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Training for dementia care and support in rural and remote Australia: appraisals from a nationwide workforce survey

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Abstract

Background Dementia is a growing challenge to health and aged care worldwide and is the leading cause of disease burden in older Australians. High-quality person-centred care of people with dementia and support for their family caregivers require a trained multidisciplinary health and aged care workforce. Compared with major cities in Australia, rural and remote areas encounter greater challenges in workforce recruitment and retention. Moreover, these areas have distinctive distance-related barriers to workforce training and a higher proportion of aged and First Nations people at elevated risk of developing dementia. We designed and distributed a survey to investigate the perspectives on training among rural and remote health and aged care workers providing dementia care in diverse occupations and settings.

Methods After piloting, the online survey was promoted to rural and remote organisations and professional networks nationwide. The instrument included multiple-choice and ordered-scale items on respondents' dementia care self-rating and appraisal of their current workplace dementia care training, as well as items categorising their demographic characteristics, main work role, main workplace setting, and geographical site. Analysis incorporated description of respondent characteristics and estimation along with graphical presentation of response proportions for ordered-scale items, with differences among key respondent subgroups (i.e., workplace setting, remoteness, and main role) investigated using crude and multivariable robust Poisson regression models.

Results There were 558 respondents from residential aged care, community/primary care and hospital settings across all Australian states and territories. The majority (61.7%) were from degree-requiring health professional/management positions, and 27.4% were certificate-requiring workers (predominantly personal care assistants and enrolled nurses). A majority considered that the dementia care provided in their current workplace was inadequate overall and specifically in relation to First Nations and culturally and linguistically diverse clients. Respondents noted organisational resource limitations impeding workers' participation in training, and insufficient opportunities for

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input into determining priorities for training content and delivery. Hospital/acute care-based workers had the least favourable self-ratings and represented the highest proportion of respondents reporting shortcomings of training.

Conclusions Health and aged care workers in rural and remote Australia perceive substantial shortcomings in the dementia care training provided by their workplace.

Keywords Dementia, Cognitive impairment, Rural health services, Health services for the aged, Homes for the aged, Quality of health care, In-service training, Education, Health services accessibility, Aged care

Background

Dementia is regarded as one of the greatest contemporary challenges for health and social care globally [1]. The prevalence of dementia is inherently difficult to determine precisely [2], with different ascertainment strategies providing discordant estimates [3]. Dementia is the second-leading specific cause of disease burden in Australia [4] and the foremost cause among Australians aged over 65 years [5]. Although dementia is not a normal part of ageing [6], the risk of dementia increases with age, and therefore its prevalence is predicted to rise substantially in the coming decades due to increasing population longevity, even in countries with relatively modest population growth such as Australia [7]. Dementia has a profound impact on the general community and health and aged care systems, given the frequency of its occurrence and the demands it imposes on both family caregivers and health and aged care workers (HACW).

There are considerable challenges inherent in the care of people with dementia and support for their family caregivers. Dementia causes limited and progressively diminishing capacity for communication and self-care and is commonly associated with changed behaviours and co-existing health problems. Consequently, a skilled and multidisciplinary workforce is required to provide person-centred care for people with dementia [8] in diverse settings, including the community, residential aged care facilities, and hospitals [9]. Consequently, this workforce requires training specifically tailored to dementia care and family support, customised to suit the diverse settings and roles of the workers.

In regional, rural and remote (RRR) areas of Australia, these challenges are accentuated. Firstly, constraints on health and aged care workforce recruitment and retention put a strain on existing workers [10, 11]. Secondly, the ‘tyranny of distance’ imposes barriers to training, although these may potentially be circumvented to some extent by recent advances in online telecommunications [12, 13], which have been accelerated by the COVID-19 pandemic [14]. Thirdly, the dementia client load is likely to be higher in RRR areas than in urban areas, considering the skewing of population age distributions towards older people in non-urban areas of Australia overall [15]. Moreover, higher proportions of First Nations Australians reside in RRR areas [16]. This population has a

substantially elevated age-standardised prevalence of dementia compared with the general population [17, 18], along with distinctive cultural care needs and protocols in relation to family dynamics [19–21] that influence best practice for dementia care and support. In this regard, ‘cultural safety’ is imperative in the provision of care for First Nations people with dementia and their families. Pioneered in New Zealand [22], cultural safety is an Indigenous-led approach through which healthcare workforce adopt a model of critical reflective thinking and practice in relation to power inequalities and cultural differences inherent in healthcare structures, in order to remediate systemic barriers to care and thereby optimise health outcomes for Indigenous people [23, 24].

Data are lacking on the perspectives of the broader Australian RRR health and aged care workforce in relation to training for dementia care. In 2023, a multiphase project was commissioned by Dementia Training Australia (DTA) to remediate shortcomings of knowledge in this regard. This work was undertaken to explore barriers and enablers to uptake of dementia care and support training for the Australian RRR health and aged care workforce, to identify solutions targeted for this workforce, and to develop a framework for rural health and aged care service provider training. The Western Australian Centre for Rural Health (WACRH), a University Department of Rural Health (UDRH) administered by the University of Western Australia (UWA), led a collaborative study with other UDRHs involved in aged care training to undertake the project. As a first step, a scoping review was undertaken to identify the main barriers and enablers to accessing dementia training in RRR areas reported in the literature [25]. Subsequently, six ‘roundtable’ discussions were held with representative RRR healthcare workers from several jurisdictions to enhance understanding of these barriers and enablers in the Australian context, and to seek providers’ input into their preferences around training. To further inform the Training Strategy, a survey instrument was developed for dissemination online to RRR aged care providers and educators nationwide. The survey was undertaken to ensure that the perspectives on training needs and preferences of a larger, more occupationally and geographically diverse group of the health and aged care workforce were captured. The survey was developed to corroborate the findings of the

preceding work and to identify any additional issues not ascertained from the literature or the roundtable discussions. This paper reports specifically on the responses from the survey that explore HACW appraisals of current workplace training for dementia care.

Methods

Survey development and dissemination

The *National Rural and Remote Dementia Training Needs Survey 2023* instrument was developed by the research team, with the target population being HACW in non-urban Australia employed in diverse roles involving the care of people with dementia—managers and degree-qualified professionals along with other workers directly providing and/or teaching aspects of dementia care, as well as persons in ancillary roles within organisations providing this care. The survey instrument comprised three parts: (i) a preliminary question to confirm a potential respondent's eligibility to participate in the survey by virtue of being currently employed in the Australian rural/remote dementia-care workforce; (ii) a series of item blocks addressing respondents' appraisal of dementia training currently provided in their workplaces as well as their personal preferences for various aspects of dementia training, such as the mode of access to, the topic content of, and the provider of this training; and (iii) a series of items on respondents' demographic characteristics, current main work role and occupational history, and main workplace setting and geographical work location. The demographic questions were included to characterise the diversity of respondents and inform the generalisability of survey findings, and as a basis to analyse respondents' perspectives in relation to their occupational characteristics.

