of tea or a glass of beer, no difference to me. But, here we don't do much chatting about anything anyhow.

Q No?

A That's <inaudible> *0:23:14.1 really, but I retired from the fire brigade 30 years ago and I'd been--I had a house, I was living in that and then the wife died all of a sudden, I couldn't even live in the place. And I kept it there and kept it there. She died in… 20 years or 30 years ago I suppose, I'm not sure just how long ago and I sold the house a couple of weeks ago.

Q Oh did you?

A Yeah, I couldn't go into it. I've tried and tried and I thought I'll leave a bit, leave it a bit, because out here it's… within three miles or four miles to the city anyhow. What's this--what's the suburb here?

Q <suburb>

A <suburb>, that's where I lived <laughs>.

Q Oh you lived in Daw Park?

A Yeah, so that was close by here, yeah <suburb> and I couldn't go back there. And--but I feel I've let her go and I lived in the quarters like this for quite a long time or after the wife died that is. And yeah I went back later on and sort of got over--never got over her death, never will, but I could go back there and have a look at it. And no I couldn't live here; it's too big for me anyhow then, so I felt well sell it. And I can't remember what I bought for it--what I paid for it, I've often tried to. Well, it wouldn't have been much because I remember the mother didn't like it, the house I bought and I said, "But, I can afford this place." And I said, "We'll stay there until I can pay for it or got enough money and we'll buy another one."

Q Yeah and you…

A Alright, alright, so three or four years went by and I paid for the place. And I said to <inaudible> *0:24:53.0, "I've finished paying for the house now." I said, "If you like, we'll sell it and move and can get another one." "What for?"

Q No, not interested.

A I said, "You didn't like it." "Oh I've gotten used to it," she said.

Q There you go.

A And when she died, we were still there.

Q There you go.

A Yeah, yeah, yeah and when I sold it…

Q It's funny, it' makes--turns it into a home doesn't it.

A Yes indeed and I said, "I can't remember what I paid for it." It wasn't a great deal of money, because I paid for it so quickly, but I got over $500,000 when I sold it.

Q Wow.

A Incredible.

Q That's a lot of money isn't it?

A Yes, hell yes.

Q They're so expensive these days, houses.

A Yeah apparently, yes.

Q Cost a lot of money.

A It was the same old house we had, but $500,000 and luckily the pensions thing is much more liberal than it used to be, so I've still got most of that. And I don't have to worry about anything, like this it's all paid automatically.

Q Oh that's good isn't it.

A All I do is live long enough, I might leave some for the kids <laughter>.

Q Yeah.

A There might be something left over, but I've been a very lucky fella, very lucky. I've seen so many people over the years--not too many fireman, I've got to admit that maybe took up until--well we looked after them too, their functions, but an awful lot of people go and spend their pension, go on the booze, that sort of thing and they're trying to live and it's just not right, not fair.

Q No.

A Because, they have no-one to blame but themselves in the main, but I've been one of the lucky ones.

Q Yeah, it sounds like you've had a good life.

A Oh I've been a very lucky fella, yeah. I'm a life member of <football club> footy club, they come after me or during the brigade and I've been interstate and boxing overseas on boxing shows and things like that too. I give that up at the right time.

Q What about when you were boxing and when you were playing sport, did you used to think about what you ate then? Did you used to..?

A Oh heavens yes, yeah.

Q Yeah, what sort of things did you eat then?

A Oh you'd avoid the fatty stuff all the time and I had a sweet tooth, which made it harder. I loved a bit of chocolate <laughs>.

Q Ah yes.

A But, I was training hard, if you'd got a--and of course the brigade certainly wouldn't give anything different to eat. You had to have the same as all the rest of them did. So, when I was on duty I--I only had two fights when I was on duty in the brigade I

think and lost them both, because I didn't look after myself properly, I was playing. Again, the fire brigade is different from any other job I've ever had after that time, 112 hours a week, 24--48 hours and 24 off, that's a shift. Now, you're going on duty, you get called at 10:30 at night, you've got to get up and go and you might be awake there till 3:00 or 4:00 O'clock in the morning, who knows. And then you've got to come back home and try to relax and go to sleep again. That took some time as well, instead of getting up at work time and getting on with your work during the day. And it wasn't compatible to fighting, although there were some good fighters in the brigade.

Q	I can see that, yeah.

A	So, after--and of course the most important thing, after I'd joined the brigade, I didn't need the cash. Five pound eight and six they were giving me <laughs> at seven…

Q	Oh there you go.

A	At only just turned 17. That was about $14; strike me roan, wealth <laughs>.

Q	Yeah.

A	So, now I didn't need that. I had a car, I had a bike. I used to ride around on that. Then of course at headquarters I'd catch trams all the time, it was okay.

Q	The transport was good.

A	Yes.

Q	Get around when you needed to.

A	Yes, yeah it didn't have too many cars around the place. So, I've always said, "I've been very lucky to get in the brigade." Had I been outside and had to--got to live up to a reputation, anything could've happened to me. And so I got through the life and here I am at 90 or nearly 90.

Q	Nearly 90 wow.

A	Yeah and they're still looking after me. I don't know what it costs in here, I never ask, they take it out of my pension.

Q	Yeah, yeah, so it's been a lifelong journey with the fire brigade?

A	It has yes, so yeah and I look in my purse to see if I've got enough money, because yesterday we went out and got to find my money. Oh there it is. And I had plenty in here, but I didn't know. I don't know what I've done with it, that's not the one probably.

Q	I'm thinking Don you were saying that you used to cook a bit.

A	Yeah.

Q	Would you still like to cook a bit if there was facilities or are you done with cooking, you're not interested?

A	I'd cook for myself, say if I had to.

Q	Yeah, if you had to?

A Yeah.

Q What about if there was say a place you could small things for yourself here, would you…

A Well I can.

Q … think that would be a good idea?

A I can, I've got a bit of an oven in there, but I don't do that, I get the food brought in here, I heat it up now over there you see.

Q Oh okay, so is that important to be able to do that, do you think?

A Oh not really, not really.

Q No?

A No, no and so I found the money, it's in there <laughs>.

Q Oh good, that's good <laughs>. Want to make sure you've still got that.

A I don't know, I think I know what's in there, not too much. I don't spend any money here, don't need it.

Q No, you don't need to do you really?

A No, no, no I don't go out on the booze or anything, I get booze brought in if that's not allowed, I never do that anyhow, I never did it.

Q Anything else you can think about food that is really important to make it better, so you said the choice. It sounds like you were saying the choice isn't so good.

A The food here is--well the cooks aren't experienced enough, but I think that is. But, I don't like to abuse the cooks, they're doing their best. They're getting paid for it, but their choice of food for people working 24 hours a day is very, very mundane.

Q So, they need more variety would you say?

A Yeah, but they'll serve up a lunch today, will be no better than the one I did over 50 years ago when I was a kid, no better. It'll be a small patch of carrot or spinach or something, you know, spinach will be there. Be a bit of mashed potato, if I'm lucky. If there's not mashed potato I won't eat any of that and there'll be food, which if it's been cooked properly it'll be alright, but most of the time it's overcooked. And they don't cook it here, they cook it somewhere else, then bring it back here and heat it again and it gets tough. And I have one mouthful and can't chew it or chew and chew and chew and chew and all it does is go dry and give it up.

Q And that's no good.

A Yeah.

Q So, would you say having a choice isn't as important as having one thing that's good?

A No, it's not as important. If one thing was good and well cooked, it'd be far more important, far more important.

Q So, that's what's important?

A Yeah and so well--it was nearly on the tip of my tongue again, I've been trying to think of his name all day. Jack was the cook at headquarters and he had a son who was a…

Q Called <name> was it?

A <name>.

Q Oh there you go, <name>.

A Yes, yeah the son's name was <name> and he was a jockey.

Q Yeah, yeah I'll ask…

A Good jockey too.

Q … my dad about that.

A Yeah.

Q If he remembers <name>.

A Well of course he would, <name>was a good jockey.

Q He was a good one?

A Yeah, yeah.

Q Okay, there you go.

A Yeah that's good lord, well that's done now, I've been wondering about where the hell I'd lost that. Yeah <name>, yeah about this high he was; cheeky.

Q Cheeky one?

A Oh yeah, I'd pick him up sometimes and go to put him in the oven <laughter>, only joking though of course.

Q Yeah, well that would've given him a bit of a fright.

A No, no he enjoy--I think he enjoyed it.

Q He liked it <laughs>?

A Yeah, yeah, he knew we were treating him as equals.

Q In a gentle…

A Yeah.

Q … gentle voice.

A Yeah so a little bit of gentle ribbing, <laughs> but he didn't mind, no he was alright, yeah.

Q No, well there you go.

A Well, he was there for a few years, was old <name> as cook.

Q Well there you go. And is there anything particularly that you really miss from when you used to eat at home or before you were here to now. Is there anything in particular that you really miss?

A Not really, no. Like, you come on duty--well it's not so bad now--like a lot of years, I'm talking about 50--50 years ago. You come on duty and you get what you were served and that was it. And that's gradually changed, because now basically the men themselves run the mess with their committees.

Q Oh okay.

A But, they don't have any choice in who's going to be the cook and… well the present day stuff is they're not cooked on the station, they bring it in from outside already cooked. And I don't know when it comes in, it might be today, it might've been yesterday or the day before and heat it up and on your plate and it's as tough as old boots. And, the best way to prove that, go in now, take a little bit of your lunch and try it.

Q Yeah, so it's important…

A It'll be tough, I guarantee it. And though the meals--night meals are better, because it's generally cooked less time, they cook that more and used to--things have changed you see. The cook used cook--the cook used to do the meals--evening meals when they were at home on leave, but of course they don't do that now, they bring it in. So, I don't know how the meal--evening meal goes there. And I really shouldn't complain, because I don't have to eat there anyhow. I have my meals in here if I want it; they bring it in for me. They're very, very good to me here.

