



BMJ Open is committed to open peer review. As part of this commitment we make the peer review history of every article we publish publicly available.

When an article is published we post the peer reviewers' comments and the authors' responses online. We also post the versions of the paper that were used during peer review. These are the versions that the peer review comments apply to.

The versions of the paper that follow are the versions that were submitted during the peer review process. They are not the versions of record or the final published versions. They should not be cited or distributed as the published version of this manuscript.

BMJ Open is an open access journal and the full, final, typeset and author-corrected version of record of the manuscript is available on our site with no access controls, subscription charges or pay-per-view fees (<http://bmjopen.bmj.com>).

If you have any questions on BMJ Open's open peer review process please email [info.bmjopen@bmj.com](mailto:info.bmjopen@bmj.com)

# BMJ Open

## Validation of a national leadership framework to promote and protect quality residential aged care: Study protocol

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2023-083107
Article Type:	Protocol
Date Submitted by the Author:	12-Dec-2023
Complete List of Authors:	Dawes, Nathan; James Cook University Topp, Stephanie; James Cook University; James Cook University Adegboye , Oyelola; James Cook University,
Keywords:	Aged, HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Health Services for the Aged

SCHOLARONE™  
Manuscripts

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**Validation of a national leadership framework to promote and protect quality residential aged care: Study protocol**

**Authorship**

Nathan Dawes<sup>1\*</sup>, S.M. Topp<sup>1</sup> & O. Adegboye<sup>1</sup>

<sup>1</sup> College of Public Health, Medical & Veterinary Sciences, James Cook University, Townsville  
Queensland, Australia

Nathan Dawes  
College of Public Health, Medical and Veterinary Sciences  
Division of Tropical Health and Medicine  
James Cook University, Australia

T 07 47815 094 I T (INT'L) +61 7 47815 094  
E nathan.dawes@jcu.edu.au  
JCU Townsville I Douglas I Building 41 I Room 114  
1 James Cook Drive Townsville QLD 4811 AUSTRALIA

Associate Professor Stephanie M. Topp  
College of Public Health, Medical and Veterinary Sciences  
Division of Tropical Health and Medicine  
James Cook University, Australia

E stephanie.topp@jcu.edu.au  
1 James Cook Drive Townsville QLD 4811 AUSTRALIA

Adjunct Associate Professor Oye Adegboye  
College of Public Health, Medical and Veterinary Sciences  
Division of Tropical Health and Medicine  
James Cook University, Australia

E oyelola.adegboye@jcu.edu.au  
1 James Cook Drive Townsville QLD 4811 AUSTRALIA

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES)

# Validation of a national leadership framework to promote and protect quality residential aged care: Study protocol

## Abstract

**Introduction:** Australia's aging population is driving an increased demand for residential aged care services, yet concerns about the quality and safety of such care remain. The recent Royal Commission into Aged Care Quality and Safety identified various limitations relating to leadership within these services. While some competency frameworks exist globally, there is a need for sector-specific leadership competencies in the Australian residential aged care setting to promote and protect quality of care.

**Methods and Analysis:** This study aims to establish the content validity of a national leadership framework (RCSM-QF) for promoting and protecting the quality of residential aged care in Australia. The research will involve a two-round Delphi survey with aged care experts to rate the relevance, importance, and clarity of RCSM-QF items and their descriptions. The study will also seek suggestions for revisions and additional items. Content validity will be assessed using the Content Validity Index (CVI), with items meeting specific criteria retained, revised, or removed. Ethics approval has been sought to ensure the well-being and convenience of participants while mitigating potential recruitment challenges.

**Discussion:** This research addresses the need for a comprehensive leadership competency framework for Australian residential aged care senior managers. It seeks to validate the RCSM-QF framework, which can define and describe the competencies required by senior managers and inform quality indicators for performance evaluations. Such evidence-based frameworks can standardise leadership development and promote consistency in healthcare operations. Additionally, the RCSM-QF may guide training and career progression opportunities, fostering a culture of quality and

accountability in the aged care sector. However, the study acknowledges potential limitations, including sampling bias and the reliance on expert opinions in the Delphi process, but aims to mitigate these through focus groups for richer insights in subsequent phases of this work.

**Keywords:** residential aged care, quality, leadership, senior managers, validation

**Strengths**

- Purposive sampling will be used as a targeted recruitment method for interviewing participants from peak bodies, primary health networks, and researchers, allowing for diverse expert perspectives within the Australian aged care sector.
- The Delphi method is a popular tool for framework validation in research, allowing for structured input from Australian aged care experts to refine and validate the preliminary framework.

**Limitations**

- The Delphi process is based on subjective opinions rather than empirical evidence, potentially affecting the validity and reliability of the framework validation process.
- To address limitations in the Delphi process, future phases of the research may require qualitative methods to allow for real-time feedback and in-depth insights from a wider range of industry experts
- The anonymous nature of the Delphi process limits in-depth discussions, debates, and the exchange of ideas, potentially restricting the exploration of alternative perspectives regarding the leadership competencies influencing the quality of Australian residential aged care services.

## 98 Introduction

99 Australia's population is ageing, with the proportion of people aged 65 years or over projected to  
100 increase from 16% (2018) to 23% in 2066.<sup>1</sup> In line with national ageing trends, the demand for  
101 Australian residential aged care services is also increasing,<sup>2</sup> and there have been ongoing concerns  
102 about the quality and safety of that care.<sup>3</sup> Indeed, the recent Royal Commission into Aged Care  
103 Quality and Safety described a "cruel and harmful" national aged care system comprising services  
104 that were "neglectful" and "woefully inadequate".<sup>4</sup> The leadership of these services, including  
105 'ground-level' residential aged care senior management teams, was described as "lacking", and  
106 leadership competencies for promoting quality of care were found to be "poorly defined".<sup>4</sup> The lack  
107 of any sector-specific professional development or leadership framework to guide the acquisition of  
108 these required skills within the Australian residential aged-care setting is a concern.<sup>5</sup>

109

110 Existing studies have generated some knowledge regarding leadership requirements, and some  
111 competency frameworks exist for aged care services globally, although evidence gaps remain.

112 Seminal work in Australian aged care leadership was conducted by Jeon et al. (2015) in validating a  
113 clinical leadership framework, the Aged care *Clinical* Leadership Qualities Framework (ACLQF), for  
114 middle (mainly clinical) managers in both community-based and residential aged care services.<sup>6</sup> in  
115 2014, Aged & Community Services Australia (ACSA) developed the Australian Aged Care  
116 Leadership Capability Framework. While this framework reflected an important step forward, its  
117 inclusion of different leadership levels (e.g. frontline, middle- and senior managers) and multiple  
118 service types (residential, acute and community-based) meant it was necessarily general in nature,  
119 with limited specificity concerning the multi-faceted and increasingly demanding nature of residential  
120 aged care facilities.<sup>7</sup> Furthermore, the ACSA framework describes leadership capabilities (statements  
121 of behaviours, skills, and knowledge that affect an outcome) but not competencies (a measure or  
122 index of how well a person performs that capability) and does not explicitly link these to promoting  
123 quality care.

124

1  
2  
3 125 With an absence of competency-based frameworks specific to the Australian residential aged care  
4  
5 126 setting, there is a clear need to describe and model the competencies required by leadership teams to  
6  
7 127 provide effective leadership within this increasingly complex environment. A recent programme of  
8  
9 128 work identified the knowledge, skills and abilities needed by senior managers to promote and protect  
10  
11 129 quality residential aged care.<sup>8</sup> Competencies were to form a preliminary leadership competency  
12  
13 130 framework, The Residential Aged Care Senior Manager Quality Framework (RCSM-QF).<sup>8</sup> This  
14  
15 131 original and empirically grounded competency framework synthesised Australian senior managers'  
16  
17 132 skills and personal qualities to promote and protect the quality of care in the residential aged care  
18  
19 133 setting. Its formation drew on the experiences and strategic insights of senior managers themselves  
20  
21 134 and Australian industry experts.<sup>8</sup> These empirically derived leadership competencies were compared  
22  
23 135 with those extracted from pre-existing senior-management-relevant leadership frameworks, including  
24  
25 136 the HLA Competency Directory,<sup>9</sup> IPEC Core Competencies,<sup>10</sup> and Master Health Service  
26  
27 137 Management Competency Framework <sup>11</sup> to form a novel (though untested) competency framework.  
28  
29 138  
30  
31  
32  
33 139 Although the formation of the preliminary RCSM-QF is a step in addressing the evidence gap relating  
34  
35 140 to sector-specific leadership competencies and professional development requirements for senior  
36  
37 141 managers to promote quality of care, it has not been applied or tested in the Australian residential  
38  
39 142 aged care setting nor the competencies empirically validated. Therefore, the accuracy and usefulness  
40  
41 143 of the RCSM-QF for describing and helping assess the leadership competencies required by senior  
42  
43 144 managers across Australia are not yet confirmed.  
44  
45 145  
46  
47 146 This study aims to establish the content validity of the preliminary RCSM-QF within the Australian  
48  
49 147 residential aged care context using a modified Delphi process. Once this validity is established, this  
50  
51 148 programme of work could provide a practical tool to form a professional development infrastructure  
52  
53 149 for current and aspiring Australian residential aged care senior managers who continue to operate  
54  
55 150 within this increasingly complex environment.  
56  
57  
58 151  
59  
60

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES)

## 152 **Methods and Analysis**

153 **Aim:** To establish the content validity of a national leadership framework to promote and protect the  
154 quality of residential aged care in Australia

### 156 **Objectives:**

- 157 1. Rate the relevance, importance and clarity of RCSM-QF items [competencies OR personal  
158 qualities] and their descriptions using a 4-point Content Validity Index (CVI) scale
- 159 2. Suggest RCSM-QF item and description scale revisions.
- 160 3. Suggest RCSM – QF domain name and domain definition revisions and
- 161 4. Suggest additional items [competencies or personal qualities] for the RCSM – QF

### 164 **Study Design**

165 Content validity refers to the extent to which a measurement tool, such as a test or assessment,  
166 accurately represents the specific content it is intended to measure.<sup>12</sup> Content validity is an important  
167 aspect of validating a leadership competency.<sup>13</sup> In the context of the current research, the method will  
168 assess whether the RCSM–QF accurately and comprehensively represents the key competencies  
169 required for effective leadership within the Australian residential aged care setting. We will evaluate  
170 content validity using the Delphi survey technique and a Content Validity Index (CVI). The Delphi  
171 technique is a widely used method for achieving consensus.<sup>14</sup> It uses a series of questionnaires to  
172 collect information from participants in a number of iterations, or ‘rounds’. The starting point is an  
173 open questionnaire or a pre-derived list of questions.<sup>15</sup> Following each round, each participant  
174 receives an individualised report of their responses to the group response.<sup>15</sup> In subsequent rounds,  
175 participants can reassess their responses in light of this information.<sup>14</sup> The process allows for a  
176 controlled debate and for consensus to build without necessitating group interaction, an advantage in  
177 the context of geographically dispersed and time-constrained experts. It also limits the time and



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

resources required to plan and facilitate group interactions and the bias from dominant individuals within this consensus-building phase.<sup>14</sup>

**Study setting**

The current study will be completed with representatives who contribute to or advise regarding the delivery of aged care services in Australia. Examples of different ‘levels’ of aged care include: i) entry-level community-based care at home; ii) higher levels of care at home (Home Care Packages Program), and when living at home is not an option; iii) residential aged care.<sup>16</sup> This study focuses specifically on the role of senior managers in providing quality care in the Australian residential aged care setting. Residential aged care provides health care services and accommodation for older people who are unable to continue living independently in their own homes.<sup>17</sup>

In Australia, residential aged care providers can span a range of different sectors, including religious, charitable, community, for-profit and government organisations.<sup>17</sup> Typical services may include accommodation, personal care assistance, clinical care and a range of social care activities, including recreational activities and emotional support. Approximately 250,000 older Australians received permanent residential aged care at some time during the financial year 2021/2022.<sup>1</sup>

**Participant recruitment**

To be eligible for participation, panel participants will need to be self- or other-identified aged care experts through current employment within the aged care sector and have high-level knowledge and experience in aged care. Expertise may include clinical practice, management, service delivery, policy, research and education or combinations of the above. From previous work, this study will target five major groupings of expert representatives, including peak advocacy bodies, primary health network representatives, members of state and federal government, aged care researchers and residential aged care executives and governing board members spanning multiple organisation types (non-for-profit, for-profit, non-governmental [NGO], and government-operated).<sup>8</sup> Purposive sampling

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Ensignement Supérieur (ABES).

will be used to ensure that rural, remote, and metropolitan settings across Australia are represented on the panel. Purposive sampling will also allow the identification and selection of information-rich participants from the expert groupings with knowledge and experience working within the Australian aged care sector.<sup>18</sup> Participant selection will be purposive, and aged care industry experts will be recognised as possessing specific knowledge of the health service needs of older persons in Australia and capable of reflecting critically on the link between senior manager leadership skills and quality residential aged care.

A list of eligible participants will be generated using a combination of investigators' aged care industry experience and a comprehensive desk search. Participants will be emailed an invitation for involvement in *Round 1* and followed up by phone if a response has not been received in two weeks. Participants will provide electronic consent before commencing the questionnaire.

## Data collection

**Round 1:** In reviewing, modifying and validating the RSCM-QF, two rounds of iterative consultation will be undertaken with the Delphi panel via email. In round one, experts will be sent email invitations to participate. Upon clicking the survey link, participants will be redirected to an online platform where they will be asked to confirm their consent to participate and will rate each item and its response scale based on clarity, relevance, and importance using a 4-point CVI scale where 1 = not clear/relevant/important, 2 = somewhat clear/relevant/important, 3 = quite clear/relevant/important, and 4 = highly clear/relevant/important.<sup>19</sup> Through open dialogue boxes, experts will also provide suggestions for item wording, domain name, and domain definition revisions and propose additional items for any missing experiential aspects of care. Demographic questions will include gender, year of birth, highest educational qualification, place of work and current professional role. Experts will be given a 2-week window to complete the Round 1 survey, following which the survey will be closed, and the results will be exported into Microsoft Excel. Reminder emails will be dispatched to participants on days 5 and 12 of the Round 1 questionnaire if they have not taken part.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**Round 2:** The second round will commence 1 week after the conclusion of Round 1. Experts will receive a second survey invitation via email, asking them to rate the revised items in terms of clarity, relevance, and importance using the 4-point CVI scale and propose item revisions. A 2-week timeframe will be allotted for experts to complete the Round 2 survey, following which the survey will be closed, and the results will be exported into Microsoft Excel. Reminder emails will be sent to participants on days 5 and 12 of the Round 2 survey if they have not participated.

**Data Analysis**

**Content validity**

The current study will incorporate the content validity index (CVI) as a verified approach for evaluating content validity.<sup>20</sup> The CVI index comprises two computed components: the Item-CVI (I-CVI) and the Scale-level-CVI (S-CVI).<sup>20</sup> To compute the I-CVI, the number of Delphi panel experts assigning a "very relevant" rating to each item is divided by the total number of experts, resulting in values ranging from 0 to 1. An I-CVI surpassing 0.79 deems the item relevant, while values falling between 0.70 and 0.79 indicate the need for item revisions; I-CVI values below 0.70 warrant item elimination.<sup>20</sup> Likewise, the S-CVI is determined based on the count of items within a tool that attain a "very relevant" rating.<sup>20</sup> To measure the S-CVI, the Universal Agreement (UA) among experts (S-CVI/UA) will be used. The S-CVI/UA involves summing all items with an I-CVI of 1 and dividing by the total number of items, with the ab S-CVI/UA of  $\geq 0.8$  denoting excellent content validity.<sup>21</sup>

**Round 1:** The demographic and Delphi survey data will be analysed descriptively using Microsoft Excel. Expert responses to the item-level CVI (I-CVI) scales will be binary coded as 0 for "not or somewhat relevant/important/clear" and 1 for "quite or highly relevant/important/clear." An I-CVI score will then be computed for each item, representing the proportion of experts scoring 1 out of the total number of experts in the Round 1 sample.<sup>19</sup> Items meeting a score of  $\geq 0.80$  for each of relevance, importance, and clarity (without revision suggestions) will be retained for the final version of the

RCSM – QF.20 Items achieving scores of  $\geq 0.80$  for each of relevance, importance, and clarity (with revision suggestions), or  $\geq 0.80$  for relevance and importance but  $< 0.80$  for clarity, will undergo revision by the research team based on expert feedback and will subsequently be included in the Round 2 survey. Items obtaining scores of  $< 0.80$  for each of relevance, importance, and clarity will be removed from the RCSM-QF. The research team will also consider suggestions provided by experts concerning modifications to domain names, domain definitions, and missing items.