The survey content was informed by insights obtained from the literature and the roundtable discussions, with the intention of balancing depth and breadth of content against brevity [26] and readability for a participant sample with varied educational and linguistic backgrounds. To enhance the breadth of information provided about respondents' perspectives towards dementia training, the instrument was structured to include both closed-ended (multiple-choice and Likert-scale) and free-text items that enabled respondents to elaborate their opinions on selected aspects of dementia training. To facilitate responses, items were presented in blocks. A block of three questions on respondents' self-appraisal of knowledge, skills, and confidence in relation to dementia care was included. Ordered-response items on perspectives towards rural dementia training were based on a four-point ordered scale incorporating paracentral "somewhat disagree" and "somewhat agree" options in addition to "strongly disagree" and "strongly agree" options, in order to produce interval-like data [27] and thereby optimise

the scale for quantitative analyses [28], while excluding a midpoint option to obviate neutrality bias [29]. Items on respondent attributes were placed at the end of the instrument to diminish disincentives to completion [30].

Preliminary versions of the full survey were then piloted in two stages by: (i) academic staff within WACRH who have experience in care of the aged and people with dementia, and (ii) several expert stakeholders and their contacts nationwide. The final version (Supplementary file 1), including an explanatory preamble and a link to a Participant Information Form highlighting the voluntary basis for participation and the confidentiality of individual participant responses was uploaded online using Qualtrics XM® software (Qualtrics, Provo, Utah, USA) for dissemination to potential respondents. To maximise the number and diversity of respondents, considerable effort was made to promote the survey to relevant rural networks, including researchers, stakeholder groups, and other peak bodies and organisations for aged care across Australia for secondary dissemination to their professional networks. Based on an interim check of respondents to identify occupationally and geographically underrepresented sectors, additional efforts were made to promote the survey to occupational groups such as general practitioners and pharmacists, and to jurisdictions with disproportionately few initial responses. Individuals who entered the online questionnaire were included in the study if (i) their responses to preliminary items in the questionnaire indicated that they were currently employed in a non-urban Australian setting in any role involving the care of people with dementia, and (ii) they completed the sections of the questionnaire involving dementia-training perspectives and demographic/occupational details.

Study measures

The outcome measures were the items in the survey instrument that provided respondents' appraisals of various aspects of their performance in dementia care and support, and the quality of their dementia training. In relation to the regression analyses (below), violation of the proportional odds assumption for most outcomes in preliminary analyses precluded ordered logistic regression modelling. Consequently, these responses were collapsed into binary categories for the regression analyses, i.e., responses to self-rating items were categorised as either Limited/Fair or Good/Excellent, and responses to ordered workplace appraisal items were categorised as either Strongly Disagree/Somewhat Disagree or Somewhat Agree/Strongly Agree. Indeterminate responses (Not Sure, Not Applicable) to items allowing one or both of these options were excluded from the regression analyses.

Among the respondent characteristics, three were of particular interest as predictors of dementia-training appraisal responses, namely: (i) the setting of respondents' main workplace, (ii) the remoteness of this workplace, and (iii) their main role in this workplace. For the purposes of the analysis, workplace setting was categorised as residential aged care, primary care (incorporating community aged care) or acute/hospital care. Across non-urban Australia, distance from population centres is a determinant of both (i) access to health and aged care services, and (ii) community demographic profile [31, 32]. In order to investigate how these differences may influence respondents' perspectives, we included items in the questionnaire to determine the remoteness of each respondent's main workplace. Australia has no universally recognised classification of remoteness. Commonly, however, the term 'regional' refers to areas outside major cities but within a reasonable commuting distance, often encompassing larger towns and smaller cities. 'Rural' describes areas further from regional centres, typically within a few hours' drive, often associated with the countryside and smaller settlements. 'Remote' is used for the most isolated, referring to areas far from major cities or regional centres, often with sparse populations and limited access to services [33–36]. The questionnaire incorporated two items relevant to the remoteness of respondents' main workplace: an item on respondents' understanding on the geographical classification of their main workplace (Regional, Rural, Remote, or Very Remote, or 'Not sure'), and a non-mandatory item (to protect anonymity) in which respondents provided the postcode of their main workplace. For the analyses, workplace remoteness was categorised according to respondents' understanding as Regional, Rural, or Remote/Very Remote. Postcode data were disregarded for this categorisation because, although 464 respondents (83.2%) entered a postcode, those from only about half of the total could be mapped to either a single Modified Monash Model category [37] ($n=297$; 53.4%) or an Accessibility/Remoteness Index of Australia Plus (ARIA+) category [38] ($n=274$; 49.1%). Respondents' main work role was categorised as Degree professional/Manager, Other direct care (i.e., personal care assistant, enrolled nurse, Aboriginal health worker or Aboriginal liaison officer, or allied health assistant/assistant in nursing), or Ancillary role/not direct care.

Other self-reported respondent characteristics that had been elicited in the survey were included in the study, firstly to elucidate the diversity of respondents, and secondly for incorporation into multivariable analyses as potential confounders of associations between the workplace-related exposures of interest and outcomes. In relation to basic demographics, respondents categorised their age group (18–35 years, 36–55 years, 56–65 years,

or > 65 years) and gender ('Female', 'Male', or 'In another way'), with both items providing the option of 'Prefer not to answer'. The other covariates were highest level of education attained, language spoken at home (categorised dichotomously for the study as English or Other), duration of rural/remote work experience, and duration of dementia care experience.

Statistical analysis

Respondent characteristics were summarised, and responses from the total sample for each ordered-scale item were quantified and then displayed graphically as percentages. Secondly, the proportions of dichotomously categorised responses that were positive (i.e., Q3: Good/Excellent; Q5/Q7/Q20: Somewhat Agree/Strongly Agree) in the total sample were estimated, with confidence limits calculated using the Wilson method [39]. Differences in binary responses to ordered-scale items between subgroups of main work role, main workplace setting and main workplace remoteness were investigated through direct estimation of relative risk using crude and multivariable-adjusted multivariable robust Poisson regression [40]. The multivariable models included all individual-level attributes from the survey along with workplace size, to account comprehensively for potential confounding. The possibility of multicollinearity among the uniformly ordinal or categorical covariates in these models was assessed using Spearman's rank correlation and Cramér's V as applicable [41]. No covariates were removed from the models on this basis, with the only notable result among variable combinations being a borderline strong association between main work role and highest level of education (Cramér's $V=0.61$). Statistical significance was set at $p<0.05$. All analyses were conducted using Stata/SE Version 16 (StataCorp, College Station, Texas, USA).

Ethics

The research project was approved by The University of Western Australia Human Research Ethics Committee (reference number 2023/ET000245). Within the Qualtrics interface used for the online survey, all participants provided informed consent before accessing the survey items and were directed to a Participant Information Form approved by the Ethics Committee. All participants understood that the survey data were being collected as part of a research study.

