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Perceptions of research capacity in public health organisations: comparison of NSW metropolitan and non-metropolitan Local Health Districts

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ABSTRACT

Objective. The aims of this study were to explore and compare the perceptions of research capacity and culture (RCC) in metropolitan and non-metropolitan New South Wales (NSW) Local Health Districts (LHDs). **Methods.** The Research Capacity and Culture Tool was delivered online to clinicians and health managers. A 10-point Likert scale of success or skill at organisational, team and individual level of research capacity was used. An independent *t*-test assessed differences in domain means between non-metropolitan and metropolitan LHDs. **Results.** A total of 1243 participants responded. Responses to the survey indicated the perception of individual's research skills were greater than the perception of RCC at both the team and organisational levels. Participants from metropolitan locations had significantly higher mean scores across all three domains compared with non-metropolitan locations ($P < 0.001$). **Conclusion.** Results indicated the perception of individual's research skills were greater than the team and organisational levels. Participants from metropolitan locations had significantly higher perceptions of RCC across all three domains compared with non-metropolitan locations. This was the largest study to date in Australia investigating RCC in NSW LHDs, and the first study to explore multiple professions across multiple organisations while comparing metropolitan and non-metropolitan settings. This research may inform targeted strategies for building research capacity in NSW LHDs.

Keywords: individual, organisational, perceptions, regional, research capacity, research culture, rural, team.

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Introduction

Populations in rural, regional and remote areas (non-metropolitan) are associated with poorer health outcomes, higher level of disease and injury, and shorter lives when compared to their metropolitan counterparts.[1] Almost 30% of the Australian population lives outside major cities,[2] with a higher proportion of people aged >65 years in inner and outer regional areas.[1] Living outside of major cities is associated with higher risk of adverse health behaviours.[2] These factors contribute to the challenges facing healthcare systems to service these communities, and highlight the role of research to inform programs to address adverse health behaviours.

Non-metropolitan health services differ greatly from those in metropolitan areas, presenting unique challenges for service delivery. These differences include, but are not limited to: (a) inferior access to, and use of, health services;[2–7] (b) planning and delivery models that may not be appropriate for the communities;[4] (c) a need to deliver services and information remotely;[8] and (d) workforce challenges, including recruitment and retention difficulties.[9,10] Both collectively and singularly, these issues highlight the importance of utilising research and innovative practices to confront the variations to deliver suitable health care.

Exploration of innovative approaches to the provision of health care in non-metropolitan areas require access to funding. A review conducted in 2018 showed the proportion of grant funding from the National Health and Medical Research Council (NHMRC) specifically aimed to deliver health benefits to people living in rural or remote Australia was only 2.4%.[11] Considering the service delivery challenges and poorer health outcomes of non-metropolitan area populations, Barclay *et al.* suggested this should be a priority for NHMRC funding.[11] Geographical challenges of forming collaborative relationships between healthcare services and universities and/or medical research institutes may be a factor.

There are key differences between metropolitan and non-metropolitan public healthcare organisations within Australia[9] and internationally.[12] One is the capability and capacity to build and embed a research culture. Therefore, the aims of this study were to explore the perceptions of research capacity and culture (RCC) in New South Wales (NSW) Local Health Districts (LHDs) across the organisational, team and individual domains, and to determine whether there was a difference between metropolitan and non-metropolitan LHD locations.

Methods

This study was a cross-sectional survey study design that aimed to recruit staff from all LHDs across NSW, Australia. A broad range of public health services are provided by NSW LHDs through hospitals and community health centres. Collectively, NSW LHDs deliver public health care to 7.9 million residents and employs almost 120 000 full-time equivalent staff; the largest in Australia.[13]

Ethical approval for this study was obtained by the Greater Western Human Research Ethics Committee (2019/ETH03990) and Southern Cross University (ECN-19-049). Site research governance authorisation was obtained from each participating LHD.