**Round 2:** The Round 2 questionnaire results analysis will adhere to the same methodology as in Round 1. The research team will thoroughly review additional suggestions for item revisions before implementing further RCSM- QF modifications. A scale-level CVI (S-CVI) score will also be calculated by averaging the I-CVI scores for all items included in the final RCSM-QF.<sup>20</sup>

### **Ethics and Dissemination**

The James Cook University Human Research Ethics Committee (HREC) approved this study's ethics on 14 November 2023. The current project has been deemed 'negligible risk' by the HREC, as there is no foreseeable risk of harm or discomfort to the participants other than the inconvenience of completing the questionnaire. A potential risk of this study is difficulties in recruiting the required numbers for this research, which might pose a risk to study completion. If this is the case, alternative recruitment methods will be considered, including broadening networks to include other professional roles and organisations operating within the Australian aged care sector.

Data will be prepared for submission to an appropriate peer-reviewed journal and presentation at relevant academic conferences, including the Australian Association of Gerontology Conference [2024]. In addition to the International Journal of Healthcare Management, where a large body of literature regarding aged care management and quality of care is published, several additional avenues have been identified to add variety to the audience accessing the project's findings. Given that this research focuses on senior managers in the aged care setting, targeted journals include the

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

286 Australasian Journal on Ageing, Journal of Ageing and Health and BMC Health Services Research or  
287 BMJ Open.

288 **Patient and Public Involvement**

289 This research project was designed without direct patient or public involvement in several key  
290 aspects, including determining research priorities, defining research questions, selecting outcome  
291 measures and contributing to study design. It is recognised that including patient and public  
292 perspectives can significantly enhance the relevance, quality, and applicability of research outcomes,  
293 and their absence in this study might have implications for the comprehensiveness and relevance of  
294 our findings.

295 **Discussion**

296 Senior managers are central in promoting and protecting quality of care in clinically and  
297 administratively complex residential aged care services settings.<sup>8</sup> Yet globally and in Australia, there  
298 remain significant gaps in knowledge regarding the specific competencies and skills required of this  
299 leadership cohort.<sup>8</sup> This study aims to establish the validity of a novel leadership competency  
300 framework, which could provide a practical tool for national regulatory and professional bodies by  
301 defining and describing the specific skills, behaviours, knowledge, and experience needed by aspiring  
302 and current senior managers. It may also inform the development of quality indicators to inform  
303 competency-based performance evaluations of senior managers within their current roles.

304  
305 Evidence-based leadership competency frameworks provide a standardised and consistent approach to  
306 leadership development across multiple health settings.<sup>22</sup> Once validated for acceptability and  
307 applicability, the RCSM-QF competencies may assist residential aged-care organisations in  
308 establishing a consistent promotion criterion that incorporates demonstrated excellence by senior  
309 managers who consistently lead high-quality healthcare operations within their respective  
310 organisations. In doing so it could provide a valuable tool for self-reflection to identify knowledge  
311 and skill gaps and guide future training and other career progression opportunities.

312

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES).

The RCSM-QF also offers a set of skills and personal qualities that could inform the development of future courses or qualifications to develop the competencies required by aspiring managers to promote quality of care within their respective organisations and across the broader aged care sector. This focus on quality and continuous improvement may drive organisational excellence for the quality of care, enhance resident health outcomes, and foster a culture of accountability and innovation within Australian residential aged care organisations.<sup>23</sup> This work thus not only addresses key gaps in the literature and evidence base regarding senior management competencies but represents an essential and timely first step in responding to Royal Commission recommendations to strengthen leadership in the sector.

As with a majority of studies, the design of the current study is subject to limitations. Firstly, purposive sampling was used to recruit interview participants from three categories of experts (peak bodies, PHNs, and researchers); however, it is possible that not all participants will participate due to scheduling or other issues. It is expected, therefore, that the final sample of experts may introduce an element of bias and not always represent the diverse range of perspectives across multiple professional roles within the Australian aged care sector. For example, suppose a majority of study participants were provider advocates whose primary focus is to support the viability and sustainability of aged care service providers. In that case, experts are potentially less likely to consider the resident experience and personalised healthcare needs. Conversely, consumer advocates play an important role in advocating for the older person and speaking on behalf of that individuals in a way that best represents their interests. With an intense focus on the individualised healthcare needs of older Australians, consumer advocates may have less understanding of the structural elements that adversely influence RAC quality and the leadership competencies required.

While the modified Delphi process is a popular design used for research involving framework validation, some potential limitations within the proposed research are evident.<sup>24</sup> Firstly, the Delphi process is largely based on expert opinions rather than empirical evidence, and while these opinions can be valuable, they may not always align with objective facts or data.<sup>25</sup> This can limit the validity

1  
2  
3 341 and reliability of the framework validation process, particularly if more empirical evidence is needed  
4  
5 342 to support the experts' judgments. A further potential limitation of the study design is that experts  
6  
7 343 provide their input individually and anonymously.<sup>26</sup> The Delphi process, therefore, lacks direct  
8  
9 344 interaction among experts, which can restrict the opportunity for in-depth discussions, debates, and  
10  
11 345 exchanging ideas.<sup>26</sup> Consequently, the method may not capture the full complexity of the research  
12  
13 346 problem or allow for exploring alternative perspectives.<sup>25</sup> Depending on the findings from this study,  
14  
15 347 future phases of this programme of work may involve qualitative methods to address this limitation.  
16  
17 348 These sessions would involve Australian aged care industry experts with varying opinions and  
18  
19 349 perceptions to allow real-time feedback, in-depth insights and rich qualitative data regarding the  
20  
21 350 applicability of the RCSM-QF implementation within the Australian residential aged care setting.<sup>27</sup>  
22  
23  
24 351

25  
26  
27 352 **List of abbreviations**

- 28  
29 353 *ACLQF* – Aged Care Clinical Leadership Quality Framework  
30  
31  
32 354 *ACSA* – Aged and Community Services Australia  
33  
34  
35 355 *RCSM* – QF – Residential Aged Care Senior Management Quality Framework  
36  
37  
38 356 *HLA* – Healthcare Leadership Alliance  
39  
40  
41 357 *IPEC* – Interprofessional Education Collaborative  
42  
43  
44 358 *CVI* - Content Validity Index  
45  
46  
47 359 *S - CVI* – Scale level content Validity Index  
48  
49 360 *I – CVI* – Item Content Validity Index  
50  
51  
52 361



## 362 **Declarations**

## 363 **Ethics approval**

364 Ethics approval is yet to be received for this study. An ethics application for this study was diligently  
365 prepared and submitted to the James Cook University Human Research Ethics Committee on 04  
366 August 2023. Once approved, all methods will be carried out in accordance with relevant guidelines  
367 and regulations.

## 368 **Consent for publication.**

369 No participants were recruited or involved in the research process, so no individual consent for  
370 publication was required. Informed consent will be obtained from all subjects and/or their legal  
371 guardian (s) upon commencement of data collection activities.

## 372 **Availability of data and materials**

373 Previous datasets used and analysed to form the study protocol are available from the corresponding  
374 author upon reasonable request.

## 375 **Competing Interests Statement**

376 No potential conflict of interest was reported by the authors

## 377 **Authors' contributions**

378 ND conducted the primary manuscript draft. ND, ST and OA completed subsequent manuscript  
379 revisions. All authors read and approved the final manuscript.

## 380 **Acknowledgements**

381 Nil

## 382 **Funding**

383 No funding was sourced or utilised in the formation of this study protocol.

384

385

386

387



References

1. Australian Institute of Health and Welfare. Older Australians: A demographic profile [Internet]. Canberra (Australia): AIHW; [cited 2023 Aug 30]. Available from: <https://www.aihw.gov.au/reports/older-people/older-australians/contents/demographic-profile>

2. Khadka J, Lang C, Ratcliffe J, et al. Trends in the utilisation of aged care services in Australia, 2008–2016. BMC Geriatr. 2019;19(1):213. doi: 10.1186/s12877-019-1209-9.

3. Caughey GE, Lang CE, Bray SCE, et al. Quality and safety indicators for home care recipients in Australia: development and cross-sectional analyses. BMJ Open. 2022;12:e063152. doi: 10.1136/bmjopen-2022-063152.

4. Australian Government. Final Report | Royal Commission into Aged Care Quality and Safety. <https://agedcare.royalcommission.gov.au/publications/final-report>. Accessed September 5, 2023.

5. Hodgkin S, Warburton J, Savy P, Moore M. Workforce Crisis in Residential Aged Care: Insights from Rural, Older Workers. AJPA. 2016;76:1. doi: 10.1111/1467-8500.12204

6. Jeon YH, Simpson JM, Li Z, Cunich MM, Thomas TH, Chenoweth L, Kendig HL. Cluster Randomized Controlled Trial of An Aged Care Specific Leadership and Management Program to Improve Work Environment, Staff Turnover, and Care Quality. J Am Med Dir Assoc. 2015 Jul 1;16(7):629.e19-28. doi: 10.1016/j.jamda.2015.04.005.

7. Aged and Community Services Australia. Australian Aged Care Leadership Capability Framework. <https://acsa.asn.au/getmedia/56d9c659-72c7-4ac4-a26c-a33f8530cae6/Aged-Care-Leadership-Capability-Framework-2014>. Accessed 17 Aug 2021.

8. Dawes N, Topp SM. Senior manager leadership competencies for quality residential aged care: an Australian industry perspective. BMC Health Serv Res. 2022;22:508. doi: 10.1186/s12913-022-08109-3.

9. Healthcare Leadership Alliance. (2017). About the HLA competency directory. Retrieved from <http://www.healthcareleadershipalliance.org/directory.htm>

10. Interprofessional Education Collaborative. (2022). IPEC core competencies. Retrieved from <https://www.ipecollaborative.org/ipec-core-competencies>

11. Australasian College of Health Service Management. Master of Health Service Management Competency Framework. [https://www.achsm.org.au/Portals/15/documents/education/competencyframework/2020\\_competency\\_framework\\_A4\\_full\\_brochure.pdf](https://www.achsm.org.au/Portals/15/documents/education/competencyframework/2020_competency_framework_A4_full_brochure.pdf). Accessed [August 11, 2023].

12. Yusoff MSB. ABC of Content Validation and Content Validity Index Calculation. Educ Med J. 2019;11:49-54. doi: 10.21315/eimj2019.11.2.6.

13. Tobon S, Juárez Hernández LG, Herrera Meza SR, Núñez C. ASSESSING SCHOOL PRINCIPAL LEADERSHIP PRACTICES. VALIDITY AND RELIABILITY OF A RUBRIC/Evaluación de las practicas directivas en directores escolares: validez y confiabilidad de una rubrica. Educacion XX1. 2020;23(2):187-210.

14. Barrett D, Heale R. What are Delphi studies? Evid Based Nurs. 2020 Jul;23(3):68-69. doi: 10.1136/ebnurs-2020-103303.

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Ensignement Supérieur (ABES).

15. Hsu CC, Sandford BA. The Delphi Technique: Making Sense of Consensus. *Pract Assess Res Eval*. 2007;12:10. doi: 10.7275/pdz9-th90.
16. Australian Government Department of Health [DoH]. Types of aged care. <https://www.health.gov.au/health-topics/aged-care/about-aged-care/types-of-aged-care>. Accessed [August 10, 2023].
17. Scott K, Webb M, Sorrentino SA. Long-term caring-e-Book: Residential, home and community aged care. Elsevier Health Sciences; 2014.
18. Palinkas LA, Horwitz SM, Green CA, Wisdom JP, Duan N, Hoagwood K. Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Adm Policy Ment Health*. 2015 Sep;42(5):533-544. doi: 10.1007/s10488-013-0528-y. PMCID: PMC4012002. PMID: 24193818.
19. Polit DF, Beck CT, Owen SV. Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Res Nurs Health*. 2007 Aug;30(4):459-467. doi: 10.1002/nur.20199. PMID: 17654487.
20. Zamanzadeh V, Ghahramanian A, Rassouli M, Abbaszadeh A, Alavi-Majd H, Nikanfar AR. Design and Implementation Content Validity Study: Development of an instrument for measuring Patient-Centered Communication. *J Caring Sci*. 2015 Jun 1;4(2):165-178. doi: 10.15171/jcs.2015.017. PMCID: PMC4484991. PMID: 26161370.
21. Shi JC, Mo XK, Sun ZQ. [Content validity index in scale development]/ *Zhong Nan Da Xue Xue Bao Yi Xue Ban*. 2012 Feb;37(2):152-155. doi: 10.3969/j.issn.1672-7347.2012.02.007. PMID: 22561427.
22. Liang Z, Blackstock FC, Howard PF, Briggs DS, Leggat SG, Wollersheim D, ... Rahman A. An evidence-based approach to understanding the competency development needs of the health service management workforce in Australia. *BMC Health Serv Res*. 2018;18. doi: 10.1186/s12913-018-3760-z.
23. Sfantou DF, Laliotis A, Patelarou AE, Sifaki-Pistolla D, Matalliotakis M, Patelarou E. Importance of leadership style towards quality of care measures in healthcare settings: a systematic review. *Healthcare (Basel)*. 2017;5(4):73. doi: 10.3390/healthcare5040073.
24. Robles N, Puigdomènech Puig E, Gómez-Calderón C, Saigí-Rubió F, Cuatrecasas Cambra G, Zamora A, Moharra M, Paluzié G, Balfegó M, Carrion C. Evaluation Criteria for Weight Management Apps: Validation Using a Modified Delphi Process. *JMIR Mhealth Uhealth*. 2020 Jul;8(7):e16899. doi: 10.2196/16899. PMCID: PMC7407251. PMID: 32706689.
25. Fink-Hafner D, Dagen T, Doušak M, Novak M, Hafner-Fink M. Delphi method: strengths and weaknesses. *Adv Methodol Stat*. 2019 Jul 1;16(2):1-9.
26. Donohoe H, Stelfox M, Tennant B. Advantages and Limitations of the e-Delphi Technique: Implications for Health Education Researchers *American Journal of Health Education*. Published online: 23 Jan 2013. doi: 10.1080/19325037.2012.10599216.
27. Leung FH, Ratnapalan S. Spotlight on focus groups. *Can Fam Physician*. 2009 Feb;55(2):218-219. PMCID: PMC2642503. PMID: 19221085.

# BMJ Open

## Validation of a national leadership framework to promote and protect quality residential aged care: Protocol for a Delphi study

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2023-083107.R1
Article Type:	Protocol
Date Submitted by the Author:	26-Apr-2024
Complete List of Authors:	Dawes, Nathan; James Cook University Topp, Stephanie; James Cook University; James Cook University Adegboye , Oyelola; James Cook University,
<b>Primary Subject Heading</b>:	Public health
Secondary Subject Heading:	Health services research
Keywords:	Aged, HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Health Services for the Aged

SCHOLARONE™  
Manuscripts

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

1     **Validation of a national leadership framework to promote**  
2     **and protect quality residential aged care: Protocol for a**  
3     **Delphi study**

4     ~~**Validation of a national leadership framework to promote**~~  
5     ~~**and protect quality residential aged care: Study protocol**~~

7     **Authorship**

8     Nathan Dawes<sup>1\*</sup>, S.M. Topp<sup>1</sup> & O. Adegboye<sup>1,2</sup>

10    1 College of Public Health, Medical & Veterinary Sciences, James Cook University, Townsville  
11    Queensland, Australia  
12    2 [Menzies School of Health Research, Charles Darwin University, Darwin, Northern Territory, Australia](#)

15    Nathan Dawes  
16    College of Public Health, Medical and Veterinary Sciences  
17    Division of Tropical Health and Medicine  
18    James Cook University, Australia

20    T 07 47815 094 I T (INT'L) +61 7 47815 094  
21    E [nathan.dawes@jcu.edu.au](mailto:nathan.dawes@jcu.edu.au)  
22    JCU Townsville I Douglas I Building 41 I Room 114  
23    1 James Cook Drive Townsville QLD 4811 AUSTRALIA

25    Associate Professor Stephanie M. Topp  
26    College of Public Health, Medical and Veterinary Sciences  
27    Division of Tropical Health and Medicine  
28    James Cook University, Australia

30    E [stephanie.topp@jcu.edu.au](mailto:stephanie.topp@jcu.edu.au)  
31    1 James Cook Drive Townsville QLD 4811 AUSTRALIA

33    Adjunct Associate Professor Oye~~lola~~ Adegboye  
34    College of Public Health, Medical and Veterinary Sciences  
35    Division of Tropical Health and Medicine  
36    James Cook University, Australia

38    [Menzies School of Health Research,](#)  
39    [Charles Darwin University, NT 0810, Australia](#)

41    E [oyelola.adegboye@menziesjcu.edu.au](mailto:oyelola.adegboye@menziesjcu.edu.au)  
42    [John Mathews Building, Royal Darwin Hospital Campus, Rocklands Drive, Casuarina NT 0810 I James Cook](#)  
43    [Drive Townsville QLD 4811 AUSTRALIA](#)

# Validation of a national leadership framework to promote and protect quality residential aged care: ~~Study protocol~~ Protocol for a Delphi study

## Abstract

**Introduction:** Australia's aging population is driving an increased demand for residential aged care services, yet concerns about the quality and safety of such care remain. The recent Royal Commission into Aged Care Quality and Safety identified various limitations relating to leadership within these services. While some competency frameworks exist globally, there is a need for sector-specific leadership competencies in the Australian residential aged care setting to promote and protect quality of care.