Results

The study sample comprised 558 respondents working in dementia care in RRR areas of Australia (Table 1), drawn from 898 potentially eligible persons who entered the survey, after excluding 340 who discontinued after affirming eligibility or were discovered not to be part

Table 1 Respondent demographic and occupational characteristics

	n*	%*
Age group		
18–35 years	63	11.3
36–55 years	212	38.0
56–65 years	217	38.9
66+ years	53	9.5
Gender identification		
Female	493	88.4
Male	52	9.3
Describe gender in another way	1	0.2
First Nations identification		
Aboriginal and/or Torres Strait Islander	15	2.7
Neither Aboriginal nor Torres Strait Islander	527	94.4
Language spoken at home		
English only	495	88.7
Other	63	11.3
Highest level of education completed		
Did not complete Year 10 schooling	3	0.5
Completed Year 10 schooling	14	2.5
Completed Year 12 schooling	14	2.5
Bachelor degree	176	31.5
Postgraduate degree	169	30.3
Other post-school qualification (e.g., TAFE)	174	31.2
Duration of work experience caring for people with dementia		
Less than 12 months	31	5.6
1 year to less than 5 years	78	14.0
5 years to less than 10 years	128	22.9
10 years to less than 20 years	171	30.7
More than 20 years	150	26.9
Duration of working in a rural or remote area		
Less than 12 months	49	8.8
1 year to less than 5 years	93	16.7
5 years to less than 10 years	116	20.8
10 years to less than 20 years	159	28.5
More than 20 years	141	25.3
Setting of main current place of work		
Community aged care	141	25.3
Residential aged care	232	41.6
Primary care (e.g., private practice)	20	3.6
Acute/Hospital care	95	17.0
Other	70	12.5
Remoteness of main current place of work		
Regional	272	48.8
Rural	229	41.0
Remote	39	7.0
Very Remote	3	0.5
Main work role		
Degree professional†/manager	344	61.7

Table 1 (continued)

	n*	%*
Other direct care‡	156	27.9
Ancillary role/not direct care	58	10.4

* Totals do not all sum to 558 / 100% because 'Prefer not to answer' and 'Not sure' responses have been removed

† Degree professional comprises allied health practitioners, registered nurses, and doctors

‡ Other direct care comprises personal care assistants ($n=90$, 16.1%), enrolled nurses ($n=47$, 8.4%), Aboriginal health workers/Aboriginal liaison officers ($n=3$, 0.5%), and allied health assistants/assistants in nursing ($n=16$, 2.9%)

of the eligible workforce (Fig. 1). All Australian state and territory jurisdictions were represented among the workplaces of respondents (Fig. 2). The overwhelming majority ($n=493$; 88.4%) identified as female. The most common main workplace setting of respondents was a residential aged care facility ($n=232$; 41.6%), with a further 161 (28.9%) in either community-based aged care or a primary care setting such as private practice. Most respondents identified the remoteness of their main workplace as either Regional ($n=272$; 48.7%) or Rural ($n=229$; 41.0%), while only 39 (7.0%) identified their workplace as located in a Remote area, three (0.5%) a Very Remote area, with the remaining 15 respondents 'Not sure'. The majority (61.7%) identified their main work role as either a degree-requiring health professional or manager, but the sample also included 153 (27.4%) enrolled nurses and personnel in other direct-care roles, of whom 90 (16.1%) were personal care assistants.

Most respondents rated their own knowledge of dementia ($n=448$, 80.3%) and their skills ($n=408$; 73.1%) and confidence ($n=400$; 71.7%) in dementia-specific care as 'good' or 'excellent', with less than 5% choosing 'limited', across any of the three self-rating items (Fig. 3).

Half of the respondents ($n=277$; 50.4%) who considered the item applicable ($n=550$; 98.6% of the total) strongly or somewhat disagreed that they had received adequate dementia training in their main workplace, and majorities somewhat or strongly disagreed that such training was prioritised ($n=306$; 55.9%) or regular ($n=350$; 64.3%), that they had input into determining priorities for the content ($n=303$; 58.6%) or delivery of this training ($n=322$; 61.6%). Over two-thirds ($n=374$; 68.8%) strongly disagreed or somewhat disagreed that there was sufficient resourcing for dementia training in their main workplace (Fig. 4).

Among the respondents who considered the item applicable to their main workplace, a slender majority ($n=230$; 51.8%) somewhat/strongly agreed that their workplace included cultural safety for First Nations clients with dementia (Fig. 5), but a lower proportion ($n=182$; 33.3%) somewhat/strongly agreed that they had received adequate training in this regard (Fig. 6). An overwhelmingly majority ($n=493$; 91.1%) somewhat or

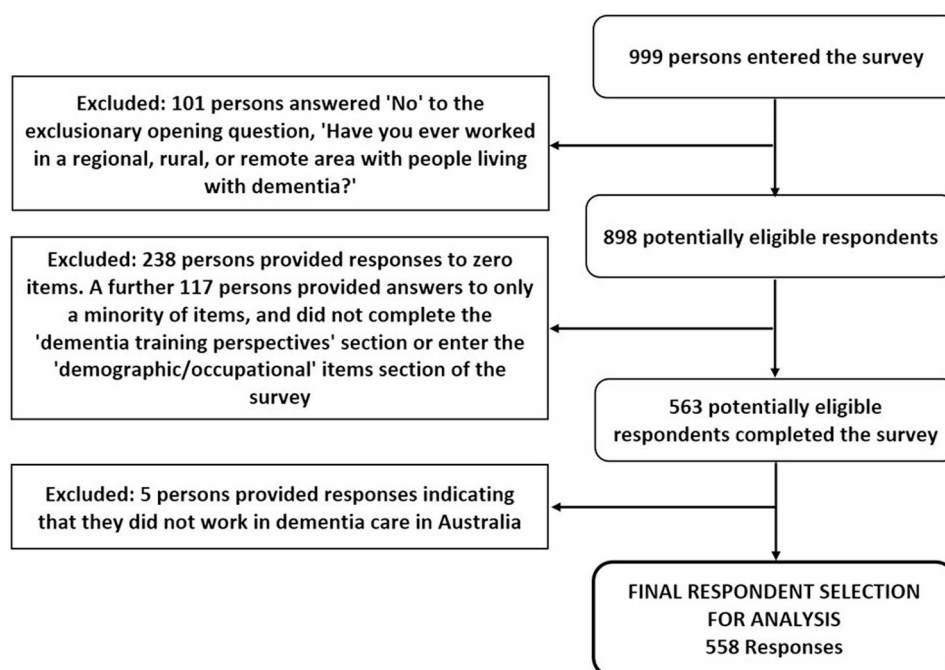


Fig. 1 Sample selection process

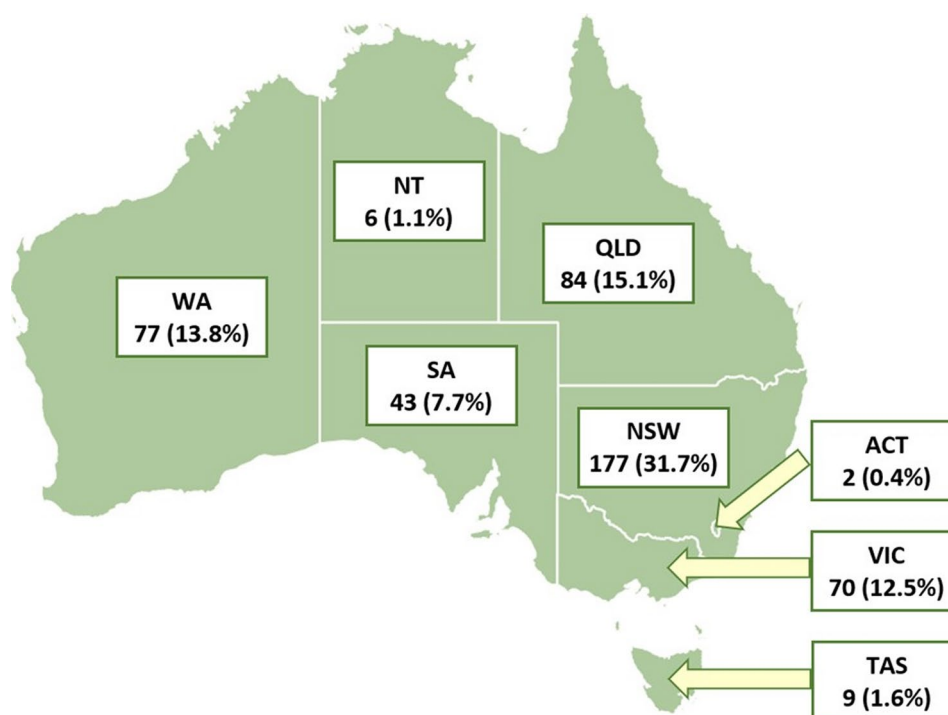


Fig. 2 Australian jurisdiction of main workplace: 558 survey respondents (n, %). ACT: Australian Capital Territory; NSW: New South Wales; NT: Northern Territory; QLD: Queensland; SA: South Australia; VIC: Victoria; TAS: Tasmania; WA: Western Australia