Q What about going out to eat? Do you ever go out to eat?

A Oh sometimes.

Q And what sort of things would you have if you went out to eat? What sort of things do you like?

A Oh probably fish and chips I like or maybe--I go to, we used to go to the <restaurant>. Have you heard of <restaurant>?

Q Oh yes, yes, I know <restaurant>

A Good meal.

Q Yeah, yeah.

A That's nice to go there, still go there. I was supposed to go there a couple of days ago and I didn't go, but…

Q So, what sort of things do you have at <restaurant>, because they have a lot of noodles and..?

A No, I don't have noodles very much, but…

Q No, not into it.

A … might have a… sometimes a roast or one of their specials or something, whatever like that, you know. Because, the meal's always tasty and it's not tough meat either, so that's what I like and that's what I have. But, here well they bring it in, I don't know who cooks the meal here now, I don't know and I don't have many of them, I go and get my own or get someone to bring one in for me, you know. But, sometimes the meal's alright, I don't mind.

Q So, would you bring in say microwave meals or meals brought to you.

A Well I might, depending on the cost and the quality of it, because microwave stuff can very easily get tough 'cause it's overcooked. And that's the thing I think with the modern cook. Not the professionals, but the modern cook, like our blokes here, don't realise that overcooking will toughen meat up, will make it tough, very tough, chewy. It bounces out of you--it springs your mouth open basically and there's no taste to it, all the juices have gone, they've been evaporated and don't come back.

Q And it sounds like you used to have--having good quality meat is very important to you?

A Oh heavens yes, oh yes. Well, it's not just headquarters, although I was a cook there for quite a few--quite a long time on leave days and things like that, because the cook would go there five days a week, then he'd have his weekend off and the blokes on duty would do the cooking and I was one of those blokes, who you know I would cook, Sunday cooking and holidays and those things. And you--so you were lucky and go and rest again, you didn't have to feed if you didn't want to, but if it was my week it was alright. I always thought it anyhow, no-one complained and I did it as long as I wanted to and then I gave it all up at the…

Q You did your bit?

A Yes, yes, but I don't know, I don't like them. I never complain about the meals. I don't go to the cook and say, "This is crap; you eat it." I just don't do it, but I don't let people know that I like it if I don't like it; it's crap <laughs>.

Q And maybe the cooks should try it, you know themselves.

A Well, really he's probably got too much sense for that stuff that's cooked two or three days ago, you wouldn't eat that.

Q No, yeah. What about cooking, say cooking fresh, if they actually cooked from fresh here.

A Well, I don't know whether it's practical in a place like this where you've got like 30 or 40 mouths. Well there wouldn't be 40 I suppose, but there's more than they used to have.

Q Yeah some places do.

A Yeah, but they've got to have those blokes that are on like the feeding just and if they get the called out while they--they've got to put the food away and keep it hot for them, that's it. Then they'll come back again. So, I don't know just how it works now, but I know that the… it's my experience is…

Q It is more difficult, yeah.

A But, I had--I was going to tell you, I started off and then I got transferred to <fire station>, so it was <fire station> and then <fire station>.

Q Where was <fire station>?

A Other side of <suburb>.

Q Oh okay.

A And those days it was a government station. They made ammunitions out there, a factory and we were--I was stationed out there for five years and we had to take it in turns to cook there and it'd be my turn to cook this week and somebody else's turn to cook next week and so on.

Q Oh so you all took turns?

A And we had good meals out there.

Q Yeah?

A Yeah and the boss was a bit of a fanatic on his food too and the food had to be good. Now we paid for it, by a donation, much cheaper than what you would've paid in a restaurant of course and I was a really good cook on that one and… it was an experience that proved that it can be done, you know and…

Q With a little bit of effort?

A Yes and of course the blokes, they'd all stop and help you, they did the washing up and that sort of thing. And when you had to get the vegetables done they'd help you with that and things like that.

Q Help you out?

A Yeah, yeah.

Q Oh good, great.

A But--and the food was good.

Q Yeah, good food.

A Penfield food was very good. They don't do it--haven't got a station there now.

Q No, okay.

A That was years ago, closed that, yeah but…

Q Well thank you very much for talking to me <name>.

A Bless you, I enjoyed it.

Q That's been really helpful.

A Oh well, I'm not that bad when it comes to talking.

Q No, it sounds like you're a good talker.

A I enjoy--well if you've got a lot of things to talk about you know and…

Q Then it's fine isn't it?

A … some of the things are very interesting I felt and I don't realise how interesting I am myself sometimes, yeah.

Q No, it's been interesting looking at your photos.

A Yeah, yeah well that's something not many people see.

Q Oh yeah.

A I show them to certain old friends that I've got them.

Q It's so wonderful that you have those photos.

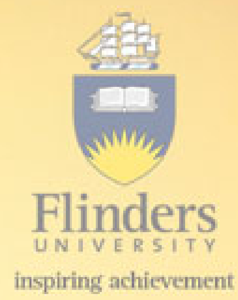
A Of course, of course.

Q It's brilliant.

END OF TRANSCRIPT

APPENDIX I: PRELIMINARY VERSION OF THE RESIDENT FOOD SERVICE SATISFACTION QUESTIONNAIRE

Food Service Satisfaction Questionnaire



Date: ___ / ___ / ___

Time Start: _________ AM/PM

Thank you for agreeing to take part in the Food Service Satisfaction Questionnaire for residents living in aged care homes. This questionnaire asks you about your satisfaction with the food service that you receive in this aged care home. In this questionnaire, food service is defined as the ***provision, serving and preparation of food or meals.***

For each item in the questionnaire, please select which answer best describes ***how true each statement is for you.*** This questionnaire should take around 15 minutes to complete. Be assured that your responses will remain anonymous. You do not have to complete this questionnaire if you decide that you do not want to.

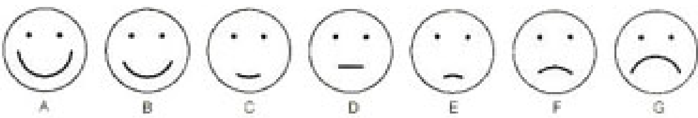
ABOUT YOU (Please tick)

1. **Please state your sex**
   ☐Male ☐Female

2. **What is your age?** ________________________________

3. **What is your birth date?** __________________________

4. **Please circle the option that best represents how you are feeling today:**



ABOUT THE FOOD SERVICE

Questions	Answers (please circle the most appropriate)			
During the past six months:				
1. Do you have a choice in what to eat at meal times?	None of the time	Some of the time	Most of the time	All of the time
2. Are you satisfied with the temperature of meals served?	None of the time	Some of the time	Most of the time	All of the time
3. If you make suggestions to improve the food and food service, do you feel you will be listened to?	None of the time	Some of the time	Most of the time	All of the time
4. Do you have a choice in who you sit with at meal times?	None of the time	Some of the time	Most of the time	All of the time
5. Does your meal arrive quickly after you have been seated in the dining room?	None of the time	Some of the time	Most of the time	All of the time
6. Is the dining room a comfortable and inviting place at meal times?	None of the time	Some of the time	Most of the time	All of the time
7. Are you offered fresh fruit every day?	None of the time	Some of the time	Most of the time	All of the time
8. Are you able to leave the dining room soon after you have finished your meal?	None of the time	Some of the time	Most of the time	All of the time
9. Can you open your food packages by yourself at meal times?	None of the time	Some of the time	Most of the time	All of the time
10. Are you served foods that you like?	None of the time	Some of the time	Most of the time	All of the time

Questions	Answers (please circle the most appropriate)			
11. Do you have a choice in when you can eat your meals?	None of the time	Some of the time	Most of the time	All of the time
12. Do you receive familiar foods that you can recognise?	None of the time	Some of the time	Most of the time	All of the time
13. Are you offered vegetables every day?	None of the time	Some of the time	Most of the time	All of the time
14. Are you able to invite family or friends to eat with you at meal times?	None of the time	Some of the time	Most of the time	All of the time
15. Do you receive a variety of foods every day?	None of the time	Some of the time	Most of the time	All of the time
16. Are you able to have family or friends bring you food from outside this home?	None of the time	Some of the time	Most of the time	All of the time
17. Do the meals taste like they are freshly cooked?	None of the time	Some of the time	Most of the time	All of the time
18. Can you choose meals cooked by different methods e.g., roasted, stewed, fried?	None of the time	Some of the time	Most of the time	All of the time
19. Are you satisfied with the amount of food that you are served?	None of the time	Some of the time	Most of the time	All of the time
20. Do you receive foods that taste good to you?	None of the time	Some of the time	Most of the time	All of the time
21. If you are not satisfied with the meal(s) provided are you able to choose an alternative?	None of the time	Some of the time	Most of the time	All of the time

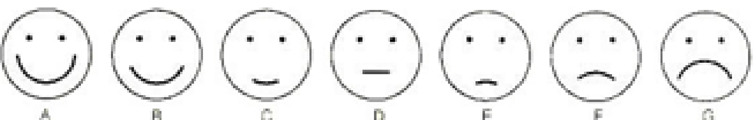
Questions	Answers (please circle the most appropriate)			
22. Do you receive foods that look appetising to you?	None of the time	Some of the time	Most of the time	All of the time
23. Do you receive the meal you have requested?	None of the time	Some of the time	Most of the time	All of the time
24. Can you help yourself to food whenever you feel hungry?	None of the time	Some of the time	Most of the time	All of the time
Thinking about the staff here:				
25. Are they able to provide food to meet your preferences?	None of the time	Some of the time	Most of the time	All of the time
26. Do they prepare the meals the way you like?	None of the time	Some of the time	Most of the time	All of the time
27. Are you able to assist them with preparing meals (if you wish)?	None of the time	Some of the time	Most of the time	All of the time
28. Do they make an effort to serve food you like?	None of the time	Some of the time	Most of the time	All of the time
29. Are they friendly and polite when they serve food at meal times?	None of the time	Some of the time	Most of the time	All of the time
30. Are you able to assist them with setting up the dining area before meals (if you wish)?	None of the time	Some of the time	Most of the time	All of the time
31. Do they encourage you to eat enough at meal times?	None of the time	Some of the time	Most of the time	All of the time
32. Are they willing to provide help with cutting up your food?	None of the time	Some of the time	Most of the time	All of the time