**Methods and Analysis:** This study uses the Delphi technique to establish the content validity of a national leadership framework (RCSM-QF) for promoting and protecting the quality of residential aged care in Australia. Participants will be self- or other-identified aged care-identifiable experts through current employment within, policy development for, or research with the aged care sector and have knowledge and experience in aged care. The survey will ask participants to rate the relevance, importance, and clarity of RCSM-QF items and their corresponding descriptions, and seek suggestions for revisions and/or additional items. Content validity will be assessed using the Content Validity Index (CVI), with items meeting specific criteria retained, revised, or removed. This study aims to establish the content validity of a national leadership framework (RCSM-QF) for promoting and protecting the quality of residential aged care in Australia. The research will involve a two-round Delphi survey with aged care experts to rate the relevance, importance, and clarity of RCSM-QF items and their descriptions. The study will also seek suggestions for revisions and additional items. Content validity will be assessed using the Content Validity Index (CVI), with items meeting specific

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

~~criteria retained, revised, or removed. Ethics approval has been sought to ensure the well-being and convenience of participants while mitigating potential recruitment challenges.~~

**Discussion:** This research addresses the need for a comprehensive leadership competency framework for Australian residential aged care senior managers. It seeks to validate the RSCSM-QF framework, which can define and describe the competencies required by senior managers and inform quality indicators for performance evaluations. Such evidence-based frameworks can standardise leadership development and promote consistency in healthcare operations. Additionally, the RSCSM-QF may guide training and career progression opportunities, fostering a culture of quality and accountability in the aged care sector. However, the study acknowledges potential limitations, including sampling bias and the reliance on expert opinions in the Delphi process, but aims to mitigate these through focus groups for richer insights in subsequent phases of this work.

**Keywords:** residential aged care, quality, leadership, senior managers, validation

**Strengths**

- Purposive sampling will be used as a targeted recruitment method for interviewing participants from peak bodies, primary health networks, and researchers, allowing for diverse expert perspectives within the Australian aged care sector.
- The Delphi method is a popular tool for framework validation in research, allowing for structured input from Australian aged care experts to refine and validate the preliminary framework.

**Limitations**

- The Delphi process is based on subjective opinions rather than empirical evidence, potentially affecting the validity and reliability of the framework validation process.



- To address limitations in the Delphi process, future phases of the research may require qualitative methods to allow for real-time feedback and in-depth insights from a wider range of industry experts.
- The anonymous nature of the Delphi process limits in-depth discussions, debates, and the exchange of ideas, potentially restricting the exploration of alternative perspectives regarding the leadership competencies influencing the quality of Australian residential aged care services.

## Introduction

Australia's population is ageing, with the proportion of people aged 65 years or over projected to increase from 16% (2018) to 23% in 2066.<sup>(1)</sup> In line with national ageing trends, the demand for Australian residential aged care services is also increasing, (2) and there have been ongoing concerns about the quality and safety of that care. (3) Indeed, the recent Royal Commission into Aged Care Quality and Safety described a "cruel and harmful" national aged care system comprising services that were "neglectful" and "woefully inadequate". (4) The leadership of these services, including 'ground-level' residential aged care senior management teams, was described as "lacking", and leadership competencies for promoting quality of care were found to be "poorly defined". (4) The lack of any sector-specific professional development or leadership framework to guide the acquisition of these required skills within the Australian residential aged-care setting is a concern. (5)

Existing studies have generated some knowledge regarding leadership requirements, and some competency frameworks exist for aged care services globally, although evidence gaps remain. Seminal work in Australian aged care leadership was conducted by Jeon et al. (2015) in validating a

clinical leadership framework, the Aged care *Clinical* Leadership Qualities Framework (ACLQF), for middle (mainly clinical) managers in both community-based and residential aged care services. (6) in 2014, Aged & Community Services Australia (ACSA) developed the Australian Aged Care Leadership Capability Framework. While this framework reflected an important step forward, its inclusion of different leadership levels (e.g. frontline, middle- and senior managers) and multiple service types (residential, acute and community-based) meant it was necessarily general in nature, with limited specificity concerning the multi-faceted and increasingly demanding nature of residential aged care facilities. (7) Furthermore, the ACSA framework describes leadership capabilities (statements of behaviours, skills, and knowledge that affect an outcome) but not competencies (a measure or index of how well a person performs that capability) and does not explicitly link these to promoting quality care.

With an absence of competency-based frameworks specific to the Australian residential aged care setting, there is a clear need to describe and model the competencies required by leadership teams to provide effective leadership within this increasingly complex environment. A recent programme of work identified the knowledge, skills and abilities ~~needed by senior managers~~ senior managers need to promote and protect quality residential aged care. (8) <sup>8</sup>-Competencies were to form a preliminary leadership competency framework, The Residential Aged Care Senior Manager Quality Framework (RCSM-QF). (8) <sup>8</sup>-The RCSM-QF comprises two key elements: personal qualities and leadership skills.- Leadership skills are broken down into five domains, including i) culture and environment, ii) stakeholder relations, iii) clinical and aged care expertise, iv) asset management, and iv) disaster and change management (Figure 1.) This original and empirically grounded competency framework synthesised Australian senior managers' skills and personal qualities to promote and protect the quality of care in the residential aged care setting. Its formation drew on the experiences and strategic insights of senior managers themselves and Australian industry experts. (8) <sup>8</sup>-These empirically derived leadership competencies were compared with those extracted from pre-existing senior-management-relevant leadership frameworks, including the HLA Competency Directory, (9) ~~ry, 9~~



IPEC Core Competencies,<sup>(10),<sup>40</sup></sup> and Master Health Service Management Competency Framework<sup>(11),<sup>41</sup></sup> to form a novel (though untested) competency framework.

Although the formation of the preliminary RCSM-QF is a step in addressing the evidence gap relating to sector-specific leadership competencies and professional development requirements for senior managers to promote quality of care, it has not been applied or tested in the Australian residential aged care setting nor the competencies empirically validated. Therefore, the accuracy and usefulness of the RCSM-QF for describing and helping assess the leadership competencies required by senior managers across Australia are not yet confirmed.

**[INSERT FIGURE 1. HERE]**

**Figure 1. The preliminary Residential Aged Care Senior Manager Quality Framework (RCSM-QF).**

**Figure 1. The preliminary Residential Aged Care Senior Manager Quality Framework (RCSM-QF).**

This study aims to establish the content validity of the preliminary RCSM-QF within the Australian residential aged care context using a modified Delphi process. Once this validity is established, this programme of work could provide a practical tool to form a professional development infrastructure for current and aspiring Australian residential aged care senior managers who continue to operate within this increasingly complex environment.

## **Methods and Analysis**

**Aim:** To establish the content validity of a national leadership framework to promote and protect the quality of residential aged care in Australia

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**Objectives:**

1. Rate the relevance, importance and clarity of RCSM-QF items [competencies OR personal qualities] and their descriptions using a 4-point Content Validity Index (CVI) scale
2. Suggest RCSM-QF item and description scale revisions.
3. Suggest RCSM-QF domain name and domain definition revisions and
4. Suggest additional items [competencies or personal qualities] for the RCSM-QF

**Study Design**

Content validity refers to the extent to which a measurement tool, such as a test or assessment, accurately represents the specific content it is intended to ~~measure~~<sup>12</sup> measure. (12)e-<sup>12</sup> Content validity is an important aspect of validating a leadership competency.<sup>13</sup> (13) In the context of the current research, the method will assess whether the RCSM-QF accurately and comprehensively represents the key competencies required for effective leadership within the Australian residential aged care setting. We will evaluate content validity using the Delphi survey technique and a Content Validity Index (CVI). The Delphi technique is a widely used method for achieving consensus. (14)-<sup>14</sup> It uses a series of questionnaires to collect information from participants in ~~a number of~~<sup>several</sup> iterations, or ‘rounds’. The starting point is an open questionnaire or a pre-derived list of questions, (15) s-<sup>15</sup> Following each round, each participant receives an individualised report of their responses to the group response.<sup>15</sup> (15) In subsequent rounds, participants can reassess their responses in light of this information.<sup>14</sup> (14) The process allows for a controlled debate and for consensus to build without necessitating group interaction, an advantage in the context of geographically dispersed and time-constrained experts. It also limits the time and resources required to plan and facilitate group interactions and the bias from dominant individuals within this consensus-building phase.<sup>14</sup> (14)

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES)

## 207 Study setting

208 The current study will be completed with representatives who contribute to or advise regarding the  
209 delivery of aged care services in Australia. Examples of different 'levels' of aged care include: i)  
210 entry-level community-based care at home; ii) higher levels of care at home (Home Care Packages  
211 Program), and when living at home is not an option; iii) residential aged care.<sup>16</sup> (16) This study  
212 focuses specifically on the role of senior managers in providing quality care in the Australian  
213 residential aged care setting. Residential aged care provides health care services and accommodation  
214 for older people who are unable to continue living independently in their own homes.<sup>17</sup> (17)

215  
216 In Australia, residential aged care providers can span a range of different sectors, including religious,  
217 charitable, community, for-profit and government organisations.<sup>17</sup> (17) Typical services may include  
218 accommodation, personal care assistance, clinical care and a range of social care activities, including  
219 recreational activities and emotional support. Approximately 250,000 older Australians received  
220 permanent residential aged care at some time during the financial year 2021/2022.<sup>1</sup> (1)

## 222 Participant recruitment

223 To be eligible for participation, panel participants will need to be self- or other-identified aged care  
224 experts through current employment within the aged care sector and have high-level knowledge and  
225 experience in aged care. Expertise may include clinical practice, management, service delivery,  
226 policy, research and education or combinations of the above. From previous work, this study will  
227 target five major groupings of expert representatives, including peak advocacy bodies, primary health  
228 network representatives, members of state and federal government, aged care researchers and  
229 residential aged care executives and governing board members spanning multiple organisation types  
230 (non-for-profit, for-profit, non-governmental [NGO], and government-operated).<sup>8</sup> (8) Purposive  
231 sampling will be used to ensure that rural, remote, and metropolitan settings across Australia are  
232 represented on the panel. Purposive sampling will also allow the identification and selection of  
233 information-rich participants from the expert groupings with knowledge and experience working

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

234 within the Australian aged care sector.<sup>48</sup> (18) Participant selection will be purposive, and aged care  
235 industry experts will be recognised as possessing specific knowledge of the health service needs of  
236 older persons in Australia and capable of reflecting critically on the link between senior manager  
237 leadership skills and quality residential aged care.

238  
239 A list of eligible participants will be generated using a combination of investigators' aged care  
240 industry experience and a comprehensive desk search. Participants will be emailed an invitation for  
241 involvement in *Round 1* and followed up by phone if a response has not been received in two weeks.  
242 Participants will provide electronic consent before commencing the questionnaire.

243  
244 **Data collection**

245 **Round 1:** In reviewing, modifying and validating the RCSM-QF, two rounds of iterative consultation  
246 will be undertaken with the Delphi panel via email. In round one, experts will be sent email  
247 invitations to participate. Upon clicking the survey link, participants will be redirected to an online  
248 platform where they will be asked to confirm their consent to participate and will rate each item and  
249 its response scale based on clarity, relevance, and importance using a 4-point CVI scale where 1 = not  
250 clear/relevant/important, 2 = somewhat clear/relevant/important, 3 = quite clear/relevant/important,  
251 and 4 = highly clear/relevant/important.<sup>49</sup> (19) Through open dialogue boxes, experts will also  
252 provide suggestions for item wording, domain name, and domain definition revisions and propose  
253 additional items for any missing experiential aspects of care. Demographic questions will include  
254 gender, year of birth, highest educational qualification, place of work and current professional role.  
255 Experts will be given a 2-week window to complete the Round 1 survey, following after which the  
256 survey will be closed, and the results will be exported into Microsoft Excel. Reminder emails will be  
257 dispatched to participants on days 5 and 12 of the Round 1 questionnaire if they have not taken part.

258  
259 **Round 2:** The second round will commence 1 week after the conclusion of Round 1. Experts will  
260 receive a second survey invitation via email, asking them to rate the revised items in terms of clarity,

relevance, and importance using the 4-point CVI scale and propose item revisions. A 2-week timeframe will be allotted for experts to complete the Round 2 survey, following which the survey will be closed, and the results will be exported into Microsoft Excel. Reminder emails will be sent to participants on days 5 and 12 of the Round 2 survey if they have not participated.

## Data Analysis

### *Content validity*

The current study will incorporate the content validity index (CVI) as a verified approach for evaluating content validity.<sup>20, (20)</sup> The CVI index comprises two computed components: the Item-CVI (I-CVI) and the Scale-level-CVI (S-CVI).<sup>20, (20)</sup> To compute the I-CVI, the number of Delphi panel experts assigning a "very relevant" rating to each item is divided by the total number of experts, resulting in values ranging from 0 to 1. An I-CVI surpassing 0.79 deems the item relevant, while values falling between 0.70 and 0.79 indicate the need for item revisions; I-CVI values below 0.70 warrant item elimination.<sup>20, (20)</sup> Likewise, the S-CVI is determined based on the count of items within a tool that attain a "very relevant" rating.<sup>20, (20)</sup> To measure the S-CVI, the Universal Agreement (UA) among experts (S-CVI/UA) will be used. The S-CVI/UA involves summing all items with an I-CVI of 1 and dividing by the total number of items, with the ab S-CVI/UA of  $\geq 0.8$  denoting excellent content validity.<sup>21, (21)</sup>

**Round 1:** The demographic and Delphi survey data will be analysed descriptively using Microsoft Excel. Expert responses to the item-level CVI (I-CVI) scales will be binary coded as 0 for "not or somewhat relevant/important/clear" and 1 for "quite or highly relevant/important/clear." An I-CVI score will then be computed for each item, representing the proportion of experts scoring 1 out of the total number of experts in the Round 1 sample.<sup>19, (19)</sup> Items meeting a score of  $\geq 0.80$  for each of relevance, importance, and clarity (without revision suggestions) will be retained for the final version of the RCSM – QF.<sup>20</sup> Items achieving scores of  $\geq 0.80$  for each of relevance, importance, and clarity (with revision suggestions), or  $\geq 0.80$  for relevance and importance but  $< 0.80$  for clarity, will undergo

revision by the research team based on expert feedback and will subsequently be included in the Round 2 survey. Items obtaining scores of <0.80 for each of relevance, importance, and clarity will be removed from the RCSM-QF. The research team will also consider suggestions provided by experts concerning modifications to domain names, domain definitions, and missing items.