strongly agreed that they would like more training for this group of clients (Fig. 6). Similar proportions were seen in responses to the respective analogous items regarding culturally and linguistically diverse (CALD) people living with dementia (Figs. 5 and 6). About half

(52.1%) of the respondents somewhat/strongly agreed that they had received dementia training adequately tailored to their local area, although 80.6% agreed that they had received training that had improved their capacity to care for people living in their local area, with almost all

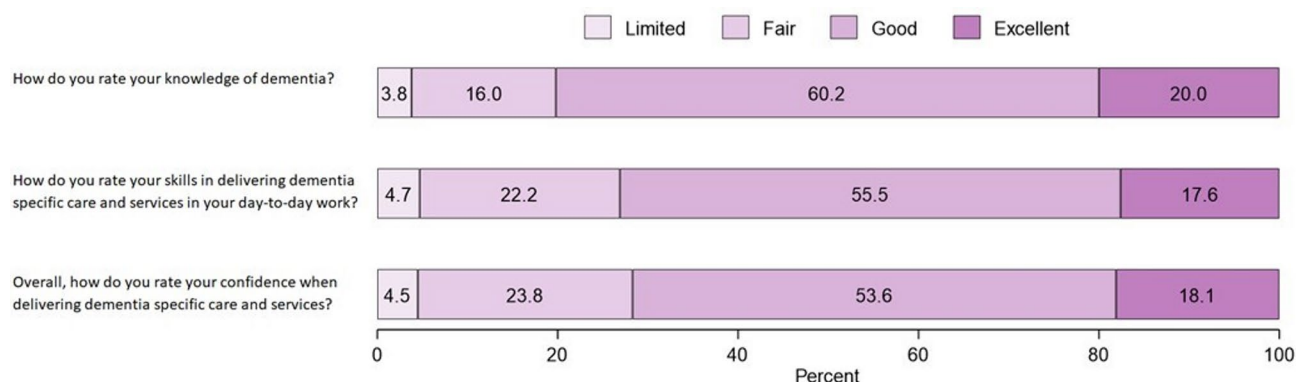


Fig. 3 Dementia care self-ratings of respondents

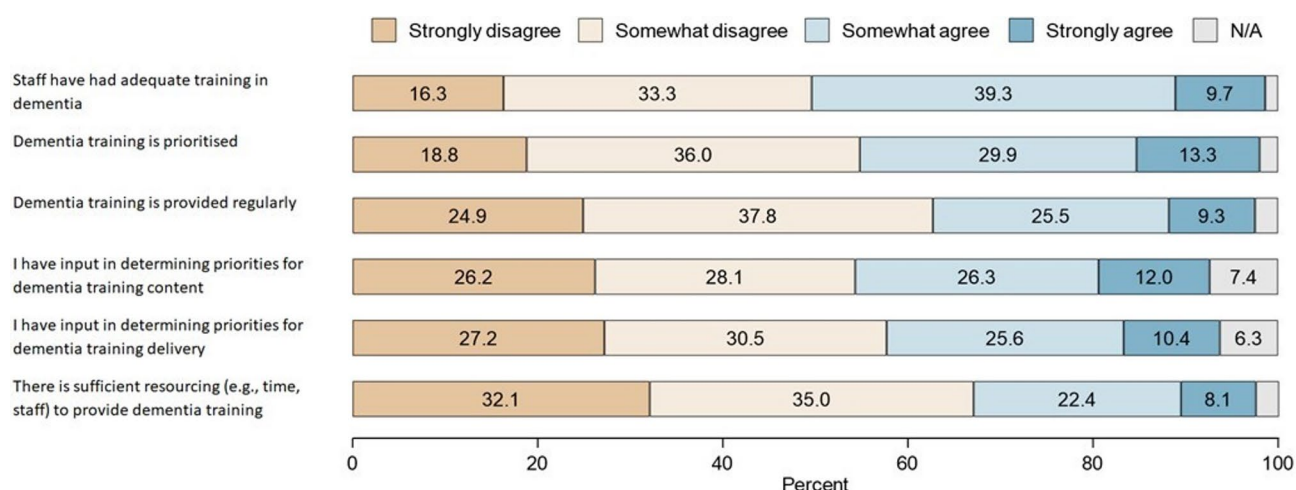


Fig. 4 Respondents' appraisals of dementia training in their main workplace

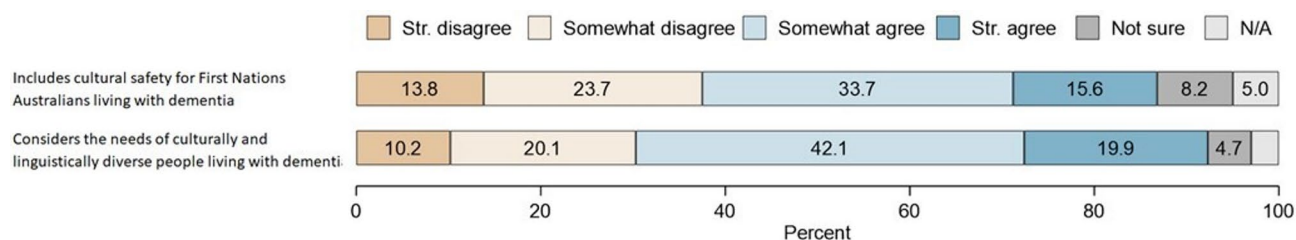


Fig. 5 Respondents' appraisals of dementia training for culturally vulnerable client groups in their main workplace. Percentages $\leq 3.0\%$ not displayed. Str.: Strongly. N/A: Not applicable

respondents agreeing that they would like more training in this regard (Fig. 6).

Across the comparisons of responses by workplace subgroups of interest, crude estimates and those obtained with multivariable adjustment for respondents' demographic and other occupational characteristics differed only modestly in magnitude (Table 2).