Sample

The target population was all research-eligible NSW LHD employees. For the purposes of this study, the term research-eligible included staff who held either a clinical position and therefore their practice is guided by best available evidence (i.e. nursing, midwifery, allied health professionals (AHPs) and medical staff) or employed under the Health Manager (HM) award. The HM award is a broad range of appointments, which may include roles on specific programs and projects or within management/executive roles. There are 15 LHDs in the NSW public health system, eight in metropolitan areas and seven in non-metropolitan areas.

Survey tool

The Research Capacity and Culture Tool (RCCT)[14] is a validated tool that has been widely used to explore the perceptions of RCC within the healthcare contexts. The RCCT measures participants' subjective perspectives of RCC at the organisational (18 items), team (19 items) and individual (14 items) domains. Items in each domain are scored on a Likert response scale, with 1 representing the lowest rating of success/skill level and 10 the highest. Three studies have reported excellent reliability, with Cronbach's $\alpha > 0.9$ for all domains.[14–16] Exploratory factor analysis in the initial validation paper[14] demonstrated one factor per domain. Subsequent studies, however, have identified two factors for each of the organisational and team domains.[15,16]

Procedures

This study was conducted across multiple NSW LHDs between 7 May and 31 July 2019. A key contact person from each LHD was identified to 'champion' the project. Links to the online survey (hosted by Qualtrics (Qualtrics.com)) for the RCCT were sent to these contacts to be distributed via that LHD's promotional vehicle (e.g. email to staff, website or newsletter). Four reminder emails were sent to the key contacts during the recruitment period. Additional methods of promotion included social media (Facebook) and the NSW Nurses and Midwives' Association (NSWNMA).

Statistical analysis

All data were analysed using Statistical Package for the Social Sciences (SPSS) version 27 for Mac.[17] Likert-scale items were summarised for each domain by mean and standard deviation and the overall domain mean, including the 95% confidence intervals. Frequencies and percentages were used to present categorical variables and unsure responses. The means of items and the domains were categorised in accordance with previous users of the RCCT as low (<4.00), medium (4.00–6.99) and high (≥ 7.00).[15,16,18–22] The differences between the domain means of the metropolitan and non-metropolitan subgroups were examined using the Independent-samples *t*-test (*t*-test).

Results

The sample

Data from 1243 participants were available for investigation. Participant flow through the survey is shown in Fig. 1. Most participants (77%) were based in NSW non-metropolitan areas when compared to metropolitan areas ($n = 953$ vs $n = 290$). Nurses and AHPs accounted for most participants in the sample (74.7% combined), as shown in Table 1. Of the 839 participants who responded to the highest qualifications question, 14.7% had a research higher degree (27.6% metropolitan vs 10.3% non-metropolitan). Approximately double the percentage of participants from metropolitan