**Round 2:** The Round 2 questionnaire results analysis will adhere to the same methodology as in Round 1. The research team will thoroughly review additional suggestions for item revisions before implementing further RCSM-QF modifications. A scale-level CVI (S-CVI) score will also be calculated by averaging the I-CVI scores for all items included in the final RCSM-QF.<sup>20</sup> Delphi studies are typically carried out in two to three rounds with a deliberately selected panel of experts. (14) In the current study, a third round of consultation will be administered if few items achieve scores of ≥0.80 for relevance, importance, and clarity. In this third round, data collection and analysis processes will replicate those of the previous rounds.

**Ethics and Dissemination**

The James Cook University Human Research Ethics Committee (HREC) approved this study's ethics on 14 November 2023. The current project has been deemed ‘negligible risk’ by the HREC, as there is no foreseeable risk of harm or discomfort to the participants other than the inconvenience of completing the questionnaire. A potential risk of this study is difficulties in recruiting the required numbers for this research, which might pose a risk to study completion. If this is the case, alternative recruitment methods will be considered, including broadening networks to include other professional roles and organisations operating within the Australian aged care sector.

Data will be prepared for submission to an appropriate peer-reviewed journal and presentation at relevant academic conferences, including the Australian Association of Gerontology Conference [2024]. In addition to the International Journal of Healthcare Management, where a large body of literature regarding aged care management and quality of care is published, several additional avenues

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Enseignement Supérieur (ABES).

have been identified to add variety to the audience accessing the project's findings. Given that this research focuses on senior managers in the aged care setting, targeted journals include the Australasian Journal on Ageing, Journal of Ageing and Health and BMC Health Services Research or BMJ Open.

### Patient and Public Involvement

This research project was designed without direct patient or public involvement in several key aspects, including determining research priorities, defining research questions, selecting outcome measures and contributing to study design. It is recognised that including patient and public perspectives can significantly enhance the relevance, quality, and applicability of research outcomes, and their absence in this study might have implications for the comprehensiveness and relevance of our findings.

### Discussion

Senior managers are central in promoting and protecting quality of care in clinically and administratively complex residential aged care services settings.<sup>8</sup> (8) Yet globally and in Australia, there remain significant gaps in knowledge regarding the specific competencies and skills required of this leadership cohort.<sup>8</sup> (8) This study aims to establish the validity of a novel leadership competency framework, which could provide a practical tool for national regulatory and professional bodies by defining and describing the specific skills, behaviours, knowledge, and experience needed by aspiring and current senior managers. It may also inform the development of quality indicators to inform competency-based performance evaluations of senior managers within their current roles.

Evidence-based leadership competency frameworks provide a standardised and consistent approach to leadership development across multiple health settings.<sup>22</sup> (22) Once validated for acceptability and applicability, the RCSM-QF competencies may assist residential aged-care organisations in establishing a consistent promotion criterion that incorporates demonstrated excellence by senior managers who consistently lead high-quality healthcare operations within their respective



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

343 organisations. In doing so it could provide a valuable tool for self-reflection to identify knowledge  
344 and skill gaps and guide future training and other career progression opportunities.  
345  
346 The RCSM-QF also offers a set of skills and personal qualities that could inform the development of  
347 future courses or qualifications to develop the competencies required by aspiring managers to promote  
348 quality of care within their respective organisations and across the broader aged care sector. This  
349 focus on quality and continuous improvement may drive organisational excellence for the quality of  
350 care, enhance resident health outcomes, and foster a culture of accountability and innovation within  
351 Australian residential aged care organisations.<sup>23</sup>. (23) This work thus not only addresses key gaps in  
352 the literature and evidence base regarding senior management competencies but represents an  
353 essential and timely first step in responding to Royal Commission recommendations to strengthen  
354 leadership in the sector.  
355  
356 As with a majority of studies, the design of the current study is subject to limitations. Firstly,  
357 purposive sampling was used to recruit interview participants from three categories of experts (peak  
358 bodies, PHNs, and researchers); however, it is possible that not all participants will participate due to  
359 scheduling or other issues. It is expected, therefore, that the final sample of experts may introduce an  
360 element of bias and not always represent the diverse range of perspectives across multiple  
361 professional roles within the Australian aged care sector. For example, suppose a majority of study  
362 participants were provider advocates whose primary focus is to support the viability and sustainability  
363 of aged care service providers. In that case, experts are potentially less likely to consider the resident  
364 experience and personalised healthcare needs. Conversely, consumer advocates play an important role  
365 in advocating for the older person and speaking on behalf of that individuals in a way that best  
366 represents their interests. With an intense focus on the individualised healthcare needs of older  
367 Australians, consumer advocates may have less understanding of the structural elements that  
368 adversely influence RAC quality and the leadership competencies required.

Enseignement Supérieur (ABES) .  
Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.



While the modified Delphi process is a popular design used for research involving framework validation, some potential limitations within the proposed research are evident.<sup>24</sup>. (24) Firstly, the Delphi process is largely based on expert opinions rather than empirical evidence, and while these opinions can be valuable, they may not always align with objective facts or data. (25).<sup>25</sup> This can limit the validity and reliability of the framework validation process, particularly if more empirical evidence is needed to support the experts' judgments. A further potential limitation of the study design is that experts provide their input individually and anonymously.<sup>26</sup>. (26) The Delphi process, therefore, lacks direct interaction among experts, which can restrict the opportunity for in-depth discussions, debates, and exchanging ideas.<sup>26</sup>. (26) Consequently, the method may not capture the full complexity of the research problem or allow for exploring alternative perspectives.<sup>25</sup>. (25) Depending on the findings from this study, future phases of this programme of work may involve qualitative methods to address this limitation. These sessions would involve Australian aged care industry experts with varying opinions and perceptions to allow real-time feedback, in-depth insights and rich qualitative data regarding the applicability of the RCSM-QF implementation within the Australian residential aged care setting.<sup>27</sup>

## List of abbreviations

*ACLQF* – Aged Care Clinical Leadership Quality Framework

*ACSA* – Aged and Community Services Australia

*RCSM – QF* – Residential Aged Care Senior Management Quality Framework

*HLA* – Healthcare Leadership Alliance

*IPEC* – Interprofessional Education Collaborative

*CVI* - Content Validity Index

*S - CVI* – Scale level content Validity Index

*I – CVI* – Item Content Validity Index

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

395  
  
396  
  
397  
  
398  
  
399  
  
400  
  
401  
  
402  
  
403  
  
404  
  
405  
  
406  
  
407  
  
408  
  
409  
  
410  
  
411  
  
412  
  
413  
  
414  
  
415  
  
416  
  
417  
  
418  
  
419  
  
420

**Declarations**

**Ethics approval**

Ethics approval ~~is yet to be received for this study~~was received from the ~~James Cook University Human Research~~ ~~–An ethics application for~~  
~~this study was diligently prepared and submitted to the~~ James Cook University Human Research  
Ethics Committee on ~~23~~~~04 November~~~~August~~ 2023 [~~H9265~~]. ~~Once approved,~~ ~~A~~all methods will be  
carried out in accordance with relevant guidelines and regulations.

**Consent for publication.**

No participants were recruited or involved in the research process, so no individual consent for  
publication was required. Informed consent will be obtained from all subjects and/or their legal  
guardian (s) upon commencement of data collection activities.

**Availability of data and materials**

Previous datasets used and analysed to form the study protocol are available from the corresponding  
author upon reasonable request.

**Competing Interests Statement**

No potential conflict of interest was reported by the authors

**Authors' contributions**

ND conducted the primary manuscript draft. ND, ST and OA completed subsequent manuscript  
revisions. All authors read and approved the final manuscript.

**Acknowledgements**

Nil

**Funding**

No funding was sourced or utilised in the formation of this study protocol.

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES).

## References

1. Australian Institute of Health and Welfare. Older Australians: A demographic profile [Internet]. Canberra (Australia): AIHW; [cited 2023 Aug 30]. Available from: <https://www.aihw.gov.au/reports/older-people/older-australians/contents/demographic-profile>
2. Khadka J, Lang C, Ratcliffe J, et al. Trends in the utilisation of aged care services in Australia, 2008–2016. *BMC Geriatr*. 2019;19(1):213. doi: 10.1186/s12877-019-1209-9.
3. Caughey GE, Lang CE, Bray SCE, et al. Quality and safety indicators for home care recipients in Australia: development and cross-sectional analyses. *BMJ Open*. 2022;12:e063152. doi: 10.1136/bmjopen-2022-063152.
4. Australian Government. Final Report | Royal Commission into Aged Care Quality and Safety. <https://agedcare.royalcommission.gov.au/publications/final-report>. Accessed September 5, 2023.
5. Hodgkin S, Warburton J, Savy P, Moore M. Workforce Crisis in Residential Aged Care: Insights from Rural, Older Workers. *AJPA*. 2016;76:1. doi: 10.1111/1467-8500.12204
6. Jeon YH, Simpson JM, Li Z, Cunich MM, Thomas TH, Chenoweth L, Kendig HL. Cluster Randomized Controlled Trial of An Aged Care Specific Leadership and Management Program to Improve Work Environment, Staff Turnover, and Care Quality. *J Am Med Dir Assoc*. 2015 Jul 1;16(7):629.e19-28. doi: 10.1016/j.jamda.2015.04.005.

7. Aged and Community Services Australia. Australian Aged Care Leadership Capability Framework. <https://acsa.asn.au/getmedia/56d9c659-72c7-4ac4-a26c-a33f8530cae6/Aged-Care-Leadership-Capability-Framework-2014>. Accessed 17 Aug 2021.

8. Dawes N, Topp SM. Senior manager leadership competencies for quality residential aged care: an Australian industry perspective. BMC Health Serv Res. 2022;22:508. doi: 10.1186/s12913-022-08109-3.

9. Healthcare Leadership Alliance. (2017). About the HLA competency directory. Retrieved from <http://www.healthcareleadershipalliance.org/directory.htm>

10. Interprofessional Education Collaborative. (2022). IPEC core competencies. Retrieved from <https://www.ipecollaborative.org/ipec-core-competencies>

~~11.~~ Australasian College of Health Service Management. Master of Health Service Management Competency Framework. [https://www.achsm.org.au/Portals/15/documents/education/competencyframework/2020\\_competency\\_framework\\_A4\\_full\\_brochure.pdf](https://www.achsm.org.au/Portals/15/documents/education/competencyframework/2020_competency_framework_A4_full_brochure.pdf). Accessed [August 11, 2023].

~~12.~~ Yusoff MSB. ABC of Content Validation and Content Validity Index Calculation. Educ Med J. 2019;11:49-54. doi: 10.21315/eimj2019.11.2.6.

~~13.~~ Samad, N., Asri, M., Mohd Noor, M. A., & Jumahat, T. (2023). Measuring the Content Validity of Middle Leadership Competence Model using Content Validity Ratio (CVR) Analysis. *International Journal of Business, Technology, and Management*, 5(4), 134-144. DOI: 10.55057/ijbtm.2023.5.4.12

~~13.~~ Tobon S, Juárez Hernández LG, Herrera Meza SR, Núñez C. ASSESSING SCHOOL PRINCIPAL LEADERSHIP PRACTICES. VALIDITY AND RELIABILITY OF A RUBRIC/Evaluación de las practicas directivas en directores escolares: validez y confiabilidad de una rubrica. Educacion XX1. 2020;23(2):187-210.

14. Barrett D, Heale R. What are Delphi studies? Evid Based Nurs. 2020 Jul;23(3):68-69. doi: 10.1136/ebnurs-2020-103303.

~~15.~~ Nasa, P., Jain, R., & Juneja, D. (2021). Delphi methodology in healthcare research: How to decide its appropriateness. *World Journal of Methodology*, 11(4), 116–129. DOI: 10.5662/wjm.v11.i4.116Hsu CC, Sandford BA. The Delphi Technique: Making Sense of Consensus. Pract Assess Res Eval. 2007;12:10. doi: 10.7275/pdz9-th90.

16. Australian Government Department of Health [DoH]. Types of aged care. <https://www.health.gov.au/health-topics/aged-care/about-aged-care/types-of-aged-care>. Accessed [August 10, 2023].

17. Scott K, Webb M, Sorrentino SA. Long-term caring-e-Book: Residential, home and community aged care. Elsevier Health Sciences; 2014.

18. Palinkas LA, Horwitz SM, Green CA, Wisdom JP, Duan N, Hoagwood K. Purposeful sampling for qualitative data collection and analysis in mixed method implementation

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.

- research. *Adm Policy Ment Health*. 2015 Sep;42(5):533-544. doi: 10.1007/s10488-013-0528-y. PMID: PMC4012002. PMID: 24193818.
19. Polit DF, Beck CT, Owen SV. Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Res Nurs Health*. 2007 Aug;30(4):459-467. doi: 10.1002/nur.20199. PMID: 17654487.
20. Bull, C., Crilly, J., Latimer, S., & Gillespie, B. M. (2022). Establishing the content validity of a new emergency department patient-reported experience measure (ED PREM): a Delphi study. *BMC Emergency Medicine*, 22(1), 65. DOI: 10.1186/s12873-022-00551-0
20. Zamanzadeh V, Ghahramanian A, Rassouli M, Abbaszadeh A, Alavi-Majd H, Nikanfar AR. Design and Implementation Content Validity Study: Development of an instrument for measuring Patient-Centered Communication. *J Caring Sci*. 2015 Jun 1;4(2):165-178. doi: 10.15171/jes.2015.017. PMID: PMC4484991. PMID: 26161370.
21. Shi JC, Mo XK, Sun ZQ. [Content validity index in scale development]/ *Zhong Nan Da Xue Xue Bao Yi Xue Ban*. 2012 Feb;37(2):152-155. doi: 10.3969/j.issn.1672-7347.2012.02.007. PMID: 22561427.
22. Liang Z, Blackstock FC, Howard PF, Briggs DS, Leggat SG, Wollersheim D, ... Rahman A. An evidence-based approach to understanding the competency development needs of the health service management workforce in Australia. *BMC Health Serv Res*. 2018;18. doi: 10.1186/s12913-018-3760-z.
23. Sfantou DF, Laliotis A, Patelarou AE, Sifaki-Pistolla D, Matalliotakis M, Patelarou E. Importance of leadership style towards quality of care measures in healthcare settings: a systematic review. *Healthcare (Basel)*. 2017;5(4):73. doi: 10.3390/healthcare5040073.
24. Robles N, Puigdomènech Puig E, Gómez-Calderón C, Saigí-Rubió F, Cuatrecasas Cambra G, Zamora A, Moharra M, Paluzié G, Balfegó M, Carrion C. Evaluation Criteria for Weight Management Apps: Validation Using a Modified Delphi Process. *JMIR Mhealth Uhealth*. 2020 Jul;8(7):e16899. doi: 10.2196/16899. PMID: PMC7407251. PMID: 32706689.
25. Fink-Hafner D, Dagen T, Doušak M, Novak M, Hafner-Fink M. Delphi method: strengths and weaknesses. *Adv Methodol Stat*. 2019 Jul 1;16(2):1-9.
26. Donohoe H, Stelfox M, Tennant B. Advantages and Limitations of the e-Delphi Technique: Implications for Health Education Researchers. *American Journal of Health Education*. Published online: 23 Jan 2013. doi: 10.1080/19325037.2012.10599216.
27. Leung FH, Ratnapalan S. Spotlight on focus groups. *Can Fam Physician*. 2009 Feb;55(2):218-219. PMID: PMC2642503. PMID: 19221085.