Questions	Answers (please circle the most appropriate)			
33. Do they give you enough time to finish your meals?	None of the time	Some of the time	Most of the time	All of the time
34. Are you able to assist them with tidying up the dining area after meals (if you wish)?	None of the time	Some of the time	Most of the time	All of the time
35. Do they appear to be well trained in providing a good food service?	None of the time	Some of the time	Most of the time	All of the time

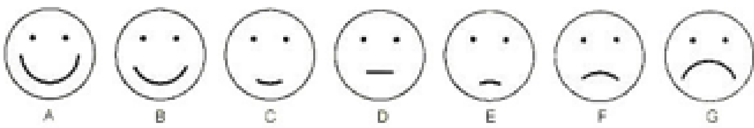
Overall satisfaction

For each question please circle the option that best represents how you feel

I am satisfied with the meals here.



I am satisfied with the food service here.



Is there anything else about the meals here that you would like to tell us about?

....

....

....

MORE ABOUT YOU (Please tick)

1. **What is your year of birth? ___________________________**

2. **Approximately how long have you lived in this aged care home?**

3. **Do you experience any daily problems with thinking and/or memory?**
   - ◻Yes
   - ◻No
   - ◻Unsure

4. **Do you have any special diet requirements?**
   - ◻No
   - ◻Yes, please specify:
     - ◻Texture modified
     - ◻Diabetes
     - ◻Gluten free
     - ◻Other (please specify):___________

END OF QUESTIONNAIRE, THANK YOU FOR COMPLETING

Time finish: _________ AM/PM

Second questionnaire completed: YES / NO

Permission to test/retest: YES / NO

Current menu cycle: Week ____ of _____

Revisit in ______ weeks

Organisation # AGE __ __ __ __

Date of 1st visit: ____ / ____ / ____

Date of 2nd visit: ____ / ____ / ____

Original Questionnaire # ___ ___ ___ - ___

Questionnaire #___ ___ ___ - ___

APPENDIX J: PARTICIPANT INFORMATION SHEETS (RESIDENT)

J:1 INFORMATION SHEET

Professor Michelle Miller
Head of Discipline
Nutrition and Dietetics
Faculty of Medicine,
Nursing and Health Sciences,
School of Health Science
Flinders University

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michelle.miller@flinders.edu.au

www.flinders.edu.au
CRICOS Provider No. 00114

INFORMATION SHEET

Satisfaction of food service in aged care facilities: Development of a toolkit of instruments for measurement of change.

Investigators:

Dr Alison Yaxley
Nutrition and Dietetics
Flinders University
Ph. (08) 7221 8849

Professor Michelle Miller
Nutrition and Dietetics
Flinders University
Ph. (08) 7221 8845

Morgan Pankhurst
Nutrition and Dietetics
Flinders University
Ph. 0411447751

Description of the study:
This study is part of the project entitled *'Satisfaction of food service in aged care facilities: Development of a toolkit of instruments for measurement of change'*. This project will investigate perceptions of residents living in residential aged care facilities to assist the development of a food service satisfaction questionnaire/s. This project is supported by Flinders University Nutrition and Dietetics in partnership with the Maggie Beer Foundation.

Purpose of the study:
This project aims to produce a toolkit of questionnaires which can be used in the aged care setting to assess satisfaction of the food service.

In conducting this project we seek to:

- Explore perceptions of residential aged care facilities food service provision from residents and use this intelligence with available literature to inform the development of valid and reliable questionnaires.

To participate in this study you must live at a residential aged care facility for at least 1 month. All participants must speak fluent English.

What will I be asked to do?
You are invited to participate in an interview with a researcher who will ask you a few questions about your views about food service provision at residential aged care facilities. The interview will involve discussion of a new questionnaire to measure satisfaction with meals provided in aged care facilities. Your responses will help to inform the further development of the food service satisfaction tool specifically for residents. You will also be asked to comment on how easy the survey is to understand and complete. This should take about 30 minutes of your time. Your participation in this project is entirely voluntary.

What benefit will I gain from being involved in this study?
You will not receive any direct benefit from being involved in the study. However, sharing your views and experiences will provide important insights into different stakeholder's perceptions in how to measure satisfaction with food service in residential aged care facilities. The results of this study will be prepared for publication in academic journals and presented at conferences in order to share this information with the wider community. Results will inform the development of a satisfaction questionnaire which is intended to be made accessible for use in future research.

Will I be identifiable by being involved in this study?
Your participation in this study will be anonymous. Data will be de-identified and stored on a password protected computer that only the research team will have access to. Your comments will not be linked directly to you.

Are there any risks or discomforts if I am involved?
Participants are asked to only share information they feel comfortable in sharing with the researcher. In the event that a participant reveals that they have participated in any serious illegal activities then the investigator will be obligated to report this information to the appropriate authorities. The investigator anticipates few risks or discomfort from your involvement in this study. If you have any concerns regarding anticipated or actual risks or discomforts, please raise them with the investigator.

How do I agree to participate?
Participation is voluntary. You may answer 'no comment' or refuse to answer any questions and you are free to withdraw from the interview at any time without effect or consequences. A consent form accompanies this information sheet. If you have any questions about the study please contact Michelle Miller on (08) 7221 8845 or by email (nutrition.projects@flinders.edu.au).

How will I receive feedback?
Outcomes from the project will be summarised and given to you by the investigator if you would like to see them.

Thank you for taking the time to read this information sheet and we hope that you will accept our invitation to be involved.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project number 6929). For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au

J:2 INTERVIEW INTRODUCTION AND VERBAL CONSENT

Hello,

My name is Morgan Pankhurst and I am a researcher at Flinders University. I am researching food and what makes people happy with the food served in aged care homes like this one… I would like to interview people who live here to hear what they think about the food and the meals here. What people say will be kept private and confidential, and they will remain anonymous. I am not from the nursing home so anything that I hear about will not get back to the staff who work here. Would you be willing for me to interview you about the food?

--> If no: “Okay thank you for your time”

--> If yes:

Ok thank you for wanting to talk to me. I will give you some more information and you can decide whether you agree to continue, ok?

So, I have a list of questions here which I will ask you and you will tell me your answer. There are (number) of questions. Your name will not be on written on the sheet and these answers cannot be traced back to you. You do not have to answer a question if you do not want to and you do not need to continue the interview if you do not want to. Please let me know if you would like to stop the interview and if you would like to stop your answers from being used in our research. You can withdraw from the interview at any time without effect or consequence.

Did that make sense?

--> If no, “clarify what information is required”

--> If yes, “Would you like to start the interview?”

(--> If yes, start interview)

--> If participant asks to stop the interview: “ok, I understand. Thank you for your time. Would you like to withdraw your answers from the research, or can I still use these answers for research?”

APPENDIX K: RECRUITMENT FLYER AND PARTICIPANT INFORMATION SHEETS (FAMILIES)

K.1 INTRODUCTORY EMAIL

Dear Sir/Madam,

I am an PhD candidate at Flinders University working under the supervision of Dr Alison Yaxley and Professor Michelle Miller. I am working on a project exploring food service satisfaction in residential aged care homes. The findings of this project will be used to inform research and quality improvement initiatives within aged care homes.

We are seeking your assistance with recruitment. We would like to recruit families who have a family member who permanently resides within your home who may be interested in participating in this study. Participants will be asked to take part in one 60 minute interview which will be conducted by myself, Morgan. During the interview family members will be asked a series of questions that encourage them to discuss their expectations and experiences with food service in residential aged care.

Attached is the recruitment flyer for your information. Please let me know if you would be happy to promote this study internally (on information monitors and through fliers) and in your communication with families (through email and newsletters).

Any enquiries you may have concerning this project can be directed to me at the address given above or by telephone on 0411447751 or to my supervisor Dr Alison Yaxley on 7211 8849, or by email (alison.yaxley@flinders.edu.au).

Regards,

Morgan Pankhurst

K.2 RECRUITMENT FLYER

Food in Aged Care Homes

DO YOU HAVE A FAMILY MEMBER LIVING IN AN AGED CARE HOME?

Flinders University is seeking volunteers who wish to participate in a study to help us understand family expectations and experiences with the food and food service in aged care homes. Participation will involve undertaking a confidential 60 minute phone interview.

Please call Morgan on 0411447751 for more information.

This study has been approved by the Flinders University Human Research Ethics Committee.

K.3 INFORMATION SHEET

Dr Alison Yaxley

Lecturer in Nutrition and Dietetics
Master of Nutrition and Dietetics
Course Coordinator
Food Service Placement Coordinator
College of Nursing & Health
Sciences
Flinders University
GPO Box 2100
Adelaide SA 5001

Tel: 08 7221 8849
Fax: 08 8204 6406
alison.yaxley@flinders.edu.au

flinders.edu.au/alison.yaxley

CRICOS Provider No. 00114A

INFORMATION SHEET

Satisfaction of food service in aged care facilities: Development of a toolkit of instruments for measurement of change.