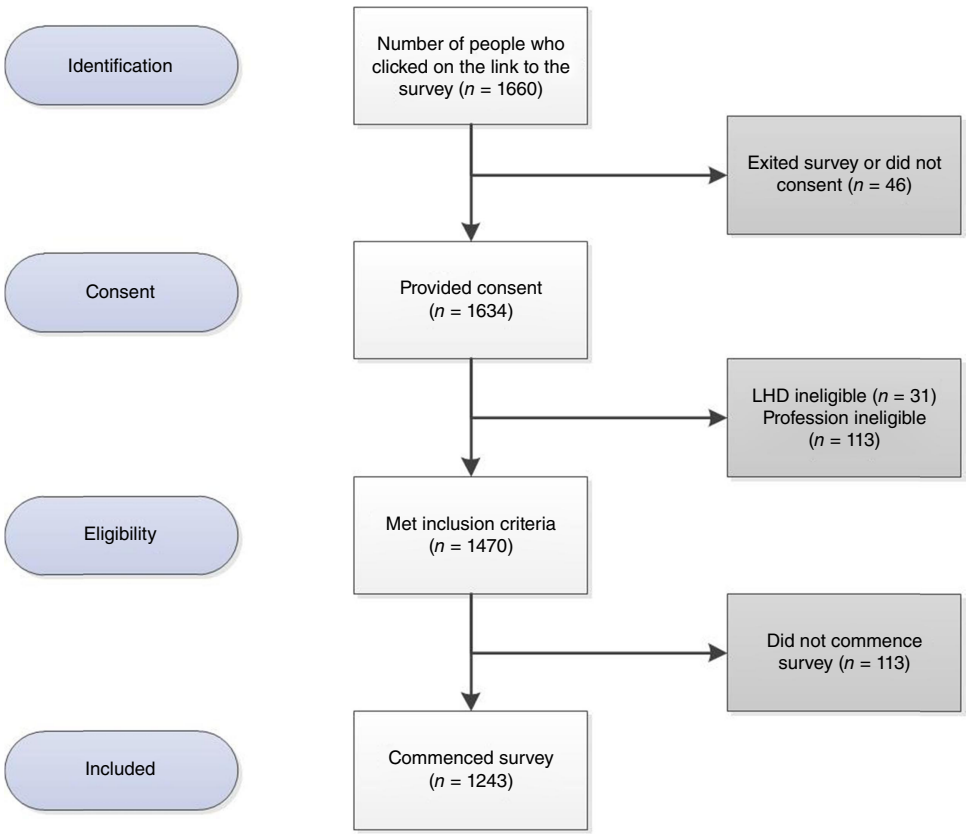

Fig. 1. Flow of participants through the survey.

locations than non-metropolitan reported they had research within their position description (40.6% vs 22.0%) or had participated in any research activities within the last 12 months (58.7% vs 27.7%).

Perceptions of RCC

The sample means for the organisational and individual domains were classified as medium, whereas the team domain was low (Table 2). The *t*-tests indicated significantly higher means for all domains for participants in metropolitan compared with non-metropolitan LHDs ($P < 0.001$) (Table 2). The metropolitan LHD means were significantly higher for 13 of the 18 items for the organisational domain (Table 3), 17 of the 19 items for the team domain (Table 4) and all items in the individual domain (Table 5).

In summary, the domain means for the sample (NSW) and for each subgroup are displayed in Fig. 2. Overall, for all domains, non-metropolitan participants selected a higher proportion of unsure responses than their metropolitan counterparts. Additional details are available in the supplementary data tables (Supplementary Tables S1–S3). Further graphical representations of each of the domains and subgroups are available in the supplementary material (Supplementary Figs S1–S3).

Discussion

Metropolitan NSW LHD staff had significantly higher perceptions of RCC than those from non-metropolitan areas across all three domains. Only two other studies have compared metropolitan with non-metropolitan areas in Victoria[23] and Queensland,[24] both finding a metropolitan location to influence RCC. Skills in research are vital in non-metropolitan areas to develop and test innovative solutions directly relevant to the local context, with the aim of addressing the disparity of health behaviours and outcomes between the two locations.[25] Therefore, these results further add to the evidence of the gap of perceived RCC and suggests this issue may be widespread across the Australian public healthcare context.

Formalised conjoint appointments between universities and healthcare organisations and dedicated embedded clinical research positions have been shown to provide access to experienced researchers, research skills development, opportunities to participate in research activities,[26–28] knowledge brokering activities[29] and the encouragement of post-graduate qualifications.[30] Additionally, collaboration between academia and industry is increasingly becoming a requirement of funding bodies such as the NHMRC and NSW Ministry of Health, with the view of improved relevance and translatability of

Table 1. Characteristics of the participants.