**Figure 1. The preliminary Residential Aged Care Senior Manager Quality Framework (RCSM-QF).** *Source: Authors own figure*

# BMJ Open

## Validation of a national leadership framework to promote and protect quality residential aged care: Protocol for a Delphi study

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2023-083107.R2
Article Type:	Protocol
Date Submitted by the Author:	07-May-2024
Complete List of Authors:	Dawes, Nathan; James Cook University Topp, Stephanie; James Cook University; James Cook University Adegboye , Oyelola; James Cook University,
<b>Primary Subject Heading</b>:	Public health
Secondary Subject Heading:	Health services research
Keywords:	Aged, HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Health Services for the Aged

SCHOLARONE™  
Manuscripts



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**Validation of a national leadership framework to promote and protect quality residential aged care: Protocol for a Delphi study**

**Authorship**

Nathan Dawes<sup>1\*</sup>, S.M. Topp<sup>1</sup> & O. Adegboye<sup>1,2</sup>

<sup>1</sup> College of Public Health, Medical & Veterinary Sciences, James Cook University, Townsville  
Queensland, Australia  
<sup>2</sup> Menzies School of Health Research, Charles Darwin University, Darwin, Northern Territory, Australia

Nathan Dawes  
College of Public Health, Medical and Veterinary Sciences  
Division of Tropical Health and Medicine  
James Cook University, Australia  
T 07 47815 094 I T (INT'L) +61 7 47815 094  
E nathan.dawes@jcu.edu.au  
JCU Townsville I Douglas I Building 41 I Room 114  
1 James Cook Drive Townsville QLD 4811 AUSTRALIA

Professor Stephanie M. Topp  
College of Public Health, Medical and Veterinary Sciences  
Division of Tropical Health and Medicine  
James Cook University, Australia  
E stephanie.topp@jcu.edu.au  
1 James Cook Drive Townsville QLD 4811 AUSTRALIA

Associate Professor Oyelola Adegboye  
College of Public Health, Medical and Veterinary Sciences  
Division of Tropical Health and Medicine  
James Cook University, Australia

Menzies School of Health Research,  
Charles Darwin University, NT 0810, Australia  
E oyelola.adegboye@menzies.edu.au  
John Mathews Building, Royal Darwin Hospital Campus, Rocklands Drive, Casuarina NT 0810



# Validation of a national leadership framework to promote and protect quality residential aged care: Protocol for a Delphi study

## Abstract

**Introduction:** Australia's aging population is driving an increased demand for residential aged care services, yet concerns about the quality and safety of such care remain. The recent Royal Commission into Aged Care Quality and Safety identified various limitations relating to leadership within these services. While some competency frameworks exist globally, there is a need for sector-specific leadership competencies in the Australian residential aged care setting to promote and protect quality of care.

**Methods and Analysis:** This study uses the Delphi technique to establish the content validity of a national leadership framework (RCSM-QF) for promoting and protecting the quality of residential aged care in Australia. Participants will be identifiable experts through current employment within, policy development for, or research with the aged care sector. The survey will ask participants to rate the relevance, importance, and clarity of RCSM-QF items and their corresponding descriptions, and seek suggestions for revisions or additional items. Content validity will be assessed using the Content Validity Index (CVI), with items meeting specific criteria retained, revised, or removed.

**Discussion:** This research addresses the need for a comprehensive leadership competency framework for Australian residential aged care senior managers. It seeks to validate the RCSM-QF framework, which can define and describe the competencies required by senior managers and inform quality indicators for performance evaluations. Such evidence-based frameworks can standardise leadership development and promote consistency in healthcare operations. Additionally, the RCSMQF may guide training and career progression opportunities, fostering a culture of quality and

accountability in the aged care sector. However, the study acknowledges potential limitations, including sampling bias and the reliance on expert opinions in the Delphi process, but aims to mitigate these through focus groups for richer insights in subsequent phases of this work.

**Keywords:** residential aged care, quality, leadership, senior managers, validation

**Strengths**

- Purposive sampling will be used as a targeted recruitment method for interviewing participants from peak bodies, primary health networks, and researchers, allowing for diverse expert perspectives within the Australian aged care sector.
- The Delphi method is a popular tool for framework validation in research, allowing for structured input from Australian aged care experts to refine and validate the preliminary framework.

**Limitations**

- The Delphi process is based on subjective opinions rather than empirical evidence, potentially affecting the validity and reliability of the framework validation process.
- To address limitations in the Delphi process, future phases of the research may require qualitative methods to allow for real-time feedback and in-depth insights from a wider range of industry experts.
- The anonymous nature of the Delphi process limits in-depth discussions, debates, and the exchange of ideas, potentially restricting the exploration of alternative perspectives regarding the leadership competencies influencing the quality of Australian residential aged care services.

## 98 Introduction

99 Australia's population is ageing, with the proportion of people aged 65 years or over projected to  
100 increase from 16% (2018) to 23% in 2066. (1) In line with national ageing trends, the demand for  
101 Australian residential aged care services is also increasing, (2) and there have been ongoing concerns  
102 about the quality and safety of that care. (3) Indeed, the recent Royal Commission into Aged Care  
103 Quality and Safety described a "cruel and harmful" national aged care system comprising services  
104 that were "neglectful" and "woefully inadequate". (4) The leadership of these services, including  
105 'ground-level' residential aged care senior management teams, was described as "lacking", and  
106 leadership competencies for promoting quality of care were found to be "poorly defined". (4) The  
107 lack of any sector-specific professional development or leadership framework to guide the acquisition  
108 of these required skills within the Australian residential aged-care setting is a concern. (5)  
109  
110 Existing studies have generated some knowledge regarding leadership requirements, and some  
111 competency frameworks exist for aged care services globally, although evidence gaps remain.  
112 Seminal work in Australian aged care leadership was conducted by Jeon et al. (2015) in validating a  
113 clinical leadership framework, the Aged care *Clinical* Leadership Qualities Framework (ACLQF), for  
114 middle (mainly clinical) managers in both community-based and residential aged care services. (6) In  
115 2014, Aged & Community Services Australia (ACSA) developed the Australian Aged Care  
116 Leadership Capability Framework. While this framework reflected an important step forward, its  
117 inclusion of different leadership levels (e.g. frontline, middle- and senior managers) and multiple  
118 service types (residential, acute and community-based) meant it was necessarily general in nature,  
119 with limited specificity concerning the multi-faceted and increasingly demanding nature of residential  
120 aged care facilities. (7) Furthermore, the ACSA framework describes leadership capabilities  
121 (statements of behaviours, skills, and knowledge that affect an outcome) but not competencies (a  
122 measure or index of how well a person performs that capability) and does not explicitly link these to  
123 promoting quality care.

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

125 With an absence of competency-based frameworks specific to the Australian residential aged care  
126 setting, there is a clear need to describe and model the competencies required by leadership teams to  
127 provide effective leadership within this increasingly complex environment. A recent programme of  
128 work identified the knowledge, skills and abilities senior managers need to promote and protect  
129 quality residential aged care. (8) Competencies were to form a preliminary leadership competency  
130 framework, The Residential Aged Care Senior Manager Quality Framework (RCSM-QF). (8) The  
131 RCSM-QF comprises two key elements: personal qualities and leadership skills. Leadership skills are  
132 broken down into five domains, including i) culture and environment, ii) stakeholder relations, iii)  
133 clinical and aged care expertise, iv) asset management, and iv) disaster and change management  
134 (Figure 1.) This original and empirically grounded competency framework synthesised Australian  
135 senior managers' skills and personal qualities to promote and protect the quality of care in the  
136 residential aged care setting. Its formation drew on the experiences and strategic insights of senior  
137 managers themselves and Australian industry experts. (8) These empirically derived leadership  
138 competencies were compared with those extracted from pre-existing senior-management-relevant  
139 leadership frameworks, including the HLA Competency Directory, (9) IPEC Core Competencies, (10)  
140 and Master Health Service Management Competency Framework (11) to form a novel (though  
141 untested) competency framework.

142

143 Although the formation of the preliminary RCSM-QF is a step in addressing the evidence gap relating  
144 to sector-specific leadership competencies and professional development requirements for senior  
145 managers to promote quality of care, it has not been applied or tested in the Australian residential  
146 aged care setting nor the competencies empirically validated. Therefore, the accuracy and usefulness  
147 of the RCSM-QF for describing and helping assess the leadership competencies required by senior  
148 managers across Australia are not yet confirmed.

[INSERT FIRGURE 1. HERE]

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES)

This study aims to establish the content validity of the preliminary RCSM-QF within the Australian residential aged care context using a modified Delphi process. Once this validity is established, this programme of work could provide a practical tool to form a professional development infrastructure for current and aspiring Australian residential aged care senior managers who continue to operate within this increasingly complex environment.

## Methods and Analysis

**Aim:** To establish the content validity of a national leadership framework to promote and protect the quality of residential aged care in Australia

### Objectives:

1. Rate the relevance, importance and clarity of RCSM-QF items [competencies OR personal qualities] and their descriptions using a 4-point Content Validity Index (CVI) scale
2. Suggest RCSM-QF item and description scale revisions.
3. Suggest RCSM-QF domain name and domain definition revisions and
4. Suggest additional items [competencies or personal qualities] for the RCSM-QF

## Study Design

Content validity refers to the extent to which a measurement tool, such as a test or assessment, accurately represents the specific content it is intended to measure. (12) Content validity is an important aspect of validating a leadership competency. (13) In the context of the current research, the method will assess whether the RCSM-QF accurately and comprehensively represents the key competencies required for effective leadership within the Australian residential aged care setting. We will evaluate content validity using the Delphi survey technique and a Content Validity Index (CVI). The Delphi technique is a widely used method for achieving consensus. (14) It uses a series of questionnaires to collect information from participants in several iterations, or 'rounds'. The starting point is an open questionnaire or a pre-derived list of questions, (15) Following each round, each

participant receives an individualised report of their responses to the group response. (15) In subsequent rounds, participants can reassess their responses in light of this information. (14) The process allows for a controlled debate and for consensus to build without necessitating group interaction, an advantage in the context of geographically dispersed and time-constrained experts. It also limits the time and resources required to plan and facilitate group interactions and the bias from dominant individuals within this consensus-building phase. (14)

**Study setting**

The current study will be completed with representatives who contribute to or advise regarding the delivery of aged care services in Australia. Examples of different ‘levels’ of aged care include: i) entry-level community-based care at home; ii) higher levels of care at home (Home Care Packages Program), and when living at home is not an option; iii) residential aged care. (16) This study focuses specifically on the role of senior managers in providing quality care in the Australian residential aged care setting. Residential aged care provides health care services and accommodation for older people who are unable to continue living independently in their own homes. (17)

In Australia, residential aged care providers can span a range of different sectors, including religious, charitable, community, for-profit and government organisations. (17) Typical services may include accommodation, personal care assistance, clinical care and a range of social care activities, including recreational activities and emotional support. Approximately 250,000 older Australians received permanent residential aged care at some time during the financial year 2021/2022. (1)

**Participant recruitment**

To be eligible for participation, panel participants will need to be self- or other-identified aged care experts through current employment within the aged care sector and have high-level knowledge and experience in aged care. Expertise may include clinical practice, management, service delivery, policy, research and education or combinations of the above. From previous work, this study will

target five major groupings of expert representatives, including peak advocacy bodies, primary health network representatives, members of state and federal government, aged care researchers and residential aged care executives and governing board members spanning multiple organisation types (non-for-profit, for-profit, non-governmental [NGO], and government-operated). (8) Purposive sampling will be used to ensure that rural, remote, and metropolitan settings across Australia are represented on the panel. Purposive sampling will also allow the identification and selection of information-rich participants from the expert groupings with knowledge and experience working within the Australian aged care sector. (18) Participant selection will be purposive, and aged care industry experts will be recognised as possessing specific knowledge of the health service needs of older persons in Australia and capable of reflecting critically on the link between senior manager leadership skills and quality residential aged care.

A list of eligible participants will be generated using a combination of investigators' aged care industry experience and a comprehensive desk search. Participants will be emailed an invitation for involvement in *Round 1* and followed up by phone if a response has not been received in two weeks. Participants will provide electronic consent before commencing the questionnaire.

## Data collection

**Round 1:** In reviewing, modifying and validating the RCSM-QF, two rounds of iterative consultation will be undertaken with the Delphi panel via email. In round one, experts will be sent email invitations to participate. Upon clicking the survey link, participants will be redirected to an online platform where they will be asked to confirm their consent to participate and will rate each item and its response scale based on clarity, relevance, and importance using a 4-point CVI scale where 1 = not clear/relevant/important, 2 = somewhat clear/relevant/important, 3 = quite clear/relevant/important, and 4 = highly clear/relevant/important. (19) Through open dialogue boxes, experts will also provide suggestions for item wording, domain name, and domain definition revisions and propose additional items for any missing experiential aspects of care. Demographic questions will include gender, year of



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

birth, highest educational qualification, place of work and current professional role. Experts will be given a 2-week window to complete the Round 1 survey, after which the survey will be closed, and the results will be exported into Microsoft Excel. Reminder emails will be dispatched to participants on days 5 and 12 of the Round 1 questionnaire if they have not taken part.

**Round 2:** The second round will commence 1 week after the conclusion of Round 1. Experts will receive a second survey invitation via email, asking them to rate the revised items in terms of clarity, relevance, and importance using the 4-point CVI scale and propose item revisions. A 2-week timeframe will be allotted for experts to complete the Round 2 survey, following which the survey will be closed, and the results will be exported into Microsoft Excel. Reminder emails will be sent to participants on days 5 and 12 of the Round 2 survey if they have not participated.

**Data Analysis**

**Content validity**

The current study will incorporate the content validity index (CVI) as a verified approach for evaluating content validity. (20) The CVI index comprises two computed components: the Item-CVI (I-CVI) and the Scale-level-CVI (S-CVI). (20) To compute the I-CVI, the number of Delphi panel experts assigning a "very relevant" rating to each item is divided by the total number of experts, resulting in values ranging from 0 to 1. An I-CVI surpassing 0.79 deems the item relevant, while values falling between 0.70 and 0.79 indicate the need for item revisions; I-CVI values below 0.70 warrant item elimination. (20) Likewise, the S-CVI is determined based on the count of items within a tool that attain a "very relevant" rating. (20) To measure the S-CVI, the Universal Agreement (UA) among experts (S-CVI/UA) will be used. The S-CVI/UA involves summing all items with an I-CVI of 1 and dividing by the total number of items, with the ab S-CVI/UA of  $\geq 0.8$  denoting excellent content validity. (21)

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Enseignement Supérieur (ABES).

**Round 1:** The demographic and Delphi survey data will be analysed descriptively using Microsoft Excel. Expert responses to the item-level CVI (I-CVI) scales will be binary coded as 0 for "not or somewhat relevant/important/clear" and 1 for "quite or highly relevant/important/clear." An I-CVI score will then be computed for each item, representing the proportion of experts scoring 1 out of the total number of experts in the Round 1 sample. (19) Items meeting a score of  $\geq 0.80$  for each of relevance, importance, and clarity (without revision suggestions) will be retained for the final version of the RSCM – QF.20 Items achieving scores of  $\geq 0.80$  for each of relevance, importance, and clarity (with revision suggestions), or  $\geq 0.80$  for relevance and importance but  $< 0.80$  for clarity, will undergo revision by the research team based on expert feedback and will subsequently be included in the Round 2 survey. Items obtaining scores of  $< 0.80$  for each of relevance, importance, and clarity will be removed from the RSCM-QF. The research team will also consider suggestions provided by experts concerning modifications to domain names, domain definitions, and missing items.

**Round 2:** The Round 2 questionnaire results analysis will adhere to the same methodology as in Round 1. The research team will thoroughly review additional suggestions for item revisions before implementing further RSCM-QF modifications. A scale-level CVI (S-CVI) score will also be calculated by averaging the I-CVI scores for all items included in the final RSCM-QF. (20) Delphi studies are typically carried out in two to three rounds with a deliberately selected panel of experts. (14) In the current study, a third round of consultation will be administered if few items achieve scores of  $\geq 0.80$  for relevance, importance, and clarity. In this third round, data collection and analysis processes will replicate those of the previous rounds.

## **Ethics and Dissemination**

The James Cook University Human Research Ethics Committee (HREC) approved this study's ethics on 14 November 2023. The current project has been deemed 'negligible risk' by the HREC, as there is no foreseeable risk of harm or discomfort to the participants other than the inconvenience of completing the questionnaire. A potential risk of this study is difficulties in recruiting the required

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

287 numbers for this research, which might pose a risk to study completion. If this is the case, alternative  
288 recruitment methods will be considered, including broadening networks to include other professional  
289 roles and organisations operating within the Australian aged care sector.

290  
291 Data will be prepared for submission to an appropriate peer-reviewed journal and presentation at  
292 relevant academic conferences, including the Australian Association of Gerontology Conference  
293 [2024]. In addition to the International Journal of Healthcare Management, where a large body of  
294 literature regarding aged care management and quality of care is published, several additional avenues  
295 have been identified to add variety to the audience accessing the project's findings. Given that this  
296 research focuses on senior managers in the aged care setting, targeted journals include the  
297 Australasian Journal on Ageing, Journal of Ageing and Health and BMC Health Services Research or  
298 BMJ Open.