Investigators:

Prof. Michelle Miller
Nutrition and Dietetics
Flinders University
Ph. (08) 7221 8845

Dr Alison Yaxley
Nutrition and Dietetics
Flinders University
Ph. (08) 7221 8849

Morgan Pankhurst
Nutrition and Dietetics
Flinders University
Ph. (08) 8204 7074

Description of the study:
This study is part of the project entitled *'Satisfaction of food service in aged care facilities: Development of a toolkit of instruments for measurement of change'*. This project will investigate the expectations and experiences of individuals who have a family member living in residential aged care facilities to assist the development of a food service satisfaction questionnaire/s. This project is supported by Flinders University Nutrition and Dietetics.

Purpose of the study:
This project aims to produce a toolkit of questionnaires which can be used in the aged care setting to assess satisfaction of the food service.

In conducting this project we seek to explore residential aged care facility food service provision from the perspective of family members and use this intelligence, along with available literature, to inform the development of valid and reliable questionnaires.

To participate in this study you must have a family member who has lived at a residential aged care facility for at least 1 month. All participants must speak fluent English.

What will I be asked to do?
You are invited to participate in an individual interview led by a Flinders University staff member who will ask you questions about your expectations and experiences with

the food and food service in the residential aged care home in which your family member resides. The interview will be conducted by phone, using video conferencing technology or in person, and will take about 60 minutes. It will be recorded using a digital voice recorder to help to capture your thoughts and opinions. Once recorded, the discussion will be transcribed (typed-up) and stored as a computer file and then destroyed once the results have been finalised.

Your experiences are invaluable in helping us develop quality improvement programs in the residential aged care food service system. You are free to decline to answer any particular questions or to cease the discussion at any time. You will also have the opportunity to review and edit the transcript of the discussion on request. Immediately prior to the interview you will be asked to complete a short 5-minute questionnaire asking standard questions about you and your family member.

What benefit will I gain from being involved in this study?
You will not receive any direct benefit from being involved in the study. However, sharing your views and experiences will provide important insights into different stakeholder's perceptions in how to measure satisfaction with food service in residential aged care facilities. The results of this study will be prepared for publication in academic journals and presented at conferences in order to share this information with the wider community. Results will inform the development of a satisfaction questionnaire which is intended to be made accessible for use in future research.

Will I be identifiable by being involved in this study?
Your participation in this study will be anonymous. Data will be de-identified and stored on a password protected computer that only the research team will have access to. Your comments will not be linked directly to you.

Are there any risks or discomforts if I am involved?
Participants are asked to only share information they feel comfortable in sharing with the researcher. In the event that a participant reveals that they have participated in any serious illegal activities then the investigator will be obligated to report this information to the appropriate authorities. The investigator anticipates few risks or discomfort from your involvement in this study. If you have any concerns regarding anticipated or actual risks or discomforts, please raise them with the investigator.

How do I agree to participate?
Participation is voluntary. You may answer 'no comment' or refuse to answer any questions and you are free to withdraw from the interview at any time without effect or consequences. If you have any questions about the study please contact Alison Yaxley on (08) 7221 8849 or by email (alison.yaxley@flinders.edu.au).

How will I receive feedback?
Outcomes from the project will be summarised and given to you by the investigator if you would like to see them.

Thank you for taking the time to read this information sheet and we hope that you will accept our invitation to be involved.

Dr Alison Yaxley

K.4 WRITTEN CONSENT FORM

CONSENT FORM FOR PARTICIPATION IN RESEARCH

Satisfaction of food service in aged care facilities: Development of a toolkit of instruments for measurement of change (residents)

I ……

being over the age of 18 years hereby consent to participate as requested in the Information Sheet for the research project on satisfaction of food service in aged care facilities.

1. I have read the information provided.
2. Details of procedures and any risks have been explained to my satisfaction.
3. I am aware that I should retain a copy of the Information Sheet and Consent Form for future reference.
4. I understand that:
   - I may not directly benefit from taking part in this research.
   - I am free to withdraw from the project at any time and am free to decline to answer particular questions.
   - While the information gained in this study will be published as explained, I will not be identified, and individual information will remain confidential.
   - Whether I participate or not, or withdraw after participating, will have no effect on any treatment or service that is being provided to me.
   - I may withdraw at any time from the research without disadvantage.
5. I agree/ do not agree* to the research team contacting me for feedback on a developed questionnaire in the future. *delete as appropriate

Participant's signature……………………………………Date…………………...

I certify that I have explained the study to the volunteer and consider that she/he understands what is involved and freely consents to participation.

Researcher's name…………………………………………………….................

Researcher's signature…………………………………..Date…………………….

NB: Two signed copies should be obtained.

K:5 FAMILY MEMBER DEMOGRAPHIC QUESTIONNAIRE

Dr Alison Yaxley

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CRICOS Provider No. 00114A

Satisfaction of food service in aged care facilities: Development of a toolkit of instruments for measurement of change

Demographic questionnaire

Thank you for taking the time to complete this questionnaire.

This questionnaire collects information about you and your family member residing in an aged care home. Please read and answer every question by selecting the relevant box.

There are no right or wrong answers. If you are not sure how to answer a question, please mark the answer that is closest to your opinion.

Your individual responses will remain confidential and will not be shared with anyone. Please do not write your name anywhere on this questionnaire. All information provided will be treated in strict confidence and will not be made available to any other source.

This questionnaire should take you less than 5 minutes to complete.

ID:

1. What is today's date?

_______ / ________ / ____________
Day Month Year

2. Are you: ☐ Male ☐ Female ☐ Non-binary ☐ Prefer not to say

3. What is your year of birth? _____

4. How many family members do you have permanently living in residential aged care?

1.Age ________________ (Male / Female) Relationship __________________

2.Age ________________ (Male / Female) Relationship __________________

3.Age ________________ (Male / Female) Relationship __________________

6. Which aged care home do they currently live in? ___________________________

7. How long have they lived in this home? ___________________________________

8. Have they lived in any other home previously? ______________________________

6. How often do you have the opportunity to visit your family member in the aged care home?

____

8. What is your current employment status? (Select all that are applicable)

☐ Full time employment ☐ Full time study

☐ Part time employment ☐ Part time study

☐ Casual employment ☐ Unemployed

☐ Full time caregiver ☐ Retired

Other (please specify) __________________________

10. Do you identify as Aboriginal?

☐ Yes ☐ No

11. Do you identify as Torres Strait Islander?

☐ Yes ☐ No

12. Were you born in Australia?

☐ Yes (Go to Q.13) ☐ No

6a. If **NO**, where were you born? ________________________________

6b. If **NO**, how long have you lived in Australia?

☐	☐	☐	☐	☐
less than 1 year	1-5 years	6-10 years	11-20 years	20 years or more

13. What is your post code? ☐☐☐☐

Thank you for completing this questionnaire

APPENDIX L: INTERVIEW SCHEDULE FOR FAMILY INTERVIEWS

My name is Morgan and I am a PhD candidate with Flinders University. I'm part of a team that has a strong interest food in aged care homes.

The reason for my call today is because you have agreed to an interview to discuss your experiences with food in aged care. I have a list here of the questions I would like to ask you, think of these as conversation starters and guides. I'll start by asking a question and then hand it over to you. There are no right or wrong answers.

I anticipate that this interview will take around an hour. With your permission I would like to record our session today, this will make sure that I am getting an accurate representation of our conversation. Throughout the interview I will refer to you by name, however when I use the data all participants will be de-identified and kept anonymous.

As a formality I need to ask: Do you agree to being recorded?

Did you have any questions before we start?

1. When your family member first entered their aged care home what were your expectations regarding the meals they would be served?
    a. What are your expectations now?
    b. Have they changed? Why or why not?

2. How well do you think the home does at catering for your family member's food preferences?
    a. What about cultural needs and preferences?
    b. What about dietary needs (e.g., allergies, intolerances, vegetarian etc).

3. What are your thoughts on the variety of meals offered across the menu?
    a. Does the home do different menus for special occasions (e.g.,, Christmas, birthdays)

4. What are your thoughts on the timing of meals offered?

5. What are your thoughts on the quality of meals offered to residents?
    a. Do you think they are offered healthy meals?

6. What are your thoughts on getting residents involved in meal preparation?
    a. What about setting the table?

7. How do you feel about dining with your family member for a meal inside the home?
    a. Do you feel you are welcome to stay for a meal?
    b. Is it possible for you share a meal with your loved ones via video conference?
    c. Have you tried the meals in their home?
    d. What are your thoughts about the meals?

8. What do you think of the dining room?
    a. Do you think it is a nice place to eat meals?
    b. What is the noise level like?
    c. How do you feel it could be improved?

9. How do you feel about bringing in food from outside the home?
    a. Does the facility support you in this?

b. Are there suitable storage facilities (e.g., fridge)?

10. How do you feel about the supports your family member gets at mealtimes?
    a. Are the staff helpful?
    b. Are they treated with respect?

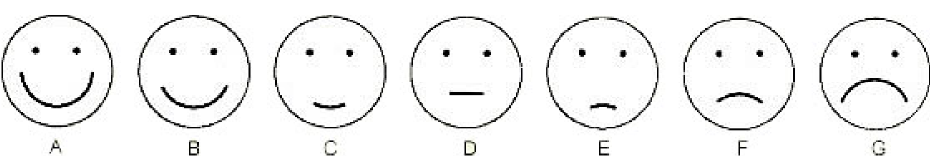
11. Do you think your family member looks forward to mealtime?

12. Have you ever given feedback to the manager regarding the meals served?
    a. How was your feedback received?
    b. What about the kitchen staff, have you ever spoken directly to them?
    c. When your family member gives feedback do you feel they are listened to?