	Metropolitan *n* (%)	Non-metropolitan *n* (%)	Sample *n* (%)		Metropolitan *n* (%)	Non-metropolitan *n* (%)	Sample *n* (%)
Profession				Highest qualification			
Nurse	84 (29)	438 (46)	522 (42)	<Undergraduate	3 (1.4)	34 (5.4)	37 (4.4)
Allied health	124 (42.8)	282 (29.6)	406 (32.7)	Undergraduate	46 (21.9)	168 (26.7)	214 (25.5)
Health manager	38 (13.1)	141 (14.8)	179 (14.4)	Coursework post-graduate	103 (49.0)	362 (57.6)	465 (55.4)
Medical	37 (12.8)	45 (4.7)	82 (6.6)	Research post-graduate	58 (27.6)	65 (10.3)	123 (14.7)
Midwife	3 (1)	41 (4.3)	44 (3.5)	Total	210	629	839
Hospital executive	4 (1.4)	6 (0.6)	10 (0.8)	Research in position description			
Total	290	953	1243	Yes	93 (40.6)	153 (22)	246 (26.6)
Gender				No	136 (59.4)	543 (78)	679 (73.4)
Female	161 (73.2)	507 (79.2)	668 (77.7)	Total	229	696	925
Male	52 (23.6)	113 (17.7)	165 (19.2)	Currently engaged in research activities			
Prefer not to answer	7 (3.2)	17 (2.7)	24 (2.8)	Yes	135 (58.7)	195 (27.7)	330 (35.4)
Transgender	0 (0)	3 (0.5)	3 (0.3)	No	95 (41.3)	508 (72.3)	603 (64.6)
Total	220	640	860	Total	230	703	933
Working in health (years)							
<5	9 (4.1)	58 (9)	67 (7.8)				
5–10	33 (15)	90 (14)	123 (14.3)				
>10	178 (80.9)	495 (77)	673 (78)				
Total	220	643	863				

Table 2. Independent samples *t*-test comparing subgroups – organisational domain.

Domain	Subgroup	Descriptive statistics			Inferential statistics				
		n	Mean (s.d.)	95% CI [lwr, upr]	Mean difference	95% CI [lwr, upr]	t (d.f.)	*P*-value	*d*
Organisational	Metropolitan	290	4.80 (1.89)	[4.64, 5.08]	0.96	[0.76, 1.23]	7.21 (1209)	<0.001	0.49
	Non-metropolitan	953	3.84 (2.02)	[3.71, 3.97]					
	Sample	1243	4.07 (2.04)	[3.98, 4.21]					
Team	Metropolitan	239	4.63 (2.31)	[4.40, 4.98]	1.04	[0.71, 1.37]	6.20 (980)	<0.001	0.46
	Non-metropolitan	743	3.59 (2.23)	[3.43, 3.75]					
	Sample	982	3.85 (2.30)	[3.73, 4.02]					
Individual	Metropolitan	228	5.87 (2.09)	[5.62, 6.15]	1.29	[0.97, 1.60]	7.99 (919)	<0.001	0.61
	Non-metropolitan	693	4.58 (2.12)	[4.42, 6.15]					
	Sample	721	4.90 (2.18)	[4.78, 5.06]					

95% CI [lwr, upr], 95% confidence intervals, lower and upper limits; d.f., degrees of freedom; *d*, Cohen's *d*.

findings.[31,32] Such relationships may afford access to additional funding opportunities and the delivery of training to build research capacity, culture, and capability within healthcare organisations. However, the measure of success for these positions is problematic, with reports focusing on traditional academic research outputs (e.g. building collaborations and increasing research activities), rather than the translation of findings into practice.[33] This may be because

Table 3. Mean differences and *t*-tests between geographical subgroups – organisational domain.