299  
300 **Patient and Public Involvement**

301 This research project was designed without direct patient or public involvement in several key  
302 aspects, including determining research priorities, defining research questions, selecting outcome  
303 measures and contributing to study design. It is recognised that including patient and public  
304 perspectives can significantly enhance the relevance, quality, and applicability of research outcomes,  
305 and their absence in this study might have implications for the comprehensiveness and relevance of  
306 our findings.

307  
308 **Discussion**

309 Senior managers are central in promoting and protecting quality of care in clinically and  
310 administratively complex residential aged care services settings. (8) Yet globally and in Australia,  
311 there remain significant gaps in knowledge regarding the specific competencies and skills required of  
312 this leadership cohort. (8) This study aims to establish the validity of a novel leadership competency  
313 framework, which could provide a practical tool for national regulatory and professional bodies by  
314 defining and describing the specific skills, behaviours, knowledge, and experience needed by aspiring

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES)

and current senior managers. It may also inform the development of quality indicators to inform competency-based performance evaluations of senior managers within their current roles.

Evidence-based leadership competency frameworks provide a standardised and consistent approach to leadership development across multiple health settings. (22) Once validated for acceptability and applicability, the RCSM-QF competencies may assist residential aged-care organisations in establishing a consistent promotion criterion that incorporates demonstrated excellence by senior managers who consistently lead high-quality healthcare operations within their respective organisations. In doing so it could provide a valuable tool for self-reflection to identify knowledge and skill gaps and guide future training and other career progression opportunities.

The RCSM-QF also offers a set of skills and personal qualities that could inform the development of future courses or qualifications to develop the competencies required by aspiring managers to promote quality of care within their respective organisations and across the broader aged care sector. This focus on quality and continuous improvement may drive organisational excellence for the quality of care, enhance resident health outcomes, and foster a culture of accountability and innovation within Australian residential aged care organisations. (23) This work thus not only addresses key gaps in the literature and evidence base regarding senior management competencies but represents an essential and timely first step in responding to Royal Commission recommendations to strengthen leadership in the sector.

As with a majority of studies, the design of the current study is subject to limitations. Firstly, purposive sampling was used to recruit interview participants from three categories of experts (peak bodies, PHNs, and researchers); however, it is possible that not all participants will participate due to scheduling or other issues. It is expected, therefore, that the final sample of experts may introduce an element of bias and not always represent the diverse range of perspectives across multiple professional roles within the Australian aged care sector. For example, suppose a majority of study participants were provider advocates whose primary focus is to support the viability and sustainability

1  
2  
3 343 of aged care service providers. In that case, experts are potentially less likely to consider the resident  
4  
5 344 experience and personalised healthcare needs. Conversely, consumer advocates play an important role  
6  
7 345 in advocating for the older person and speaking on behalf of that individuals in a way that best  
8  
9 346 represents their interests. With an intense focus on the individualised healthcare needs of older  
10  
11 347 Australians, consumer advocates may have less understanding of the structural elements that  
12  
13 348 adversely influence RAC quality and the leadership competencies required.  
14  
15  
16 349  
17  
18 350 While the modified Delphi process is a popular design used for research involving framework  
19  
20 351 validation, some potential limitations within the proposed research are evident. (24) Firstly, the  
21  
22 352 Delphi process is largely based on expert opinions rather than empirical evidence, and while these  
23  
24 353 opinions can be valuable, they may not always align with objective facts or data. (25) This can limit  
25  
26 354 the validity and reliability of the framework validation process, particularly if more empirical  
27  
28 355 evidence is needed to support the experts' judgments. A further potential limitation of the study design  
29  
30 356 is that experts provide their input individually and anonymously. (26) The Delphi process, therefore,  
31  
32 357 lacks direct interaction among experts, which can restrict the opportunity for in-depth discussions,  
33  
34 358 debates, and exchanging ideas. (26) Consequently, the method may not capture the full complexity of  
35  
36 359 the research problem or allow for exploring alternative perspectives. (25) Depending on the findings  
37  
38 360 from this study, future phases of this programme of work may involve qualitative methods to address  
39  
40 361 this limitation. These sessions would involve Australian aged care industry experts with varying  
41  
42 362 opinions and perceptions to allow real-time feedback, in-depth insights and rich qualitative data  
43  
44 363 regarding the applicability of the RCSM-QF implementation within the Australian residential aged  
45  
46 364 care setting.<sup>27</sup>  
47  
48  
49 365  
50  
51

52 366 **List of abbreviations**

- 53  
54  
55 367 *ACLQF* – Aged Care Clinical Leadership Quality Framework  
56  
57  
58 368 *ACSA* – Aged and Community Services Australia  
59  
60

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES)

369 *RCSM* – QF – Residential Aged Care Senior Management Quality Framework

370 *HLA* – Healthcare Leadership Alliance

371 *IPEC* – Interprofessional Education Collaborative

372 *CVI* - Content Validity Index

373 *S - CVI* – Scale level content Validity Index

374 *I – CVI* – Item Content Validity Index

375

## 376 **Declarations**

## 377 **Ethics approval**

378 Ethics approval was received from the James Cook University Human Research Ethics Committee on  
379 23 November 2023 [H9265]. All methods will be carried out in accordance with relevant guidelines  
380 and regulations.

## 381 **Consent for publication.**

382 No participants were recruited or involved in the research process, so no individual consent for  
383 publication was required. Informed consent will be obtained from all subjects and/or their legal  
384 guardian (s) upon commencement of data collection activities.

## 385 **Availability of data and materials**

386 Previous datasets used and analysed to form the study protocol are available from the corresponding  
387 author upon reasonable request.

## 388 **Competing Interests Statement**

389 No potential conflict of interest was reported by the authors

390

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**Authors' contributions**

ND conducted the primary manuscript draft. ND, ST and OA completed subsequent manuscript revisions. All authors read and approved the final manuscript.

**Acknowledgements**

Nil

**Funding**

No funding was sourced or utilised in the formation of this study protocol.

**Figure Legend**

Figure 1. The preliminary Residential Aged Care Senior Manager Quality Framework (RCSM-QF).

*Source: Authors own figure*



## References

1. Australian Institute of Health and Welfare. Older Australians: A demographic profile [Internet]. Canberra (Australia): AIHW; [cited 2023 Aug 30]. Available from: <https://www.aihw.gov.au/reports/older-people/older-australians/contents/demographic-profile>
2. Khadka J, Lang C, Ratcliffe J, et al. Trends in the utilisation of aged care services in Australia, 2008–2016. *BMC Geriatr*. 2019;19(1):213. doi: 10.1186/s12877-019-1209-9.
3. Caughey GE, Lang CE, Bray SCE, et al. Quality and safety indicators for home care recipients in Australia: development and cross-sectional analyses. *BMJ Open*. 2022;12:e063152. doi: 10.1136/bmjopen-2022-063152.
4. Australian Government. Final Report | Royal Commission into Aged Care Quality and Safety. <https://agedcare.royalcommission.gov.au/publications/final-report>. Accessed September 5, 2023.
5. Hodgkin S, Warburton J, Savy P, Moore M. Workforce Crisis in Residential Aged Care: Insights from Rural, Older Workers. *AJPA*. 2016;76:1. doi: 10.1111/1467-8500.12204
6. Jeon YH, Simpson JM, Li Z, Cunich MM, Thomas TH, Chenoweth L, Kendig HL. Cluster Randomized Controlled Trial of An Aged Care Specific Leadership and Management Program to Improve Work Environment, Staff Turnover, and Care Quality. *J Am Med Dir Assoc*. 2015 Jul 1;16(7):629.e19-28. doi: 10.1016/j.jamda.2015.04.005.
7. Aged and Community Services Australia. Australian Aged Care Leadership Capability Framework. <https://acsa.asn.au/getmedia/56d9c659-72c7-4ac4-a26c-a33f8530cae6/Aged-Care-Leadership-Capability-Framework-2014>. Accessed 17 Aug 2021.
8. Dawes N, Topp SM. Senior manager leadership competencies for quality residential aged care: an Australian industry perspective. *BMC Health Serv Res*. 2022;22:508. doi: 10.1186/s12913-022-08109-3.
9. Healthcare Leadership Alliance. (2017). About the HLA competency directory. Retrieved from <http://www.healthcareleadershipalliance.org/directory.htm>
10. Interprofessional Education Collaborative. (2022). IPEC core competencies. Retrieved from <https://www.ipecollaborative.org/ipec-core-competencies>
11. Australasian College of Health Service Management. Master of Health Service Management Competency Framework. [https://www.achsm.org.au/Portals/15/documents/education/competencyframework/2020\\_competency\\_framework\\_A4\\_full\\_brochure.pdf](https://www.achsm.org.au/Portals/15/documents/education/competencyframework/2020_competency_framework_A4_full_brochure.pdf). Accessed [August 11, 2023].
12. Yusoff MSB. ABC of Content Validation and Content Validity Index Calculation. *Educ Med J*. 2019;11:49-54. doi: 10.21315/eimj2019.11.2.6.
13. Samad, N., Asri, M., Mohd Noor, M. A., & Jumahat, T. (2023). Measuring the Content Validity of Middle Leadership Competence Model using Content Validity Ratio (CVR) Analysis. *International Journal of Business, Technology, and Management*, 5(4), 134-144. DOI: 10.55057/ijbtm.2023.5.4.12
14. Barrett D, Heale R. What are Delphi studies? *Evid Based Nurs*. 2020 Jul;23(3):68-69. doi: 10.1136/ebnurs-2020-103303.

15. Nasa, P., Jain, R., & Juneja, D. (2021). Delphi methodology in healthcare research: How to decide its appropriateness. *World Journal of Methodology*, 11(4), 116–129. DOI: 10.5662/wjm.v11.i4.116.

16. Australian Government Department of Health [DoH]. Types of aged care. <https://www.health.gov.au/health-topics/aged-care/about-aged-care/types-of-aged-care>. Accessed [August 10, 2023].

17. Scott K, Webb M, Sorrentino SA. Long-term caring-e-Book: Residential, home and community aged care. Elsevier Health Sciences; 2014.

18. Palinkas LA, Horwitz SM, Green CA, Wisdom JP, Duan N, Hoagwood K. Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Adm Policy Ment Health*. 2015 Sep;42(5):533-544. doi: 10.1007/s10488-013-0528-y. PMCID: PMC4012002. PMID: 24193818.

19. Polit DF, Beck CT, Owen SV. Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Res Nurs Health*. 2007 Aug;30(4):459-467. doi: 10.1002/nur.20199. PMID: 17654487.

20. Bull, C., Crilly, J., Latimer, S., & Gillespie, B. M. (2022). Establishing the content validity of a new emergency department patient-reported experience measure (ED PREM): a Delphi study. *BMC Emergency Medicine*, 22(1), 65. DOI: 10.1186/s12873-022-00551-0

21. Shi JC, Mo XK, Sun ZQ. [Content validity index in scale development]/ *Zhong Nan Da Xue Xue Bao Yi Xue Ban*. 2012 Feb;37(2):152-155. doi: 10.3969/j.issn.1672-7347.2012.02.007. PMID: 22561427.

22. Liang Z, Blackstock FC, Howard PF, Briggs DS, Leggat SG, Wollersheim D, ... Rahman A. An evidence-based approach to understanding the competency development needs of the health service management workforce in Australia. *BMC Health Serv Res*. 2018;18. doi: 10.1186/s12913-018-3760-z.

23. Sfantou DF, Laliotis A, Patelarou AE, Sifaki-Pistolla D, Matalliotakis M, Patelarou E. Importance of leadership style towards quality of care measures in healthcare settings: a systematic review. *Healthcare (Basel)*. 2017;5(4):73. doi: 10.3390/healthcare5040073.

24. Robles N, Puigdomènech Puig E, Gómez-Calderón C, Saigí-Rubió F, Cuatrecasas Cambra G, Zamora A, Moharra M, Paluzié G, Balfegó M, Carrion C. Evaluation Criteria for Weight Management Apps: Validation Using a Modified Delphi Process. *JMIR Mhealth Uhealth*. 2020 Jul;8(7):e16899. doi: 10.2196/16899. PMCID: PMC7407251. PMID: 32706689.

25. Fink-Hafner D, Dagen T, Doušak M, Novak M, Hafner-Fink M. Delphi method: strengths and weaknesses. *Adv Methodol Stat*. 2019 Jul 1;16(2):1-9.

26. Donohoe H, Stelfox M, Tennant B. Advantages and Limitations of the e-Delphi Technique: Implications for Health Education Researchers *American Journal of Health Education*. Published online: 23 Jan 2013. doi: 10.1080/19325037.2012.10599216.

27. Leung FH, Ratnapalan S. Spotlight on focus groups. *Can Fam Physician*. 2009 Feb;55(2):218-219. PMCID: PMC2642503. PMID: 19221085.

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Ensignment Supérieur (ABES).



**Figure 1. The preliminary Residential Aged Care Senior Manager Quality Framework (RCSM-QF).** *Source: Authors own figure*

# BMJ Open

## Validation of a national leadership framework to promote and protect quality residential aged care: Protocol for a Delphi study

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2023-083107.R3
Article Type:	Protocol
Date Submitted by the Author:	14-May-2024
Complete List of Authors:	Dawes, Nathan; James Cook University Topp, Stephanie; James Cook University; James Cook University Adegboye , Oyelola; James Cook University,
<b>Primary Subject Heading</b>:	Public health
Secondary Subject Heading:	Health services research
Keywords:	Aged, HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Quality in health care < HEALTH SERVICES ADMINISTRATION & MANAGEMENT, Health Services for the Aged

SCHOLARONE™  
Manuscripts

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**Validation of a national leadership framework to promote and protect quality residential aged care: Protocol for a Delphi study**

**Authorship**

Nathan Dawes<sup>1\*</sup>, S.M. Topp<sup>1</sup> & O. Adegboye<sup>1,2</sup>

<sup>1</sup> College of Public Health, Medical & Veterinary Sciences, James Cook University, Townsville  
Queensland, Australia  
<sup>2</sup> Menzies School of Health Research, Charles Darwin University, Darwin, Northern Territory, Australia

Nathan Dawes  
College of Public Health, Medical and Veterinary Sciences  
Division of Tropical Health and Medicine  
James Cook University, Australia  
T 07 47815 094 I T (INT'L) +61 7 47815 094  
E nathan.dawes@jcu.edu.au  
JCU Townsville I Douglas I Building 41 I Room 114  
1 James Cook Drive Townsville QLD 4811 AUSTRALIA

Professor Stephanie M. Topp  
College of Public Health, Medical and Veterinary Sciences  
Division of Tropical Health and Medicine  
James Cook University, Australia  
E stephanie.topp@jcu.edu.au  
1 James Cook Drive Townsville QLD 4811 AUSTRALIA

Associate Professor Oyelola Adegboye  
College of Public Health, Medical and Veterinary Sciences  
Division of Tropical Health and Medicine  
James Cook University, Australia

Menzies School of Health Research,  
Charles Darwin University, NT 0810, Australia  
E oyelola.adegboye@menzies.edu.au  
John Mathews Building, Royal Darwin Hospital Campus, Rocklands Drive, Casuarina NT 0810

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES).

# Validation of a national leadership framework to promote and protect quality residential aged care: Protocol for a Delphi study

## Abstract

**Introduction:** Australia's aging population is driving an increased demand for residential aged care services, yet concerns about the quality and safety of such care remain. The recent Royal Commission into Aged Care Quality and Safety identified various limitations relating to leadership within these services. While some competency frameworks exist globally, there is a need for sector-specific leadership competencies in the Australian residential aged care setting to promote and protect quality of care.

**Methods and Analysis:** This study uses the Delphi technique to establish the content validity of a national leadership framework (RCSM-QF) for promoting and protecting the quality of residential aged care in Australia. Participants will be identifiable experts through current employment within, policy development for, or research with the aged care sector. The survey will ask participants to rate the relevance, importance, and clarity of RCSM-QF items and their corresponding descriptions, and seek suggestions for revisions or additional items. Content validity will be assessed using the Content Validity Index (CVI), with items meeting specific criteria retained, revised, or removed.

## Ethics and Dissemination:

Ethics approval has been sought via the James Cook University Human Research Ethics Committee (HREC) to ensure the well-being and convenience of participants while mitigating potential recruitment challenges. Data will be prepared for submission to an appropriate peer-reviewed journal and presentation at relevant academic conferences.