13. What do you like the most about the food service in their home?

14. What do you like the least about the food service in their home?

15. Overall, are you satisfied with the food service in their home?
    a. If so, why?
    b. If not, why? What would improve your satisfaction?
    c. Overall, how would you rate your satisfaction.



APPENDIX M: EXAMPLE TRANSCRIPT FROM THE QUALITATIVE INTERVIEWS CONDUCTED WITH FAMILY MEMBERS

	Timespan	**Content**
1	0:00.0 - 0:07.7	So that I am getting an accurate representation of our conversation, so are you happy to be recorded?
2	0:07.7 - 0:16.9	Yes, yes, I'm ok with being recorded and I'd really like to finish at 2 o'clock because I've got a 2.15 appointment elsewhere.
3	0:16.9 - 0:23.0	OK, no problems at all. Do you have any other questions before we start?
4	0:23.0 - 0:25.4	Ahh no, no I'm ok.
5	0:25.4 - 0:30.9	Alright if I start breaking up again umm just let me know stop me and let me know.
6	0:30.9 - 0:31.7	Yup, sure.
7	0:31.7 - 0:37.3	Umm so you can just refresh my memory on which family member you have.
8	0:37.4 - 0:50.0	Ah yes, it's my maiden aunt (name given) who is at (name of aged care home). Her cognitive function is excellent ah her health is not.
9	0:49.9 - 0:54.1	So where you involved in choosing (name of aged care home) with her.
10	0:54.1 - 0:55.5	Yes.
11	0:55.5 - 1:04.0	So when you first did that and you started making the arrangements what were your expectations regarding the meals that your aunt would be served?
12	1:04.0 - 2:24.3	Ahh that they would be nutritious, that they would be tasty (mhmm) that they would be you know she would have some choices ahh and umm I understood that it was institutionalised because I spent eight years at a boarding school so I actually understand about institutionalised feeding so and we talked about that ahhh she and I talked about that but umm we were, I was quite pleased to see that there was an eating area, a dining area in each because it's a large home (yes it is) ahhh in each of the areas and I was hopeful that that would be umm allowed for because eating is also a social event (yes) and I thought it would be because she goes to every meal, she has none in her room, would be one of the ways that she might socialise a little bit because that's part of our family culture that you know we socialise over a meal (yes, yup).
13	2:24.3 - 2:28.1	So how long has your aunt been living there now?
14	2:28.2 - 2:32.6	Ah 12 months in June.

	Timespan	Content
15	2:32.6 - 2:41.0	And so thinking about what you described your expectations were when she first moved in, are they have they changed now a year later?
16	2:41.0 - 2:57.3	Have my expectations changed? (YES). Umm no, no I've got a few more concerns but no, not really, no, no.
17	2:57.3 - 3:06.9	That's fine. Umm how well do you think they do at catering for your aunt's food preference, whether that's cultural or dietary?
18	3:06.9 - 3:54.2	Ah I think uh that the dietary ah issues are ok, umm because she was a diabetic but she has lost so much weight that she is really not anymore she's also lactose umm intolerant umm and they cater for that but I think that the fact that this is institutionalised cooking and all of that I think on their report card I think I would be writing they could do much better.
19	3:54.2 - 4:00.0	Umm what are your thoughts on the variety of meals that are offered across the menu?
20	4:00.0 - 4:57.4	Umm it's very English, well English-Australian kind of food I think, quite conventional food. I did ask her you know did she occasionally have a curry or you know I don't mean a hot curry even an Australianised curry or a something that's got because she complains about the lack of flavour or something with a bit more garlic in it or umm you know the kind of condiments one uses to increase the taste of different dishes but I see that it's quite bland and ah it sounds quite good on the board you know because they have a menu board but I think it's the delivery that's an issue.
21	4:57.3 - 5:04.3	Yup so somethings lost in translation there (yes) between the description of the dish and what's actually being served there?
22	5:04.2 - 5:05.4	Yes, yes.
23	5:05.4 - 5:07.6	Have you tried the meals yourself?
24	5:07.5 - 5:11.7	No I haven't ah no.
25	5:11.7 - 5:15.3	OK, umm could you...
26	5:15.3 - 5:17.7	I've seen them, but I haven't tried them.
27	5:17.7 - 5:20.7	If you wanted to join your aunt for a meal do you think you'd be welcome to?
28	5:20.7 - 5:43.3	I think certainly one is welcome to at the home and they you know they do that for Christmas and certain things you know and I could do that I wouldn't do it in a million years and she wouldn't want me to because she prefers to go out because she thinks that the food offerings are terrible.
29	5:38.3 - 5:56.0	Mhmm so umm my understanding is that you can pay $10 or something if you want to join for a meal (yes) but what I'm hearing is that if you are going to pay for a meal you'd both rather go out somewhere.

	Timespan	Content
30	5:56.0 - 6:32.8	Oh absolutely, or she I live within walking distance (name of aged care home) so ahhh I would get the car and bring her around here or I've made beautiful fresh smoked salmon and avocado sandwiches and had them down on the beach with a nice iced coffee in summer you know things like that so that she's getting some significant, shouldn't be treats, but food that she likes. I always ask her what she wants when we go out.
31	6:32.8 - 6:41.5	So when you had your intake interview was there somebody that took a note of her food likes and preferences?
32	6:41.5 - 10:26.3	Ah they asked her what she had for breakfast, right. I don't remember I think there were you know dietary requirements, etc and she's certainly has them well organised for what she has for breakfast and she was so horrified by the evening meal that they now she has soup and some bread and then she has what an old fashioned salad plate that in the olden days they called a cold collation (laugh) so she has sometimes it's half a boiled egg and sometimes it's a full boiled egg and some ham and some lettuce and tomato and whatever you know. I don't know if there is a bit of cheese on it or whatever and it's a small serve because she's only 4'9" and she has bowel cancer and colostomy bag now ahh but her appetites quite good you know for all of that umm and ah she doesn't have any pain, yet. Ahh yes she has them organised for breakfast and she has them organised for the evening meal. For breakfast she has a banana, wheaties, cup of tea, toast with marmalade umm I think, I'm not sure I asked her do they have like see my mother was in a nursing home at (blinded) which is not where I would put a dog, I'm sorry. Honestly, we went to the aged care complaints commissioner, we had the coroner involved, like I don't want to talk about it too much because it upsets me but it was a horrendous time and umm they had a similar way of organising the food like a big kitchen and then everything was brought up and my father was in a aged care facility in (blinded) where the food was very good. Towards the end he had to have it mashed up a bit and that because he'd had a stroke and his swallowing mechanism wasn't working as well umm but Dad was a bushman so he ate practically anything and he loved dessert so if there was dessert he was happy. Umm sorry so back to aunty (blinded) umm so I asked her if she had bacon and eggs like sometimes they have an opportunity for that and she actually said to me that she wouldn't mind because I think they do, she wouldn't mind but she is so bothered by the fact they are not able to meet her, she doesn't trust their ability to meet her dietary needs, food needs, that she feels it's better to keep them in her routine you know rather than say well you know I'll have bacon on Saturday, I think there's one day a week when they do that she said I couldn't be bothered she said it's just horrendous so she says I've got the staff trained up for breakfast and I get what I want and the evening meal she gets what she wants and she doesn't change it because she just feels that there offerings are umm what she believes are terrible.
33	10:26.3 - 10:34.4	Mmm yup. So she's really had to advocate to get at least some of the food that she's eating (yes) the way that she likes it (yes).
34	10:33.8 -	And the thing that she says to me is 'thank god I've got my marbles'

	Timespan	Content
	11:18.2	(laugh) and I say well I am pleased you have too because I wouldn't have had to advocate for Dad, Mum was still doing that but advocating for my mother was because she ended up with some vascular dementia that was hard work, that really was hard work advocating for someone with some dementia who was still umm mobile and able to communicate at a reasonable level. (yup)
35	11:18.2 - 11:27.4	Does the home honour special occasions such as Christmas, Australia Day, birthdays, through food?
36	11:27.5 - 13:09.0	Ah yes, it certainly does, they in fact you are invited to Christmas dinner if you want to, I can't remember about Australia Day umm I do know the birthdays they have a birthday afternoon tea at 2 o'clock whether as (blinded) went to her birthday because her birthday is in June and she went last year and said there's lots of cake and creamy things and her view is that she can't eat creamy things and she told them she couldn't eat those things but they hadn't accommodated her so when she got there (laugh) she's ahh she's very determined woman I think she was polite but I don't think she quite she felt they should have catered for her and so I think she ended up getting a platter with some fruit (ok) on it but she wouldn't go this year because there's always cream cakes and I'm not making a fuss and you know (yup), no I'm not doing it so she feels that they don't at those occasions that occasion cater for her. This year she was there for Christmas day which we would not normally have done but she'd only just come out of hospital after having the stoma umm so I believe I had turkey and whatever but she feels that the meal was cold (ok).
37	13:09.0 - 13:31.1	Umm now in the timing of meals in aged care homes normally breakfast is somewhere between 7 and 8 and lunch is at midday and dinner's at 5ish which is very different to how we might normally eat when we're living at home so what are your thoughts on the timing of meals that's offered to residents?
38	13:31.1 - 15:13.4	Well my understanding is that the breakfasts are there's flexibility at (name of aged care home), not at lunch time I don't think but I do believe because I think she goes down at half past eight for her breakfast, between quarter past and half past eight ah and that works well I believe because she has various medical issues to be attended to before that ah lunch is a half past twelve and that's pretty set, well the one thing we were told was that they were expected to eat their lunch in their dining area they could have the run of the home like outside everywhere but umm they are expected to eat because that was one of the ways that staff knew where they were and I guess keep a bit of an eye on their nutritional intake. That's my guess, that wasn't actually said umm and the evening meal I think it's at 5.30 I think yes it is yeah 5.30 because she comes back to watch the news ahh mmm so I don't think that's an issue for her. They have morning and afternoon tea which she doesn't partake she doesn't like cake, she's not having any of that ahh and I'm not sure no she has a banana in the mornings so why should she eat fruit at other times she's funny oh dear.
39	15:13.5 -	Umm what are your thoughts on the quality of meals being offered to your