Item	Metropolitan		Non-metropolitan		Statistical tests				
	n	Mean (s.d.)	*n*	Mean (s.d)	Mean difference	95% CI [lwr, upr]	t (d.f.)	*P*-value	*d*
Has adequate resources to support staff research training	272	5.01 (2.28)	787	4.62 (2.38)	0.39	[0.06, 0.71]	2.34 (1057)	0.020	0.17
Has funds, equipment or admin to support research activities	267	4.10 (2.15)	735	3.74 (2.22)	0.36	[0.05, 0.67]	2.27 (1000)	0.023	0.16
Has a plan or policy for research development	261	5.61 (2.46)	686	4.85 (2.60)	0.76	[0.40, 1.13]	4.08 (945)	<0.001	0.30
Has senior managers that support research	276	5.58 (2.53)	790	5.35 (2.61)	0.23	[−0.12, 0.59]	1.29 (1064)	0.197	0.09
Ensures staff career pathways are available in research[A]	260	3.88 (2.22)	724	3.84 (2.42)	0.04	[−0.30, 0.37]	0.23 (496)	0.829	0.02
Ensures organisation planning is guided by evidence	264	5.64 (2.40)	812	5.57 (2.57)	0.07	[−0.29, 0.42]	0.37 (1074)	0.712	0.03
Has consumers involved in research	248	5.12 (2.45)	666	4.55 (2.57)	0.57	[0.20, 0.94]	3.00 (912)	0.003	0.22
Accesses external funding for research	251	5.48 (2.62)	624	4.77 (2.68)	0.71	[0.32, 1.11]	3.59 (873)	<0.001	0.27
Promotes clinical practice based on evidence[A]	280	6.76 (2.30)	881	6.68 (2.51)	0.08	[−0.25, 0.42]	0.52 (507)	0.622	0.03
Encourages research activities relevant to practice[A]	258	5.40 (2.24)	773	4.94 (2.58)	0.46	[0.10, 0.81]	2.72 (502)	0.011	0.18
Has software programs for analysing research data	196	4.03 (2.35)	516	3.65 (2.49)	0.38	[−0.03, 0.78]	1.81 (710)	0.071	0.15
Has mechanisms to monitor research quality[A]	219	5.00 (2.47)	557	4.20 (2.64)	0.80	[0.39, 1.20]	3.95 (424)	<0.001	0.31
Has identified experts accessible for research advice[A]	242	5.74 (2.48)	667	5.14 (2.87)	0.60	[0.20, 1.02]	3.12 (489)	0.004	0.22
Supports a multi−disciplinary approach to research[A]	244	5.40 (2.54)	660	4.88 (2.80)	0.52	[0.12, 0.92]	2.66 (474)	0.011	0.19
Has regular forums/bulletins to present research findings[A]	247	5.51 (2.58)	723	4.59 (2.79)	0.92	[0.52, 1.31]	4.71 (456)	<0.001	0.34
Engages external partners (e.g. universities) in research[A]	248	6.24 (2.49)	662	5.34 (2.84)	0.90	[0.49, 1.30]	4.63 (501)	<0.001	0.33
Supports applications for research scholarships/degrees	235	5.59 (2.61)	691	5.22 (2.77)	0.37	[−0.04, 0.77]	1.76 (924)	0.079	0.14
Supports the peer-reviewed publication of research[A]	230	5.80 (2.55)	620	4.92 (2.83)	0.88	[0.47, 1.31]	4.36 (451)	<0.001	0.32
Overall domain mean (s.d.)		4.81 (1.89)		3.84 (2.03)					
95% CI [lwr, upr]		[4.64, 5.08]		[3.71, 3.97]					

95% CI [lwr, upr], 95% confidence intervals, lower and upper limits; d.f., degrees of freedom; *d*, Cohen's *d*.
Values shaded represent the highest mean/mean difference scores, whereas underlined values represent the lowest mean/mean difference.
[A]Non-parametric tests were conducted and were consistent with the parametric test.

Table 4. Mean differences and *t*-tests between geographical subgroups – team domain.