Based on the adjusted estimates, across the three self-appraisal items and several of the workplace appraisal items, a lower proportion of respondents whose main workplace was in a hospital or other acute-care setting

compared with those in residential aged care facilities provided a somewhat/strongly agree response in relation to the adequacy of workplace dementia training (Table 2). Specifically, those working in acute/hospital settings were significantly less likely to agree that dementia training in their main workplace was prioritised or provided regularly, allowed their personal input into training content or delivery, was adequate or improved their capacity for care of CALD people living with dementia, or improved their capacity for care of people living with dementia in their local area. Responses of persons whose main work

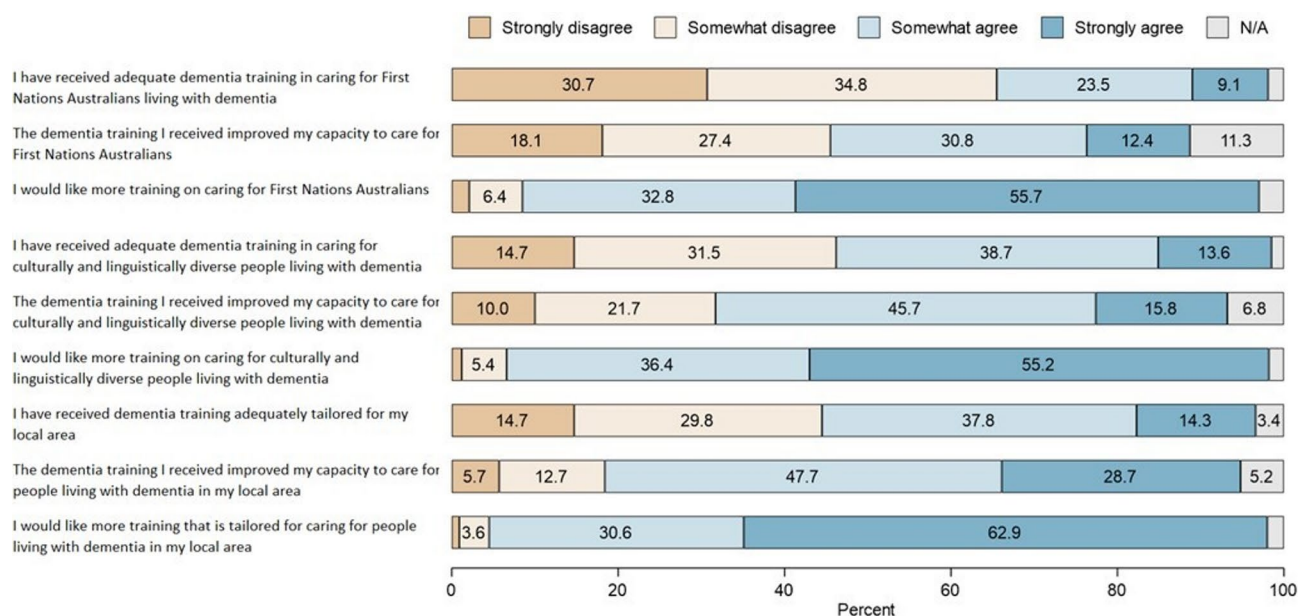


Fig. 6 Respondents' perspectives on their dementia training for culturally vulnerable client groups and the local population. Percentages $\leq 3.0\%$ not displayed. N/A: Not applicable

place was in community/primary care were in general intermediate between those of the other two work setting subgroups. A lower proportion of respondents from Remote/Very Remote workplaces compared with those working in less remote areas affirmed that they had received regular or locally tailored dementia training, but no other aspects of responses were clearly associated with workplace remoteness (Table S2). No unequivocal differences across broadly categorised work roles were evident in respondents' self-rated performance in dementia care or appraisals of workplace dementia training (Table S2).

Discussion

The responses to this online survey of diverse HACW from across regional, rural and remote Australia indicate that while most respondents believed in the adequacy of their own knowledge, skills, and confidence in providing dementia care and support, a high proportion identified shortcomings in the workplace training opportunities accessible to them for this purpose. Of particular concern were the high proportions of respondents who indicated having received inadequate training in dementia care specifically for First Nations and CALD clients and in dementia care tailored to the local area. These findings broadly align with those of previous studies and additionally provide the perspectives of a sufficiently large sample of participants to allow comparison of responses between worker subgroups. Across the survey items, there were only modest differences between crude and multivariable-adjusted estimates for the subgroup comparisons, suggesting that differences between groups of

workers—evident most notably in relation to workplace setting categories—were generally not attributable to confounding by the demographic or work-experience characteristics of the respondents themselves. Substantially lower proportions of respondents working in hospitals or other acute care settings provided positive self-ratings of their capabilities in caring for people with dementia. Workers in these settings also gave the least favourable appraisals of the adequacy, prioritisation, and regularity of workplace training for dementia care and of opportunities for personal input into this training.

Self-evaluations of occupational proficiency are difficult to interpret, being influenced by personality traits and inherently bias-prone [42], and potentially discordant with external objective measures of job performance [43]. However, the survey's findings of generally positive self-appraisals by respondents across knowledge, skills, and confidence in dementia care provides some reassurance that the RRR health and aged care workforce overall is not unduly burdened by self-doubt in providing this service. Respondents working in residential aged care facilities (who would have the most contact with people with dementia, considering the prevalence of dementia in these facilities) were the most likely to self-rate as 'good' or 'excellent' across knowledge, skills, and confidence in dementia care. Lowest on these same domains were the hospital/acute care workers, who typically have a wider range of patient ages and conditions to deal with, with those working in community settings having intermediate self-ratings. Correspondingly, lower proportions of hospital/acute care workers than residential aged care