	Timespan	Content
	15:18.1	aunt?
40	15:18.1 - 18:17.8	I think lunch time is a big problem and I think that umm and I'm going on from some of the things that she is saying as well but clearly they're boring, they come from a large kitchen and they're not hot. They're overcooked. The umm sometimes they must have a pie of some kind and I think (blinded) says that the pastry is terrible ahh she used to like because I mean she does have you know that cultural heritage of English food but you know that movement on that I think Australians have done over time of different cultural you know she likes a Chinese meal and that kind of thing and rice and fried rice and things like that and I understand that there are swallowing issues and I understand that for many people and I understand you know that kind of thing and for some people things have to be mushed up and not have a tough you know chop and veg or anything like that I get all of that and so does she umm but I did say to her oh do they ever give you a bit of corned silverside because she used to love that umm with some mash and white sauce and cauliflower and all of those lovely things and she said oh yes but you know the meat's awful and it's cold. By the time it gets to me, she says, it's cold and now after 12 months she doesn't believe in them, she doesn't believe that they can like she catastrophises the lunch time meal. If you question her, and she gets a bit antsy so you have to be a bit careful and I have questioned her because I knew that this was coming up and I told her the joke about how at boarding school the main cook died and as we were all adolescents we all thought that was hysterical and that the second cook that took over she was Italian and a much better cook you know and we laughed about that and we started to talk about the specifics and really it's the temperature of the meal and she complained and they said oh we can put it in the microwave and she looked at me and she said why would I want to cooked more than it already is (mmm). And I'll have to wait (yup) and you know they've got enough trouble feeding people that require feeding and all of those things. She's a very determined woman (laugh).
41	18:17.8 - 18:21.0	Do you think that she looks forward to meal times?
42	18:21.0 - 19:23.8	NO, I know that one of her one of her statements is I suppose I must eat I have to eat to keep myself well and she has put on a little bit of weight because we said to her you know aunty (blinded), she was 41kg now I think she's 45 (ok) so she's put on some weight and she says I make myself in fact that's one of her things I make myself eat (mmm). Now I can tell you umm that she is always been, she's always been good on the tooth, she I don't know how much she weight but she would at four foot nine or ten she was a rotund little butterball now she certainly isn't in fact I had to go buy her, she was wearing size 16 to 18 and now she's wearing size 12 or 14 nighties because she likes them loose.
43	19:23.8 - 19:24.7	That's a big change.
44	19:24.7 - 19:29.1	It's a huge change, significant change (yup).
45	19:29.1 - 19:31.7	And umm I mean...
46	19:31.7 -	That's part of her health issue not ehhh the dietary issues at the home,

	Timespan	Content
	19:39.1	she's put on weight at the home.
47	19:39.1 - 19:50.7	Umm yeah I was just about to say obviously bowel cancer does have a significant impact on the way that we absorb nutrients and energy and things like that...
48	19:50.7 - 20:35.1	Look you know they I know you're not supposed to put salt and tomato sauce and I have an older partner right and you know he'd put tomato sauce on everything and because he's lost weight I couldn't care less do you know what I mean like I know if he wants to put extra butter on his bread or toast and lots of jam well so be it because he needs to eat something you can't and it's a bit the same with her I said couldn't we get some condiments you know you used to like Worcestershire sauce, I'm happy to buy them and she just feels depressed about the food (yup).
49	20:35.1 - 20:58.1	Umm I absolutely agree with you there because I'm a qualified dietitian (ahhhh laugh) I know what the dietary guidelines and I know when to ignore them (YES) so things like salt it's only relevant if you've got high blood pressure and even then in an aged care home when we're looking at because realistically we are looking at end of life care...
50	20:58.1 - 21:06.6	Well this is what this is, the stoma is a palliative response, she's having no treatment other than that.
51	21:06.7 - 21:22.2	And so as a dietitian I go in and I think what as callous as it might sound what is going to kill them first and (yeah me too!) and usually it's not having a bit of butter or salt on their meal it's the fact that their not eating because they don't like the food
52	21:22.2 - 21:39.2	It's so awful (yup) and the kindest thing I can say is that it's institutionalised but I can remember the food I had was at least it was spiced or salted or whatever and look a mild curry is not going to kill anybody (exactly) like or I understand rice might be a bit difficult because it gets caught in people's throats and things like that but that umm or you know spag bol with piles of mushroom, zuchhini you know you can hide anything in a mince (yup).
53	21:55.6 - 22:16.2	And nobody's going drop dead because you put a pinch of salt in the water that you cooking your vegetables in (no, they're not) and yet every aged care home I've been into they don't do that, they don't flavour as they cook and the end result is as you said bland, bland food that residents are not excited about eating.
54	22:16.2 - 23:37.0	No, there's it's not and ahhh at all even I mean I said to her maybe I could get you some nice pickles or something to go with what you're having you know all that she used to love gherkins and that kind of thing and you can get low joule gherkins with low sugar gherkins and sugar is more the issue than salt (mmm) for her she doesn't like sweet things she doesn't like lollies, oh I do give her Haigh's ginger chocolates because you know I think that's probably put more weight on I buy them all the time I figure you know she loves them and I make a fruit cake old fashioned fruit cake which is very moist and lovely and my partner loves it and I've been dropping a couple off to her you know in a little grab bag and she's loving that which is funny because she'll tell you that she wasn't a sweet tooth but

	Timespan	Content
		it's not a really sweet fruit cake like in terms of sugar but it's got fructose from the fruit of course.
55	23:37.1 - 23:43.1	So when you do bring in food for your aunt is there any resistance from the home?
56	23:43.1 - 25:02.8	Now there's a we bought her a fridge, we bought her a little fridge which we are allowed to do, this is prior to the pandemic and so I took her shopping and we bought some savoury bikkies and a little bit of cheese and she was going to give herself you know half past three in the afternoon she was going to make her own little snacks, she loves little snacky things like that and made sure she had plates and knives and forks and all of that because her area she's got a kitchen area and disposable plates and all of that ahh now she loved it for a while and I notice that she is not now and there's I can't remember but there's some rule now that you can only, I can't take in the smoked salmon and avocado sandwiches I think I have to take in everything has to be sealed or something I can't take in perishable foods but umm I do take in this fruit cake to her now and Haigh's chocolates.
57	25:02.8 - 25:05.6	Umm so there are some restrictions on what you can take in?
58	25:05.5 - 25:19.5	Yeah there is now ahh and I have said to her you know do you want me to bring some cheese in or what else and no she used to love food (laugh).
59	25:19.5 - 25:37.0	And that's so sad to hear you know a I said I spoke to four hundred residents and now I'm starting to speak to family members and it just breaks my heart when I hear that you know the residents would say to me I used to love food and now it's just something that I dread, a chore...
60	25:37.0 - 27:24.1	When Mum went into (blinded) she could have a glass of wine with I can't remember which meal so we took in you know I bought a good quality cask and all of that so that she could have her glass of wine but because she had to ask for it, and she didn't remember, umm because I'd ask did you have your little glass of wine last night well she couldn't remember whether she had a glass of wine last night or not (yes) umm and I check the cask you know because it was locked away just in case somebody took a tipple of it you know in with the medicines which I thought was funny umm and you know it didn't follow through, they didn't follow through and I don't know whether (blinded) you know sorry I meant (blinded) they didn't even mention alcohol, I think Christmas Day there was a glass of wine on offer umm ahhh but you know even those kinds of things it's their home (yes) you've paid six hundred thousand dollars for a room ahh you know we've got champagne little champagne in her fridge so that you know she's got a special occasion or something like that we can take champagne glasses in because she quite likes that and we'll have a glass with her or whatever or when it was her birthday I got my son to come and we all had some champagne together but honestly you know that kind of thing could be sorted as well (yup).
61	27:24.0 - 27:53.4	Umm you touched on something that's really important, it is meant to be their home and in our own home we have cupboards full of foods that we

	Timespan	Content
		enjoy, we can eat when we want, as much as we want, we can pour ourselves a drink, there's no food police to tell us what we can and can't have (mmm) and I find that in my experience when people go into aged care they lose so much autonomy (I agree) over that aspect of their life.
62	27:53.4 - 29:24.8	I mean aunty (blinded) she's a very difficult determined woman and our family joke is that she thinks she's at the Hilton and she I just saw a complaint she wrote the other day because (blinded) who's the guy that comes into the kitchen area, their kitchen area, he called sick in sick and they didn't replace, they replaced him with kitchen staff from downstairs who didn't have the routine so the tables weren't setup ahh the toast was not done it was cold ahh she asked for because he said they don't have any marmalade which she said they do so she said well give me vegemite and ahh they put vegemite on two bits of toast and put it in a paper bag (laugh) like you know like the old fashioned motels used to do and she said it was cold, she said it was so hard I can't bite it and ok you know that was an aberration umm but she wrote this complaint which I've read and her comment was well you know they should be trained like if the kitchen staff are going to if that's what they're going to do, and she sounds like this "if that's what they're going to do and have the kitchen staff up if (blinded) is not available then the kitchen staff should be trained" (laugh) she's right!!
63	29:24.8 - 29:30.7	She is right! Umm yes...
64	29:30.7 - 30:14.5	So whoever's in charge down in the kitchen apologised profusely and she felt much better but she's still on about it (laugh, oh dear) but you know if you've got dementia or you want, and there's a lot of women in those places that perhaps haven't travelled the world and you know she's a character, she really is, you know. She told, my aunty (blinded) told them all off at the table the other day, she said I'm the one, she said, that's always asking for things when they're not there, we haven't got any water on the table, she said, I don't see why one of you people can't do that. So, anyway.
65	30:14.5 - 30:24.0	Does the home umm ever have activities that your aunt is included in that is focussed around cooking or meal preparation?
66	30:24.1 - 31:00.5	No, and she wouldn't attend (ok) there was a market when she first when in they had a little market and they had they must have had people come in with home made goodies and little pickly things and jammy things you know like a market market, farmers market kind of thing but much more low key than that which she was very excited about and she went down and she bought some things, they haven't had one since (ok).
67	31:00.5 - 31:04.3	Umm so you said she wouldn't get involved in any cooking?
68	31:04.3 - 31:25.4	No because remember she is a maiden aunt and ah my grandmother who she lived with until Nan, grandma died, nanna died and then aunty (blinded) suddenly had to learn to cook (mhmm) so she's not a cook, I think that's why we say she's at the Hilton (laugh).