Item	Metropolitan		Non-metropolitan		Statistical tests				
	n	Mean (s.d.)	*n*	Mean (s.d.)	Mean difference	95% CI [lwr, upr]	t (d.f.)	*P*-value	*d*
Has adequate resources to support staff research training	233	4.17 (2.57)	690	3.77 (2.50)	0.40	[0.02, 0.77]	2.08 (921)	0.038	0.16
Has funds, equipment or admin to support research activities	229	3.43 (2.39)	655	3.21 (2.39)	0.22	[−0.14, 0.58]	1.21 (882)	0.228	0.09
Does team level planning for research development	229	4.36 (2.68)	677	3.49 (2.55)	0.87	[0.48, 1.25]	4.38 (904)	<0.001	0.34
Ensures staff involvement in developing that plan	225	4.44 (2.69)	680	3.76 (2.73)	0.68	[0.27, 1.09]	3.24 (903)	0.001	0.25
Has team leaders that support research	234	5.76 (2.92)	691	5.03 (2.95)	0.73	[0.29, 1.16]	3.26 (923)	0.001	0.25
Provides opportunities to get involved in research	234	4.96 (2.89)	695	4.15 (2.79)	0.82	[0.40, 1.23]	3.83 (927)	<0.001	0.29
Does planning that is guided by evidence[A]	225	6.08 (2.67)	699	5.47 (2.87)	0.61	[0.19, 1.03]	2.92 (403)	0.004	0.22
Has consumer involvement in research activities/planning	222	4.49 (2.81)	621	3.93 (2.70)	0.55	[0.13, 0.97]	2.59 (841)	0.010	0.21
Has applied for external funding for research[A]	209	5.13 (3.24)	559	3.86 (2.96)	1.27	[0.79, 1.75]	4.96 (346)	<0.001	0.42
Conducts research activities relevant to practice	226	5.96 (3.09)	655	4.65 (3.06)	1.30	[0.84, 1.77]	5.5 (879)	<0.001	0.43
Supports applications for research scholarships/degrees	211	5.33 (2.91)	605	4.71 (2.82)	0.62	[0.18, 1.07]	2.73 (814)	0.006	0.22
Has mechanisms to monitor research quality	207	4.71 (2.64)	549	3.78 (2.60)	0.93	[0.52, 1.35]	4.38 (754)	<0.001	0.36
Has identified experts accessible for research advice	213	5.54 (2.83)	597	4.44 (2.94)	1.11	[0.65, 1.57]	4.78 (808)	<0.001	0.38
Disseminates research results at research forums/seminars	216	5.61 (2.91)	607	4.27 (2.83)	1.34	[0.90, 1.79]	5.95 (821)	<0.001	0.47
Supports a multi-disciplinary approach to research	213	5.62 (2.87)	606	4.71 (2.88)	0.91	[0.46, 1.36]	3.97 (817)	<0.001	0.32
Has incentives and support for mentoring activities	215	4.08 (2.72)	622	3.73 (2.70)	0.35	[−0.07, 0.77]	1.64 (835)	0.102	0.13
Has external partners (e.g. universities) engaged in research[A]	212	5.41 (3.25)	570	4.32 (2.91)	1.09	[0.61, 1.56]	4.27 (344)	<0.001	0.36
Supports peer-reviewed publication of research	207	5.70 (3.07)	572	4.52 (3.01)	1.17	[0.69, 1.65]	4.78 (777)	<0.001	0.39
Has software available to support research activities[A]	201	3.71 (2.79)	514	3.17 (2.50)	0.54	[0.12, 0.96]	2.4 (332)	0.017	0.21
Overall domain		4.63 (2.31)		3.59 (2.23)					
95% CI [lwr, upr]		[4.40, 4.98]		[3.43, 3.75]					

95% CI [lwr, upr], 95% confidence intervals, lower and upper limits; d.f., degrees of freedom; *d*, Cohen's *d*.
Values shaded represent the highest mean/mean difference scores, while underlined values represent the lowest mean/mean difference.
[A]Non-parametric tests were conducted and were consistent with the parametric test.

Table 5. Mean differences and *t*-tests between geographical subgroups – individual domain.