Table 2 Positive appraisals of dementia training, by workplace setting

	Overall	Relative risk (95% CI)		
	Proportion (95% CI)	Subgroup	Crude	Adjusted*
(a) Respondents with self-appraisal as ‘Good’ or ‘Excellent’ in relation to dementia care and support				
How do you rate your knowledge of dementia?	0.80 (0.77–0.84)	Community	0.91 (0.83–0.99)	0.94 (0.85–1.04)
		Hosp/Acute	0.79 (0.68–0.92)	0.81 (0.70–0.93)
How do you rate your skills in delivering dementia specific care and services in your day-to-day work?	0.73 (0.69–0.77)	Community	0.84 (0.75–0.93)	0.88 (0.78–0.99)
		Hosp/Acute	0.68 (0.57–0.82)	0.74 (0.62–0.89)
Overall, how do you rate your confidence when delivering dementia specific care and services?	0.72 (0.68–0.75)	Community	0.79 (0.70–0.89)	0.82 (0.72–0.94)
		Hosp/Acute	0.67 (0.55–0.80)	0.70 (0.58–0.84)
(b) Respondents who ‘Somewhat Agree’ or ‘Strongly Agree’ with statements on the adequacy of dementia training in their current main workplace				
Staff have had adequate training in dementia	0.50 (0.45–0.54)	Community	1.11 (0.92–1.33)	1.03 (0.83–1.28)
		Hosp/Acute	0.96 (0.75–1.24)	0.92 (0.71–1.20)
Dementia training is prioritised	0.44 (0.40–0.48)	Community	0.88 (0.71–1.08)	0.88 (0.69–1.12)
		Hosp/Acute	0.65 (0.47–0.89)	0.62 (0.45–0.87)
Dementia training is provided regularly	0.36 (0.32–0.40)	Community	0.84 (0.65–1.08)	0.78 (0.58–1.06)
		Hosp/Acute	0.67 (0.46–0.96)	0.63 (0.43–0.92)
I have input in determining priorities for dementia training content	0.41 (0.37–0.46)	Community	0.73 (0.58–0.93)	0.71 (0.54–0.93)
		Hosp/Acute	0.59 (0.42–0.83)	0.54 (0.38–0.78)
I have input in determining priorities for dementia training delivery	0.38 (0.34–0.43)	Community	0.94 (0.73–1.20)	0.96 (0.72–1.28)
		Hosp/Acute	0.70 (0.49–0.99)	0.67 (0.46–0.98)
There is sufficient resourcing (e.g., time, staff) to provide dementia training	0.31 (0.27–0.35)	Community	1.16 (0.88–1.53)	1.08 (0.78–1.50)
		Hosp/Acute	0.75 (0.50–1.13)	0.73 (0.46–1.14)
Includes cultural safety for First Nations Australians living with dementia	0.57 (0.52–0.61)	Community	0.90 (0.75–1.09)	0.99 (0.80–1.22)
		Hosp/Acute	1.04 (0.84–1.28)	1.08 (0.87–1.33)
Considers the needs of culturally and linguistically diverse people living with dementia	0.67 (0.63–0.71)	Community	0.90 (0.79–1.04)	0.95 (0.81–1.11)
		Hosp/Acute	0.85 (0.70–1.02)	0.86 (0.71–1.04)
I have received adequate dementia training in caring for First Nations Australians living with dementia	0.33 (0.29–0.37)	Community	0.99 (0.76–1.29)	1.04 (0.76–1.43)
		Hosp/Acute	0.71 (0.48–1.05)	0.70 (0.47–1.06)
The dementia training I received improved my capacity to care for First Nations Australians	0.49 (0.44–0.53)	Community	0.99 (0.81–1.21)	1.07 (0.85–1.35)
		Hosp/Acute	0.80 (0.60–1.07)	0.83 (0.61–1.12)
I would like more training on caring for First Nations Australians	0.91 (0.88–0.93)	Community	0.99 (0.93–1.05)	0.95 (0.89–1.01)
		Hosp/Acute	0.97 (0.90–1.05)	0.97 (0.90–1.04)
I have received adequate dementia training in caring for culturally and linguistically diverse people living with dementia	0.53 (0.49–0.57)	Community	0.88 (0.74–1.05)	0.90 (0.74–1.11)
		Hosp/Acute	0.62 (0.47–0.82)	0.65 (0.48–0.87)
The dementia training I received improved my capacity to care for culturally and linguistically diverse people living with dementia	0.66 (0.62–0.70)	Community	0.98 (0.86–1.12)	1.01 (0.86–1.17)
		Hosp/Acute	0.72 (0.58–0.91)	0.75 (0.60–0.95)
I would like more training on caring for culturally and linguistically diverse people living with dementia	0.93 (0.91–0.95)	Community	0.99 (0.94–1.05)	1.00 (0.94–1.06)
		Hosp/Acute	1.01 (0.96–1.07)	1.02 (0.96–1.08)
I have received dementia training adequately tailored for my local area	0.54 (0.50–0.58)	Community	0.86 (0.72–1.03)	0.86 (0.70–1.06)
		Hosp/Acute	0.75 (0.58–0.96)	0.79 (0.62–1.02)
The dementia training I received improved my capacity to care for people living with dementia in my local area	0.81 (0.77–0.84)	Community	0.95 (0.86–1.04)	0.91 (0.82–1.00)
		Hosp/Acute	0.86 (0.75–0.99)	0.84 (0.73–0.96)
I would like more training that is tailored for caring for people living with dementia in my local area	0.95 (0.93–0.97)	Community	1.00 (0.96–1.05)	1.00 (0.95–1.05)
		Hosp/Acute	1.01 (0.96–1.06)	1.00 (0.95–1.05)

* The multivariable robust Poisson regression models incorporate adjustment for remoteness and work role category plus age group, gender, First Nations identification, language spoken at home, highest education level completed, duration of dementia work experience, and duration of rural work experience

Individuals with Setting=Multiple or Other/Unknown have been incorporated in the model but relative risks for this category are not displayed because of small numbers

Bold font: statistically significant difference ($p < 0.05$) in comparison with reference subgroup

CI: confidence interval

Hosp/acute: Hospital or other acute-care setting

employees affirmed the prioritisation and regularity of workplace dementia-care training.

The perceived need among RRR HACW respondents for enhanced access to quality training in dementia care is a core finding of the survey, considering that half or fewer of the overall sample agreed that their workplace training was adequate, prioritised, conducted regularly, permitted worker input into content or delivery, or that resourcing for this purpose was sufficient. The high level of disagreement that resourcing is sufficient for dementia care training is probably attributable partly to RRR HACW personnel shortages that exacerbate competing work priorities and are a barrier to HACW participation in training and restrict possibilities for organisational support for training. Crucially in this regard, there is evidence that access to ongoing professional development, training and upskilling of this workforce promotes recruitment and retention [44], and thereby “can be key in breaking this cycle” [45] (p693).

Only one-third of respondents in our survey agreed that they had received cultural safety training adequate to provide quality care to First Nations clients with dementia, and barely half affirmed the adequacy of this training specifically for CALD clients. People from disadvantaged and minority cultures potentially encounter particular barriers in accessing culturally safe or appropriate health and aged care in the context of dementia, given the nature of this condition in relation to communication problems arising from language barriers and culturally influenced family dynamics and expectations (e.g., filial piety in families of East Asian ethnicity [46]), values at end of life [47], and practical issues such as food choices [48]. Quality care for First Nations clients with dementia requires cognisance of the collective basis of decision-making in First Nations communities and a trauma-informed approach [49]. While majorities affirmed that the dementia care provided at their workplace incorporated cultural safety for First Nations people and considered the needs of CALD clients, and many considered that they had received training that improved their capacity to care for people with dementia from both these population groups, almost all agreed that they would like more training in these respects. A wish for more locally tailored training in dementia care was almost universally endorsed by the respondents, although input from dementia experts was welcomed.

As rural communities often face particular challenges in sustaining high-quality health and aged care and differ from cities in their sociodemographic profiles, local issues may influence the optimal tailoring of training for dementia care and support in this context. The survey did not explore the specifics of local influences on perspectives towards RRR workplace training other than disadvantaged population groups. These potentially include

relatively small organisational size, needs for services to cater to diverse needs where alternative options are limited, geographical isolation, and blurring of work-life boundaries in small communities [50, 51].

Shortcomings of dementia care during acute hospital admissions and the contribution of insufficient staff training in this context are well recognised [52–54]. Although the survey findings cannot directly explain the causal basis for the considerably less favourable self-ratings of performance and appraisals of workplace training among respondents from hospital/acute workplaces compared with other setting categories, intuitive explanations are twofold. Foremost, unlike personnel working in residential aged care facilities, for whom the care of people with dementia is a core task, care of these clients typically constitutes only a small minority of the workload of hospital staff. Consequently, dementia care is but one among many competing topics required for training of hospital/acute care staff. Secondly, the challenges of caring for people with dementia are intrinsically increased during hospital admissions because distress and changed behaviours among these clients are often exacerbated [55] by a combination of the precipitating intercurrent acute illness or injury, concomitant medication changes, and the heightened disorientation imposed by an unfamiliar environment [56].

A lower proportion of respondents from Remote/Very Remote workplaces than those working in less remote areas affirmed that they had received regular or locally tailored dementia training, but no other aspects of the responses were clearly associated with workplace remoteness. No clear differences across broadly categorised work roles were evident in respondents' self-rated performance in dementia care or appraisals of workplace dementia training.