	Timespan	Content
69	31:25.4 - 31:30.9	So it's not an activity that she particularly enjoyed at home.
70	31:30.9 - 32:19.3	No, but I think my Mum would have because she was a country cook I mean you know her scones were to die for you know like she was and she was experimental I remember (laugh) yeah so my mother would have umm enjoyed that kind of thing and you know you can you could do that I mean I've worked with children, I work with children with disabilities you know all of that in my time and that's how you get kids in, that's how you get people in you know make pizzas they're not that hard to make, cook them and they'll eat them.
71	32:19.3 - 32:26.4	I agree that if you involve people in making their food they're more invested in wanting to eat it.
72	32:26.4 - 32:40.4	Oh I know that yeah absolutely yeah. You know I've had parents said to me how can you get my kid to eat vegetables like that and I go well you know we made the soup we grew the veggies yeah anyway.
73	32:40.4 - 32:44.7	Does your aunt need any support at mealtime? Any help cutting up food? (no) Or anything like that? (no, no). So she's completely independent?
74	32:50.1 - 32:52.8	She's completely independent (yup).
75	32:52.8 - 33:04.0	Thinking about the staff at mealtimes so the staff that are there serving up the food in your experience are they helpful and respectful?
76	33:04.0 - 34:44.0	Ah yes I believe so, the carers and the nurse in that area do come down for meals and the people who are in princess chairs etc what I like is ah that they are in different parts of the room so they don't stick all the people in princess chairs or whatever in the one spot which is what happened the other day when ahh when (blinded) wasn't there so they stuck them all in the one spot but you know like (blinded) I think is that the end of aunty (blinded) table and he is ah a nice man she says and he gets fed ah and I think they have a bit of a conversation ahh and and I notice if I not now since the covid thing but they've got people spaced out so your different, what I would call different ability levels or not quite sure what the term is but you know what I mean in different places and I think there's a new lady (blinded) is at aunty (blinded) table and if she doesn't have her food put there in front of her straight away she gets a walker and she wanders off (laugh) and so the staff I think have learnt to feed (blinded) first and she'll feed herself but if it's not there she disappears (laugh) umm yes
77	34:44.0 - 34:53.2	Have you ever given feedback to either the food manager, food services manager or the site manager regarding the meals?
78	34:53.2 - 35:42.4	Ah (blinded) who's in charge of the (blinded) area so she's a she would be a nurse, she's the person I email all the time about anything and everything, doctors appointments, complaints umm I see myself as my aunt's advocate so I and I like things to be in writing after my last experience umm so I would send emails off ahh but I would say to (blinded) quite frequently you know she thinks the foods terrible, I probably

	Timespan	Content
		haven't put that in writing (ok) because there are only so much you can do as an advocate and she is aunty (blinded) seems to be capable of managing ahh the food issue (yes).
79	35:42.4 - 35:47.8	So she's good at advocating for herself as well?
80	35:47.8 - 35:52.4	I think she is but I think she thinks it's a hopeless cause.
81	35:52.3 - 36:06.7	So she's, ah correct me if I'm wrong but what I'm hearing is that she can and does advocate for herself umm but that sense of hopelessness is that because they're not listening to what she's got to say?
82	36:06.7 - 38:07.1	Particularly around the food (yup) about other things ahh she and I will discuss what we'll do and I'll tell her that I'll rattle off an email if need be which I have ahh and we've had change as a result of some of those, she had a problem with a staff member that yelled at her umm yeah there yes she manages her laundry when it goes missing (laughs) or she becomes apoplectic with rage over the laundry (laugh) and everybody finds out about it umm the but the food I think she used to complain a lot in the beginning, now she's gotten breakfast and evening meal organised she just makes herself eat lunch, she doesn't want to go she says I don't leave my room til you know just before half past I said do you ever look up on the menu board to see what's coming, she said what's the point you know it's going to be awful (awwww ohhh dear). Her greatest I have a busy life I've got grandchildren I've got all sorts of things to do but I her greatest desire is for me to take her out for lunch (yup, yup). Not only the company but and there's a couple of places we go umm so it's always she always comes out for a meal like I had to have her glasses adjusted the other day I would never have just gone out with her, got the glasses adjusted and took her back (yup) I would never do that, she would I have to plan my day so that I've got her out for about three hours and we go for a drive or always umm go and have something to eat.
83	38:07.2 - 38:12.0	Yup yup it sounds like that's something that she really looks forward to and is important for her.
84	38:11.9 - 38:13.5	Very much so.
85	38:13.5 - 38:25.9	Umm so we are getting close to the end and I'm aware of the time so there is just a couple more questions (good). What do you like the least about the food and food service at (blinded)?
86	38:25.9 - 40:03.5	Umm I think the blandness the food is unappetizing and bland it sounds good on a menu, it sounds good but the translation to ahh the food itself ahh is very very poor they really need to work out how they're going to get that food from the main kitchen up to the main areas (mmhmm) so that it still is appetizing and warm (yup) and there needs to be a bit more well it's bland, the blandness of it is clearly the major major major issue of it. I don't know that it looks that nice, you know ahh either but I believe there is vegetables and fruit and meat and protein and you know the five food groups and I believe all that is there so they and that but umm they're wasting their money on you know it's expensive to feed a pile of people

	Timespan	Content
		but they're it's like buying beautiful French green beans or Brussel sprouts and then cooking them until they go grey (laugh) you know that's what I think is happening.
87	40:03.6 - 40:10.8	So it sounds like they're doing everything right on paper (yes) but that's not translating to what your aunt is receiving at the table.
88	40:10.8 - 40:12.9	Correct
89	40:12.8 - 40:19.1	So is there anything you do like or like the most about the food or food service there?
90	40:19.1 - 40:37.5	I think that the opportunity for them to have listened to my aunt and that she has her breakfast and her evening meal, oh she says the soups are lovely (ok) the soups are lovely (well that's good) there's never been a bad soup.
91	40:37.5 - 40:41.1	Well it's good that there's at least something...
92	40:41.1 - 40:42.3	But of course it's not hot enough dear
93	40:42.3 - 40:48.8	Of course not, oh no (laugh) even the one thing they're getting wrong they're still missing the mark.
94	40:48.8 - 41:44.5	Yeah so there must be some flavouring in that soup I would think if she's got, she does say I think I've lost my tastebuds but when I take her out I check that (yup) I and she likes a bit of raw onion in with her smoked salmon and avocado and you know that kind of thing, I made some you know little mini impossible quiches that had umm like in little muffin pans that had feta and sundried tomato in one and I think cheese and ham so one was vegetarian one wasn't and she said they were beautiful ahh she could taste them she could taste the feta which of course she could because its got salt in it you know and a bit of ham she could taste them, there was buttery you know I use lots of butter lots of eggs I don't care (laugh).
95	41:44.6 - 41:51.0	So overall would you say you are satisfied with the meal and meal services offered to your aunt?
96	41:51.0 - 41:52.4	No, I'm not.
97	41:52.4 - 42:00.5	So on a scale of 1-7 with one being the lowest and seven being the highest, what rating would you give it?
98	42:00.4 - 42:02.0	Oh three.
99	42:02.0 - 42:26.4	A three? So sounds like there's a lot of room for improvement there (yes), is that right? (yup) And I know we've talked about a lot of things that you know obviously every issue that you've pointed out is an area where they could make improvement, what's the one thing the biggest bang for the buck so to speak that you think they could do to increase satisfaction there?