Item	Metropolitan		Non-metropolitan		Statistical tests				
	n	Mean (s.d.)	*n*	Mean (s.d.)	Mean difference	95% CI [lwr,upr]	*t* (d.f.)	*P*-value	*d*
Finding relevant literature	228	7.46 (1.89)	691	6.86 (1.96)	0.60	[0.31, 0.89]	4.06 (917)	<0.001	0.31
Critically reviewing the literature	227	7.19 (1.94)	691	6.34 (2.10)	0.85	[0.54, 1.16]	5.36 (916)	<0.001	0.41
Using a computer referencing system	224	6.10 (2.64)	679	5.28 (2.80)	0.82	[0.40, 1.24]	3.86 (901)	<0.001	0.30
Writing a research protocol	225	5.68 (2.84)	681	4.30 (2.69)	1.38	[0.97, 1.79]	6.58 (904)	<0.001	0.51
Securing research funding[A]	221	4.00 (2.76)	670	2.96 (2.27)	1.04	[0.68, 1.41]	5.60 (889)	<0.001	0.43
Submitting an ethics application	223	5.57 (2.99)	676	3.79 (2.78)	1.78	[1.35, 2.21]	8.14 (897)	<0.001	0.63
Designing questionnaires[A]	227	6.04 (2.53)	682	4.61 (2.65)	1.43	[1.04, 1.83]	7.14 (907)	<0.001	0.55
Collecting data (e.g. surveys, interviews)[A]	226	6.92 (2.40)	684	5.56 (2.64)	1.36	[0.97, 1.75]	6.84 (908)	<0.001	0.53
Using computer data management system	224	6.06 (2.80)	679	4.52 (2.79)	1.54	[1.12, 1.96]	7.15 (901)	<0.001	0.55
Analysing qualitative research data[A]	223	5.53 (2.56)	682	4.42 (2.77)	1.11	[0.69, 1.52]	5.27 (903)	<0.001	0.41
Analysing quantitative research data[A]	227	5.90 (2.63)	682	4.51 (2.81)	1.39	[0.98, 1.81]	6.58 (907)	<0.001	0.50
Writing a research report	225	6.12 (2.76)	682	4.62 (2.81)	1.50	[1.08, 1.93]	6.99 (905)	<0.001	0.54
Writing for publication in peer-reviewed journals[A]	223	5.33 (3.01)	678	3.84 (2.75)	1.49	[1.07, 1.92]	6.87 (899)	<0.001	0.53
Providing advice to less experienced researchers[A]	224	5.21 (2.99)	674	3.57 (2.74)	1.64	[1.21, 2.06]	7.57 (896)	<0.001	0.58
Overall domain mean (s.d)		5.87 (2.09)		4.58 (2.12)					
95% CI [lwr, upr]		[5.62, 6.15]		[4.42, 6.15]					

95% CI [lwr, upr], 95% confidence intervals, lower and upper limits; d.f., degrees of freedom; *d*, Cohen's *d*.
Values shaded represent the highest mean/mean difference scores, whereas underlined values represent the lowest mean/mean difference.
[A]Non-parametric tests were conducted and were consistent with the parametric test.

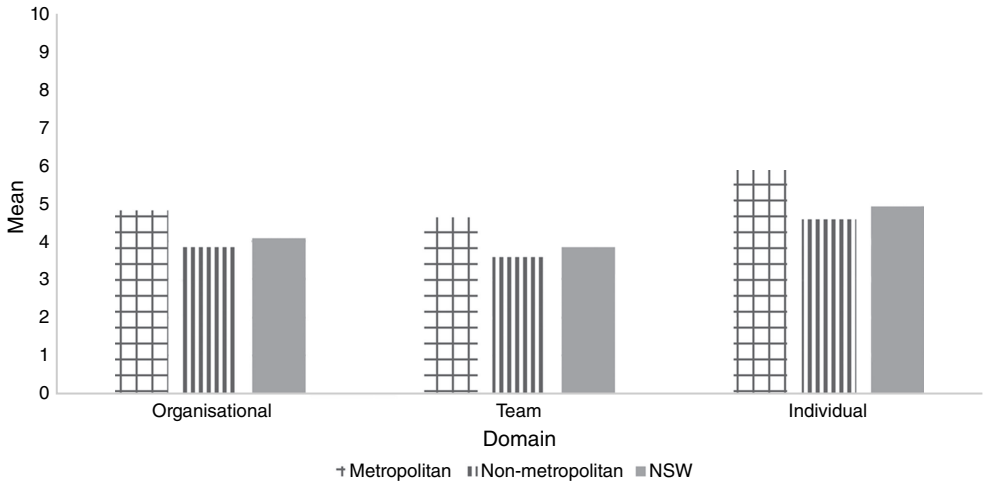

Fig. 2. Overall domain means for the sample (NSW) and by geographical subgroup (metropolitan/non-metropolitan).

knowledge brokering,[29] translational and implementational activities are more complex to measure. Furthermore, concerns regarding reporting lines, role expectations and measure of research outputs have been raised.[33] Regardless of the type of appointment, these embedded positions have potential to deliver benefits for both organisations and ultimately patient outcomes, but should be clearly defined and structured at the outset.