**Keywords:** residential aged care, quality, leadership, senior managers, validation

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

72  
73  
74  
75  
76  
77  
78  
79  
80  
81  
82  
83  
84  
85  
86  
87  
88  
89  
90  
91  
92  
93  
94  
95  
96

**Strengths**

- Purposive sampling will be used as a targeted recruitment method for interviewing participants from peak bodies, primary health networks, and researchers, allowing for diverse expert perspectives within the Australian aged care sector.
- The Delphi method is a popular tool for framework validation in research, allowing for structured input from Auatrliaa aged care experts to refine and validate the preliminary framework.

**Limitations**

- The Delphi process is based on subjective opinions rather than empirical evidence, potentially affecting the validity and reliability of the framework validation process.
- To address limitations in the Delphi process, future phases of the research may require qualitative methods to allow for real-time feedback and in-depth insights from a wider range of industry experts.
- The anonymous nature of the Delphi process limits in-depth discussions, debates, and the exchange of ideas, potentially restricting the exploration of alternative perspectives regarding the leadership competencies influencing the quality of Australian residential aged care services.



## 97 Introduction

98 Australia's population is ageing, with the proportion of people aged 65 years or over projected to  
99 increase from 16% (2018) to 23% in 2066. (1) In line with national ageing trends, the demand for  
100 Australian residential aged care services is also increasing, (2) and there have been ongoing concerns  
101 about the quality and safety of that care. (3) Indeed, the recent Royal Commission into Aged Care  
102 Quality and Safety described a "cruel and harmful" national aged care system comprising services  
103 that were "neglectful" and "woefully inadequate". (4) The leadership of these services, including  
104 'ground-level' residential aged care senior management teams, was described as "lacking", and  
105 leadership competencies for promoting quality of care were found to be "poorly defined". (4) The  
106 lack of any sector-specific professional development or leadership framework to guide the acquisition  
107 of these required skills within the Australian residential aged-care setting is a concern. (5)  
108  
109 Existing studies have generated some knowledge regarding leadership requirements, and some  
110 competency frameworks exist for aged care services globally, although evidence gaps remain.  
111 Seminal work in Australian aged care leadership was conducted by Jeon et al. (2015) in validating a  
112 clinical leadership framework, the Aged care *Clinical* Leadership Qualities Framework (ACLQF), for  
113 middle (mainly clinical) managers in both community-based and residential aged care services. (6) In  
114 2014, Aged & Community Services Australia (ACSA) developed the Australian Aged Care  
115 Leadership Capability Framework. While this framework reflected an important step forward, its  
116 inclusion of different leadership levels (e.g. frontline, middle- and senior managers) and multiple  
117 service types (residential, acute and community-based) meant it was necessarily general in nature,  
118 with limited specificity concerning the multi-faceted and increasingly demanding nature of residential  
119 aged care facilities. (7) Furthermore, the ACSA framework describes leadership capabilities  
120 (statements of behaviours, skills, and knowledge that affect an outcome) but not competencies (a  
121 measure or index of how well a person performs that capability) and does not explicitly link these to  
122 promoting quality care.

1  
2  
3 124 With an absence of competency-based frameworks specific to the Australian residential aged care  
4  
5 125 setting, there is a clear need to describe and model the competencies required by leadership teams to  
6  
7 126 provide effective leadership within this increasingly complex environment. A recent programme of  
8  
9 127 work identified the knowledge, skills and abilities senior managers need to promote and protect  
10  
11 128 quality residential aged care. (8) Competencies were to form a preliminary leadership competency  
12  
13 129 framework, The Residential Aged Care Senior Manager Quality Framework (RCSM-QF). (8) The  
14  
15 130 RCSM-QF comprises two key elements: personal qualities and leadership skills. Leadership skills are  
16  
17 131 broken down into five domains, including i) culture and environment, ii) stakeholder relations, iii)  
18  
19 132 clinical and aged care expertise, iv) asset management, and iv) disaster and change management  
20  
21 133 (Figure 1.) This original and empirically grounded competency framework synthesised Australian  
22  
23 134 senior managers' skills and personal qualities to promote and protect the quality of care in the  
24  
25 135 residential aged care setting. Its formation drew on the experiences and strategic insights of senior  
26  
27 136 managers themselves and Australian industry experts. (8) These empirically derived leadership  
28  
29 137 competencies were compared with those extracted from pre-existing senior-management-relevant  
30  
31 138 leadership frameworks, including the HLA Competency Directory, (9) IPEC Core Competencies, (10)  
32  
33 139 and Master Health Service Management Competency Framework (11) to form a novel (though  
34  
35 140 untested) competency framework.  
36  
37  
38  
39 141  
40  
41 142 Although the formation of the preliminary RCSM-QF is a step in addressing the evidence gap relating  
42  
43 143 to sector-specific leadership competencies and professional development requirements for senior  
44  
45 144 managers to promote quality of care, it has not been applied or tested in the Australian residential  
46  
47 145 aged care setting nor the competencies empirically validated. Therefore, the accuracy and usefulness  
48  
49 146 of the RCSM-QF for describing and helping assess the leadership competencies required by senior  
50  
51 147 managers across Australia are not yet confirmed.  
52  
53  
54 148  
55  
56 149 **[INSERT FIRGURE 1. HERE]**  
57  
58 150  
59  
60 151

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES)

This study aims to establish the content validity of the preliminary RSCM-QF within the Australian residential aged care context using a modified Delphi process. Once this validity is established, this programme of work could provide a practical tool to form a professional development infrastructure for current and aspiring Australian residential aged care senior managers who continue to operate within this increasingly complex environment.

## Methods and Analysis

**Aim:** To establish the content validity of a national leadership framework to promote and protect the quality of residential aged care in Australia

### Objectives:

1. Rate the relevance, importance and clarity of RSCM-QF items [competencies OR personal qualities] and their descriptions using a 4-point Content Validity Index (CVI) scale
2. Suggest RSCM-QF item and description scale revisions.
3. Suggest RSCM-QF domain name and domain definition revisions and
4. Suggest additional items [competencies or personal qualities] for the RSCM-QF

### Study Design

Content validity refers to the extent to which a measurement tool, such as a test or assessment, accurately represents the specific content it is intended to measure. (12) Content validity is an important aspect of validating a leadership competency. (13) In the context of the current research, the method will assess whether the RSCM-QF accurately and comprehensively represents the key competencies required for effective leadership within the Australian residential aged care setting. We will evaluate content validity using the Delphi survey technique and a Content Validity Index (CVI). The Delphi technique is a widely used method for achieving consensus. (14) It uses a series of questionnaires to collect information from participants in several iterations, or 'rounds'. The starting point is an open questionnaire or a pre-derived list of questions, (15) Following each round, each

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

participant receives an individualised report of their responses to the group response. (15) In subsequent rounds, participants can reassess their responses in light of this information. (14) The process allows for a controlled debate and for consensus to build without necessitating group interaction, an advantage in the context of geographically dispersed and time-constrained experts. It also limits the time and resources required to plan and facilitate group interactions and the bias from dominant individuals within this consensus-building phase. (14)

**Study setting**

The current study will be completed with representatives who contribute to or advise regarding the delivery of aged care services in Australia. Examples of different ‘levels’ of aged care include: i) entry-level community-based care at home; ii) higher levels of care at home (Home Care Packages Program), and when living at home is not an option; iii) residential aged care. (16) This study focuses specifically on the role of senior managers in providing quality care in the Australian residential aged care setting. Residential aged care provides health care services and accommodation for older people who are unable to continue living independently in their own homes. (17)

In Australia, residential aged care providers can span a range of different sectors, including religious, charitable, community, for-profit and government organisations. (17) Typical services may include accommodation, personal care assistance, clinical care and a range of social care activities, including recreational activities and emotional support. Approximately 250,000 older Australians received permanent residential aged care at some time during the financial year 2021/2022. (1)

**Participant recruitment**

To be eligible for participation, panel participants will need to be self- or other-identified aged care experts through current employment within the aged care sector and have high-level knowledge and experience in aged care. Expertise may include clinical practice, management, service delivery, policy, research and education or combinations of the above. From previous work, this study will target five major groupings of expert representatives, including peak advocacy bodies, primary health

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES) .

network representatives, members of state and federal government, aged care researchers and residential aged care executives and governing board members spanning multiple organisation types (non-for-profit, for-profit, non-governmental [NGO], and government-operated). (8) Purposive sampling will be used to ensure that rural, remote, and metropolitan settings across Australia are represented on the panel. Purposive sampling will also allow the identification and selection of information-rich participants from the expert groupings with knowledge and experience working within the Australian aged care sector. (18) Participant selection will be purposive, and aged care industry experts will be recognised as possessing specific knowledge of the health service needs of older persons in Australia and capable of reflecting critically on the link between senior manager leadership skills and quality residential aged care.

A list of eligible participants will be generated using a combination of investigators' aged care industry experience and a comprehensive desk search. Participants will be emailed an invitation for involvement in *Round 1* and followed up by phone if a response has not been received in two weeks. Participants will provide electronic consent before commencing the questionnaire.

## Data collection

**Round 1:** In reviewing, modifying and validating the RCSM-QF, two rounds of iterative consultation will be undertaken with the Delphi panel via email. In round one, experts will be sent email invitations to participate. Upon clicking the survey link, participants will be redirected to an online platform where they will be asked to confirm their consent to participate and will rate each item and its response scale based on clarity, relevance, and importance using a 4-point CVI scale where 1 = not clear/relevant/important, 2 = somewhat clear/relevant/important, 3 = quite clear/relevant/important, and 4 = highly clear/relevant/important. (19) Through open dialogue boxes, experts will also provide suggestions for item wording, domain name, and domain definition revisions and propose additional items for any missing experiential aspects of care. Demographic questions will include gender, year of birth, highest educational qualification, place of work and current professional role. Experts will be

given a 2-week window to complete the Round 1 survey, after which the survey will be closed, and the results will be exported into Microsoft Excel. Reminder emails will be dispatched to participants on days 5 and 12 of the Round 1 questionnaire if they have not taken part.

**Round 2:** The second round will commence 1 week after the conclusion of Round 1. Experts will receive a second survey invitation via email, asking them to rate the revised items in terms of clarity, relevance, and importance using the 4-point CVI scale and propose item revisions. A 2-week timeframe will be allotted for experts to complete the Round 2 survey, following which the survey will be closed, and the results will be exported into Microsoft Excel. Reminder emails will be sent to participants on days 5 and 12 of the Round 2 survey if they have not participated.

**Data Analysis**

**Content validity**

The current study will incorporate the content validity index (CVI) as a verified approach for evaluating content validity. (20) The CVI index comprises two computed components: the Item-CVI (I-CVI) and the Scale-level-CVI (S-CVI). (20) To compute the I-CVI, the number of Delphi panel experts assigning a "very relevant" rating to each item is divided by the total number of experts, resulting in values ranging from 0 to 1. An I-CVI surpassing 0.79 deems the item relevant, while values falling between 0.70 and 0.79 indicate the need for item revisions; I-CVI values below 0.70 warrant item elimination. (20) Likewise, the S-CVI is determined based on the count of items within a tool that attain a "very relevant" rating. (20) To measure the S-CVI, the Universal Agreement (UA) among experts (S-CVI/UA) will be used. The S-CVI/UA involves summing all items with an I-CVI of 1 and dividing by the total number of items, with the ab S-CVI/UA of  $\geq 0.8$  denoting excellent content validity. (21)

**Round 1:** The demographic and Delphi survey data will be analysed descriptively using Microsoft Excel. Expert responses to the item-level CVI (I-CVI) scales will be binary coded as 0 for "not or

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Enseignement Supérieur (ABES).

somewhat relevant/important/clear" and 1 for "quite or highly relevant/important/clear." An I-CVI score will then be computed for each item, representing the proportion of experts scoring 1 out of the total number of experts in the Round 1 sample. (19) Items meeting a score of  $\geq 0.80$  for each of relevance, importance, and clarity (without revision suggestions) will be retained for the final version of the RCSM – QF. Items achieving scores of  $\geq 0.80$  for each of relevance, importance, and clarity (with revision suggestions), or  $\geq 0.80$  for relevance and importance but  $< 0.80$  for clarity, will undergo revision by the research team based on expert feedback and will subsequently be included in the Round 2 survey. Items obtaining scores of  $< 0.80$  for each of relevance, importance, and clarity will be removed from the RCSM-QF. The research team will also consider suggestions provided by experts concerning modifications to domain names, domain definitions, and missing items.

**Round 2:** The Round 2 questionnaire results analysis will adhere to the same methodology as in Round 1. The research team will thoroughly review additional suggestions for item revisions before implementing further RCSM-QF modifications. A scale-level CVI (S-CVI) score will also be calculated by averaging the I-CVI scores for all items included in the final RCSM-QF. (20) Delphi studies are typically carried out in two to three rounds with a deliberately selected panel of experts. (14) In the current study, a third round of consultation will be administered if few items achieve scores of  $\geq 0.80$  for relevance, importance, and clarity. In this third round, data collection and analysis processes will replicate those of the previous rounds.

## **Ethics and Dissemination**

The James Cook University Human Research Ethics Committee (HREC) approved this study's ethics on 14 November 2023. The current project has been deemed 'negligible risk' by the HREC, as there is no foreseeable risk of harm or discomfort to the participants other than the inconvenience of completing the questionnaire. A potential risk of this study is difficulties in recruiting the required numbers for this research, which might pose a risk to study completion. If this is the case, alternative



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

recruitment methods will be considered, including broadening networks to include other professional roles and organisations operating within the Australian aged care sector.

Data will be prepared for submission to an appropriate peer-reviewed journal and presentation at relevant academic conferences, including the Australian Association of Gerontology Conference [2024]. In addition to the International Journal of Healthcare Management, where a large body of literature regarding aged care management and quality of care is published, several additional avenues have been identified to add variety to the audience accessing the project's findings. Given that this research focuses on senior managers in the aged care setting, targeted journals include the Australasian Journal on Ageing, Journal of Ageing and Health and BMC Health Services Research or BMJ Open.

**Patient and Public Involvement**

This research project was designed without direct patient or public involvement in several key aspects, including determining research priorities, defining research questions, selecting outcome measures and contributing to study design. It is recognised that including patient and public perspectives can significantly enhance the relevance, quality, and applicability of research outcomes, and their absence in this study might have implications for the comprehensiveness and relevance of our findings.

**Discussion**

Senior managers are central in promoting and protecting quality of care in clinically and administratively complex residential aged care services settings. (8) Yet globally and in Australia, there remain significant gaps in knowledge regarding the specific competencies and skills required of this leadership cohort. (8) This study aims to establish the validity of a novel leadership competency framework, which could provide a practical tool for national regulatory and professional bodies by defining and describing the specific skills, behaviours, knowledge, and experience needed by aspiring

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Ensignment Supérieur (ABES).

and current senior managers. It may also inform the development of quality indicators to inform competency-based performance evaluations of senior managers within their current roles.

Evidence-based leadership competency frameworks provide a standardised and consistent approach to leadership development across multiple health settings. (22) Once validated for acceptability and applicability, the RCSM-QF competencies may assist residential aged-care organisations in establishing a consistent promotion criterion that incorporates demonstrated excellence by senior managers who consistently lead high-quality healthcare operations within their respective organisations. In doing so it could provide a valuable tool for self-reflection to identify knowledge and skill gaps and guide future training and other career progression opportunities.

The RCSM-QF also offers a set of skills and personal qualities that could inform the development of future courses or qualifications to develop the competencies required by aspiring managers to promote quality of care within their respective organisations and across the broader aged care sector. This focus on quality and continuous improvement may drive organisational excellence for the quality of care, enhance resident health outcomes, and foster a culture of accountability and innovation within Australian residential aged care organisations. (23) This work thus not only addresses key gaps in the literature and evidence base regarding senior management competencies but represents an essential and timely first step in responding to Royal Commission recommendations to strengthen leadership in the sector.