Strengths and limitations

The number and diversity of respondents was a strength of this study, permitting statistically robust overall results with considerable generalisability. However, the sample is unlikely to be fully representative of the targeted workforce, and statistical power for comparisons between workers was constrained by the size of some respondent subgroups. There was no comparison group of urban HACW to permit direct ascertainment of differences in perspective in the non-urban workforce. There may have been misclassification in relation to several variables, most obviously remoteness, which relied on respondents' understanding and was not mapped to a statutory or otherwise widely recognised geocoding classification system such as the Modified Monash Model [37] or ARIA+ [38]. Interpretation of results in this regard is constrained by the inherent subjectivity of options provided and the shortcomings of postcode data. Finally, we acknowledge

an inadvertent miswording of the questionnaire item 'I would like more training for caring for First Nations Australians' (Fig. 6, line 6), from which the words 'living with dementia' were omitted. While the context of the questionnaire overall may have implicitly directed respondents to interpret this item specifically in regard to clients with dementia, the responses to this item must be interpreted cautiously.

Conclusions

The perceptions of HACW in RRR areas across Australia reflect a clear need for enhanced access to training across sectors in the care and support for people with dementia. Improved access to training is essential if these healthcare workers are to provide quality, person-centred care, including care that is culturally appropriate for clients from populations that are potentially disadvantaged in receiving quality health care, such as First Nations and CALD clients. Addressing these shortcomings is necessary not only in residential aged care facilities where people with dementia are concentrated, but also in facilities and organisations where people with dementia represent a minority of clients. Further research is required to investigate the extent to which dementia care in rural and remote Australia meets best practice standards and how enhanced access to training can remediate shortcomings in this regard.

Abbreviations

ACT	Australian Capital Territory
CALD	Culturally and linguistically diverse
CI	Confidence interval
DTA	Dementia Training Australia
HACW	Health and aged care workers
NSW	New South Wales
NT	Northern Territory
QLD	Queensland
RR	Rural and remote
SA	South Australia
VIC	Victoria
TAS	Tasmania
WA	Western Australia
WACRH	Western Australian Centre for Rural Health

Supplementary Information

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Supplementary Material 1

Supplementary Material 2

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Author contributions

JW performed the analyses and drafted the manuscript. ST led the research project. Survey development was led by JW, JA, and KG, with further input by KWF, KPF and SCT prior to refinement with other coauthors. All authors had a role in interpretation of findings and manuscript revision.

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Data availability

The survey instrument can be made available upon reasonable request. The dataset analysed for the current study is not publicly available due to confidentiality considerations, but the corresponding author can be contacted with requests related to data access.

Declarations

Ethics approval and consent to participate

The research project was approved by The University of Western Australia Human Research Ethics Committee (reference number 2023/ET000245). Within the Qualtrics interface used for the online survey, all participants provided informed consent before accessing the survey items and were directed to a Participant Information Form approved by the Ethics Committee. All participants understood that the survey data were being collected as part of a research study.

Consent for publication

Not applicable: the study comprises only aggregated data and contains no individual details.

Competing interests

The authors declare no competing interests.

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References

- Livingston G, Sommerlad A, Orgeta V, Costafreda SG, Huntley J, Ames D, et al. Dementia prevention, intervention, and care. *Lancet*. 2017;390:2673–734.
- Dobson AJ, Flicker L, Almeida OP, Waller M, Anstey K. Different estimates of the prevalence of dementia in Australia, 2021. *Med J Aust*. 2023;218:320–1.
- Flicker L, Anstey KJ, Almeida OP, Waller M, Fitzgerald P, De Crespigny F, et al. Differing methodologies are required to estimate prevalence of dementia: single study types are no longer reliable. *J Alzheimers Dis*. 2022;88:943–8.
- Australian Institute of Health and Welfare. Australian Burden of Disease Study 2022. Catalogue number BOD 37. AIHW. 2022. <https://www.aihw.gov.au/repo>