Frameworks for research capacity building (RCB) invariably include the development or enhancement of research knowledge, skills, and confidence.[34–38] The skills required to conduct research lie at the individual level. However, to build those skills, strategies need to be implemented at the team and/or organisational level. Building skills and confidence of individuals may require a needs assessment to ascertain the current level and gaps.[39] At the team level, strategies to address gaps may include mentorship from more experienced researchers within the team to transfer knowledge and foster a culture of research.[40] Non-metropolitan areas, however, face challenges with geographical spread of staff and facilities[39] and sufficient experienced clinician-researchers to provide this mentoring function. Organisationally, a dedicated budget to develop targeted training based on gaps may be implemented to increase individual skills. Structured programs such as the Rural Research Capacity Building Program[41] addresses many of the resource and mentoring limitations[25,42] for non-metropolitan healthcare workers; however, it is limited in its reach both geographically and to the number of participants it can accommodate.

Considering the findings from this study, both metropolitan and non-metropolitan participants perceived a lack of sufficient support for research in the form of funding, software, equipment and administration at both the organisational and team level. Participants also rated a career pathway in research to be low at the organisational level. At the team level, metropolitan participants perceived incentives and support for mentoring activities to be the third lowest, whereas non-metropolitan participants rated team level planning for research development as the third lowest. A focus on these identified strategies at both the organisational and team level may well help to build individual skills and foster a culture of research within teams and across the organisation.

Strengths and limitations

This is the largest of the current literature to use the RCCT in Australia. All but three[27,43–45] studies using this tool were conducted in Australia. This study was significant in its reach across one state within Australia, NSW, and its perspective of capturing multiple professions and the comparison of metropolitan with non-metropolitan public healthcare organisations. Health system factors in other states may differ resulting in contrasting findings.

Limitations include the sampling method, which aimed to recruit all eligible staff but ultimately resulted in a non-random sample with self-selection of participants. Those LHDs that distributed the email invitation to all staff rather than relying on accessing the link from another site had higher participation levels. The NSWNMA was approached to broaden the reach of participants but no other professional associations were contacted, which may have limited recruitment.

Selection bias is a frequently reported limitation in studies using the RCCT,[20,22,24] with those with an interest in research more likely to respond. Furthermore, the response rate was unable to be calculated as the denominator of research-eligible staff exposure to the invitation was not able to be accurately determined. Additionally, not all metropolitan LHDs participated in this survey. The RCCT had recently been used within several metropolitan LHDs, which may account for the lack of interest from participating LHDs to subject staff to the survey again.[15,46,47]

Implications for future research

Future studies may explore alternative sampling methods for recruitment of participants to address the sampling bias. Targeting recruitment to select staffing groups and/or random sampling may enable the calculation of a response rate and may increase generalisability of results. However, across organisations, this method would likely require a greater level of local administrative support to the lead researcher due to privacy concerns and access to staff email lists.

Further exploration of the differences between and within professional groups may provide useful insight. This may assist targeting capacity-building strategies based on the individual needs of these groups. Future research should consider the use of interviews and/or focus groups to intensify the understanding of the concepts and findings from this study.

The findings of the current research may provide a benchmark for a longitudinal study across NSW LHDs of RCB strategies. This would be particularly helpful for non-metropolitan LHDs where strategies generally are still in their relative infancy in comparison to larger metropolitan LHDs. Additionally, studies may explore the influence of participating in research activities as a recruitment and retention strategy, which has recently been shown by Cosgrave.[48] Further and more broadly, longitudinal studies may provide insight into the relationships between research capacity and research activity over time.

Conclusion

Within this sample, NSW LHD staff rated their own level of research skill higher when compared to the perception of RCC at both the organisational and team level. Further, staff from metropolitan LHDs perceived the level of RCC across all domains to be higher than non-metropolitan LHDs. These important findings provide preliminary empirical evidence that a research culture in non-metropolitan is lagging behind metropolitan LHDs.

The implications of the findings of this research suggest that an overall approach to research capacity development strategies should be holistic in seeking to integrate and target individual, team, organisational and supra-organisational or systems (i.e. state) levels. Factors that were found to be consistently low across the state, such as resources to support research activities and career pathways, may be suggestive of prioritisation for further investigation and implementation at the state and/or national level.

Supplementary material

Supplementary material is available online.

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