	Timespan	Content
100	42:26.4 - 42:37.6	Based on my aunt's feedback I think that the temperature of the meal and I'm sorry I have put two in, the temperature and the taste.
101	42:37.6 - 42:42.4	Yup, I mean it makes such a big difference, who wants to eat cold bland food?
102	42:42.4 - 42:43.1	Nobody.
103	42:43.1 - 42:56.0	Exactly. Ummm yeah so alright. The very last question is umm you know I've asked you a lot of questions is there anything that I haven't talked about that you'd like to mention?
104	42:56.0 - 45:47.1	Ahh I'm really interested in the work of Maggie Beer working in aged care (yup) you know it's a bit like Jaimie Oliver trying to improve school dinners in the UK and you know I admire that's something when she was Senior South Australian of the Year she wanted to do some work in that area and she I understand there's always a budget I absolutely fully understand the budgeting issues but Eldercare is a big organisation, they should be able to bulk buy, they should be able to train ah have some work with ah nutritionists and dietitians to look at how they can prepare tasty good looking food that's umm at the right temperature (yes) you know. You can make an enormous tasty lasagne you can make that and put every vegetable known to man in it you know (yup) you can do a beautiful little chicken curry that's with some nice chicken thighs you can make tasty good looking food (mmm) ahhh that is not bland ah and is at the right temperature so I think that ah some training (yup) you know as well as you know someone looking at how the budget you know because I think they worry about the budget that's a major issue so if someone can work with these organisations to say how we can make, look I work with aboriginal communities on a with aboriginal women teaching other aboriginal women how to make nutritious tasty food for their kids right (yup) and umm you know involvement well they can't be involved in the preparation too much but there they got bulk buying umm ahhh that would help their budget they need to umm have someone say look it is alright to put salt in these things, it is alright to this will be an ok thing for people and not everybody on who's on these diets you know whatever you know you can still manage this, sorry I've gone....
105	45:47.0 - 46:26.9	No umm I'm actually the consulting dietitian for Maggie Beer (OH Are you?!?!) yes when it comes to food in aged care (oh good on you!!) she does (she's my hero) she does training sessions for cooks and chefs in aged care umm she normally does them pre-covid she did them three or four times a year and I volunteer my time and I do several sessions education sessions on including enough protein, reassuring cooks and chefs that they can use butter and they can use salt and anything that increases the flavour is a good thing.
106	46:26.9 - 47:04.8	You know a little bit of salted butter ahh look those impossible quiches I made umm you know you put some melted butter in with the there's a tiny wee bit of flour and then all the other gorgeous ingredients but they're hot and they're beautiful and they're pretty and a bit of parsley on top and

	Timespan	Content
		there as easy to make in muffin pans ummm they're gorgeous. People would eat two or three, I think aunty (blinded) probably ate four of them.
107	47:04.8 - 47:13.6	Yes and why can't they have those as a morning or afternoon tea? (absolutely!!) rather than just cake or biscuit, so because...
108	47:13.7 - 47:17.0	I mean a cake, oh the cakes are rubbish (yes)
109	47:17.0 - 47:29.5	And so many people aren't sweet eaters (no) and so they're skipping that opportunity for nourishment (mm) and if they were given cheese and crackers or you know finger foods, savoury finger foods
110	47:29.5 - 47:52.6	It's not that hard to have some crackers, jatz crackers you know or whatever with some cheese (exactly) and there's or a bit of dippy stuff that's got something tasty you know there's a whole pile of beautiful beetroot dips and you know pestos and all sorts of glorious things (yes).
111	47:52.6 - 48:19.4	So the reason that I mention that is because I want to reassure you that there are a lot of us working in that space, this aged care space, to try and raise the quality of food because one home isn't necessarily that different to another, it's systemic the (oh I think it is) the low quality of food is systemic and it's rare to find a home that offers good quality food and we need to change that.
112	48:19.4 - 48:58.5	I you know it would be interesting to see how the country I don't know if you've done much about the country but I can tell you the food at (blinded) was far better (mmm) than the food, at the (blinded) aged care homes was far better than the food that Mum or aunty (blinded) experienced. And that was still institutionalised but maybe it's a smaller volume I dunno, they had volunteers (yup) umm yeah I dunno.
113	48:58.5 - 49:06.1	Alright well I know you've got to head off for your other appointment (yeah I do) thank you so much for your time today I really appreciate that.
114	49:06.1 - 49:10.5	That's ok, it was just a joy to debrief (laugh).
115	49:10.4 - 49:14.3	Concluding comments to wrap up interview. END TRANSCRIPT

APPENDIX N: NARRATIVE LITERATURE REVIEW SEARCH STRATEGIES

N:1 MEDLINE (VIA OVID)

#	Search Options
1	residential facilities/ or exp assisted living facilities/ or exp homes for the aged/ or exp Nursing Homes/
2	((extended care adj2 (facility or faculties)) or (geriatric adj2 (home or homes or facility or faculties or institution*)) or (long-term care adj2 (facility or faculties or institution* or setting* or resident* or provider*)) or (LTC adj2 (facility or faculties or institution* or setting* or resident* or provider*)) or (longterm care adj2 (facilit* or institution* or setting* or resident* or provider*)) or (residential adj2 (home or homes or care or facility or faculties)) or (long-stay adj2 (facility or faculties or institution* or resident*))).mp. or (Nursing home* or Institutionali* or institutional care or nursing facilit* or LTCF or care home* or rest home* or formal care or aged care or dementia care unit*).ti,ab,kw.
3	1 or 2
4	(satisf* or fulfil* or happy or contentment or contented or enjoy* or attitude* or belie* or thought* or experience*).ti,ab,kw.
5	(family or proxy or relative).mp
6	(meals or food or dining or menu or eating or nutrition or hydration).mp
7	3 and 4 and 5 and 6

N:2 PROQUEST

(noft((("extended care" NEAR2 (facility OR facilities)) OR (geriatric NEAR2 (home OR homes OR facility OR facilities OR institution*)) OR ("long-term care" NEAR2 (facility OR facilities OR institution* OR setting* OR resident* OR provider*)) OR (LTC NEAR2 (facility OR facilities OR institution* OR setting* OR resident* OR provider*)) OR ("longterm care" NEAR2 (facilities OR facility OR institution* OR setting* OR resident* OR provider*)) OR ("long term care" NEAR2 (facilities OR facility OR institution* OR setting* OR resident* OR provider*)) OR (residential NEAR2 (home OR homes OR care OR facility OR facilities)) OR (long-stay NEAR2 (facility OR facilities OR institution* OR resident*)) OR (("nursing home" OR "nursing homes") OR institutionali* OR "institutional care" OR "nursing facility" OR "nursing facilities" OR LTC OR ("care home" OR "care homes") OR ("rest home" OR "rest homes") OR "formal care" OR "aged care"))) AND noft(((personal* OR participant* OR lived) NEAR2 (experience OR experiences OR perception* OR perceptive OR perspective*)) OR satisf* OR fulfil* OR happy OR contentment OR contented OR enjoy* OR experience*) AND (family OR proxy OR relative) AND noft(meals OR food OR dining OR menu OR eating OR nutrition OR hydration) NOT noft(child* OR paediatric* OR pediatric* OR infant* OR palliative))

APPENDIX O: PRELIMINARY VERSION OF THE FAMILY FOOD SERVICE SATISFACTION QUESTIONNAIRE

This printed version will be turned into an online survey using Qualtrics.

The response scale will be a 5-point Likert scale with an additional option for "not applicable".

None of the time	Some of the time	Unsure	Most of the time	All of the time	Not applicable

The beginning of the questionnaire will contain the following introduction:

Thank you for agreeing to take part in the Food Service Satisfaction Questionnaire for individuals who have a family member living in an aged care home. This questionnaire asks you about your satisfaction with the food service that your family member receives in their aged care home. In this questionnaire, food service is defined as the provision, serving and preparation of food or meals.

For each item in the questionnaire, please select which answer best describes how true each statement is for you. This questionnaire should take around 15 minutes to complete. Be assured that your responses will remain anonymous. You do not have to complete this questionnaire if you decide that you do not want to.

Satisfaction with food:

1. Are you happy with the quality of meals being offered to your family member?
2. Do you think the meals served to your family member look appetising?
3. Do you think the hot dishes are served at an appropriate temperature?
4. Do you think your family member is being offered the right amount of food (not too much, not too little)?
5. Do you think the meals served to your family member are nutritious?

Familiar and Favourite Foods:

6. Does the home allow you to bring in food for your family member?
7. Does the home celebrate special events with food? E.g. Birthday, Christmas, Mother's/Father's Day, Easter

8. Does the home cater to your family member’s cultural/religious food preferences?
9. Does the home provide foods that your family member enjoys eating?
10. Does the home cater to your family member’s dietary needs or preferences? (e.g. vegetarian, gluten free)
11. Does the home review and update your family member’s food likes and dislikes?

Choice, Variety, Autonomy and Participation:

12. Does the home offer your family member alternate choices at main meals?
13. Are you happy with the variety of meals being offered to your family member?
14. Are you happy with the timing of meals offered to your family member?
15. Does the home allow your family member to participate in cooking activities or meal preparation, if they wish?
16. Does the home allow your family member to participate in setting up the dining room before meals (e.g. folding napkins, setting the table), if they wish?
17. Does the home allow your family member to participate in tidying the dining room after meals (e.g. clearing dishes), if they wish?
18. Does the home provide facilities for your family member to make their own drinks or snacks (e.g. a kettle or toaster in their room or common area?)
19. Are there adequate food storage facilities (e.g. bar fridge) in your family member’s room?

Dining atmosphere:

20. Does the home make you feel welcome to share a meal with your family member?
21. Is the dining room kept in a clean and tidy state?
22. Do the seating arrangements in the dining room encourage resident interaction and socialisation?
23. Does the home provide you with a comfortable place to share a meal with your family member?

Staff attitude:

24. Are the staff friendly and polite when they serve food to your family member?
25. Do the staff encourage your family member to eat at mealtime?
26. Do the staff provide assistance to your family member when needed (e.g. cutting up food)?
27. Do the staff give your family member plenty of time to finish their meal without feeling rushed?

28. Do the staff ask for your input or advice regarding the meals served to your family member?
29. Do you think the staff who prepare the meals are adequately trained?
30. Do you think the staff who serve the meals are adequately trained?

Organisational attitude:

31. Does the home listen if you make a suggestion or complaint?
32. Does the home act on your suggestions or complaints?
33. Does the home seek feedback from your family member regarding the meals and food services?
34. Do you feel comfortable providing feedback to the home?
35. Does the home include you to as an active participant in the nutritional care of your family member?

Global satisfaction ratings (responses to be recorded using the Chernoff faces scale:

- Overall, how would you rate the food and meals at this home?
- Overall, how would you rate the staff involved with the service of food at this home?
- Do you feel like you/your family member is receiving value for money when it comes to the catering provided in this home?