- rt/burden-of-disease/australian-burden-of-disease-study-2022/contents/about Accessed 5 Jun 2024.
5. Australian Institute of Health and Welfare. Dementia in Australia: Summary report 2022. Catalogue number DEM 6. AIHW. 2023. <https://www.aihw.gov.au/reports/dementia/dementia-in-australia-summary-report-2022/overview> Accessed 5 Jun 2024.
 6. Irwin K, Sexton C, Daniel T, Lawlor B, Naci L. Healthy aging and dementia: two roads diverging in midlife? *Front Aging Neurosci.* 2018;10:275.
 7. Nichols E, Steinmetz JD, Vollset SE, Fukutaki K, Chalek J, Abd-Allah F, et al. Estimation of the global prevalence of dementia in 2019 and forecasted prevalence in 2050: an analysis for the global burden of disease study 2019. *Lancet Public Health.* 2022;7:e105–25.
 8. Fazio S, Pace D, Flinner J, Kallmyer B. The fundamentals of Person-Centered care for individuals with dementia. *Gerontologist.* 2018;58:Suppl10–19.
 9. Temple J, Dow B, Kosowicz L. Carers of older australians: unmet support needs and carer well-being. *Aust J Prim Health.* 2021;27:178–85.
 10. Hodgkin S, Warburton J, Savy P, Moore M. Workforce crisis in residential aged care: insights from rural, older workers. *Aust J Public Adm.* 2017;76:93–105.
 11. Savy P, Hodgkin S. Australian rural community aged care services: precarity and capacity. *Aust J Public Adm.* 2021;80:324–39.
 12. Ramsden R, Colbran R, Christopher E, Edwards M. The role of digital technology in providing education, training, continuing professional development and support to the rural health workforce. *Health Educ.* 2022;122:126–49.
 13. Reeves S, Fletcher S, McLoughlin C, Yim A, Patel KD. Interprofessional online learning for primary healthcare: findings from a scoping review. *BMJ Open.* 2017;7:e016872.
 14. Winters N, Patel KD. Can a reconceptualization of online training be part of the solution to addressing the COVID-19 pandemic? *J Interprof Care.* 2021;35:161–3.
 15. Australian Bureau of Statistics. Regional population by age and sex. ABS. 2022. <https://www.abs.gov.au/statistics/people/population/regional-population-age-and-sex/latest-release> Accessed 7 Jun 2024.
 16. Australian Bureau of Statistics. Estimates of Aboriginal and Torres Strait Islander Australians. ABS. 2021. <https://www.abs.gov.au/statistics/people/aboriginal-and-torres-strait-islander-peoples/estimates-aboriginal-and-torres-strait-islander-australians/30-june-2021> Accessed 7 Jun 2024.
 17. Lo Giudice D, Smith K, Fenner S, Hyde Z, Atkinson D, Skeaf L, et al. Incidence and predictors of cognitive impairment and dementia in aboriginal australians: A follow-up study of 5 years. *Alzheimers Dement.* 2016;12:252–61.
 18. Radford K, Mack HA, Draper B, Chalkley S, Daylight G, Cumming R, et al. Prevalence of dementia in urban and regional aboriginal Australians. *Alzheimers Dement.* 2015;11:271–9.
 19. Shahid S, Durey A, Bessarab D, Aoun SM, Thompson SC. Identifying barriers and improving communication between cancer service providers and aboriginal patients and their families: the perspective of service providers. *BMC Health Serv Res.* 2013;13:460.
 20. Dew A, Barton R, Gilroy J, Ryall L, Lincoln M, Jensen H, et al. Importance of land, family and culture for a good life: remote aboriginal people with disability and carers. *Aust J Soc Issues.* 2020;55:418–38.
 21. Smith K, Flicker L, Shadforth G, Carroll E, Ralph N, Atkinson D, et al. Gotta be sit down and worked out together: views of aboriginal caregivers and service providers on ways to improve dementia care for aboriginal Australians. *Rural Remote Health.* 2011;11:1650.
 22. Ramsden I. Cultural safety. *N Z Nurs J.* 1990;83:18–9.
 23. Lavery M, McDermott DR, Calma T. Embedding cultural safety in australia's main health care standards. *Med J Aust.* 2017;207:15–6.
 24. McGough S, Wynaden D, Gower S, Duggan R, Wilson R. There is no health without cultural safety: why cultural safety matters. *Contemp Nurse.* 2022;58:33–42.
 25. Thompson S, Shukralla H, Fyfe K, Newman E, Fitzgerald K. Barriers and enablers of dementia training in healthcare workers in rural and remote australia: A scoping review to inform future approaches to training. *Aust J Rural Health.* 2024;32:236–48.
 26. Galesic M, Bosnjak M. Effects of questionnaire length on participation and indicators of response quality in a web survey. *Public Opin Q.* 2009;73:349–60.
 27. Hutchinson S, Chyung SY. Evidence-based survey design: adding moderately or somewhat to likert scale options agree and disagree to get interval-like data. *Perform Improv.* 2023;62:17–24.
 28. Lantz B. Equidistance of Likert-Type scales and validation of Inferential methods using experiments and simulations. *Electron J Bus Res Methods.* 2013;11:16–28.
 29. Chyung SY, Roberts K, Swanson I, Hankinson A. Evidence-based survey design: the use of a midpoint on the likert scale. *Perform Improv.* 2017;56:15–23.
 30. Roberson MT, Sundstrom E. Questionnaire, Design. Return rates, and response favorableness in an employee attitude questionnaire. *J Appl Psychol.* 1990;75:354–7.
 31. Phillips A. Health status differentials across rural and remote Australia. *Aust Rural Health.* 2009;17:2–9.
 32. Australian Institute of Health and Welfare. Rural and remote health. 2024. <https://www.aihw.gov.au/reports/rural-remote-australians/rural-and-remote-health> Accessed 28 Apr 2025.
 33. Kavanagh BE, Corney KB, Beks H, Williams LJ, Quirk SE, Versace VL. A scoping review of the barriers and facilitators to accessing and utilising mental health services across regional, rural, and remote Australia. *BMC Health Serv Res.* 2023;23:1060.
 34. Leach MJ, Gunn K, Muyambi K. The determinants of healthcare utilisation in regional, rural and remote South australia: A cross-sectional study. *Health Soc Care Community.* 2022;30:e4850–63.
 35. Roberts R. A health commission for regional, rural and remote Australia. *Aust J Rural Health.* 2017;25:76.
 36. Versace VL, Smith T, Sutton K. Beyond the black stump: rapid reviews of health research issues affecting regional, rural and remote Australia. *Med J Aust.* 2021;215:141.
 37. Department of Aged Care. Modified Monash Model. Australian Government. 2023. <https://www.health.gov.au/topics/rural-health-workforce/classification/mmm> Accessed 28 May 2024.
 38. Australian Bureau of Statistics. Remoteness Areas: Australian Statistical Geography Standard (ASGS) Edition 3. ABS. 2023. <https://www.abs.gov.au/statistics/standards/australian-statistical-geography-standard-asgs-edition-3/jul2021-jun2026/remoteness-structure/remoteness-areas> Accessed 28 May 2024.
 39. Newcombe RG. Two-sided confidence intervals for the single proportion: comparison of seven methods. *Stat Med.* 1998;17:857–72.
 40. Chen W, Qian L, Shi J, Franklin M. Comparing performance between log-binomial and robust Poisson regression models for estimating risk ratios under model misspecification. *BMC Med Res Methodol.* 2018;18:63.
 41. Shrestha N. Detecting multicollinearity in regression analysis. *Am J Appl Math Stat.* 2020;8:39–42.
 42. Zell E, Krizan Z. Do people have insight into their abilities?? A metasynthesis. *Perspect Psychol Sci.* 2014;9:111–25.
 43. Heidemeier H, Moser K. Self-Other agreement in job performance ratings: A Meta-Analytic test of a process model. *J Appl Psychol.* 2009;94:353–70.
 44. Russell D, Mathew S, Fitts M, Liddle Z, Murakami-Gold L, Campbell N, et al. Interventions for health workforce retention in rural and remote areas: a systematic review. *Hum Resour Health.* 2021;19:103.
 45. Johnsson G, Kerslake R, Crook S, Cribb C. Investigation of training and support needs in rural and remote disability and mainstream service providers: implications for an online training model. *Aust Health Rev.* 2017;41:693–7.
 46. Wang Q, Xiao X, Zhang J, Jiang D, Wilson A, Qian B, et al. The experiences of East Asian dementia caregivers in filial culture: a systematic review and meta-analysis. *Front Psychiatry.* 2023;14:1173755.
 47. Nishimura M, Denning KH, Sampson EL, Iglesias de Oliveira Vidal E, Correia de Abreu W, Kaasalainen S, et al. Cross-cultural conceptualization of a good end of life with dementia: a qualitative study. *BMC Palliat Care.* 2022;21:106.
 48. Du Toit SHJ, Bagul D, Jessup GM, McGrath M. Providing culturally appropriate residential dementia care for older adults with an Indian heritage: perspectives from Sydney-based stakeholders. *Aust Occup Ther J.* 2023;70:159–74.
 49. LoGiudice D, Hughson J, Douglas H, Wenitong M, Belfrage M. Culturally safe, trauma-informed approach to cognitive impairment and dementia in older aboriginal and Torres Strait Islander people. *Aust J Gen Pract.* 2023;52:505–11.
 50. Bourke L, Humphreys JS, Wakeman J, Taylor J. Understanding rural and remote health: A framework for analysis in Australia. *Health Place.* 2012;18:496–503.
 51. Malatzky C, Bourke L. When the social Meets health in rural australia: confronting the disconnect. *Health Sociol Rev.* 2017;26:190–203.
 52. George J, Long S, Vincent C. How can we keep patients with dementia safe in our acute hospitals? A review of challenges and solutions. *J R Soc Med.* 2013;106:355–61.
 53. Houghton C, Murphy K, Brooker D, Casey D. Healthcare staffs' experiences and perceptions of caring for people with dementia in the acute setting: qualitative evidence synthesis. *Int J Nurs Stud.* 2016;61:104–16.

54. Timmons S, O'Shea E, O'Neill D, Gallagher P, De Siún A, McArdle D, et al. Acute hospital dementia care: results from a National audit. *BMC Geriatr.* 2016;16:113.
55. White N, Leurent B, Lord K, Scott S, Jones L, Sampson EL. The management of behavioural and psychological symptoms of dementia in the acute general medical hospital: a longitudinal cohort study. *Int J Geriatr Psychiatry.* 2017;32:297–305.
56. Han QYC, Rodrigues NG, Klainin-Yobas P, Haugan G, Wu XV, Prevalence. Risk factors, and impact of delirium on hospitalized older adults with dementia: A systematic review and Meta-Analysis. *J Am Med Dir Assoc.* 2022;23:23–32.

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