As with a majority of studies, the design of the current study is subject to limitations. Firstly, purposive sampling was used to recruit interview participants from three categories of experts (peak bodies, PHNs, and researchers); however, it is possible that not all participants will participate due to scheduling or other issues. It is expected, therefore, that the final sample of experts may introduce an element of bias and not always represent the diverse range of perspectives across multiple professional roles within the Australian aged care sector. For example, suppose a majority of study participants were provider advocates whose primary focus is to support the viability and sustainability

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

341 of aged care service providers. In that case, experts are potentially less likely to consider the resident  
342 experience and personalised healthcare needs. Conversely, consumer advocates play an important role  
343 in advocating for the older person and speaking on behalf of that individuals in a way that best  
344 represents their interests. With an intense focus on the individualised healthcare needs of older  
345 Australians, consumer advocates may have less understanding of the structural elements that  
346 adversely influence RAC quality and the leadership competencies required.

347  
348 While the modified Delphi process is a popular design used for research involving framework  
349 validation, some potential limitations within the proposed research are evident. (24) Firstly, the  
350 Delphi process is largely based on expert opinions rather than empirical evidence, and while these  
351 opinions can be valuable, they may not always align with objective facts or data. (25) This can limit  
352 the validity and reliability of the framework validation process, particularly if more empirical  
353 evidence is needed to support the experts' judgments. A further potential limitation of the study design  
354 is that experts provide their input individually and anonymously. (26) The Delphi process, therefore,  
355 lacks direct interaction among experts, which can restrict the opportunity for in-depth discussions,  
356 debates, and exchanging ideas. (26) Consequently, the method may not capture the full complexity of  
357 the research problem or allow for exploring alternative perspectives. (25) Depending on the findings  
358 from this study, future phases of this programme of work may involve qualitative methods to address  
359 this limitation. These sessions would involve Australian aged care industry experts with varying  
360 opinions and perceptions to allow real-time feedback, in-depth insights and rich qualitative data  
361 regarding the applicability of the RCSM-QF implementation within the Australian residential aged  
362 care setting. (27)

363  
364 **List of abbreviations**

- 365 *ACLQF* – Aged Care Clinical Leadership Quality Framework  
366 *ACSA* – Aged and Community Services Australia

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.  
Enseignement Supérieur (ABES)

367 *RCSM* – QF – Residential Aged Care Senior Management Quality Framework

368 *HLA* – Healthcare Leadership Alliance

369 *IPEC* – Interprofessional Education Collaborative

370 *CVI* - Content Validity Index

371 *S - CVI* – Scale level content Validity Index

372 *I – CVI* – Item Content Validity Index

373

## 374 **Declarations**

## 375 **Ethics approval**

376 Ethics approval was received from the James Cook University Human Research Ethics Committee on  
377 23 November 2023 [H9265]. All methods will be carried out in accordance with relevant guidelines  
378 and regulations.

## 379 **Consent for publication.**

380 No participants were recruited or involved in the research process, so no individual consent for  
381 publication was required. Informed consent will be obtained from all subjects and/or their legal  
382 guardian (s) upon commencement of data collection activities.

## 383 **Availability of data and materials**

384 Previous datasets used and analysed to form the study protocol are available from the corresponding  
385 author upon reasonable request.

## 386 **Competing Interests Statement**

387 No potential conflict of interest was reported by the authors

388

1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25  
26  
27  
28  
29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60

**Authors' contributions**

ND conducted the primary manuscript draft. ND, ST and OA completed subsequent manuscript revisions. All authors read and approved the final manuscript.

**Acknowledgements**

Nil

**Funding**

No funding was sourced or utilised in the formation of this study protocol.

**Figure Legend**

Figure 1. The preliminary Residential Aged Care Senior Manager Quality Framework (RCSM-QF).

*Source: Authors own figure*

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Enseignement Supérieur (ABES).

## References

1. Australian Institute of Health and Welfare. Older Australians: A demographic profile [Internet]. Canberra (Australia): AIHW; [cited 2023 Aug 30]. Available from: <https://www.aihw.gov.au/reports/older-people/older-australians/contents/demographic-profile>
2. Khadka J, Lang C, Ratcliffe J, et al. Trends in the utilisation of aged care services in Australia, 2008–2016. *BMC Geriatr*. 2019;19(1):213. doi: 10.1186/s12877-019-1209-9.
3. Caughey GE, Lang CE, Bray SCE, et al. Quality and safety indicators for home care recipients in Australia: development and cross-sectional analyses. *BMJ Open*. 2022;12:e063152. doi: 10.1136/bmjopen-2022-063152.
4. Australian Government. Final Report | Royal Commission into Aged Care Quality and Safety. <https://agedcare.royalcommission.gov.au/publications/final-report>. Accessed September 5, 2023.
5. Hodgkin S, Warburton J, Savy P, Moore M. Workforce Crisis in Residential Aged Care: Insights from Rural, Older Workers. *AJPA*. 2016;76:1. doi: 10.1111/1467-8500.12204
6. Jeon YH, Simpson JM, Li Z, Cunich MM, Thomas TH, Chenoweth L, Kendig HL. Cluster Randomized Controlled Trial of An Aged Care Specific Leadership and Management Program to Improve Work Environment, Staff Turnover, and Care Quality. *J Am Med Dir Assoc*. 2015 Jul 1;16(7):629.e19-28. doi: 10.1016/j.jamda.2015.04.005.
7. Aged and Community Services Australia. Australian Aged Care Leadership Capability Framework. <https://acsa.asn.au/getmedia/56d9c659-72c7-4ac4-a26c-a33f8530cae6/Aged-Care-Leadership-Capability-Framework-2014>. Accessed 17 Aug 2021.
8. Dawes N, Topp SM. Senior manager leadership competencies for quality residential aged care: an Australian industry perspective. *BMC Health Serv Res*. 2022;22:508. doi: 10.1186/s12913-022-08109-3.
9. Healthcare Leadership Alliance. (2017). About the HLA competency directory. Retrieved from <http://www.healthcareleadershipalliance.org/directory.htm>
10. Interprofessional Education Collaborative. (2022). IPEC core competencies. Retrieved from <https://www.ipecollaborative.org/ipec-core-competencies>
11. Australasian College of Health Service Management. Master of Health Service Management Competency Framework. [https://www.achsm.org.au/Portals/15/documents/education/competencyframework/2020\\_competency\\_framework\\_A4\\_full\\_brochure.pdf](https://www.achsm.org.au/Portals/15/documents/education/competencyframework/2020_competency_framework_A4_full_brochure.pdf). Accessed [August 11, 2023].
12. Yusoff MSB. ABC of Content Validation and Content Validity Index Calculation. *Educ Med J*. 2019;11:49-54. doi: 10.21315/eimj2019.11.2.6.
13. Samad, N., Asri, M., Mohd Noor, M. A., & Jumahat, T. (2023). Measuring the Content Validity of Middle Leadership Competence Model using Content Validity Ratio (CVR) Analysis. *International Journal of Business, Technology, and Management*, 5(4), 134-144. DOI: 10.55057/ijbtm.2023.5.4.12
14. Barrett D, Heale R. What are Delphi studies? *Evid Based Nurs*. 2020 Jul;23(3):68-69. doi: 10.1136/ebnurs-2020-103303.



15. Nasa, P., Jain, R., & Juneja, D. (2021). Delphi methodology in healthcare research: How to decide its appropriateness. *World Journal of Methodology*, 11(4), 116–129. DOI: 10.5662/wjm.v11.i4.116.

16. Australian Government Department of Health [DoH]. Types of aged care. <https://www.health.gov.au/health-topics/aged-care/about-aged-care/types-of-aged-care>. Accessed [August 10, 2023].

17. Scott K, Webb M, Sorrentino SA. Long-term caring-e-Book: Residential, home and community aged care. Elsevier Health Sciences; 2014.

18. Palinkas LA, Horwitz SM, Green CA, Wisdom JP, Duan N, Hoagwood K. Purposeful sampling for qualitative data collection and analysis in mixed method implementation research. *Adm Policy Ment Health*. 2015 Sep;42(5):533-544. doi: 10.1007/s10488-013-0528-y. PMID: PMC4012002. PMID: 24193818.

19. Polit DF, Beck CT, Owen SV. Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Res Nurs Health*. 2007 Aug;30(4):459-467. doi: 10.1002/nur.20199. PMID: 17654487.

20. Bull, C., Crilly, J., Latimer, S., & Gillespie, B. M. (2022). Establishing the content validity of a new emergency department patient-reported experience measure (ED PREM): a Delphi study. *BMC Emergency Medicine*, 22(1), 65. DOI: 10.1186/s12873-022-00551-0

21. Shi JC, Mo XK, Sun ZQ. [Content validity index in scale development]/ *Zhong Nan Da Xue Xue Bao Yi Xue Ban*. 2012 Feb;37(2):152-155. doi: 10.3969/j.issn.1672-7347.2012.02.007. PMID: 22561427.

22. Liang Z, Blackstock FC, Howard PF, Briggs DS, Leggat SG, Wollersheim D, ... Rahman A. An evidence-based approach to understanding the competency development needs of the health service management workforce in Australia. *BMC Health Serv Res*. 2018;18. doi: 10.1186/s12913-018-3760-z.

23. Sfantou DF, Laliotis A, Patelarou AE, Sifaki-Pistolla D, Matalliotakis M, Patelarou E. Importance of leadership style towards quality of care measures in healthcare settings: a systematic review. *Healthcare (Basel)*. 2017;5(4):73. doi: 10.3390/healthcare5040073.

24. Robles N, Puigdomènech Puig E, Gómez-Calderón C, Saigí-Rubió F, Cuatrecasas Cambra G, Zamora A, Moharra M, Paluzié G, Balfegó M, Carrion C. Evaluation Criteria for Weight Management Apps: Validation Using a Modified Delphi Process. *JMIR Mhealth Uhealth*. 2020 Jul;8(7):e16899. doi: 10.2196/16899. PMID: PMC7407251. PMID: 32706689.

25. Fink-Hafner D, Dagen T, Doušak M, Novak M, Hafner-Fink M. Delphi method: strengths and weaknesses. *Adv Methodol Stat*. 2019 Jul 1;16(2):1-9.

26. Donohoe H, Stellefson M, Tennant B. Advantages and Limitations of the e-Delphi Technique: Implications for Health Education Researchers *American Journal of Health Education*. Published online: 23 Jan 2013. doi: 10.1080/19325037.2012.10599216.

27. Leung FH, Ratnapalan S. Spotlight on focus groups. *Can Fam Physician*. 2009 Feb;55(2):218-219. PMID: PMC2642503. PMID: 19221085.

Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies. Ensignment Supérieur (ABES).





**Figure 1. The preliminary Residential Aged Care Senior Manager Quality Framework (RCSM-QF).** *Source: Authors own figure*

Item No.	Section	Checklist Item ( <i>help text</i> )	Page No.
T1	<b>Title</b>	Identify the article as reporting a consensus exercise and state the consensus methods used in the title. <i>For example, Delphi or nominal group technique.</i>	1
I1	<b>Introduction</b>	Explain why a consensus exercise was chosen over other approaches.	3,5,
I2		State the aim of the consensus exercise, including its intended audience and geographical scope (national, regional, global).	6,7
I3		If the consensus exercise is an update of an existing document, state why an update is needed and provide the citation for the original document.	n/a
M1	<b>Methods</b> Registration	If the study or study protocol was prospectively registered, state the registration platform and provide a link. If the exercise was not registered, this should be stated. <i>Recommended to include the date of registration.</i>	n/a
M2	Selection of SC and/or panellists	Describe the role(s) and areas of expertise or experience of those directing the consensus exercise. <i>For example, whether the project was led by a chair, co-chairs or a steering committee, and, if so, how they were chosen. List their names if appropriate, and whether there were any subgroups for individual steps in the process.</i>	15
M3		Explain the criteria for panellist inclusion and the rationale for panellist numbers. State who was responsible for panellist selection.	8,9
M4		Describe the recruitment process (how panellists were invited to participate). <i>Include communication/advertisement method(s) and locations, numbers of invitations sent, and whether there was centralised oversight of invitations or if panellists were asked/allowed to suggest other members of the panel.</i>	9,10
M5		Describe the role of any members of the public, patients or carers in the different steps of the study.	n/a
M6	Preparatory research	Describe how information was obtained prior to generating items or other materials used during the consensus exercise. <i>This might include a literature review, interviews, surveys, or another process.</i>	4,5
M7		Describe any systematic literature search in detail, including the search strategy and dates of search or the citation if published already. <i>Provide the details suggested by the reporting guideline PRISMA and the related PRISMA-Search extension.</i>	n/a
M8		Describe how any existing scientific evidence was summarised and if this evidence was provided to the panellists.	4,5
M9	Assessing consensus	Describe the methods used and steps taken to gather panellist input and reach consensus (for example, Delphi, RAND-UCLA, nominal group technique). <i>If modifications were made to the method in its original form, provide a detailed explanation of how the method was adjusted and why this was necessary for the purpose of your consensus-based study.</i>	7,8
M10		Describe how each question or statement was presented and the response options. State whether panellists were able to or required to explain their responses, and whether they could propose new items. <i>Where possible, present the questionnaire or list of statements as supplementary material.</i>	n/a
M11		State the objective of each consensus step. <i>A step could be a consensus meeting, a discussion or interview session, or a Delphi round.</i>	n/a
M12		State the definition of consensus (for example, number, percentage, or categorical rating, such as 'agree' or 'strongly agree') and explain the rationale for that definition.	n/a
M13		State whether items that met the prespecified definition of consensus were included in any subsequent voting rounds.	n/a
M14		For each step, describe how responses were collected, and whether responses were collected in a group setting or individually.	n/a

M15		Describe how responses were processed and/or synthesised. <i>Include qualitative analyses of free-text responses (for example, thematic, content or cluster analysis) and/or quantitative analytical methods, if used.</i>	n/a
M16		Describe any piloting of the study materials and/or survey instruments. <i>Include how many individuals piloted the study materials, the rationale for the selection of those individuals, any changes made as a result and whether their responses were used in the calculation of the final consensus. If no pilot was conducted, this should be stated.</i>	n/a
M17		If applicable, describe how feedback was provided to panellists at the end of each consensus step or meeting. <i>State whether feedback was quantitative (for example, approval rates per topic/item) and/or qualitative (for example, comments, or lists of approved items), and whether it was anonymised.</i>	n/a
M18		State whether anonymity was planned in the study design. Explain where and to whom it was applied and what methods were used to guarantee anonymity.	n/a
M19		State if the steering committee was involved in the decisions made by the consensus panel. <i>For example, whether the steering committee or those managing consensus also had voting rights.</i>	n/a
M20	Participation	Describe any incentives used to encourage responses or participation in the consensus process. <i>For example, were invitations to participate reiterated, or were participants reimbursed for their time.</i>	n/a
M21		Describe any adaptations to make the surveys/meetings more accessible. <i>For example, the languages in which the surveys/meetings were conducted and whether translations or plain language summaries were available.</i>	n/a
R1	Results	State when the consensus exercise was conducted. List the date of initiation and the time taken to complete each consensus step, analysis, and any extensions or delays in the analysis.	n/a
R2		Explain any deviations from the study protocol, and why these were necessary. <i>For example, addition of panel members during the exercise, number of consensus steps, stopping criteria; report the step(s) in which this occurred.</i>	n/a
R3		For each step, report quantitative (number of panellists, response rate) and qualitative (relevant socio-demographics) data to describe the participating panellists.	n/a
R4		Report the final outcome of the consensus process as qualitative (for example, aggregated themes from comments) and/or quantitative (for example, summary statistics, score means, medians and/or ranges) data.	n/a
R5		List any items or topics that were modified or removed during the consensus process. Include why and when in the process they were modified or removed.	n/a
D1	Discussion	Discuss the methodological strengths and limitations of the consensus exercise. <i>Include factors that may have impacted the decisions (for example, response rates, representativeness of the panel, potential for feedback during consensus to bias responses, potential impact of any non-anonymised interactions).</i>	n/a
D2		Discuss whether the recommendations are consistent with any pre-existing literature and, if not, propose reasons why this process may have arrived at alternative conclusions.	n/a
O1	Other information	List any endorsing organisations involved and their role.	n/a
O2		State any potential conflicts of interests, including among those directing the consensus study and panellists. Describe how conflicts of interest were managed.	15
O3		State any funding received and the role of the funder. <i>Specify, for example, any funder involvement in the study concept/design, participation in the steering committee, conducting the consensus process, funding of any medical writing support. This could be disclosed in the methods or in the relevant transparency section of the manuscript. Where a funder did not play a role in the process or influence the decisions reached, this should be specified.</i>	n/a