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ORIGINAL RESEARCH

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Rural nursing and allied health placements during the latter stage of the COVID-19 public health emergency: A national study

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Abstract

Objective: To explore changes to rural nursing and allied health placements during the latter stage of the COVID-19 public health emergency.

Setting: Regional, rural and remote Australia.

Participants: Nursing and allied health students with a scheduled University Department of Rural Health (UDRH) facilitated rural placement between 1 January 2022 and 31 October 2022.

Design: Cross-sectional online survey ($n = 333$), followed by semi-structured interviews ($n = 21$).

Results: Almost all students surveyed (98.5%) were able to undertake their placement, although 13.1% reported changes to the setting, timing or delivery of training. Placement tasks (47.3%), experience of the local community (39.0%) and connection with other students (39.6%) were the placement aspects most commonly reported to have changed. However, most students were satisfied with their placement (86.0%), agreed their placement provided quality clinical training (79.3%) and wanted to work rurally after their experience (73.2%). Nursing

students had lower odds of reporting satisfaction with placement (OR, 0.49 [95% CI 0.24–0.99, $p=0.03$]), while placements longer than 4 weeks had almost twice the odds of promoting rural intention (OR, 1.84 [95% CI 1.09–3.15, $p=0.02$]). Placement changes were associated with: fear of contracting COVID-19; circulating illness; health workforce shortages; and health and safety compliance.

Conclusions: Despite changes, most students found rural placements undertaken during 2022 to be quality learning experiences which left them satisfied and wanting to work rurally. UDRHs should advocate for longer placements, improve remote supervision and accommodation infrastructure, and help prepare and support students for challenging learning environments to promote positive rural training experiences during public health emergencies.

KEYWORDS

clinical placement, pandemic, rural and remote health workforce, rural and remote training, University Department of Rural Health (UDRH)

1 | INTRODUCTION

Rural placements are an important component of healthcare training programs, with positive rural training experiences known to foster rural practice intention[1,2] and build rural workforce capacity post-graduation.[3–5] The Australian Government supports University Departments of Rural Health (UDRHs) to deliver rural training experiences via its Rural Health Multidisciplinary Training (RHMT) program as a key strategy to address rural health workforce growth and sustainability across the country.[6] It is acknowledged that rural training can occur in diverse regional, rural or remote locations (or Modified Monash Model categories 2–7).[6] For the purposes of this paper, the terms 'rural placement' and 'rural training' collectively refer to student learning experiences undertaken in non-metropolitan settings.

Following the declaration of SARS-CoV-2 (also known as COVID-19) as a global public health emergency in early 2020, widespread challenges arose in the delivery of rural placements across Australia.[7,8] Rapidly implemented national and state government health policy measures, such as border closures, travel restrictions, quarantine requirements, as well as concern about transmission of the virus from urban to rural areas, led to many rural placements being cancelled[7,9] or conducted virtually[7,10] throughout 2020. For those that went ahead in some form, reported challenges included adequate access to personal protective equipment, logistics of social distancing in the workplace and in student accommodation,[10] decreased access to clinical settings and diverse clinical presentations,[11,12] and difficulties adapting to telehealth service delivery.[13] As a result, some students experienced adverse mental health, including social isolation, lack of engagement with rural communities,[10] and reduced confidence and perceived

What is already known on this subject?

- High-quality rural placements are known to influence nursing and allied health professional students' intention to practice rurally post-qualification.
- Rural nursing and allied health placements were impacted during the early stages of the COVID-19 pandemic in 2020 and 2021. However, there are limited data on rural training experiences during the latter stage of the public health emergency, including student perceptions of placement quality, satisfaction and rural practice intention.

What this study adds?

- Rural nursing and allied health placements scheduled in 2022 were largely able to be undertaken in some form and were positive in shaping an interest in a rural health career.
- Fear of contracting COVID-19, circulating illness, workforce shortages and health and safety measures were all contributing factors to rural placement changes, most commonly evident among placement tasks, experience of the local community, and connection with other students.
- University Departments of Rural Health can improve the sustainability of rural training during the latter stages of a public health emergency by advocating for longer placements, ensuring remote supervision and quarantine accommodation infrastructure are available, and rigorously preparing students to succeed in challenging learning environments.

preparedness for workforce entry[7] following placement experiences. However, there is some evidence that rural placements undertaken at this time left students satisfied,[7,12] and wanting to practice rurally once qualified,[14] despite challenges faced.

While the challenges posed to rural placement delivery during the early stages of the public health emergency are being increasingly understood,[7–17] rural training experiences beyond this time remain unresearched. This is of concern given the World Health Organisation did not declare an end to the public health emergency until May 2023.[18] During the latter stage of the public health emergency, defined in this study as the beginning of 2022 onwards, Australia entered its 'living with COVID' phase, which Jackson[19] described was 'a further step into the unknown and unexpected'. National free movement became possible as international and state borders were reopened, and government-imposed restrictions such as mask mandates, self-isolation and reporting requirements, were gradually removed throughout the year.[19] Virus suppression became a community responsibility, with efforts transferring to individuals and workplaces to prevent COVID-19 transmission through vaccination, increased work from home arrangements, voluntary mask wearing and social distancing.[19] Given the significant shift in policy direction during this 'living with COVID' phase, it is important to reflect on how rural placements may have been affected. Therefore, this study aimed to specifically explore changes to rural nursing and allied health placements scheduled during 2022. It is anticipated that the findings will inform all stakeholders involved in the RHMT program as to how best to maintain high-quality, positive rural training experiences during the latter stages of a public health emergency.

2 | METHODS

2.1 | Design

This study utilised a parallel convergent mixed-methods design comprising a cross-sectional online survey and semi structured interviews to explore the rural placement experiences of nursing and allied health students during the latter stage of the COVID-19 public health emergency.[20]

2.2 | Recruitment

All students with a scheduled UDRH-facilitated placement between 1 January 2021 and 31 October 2022 were invited to participate ($n = 7091$). Recruitment was by email invitation, distributed by each of the 16 UDRHs to students between August and October 2022. A link to an online survey, developed by the project team, was embedded in the email invitation. Participation in the survey was anonymous, voluntary and completion implied consent. To maximise the response rate, UDRHs were requested to send two follow-up emails: one a week after the initial email and another 2 weeks later.[21] Survey respondents in the latter stage of their degree (defined as ≥ third year undergraduate student or ≥ second year postgraduate student) were invited at the end of the survey to leave their details if interested in participating in an interview. Students in the latter stage of their degree were specifically invited given the remit of the broader study to explore graduate preparedness and rural practice intention in addition to rural placement experiences.[20]

2.3 | Data collection

Survey and interview data were collected concurrently between August and December 2022. The survey comprised a total of 33 questions, eliciting demographic information and asking students about their most recent scheduled rural placement, graduate preparedness, and rural practice intention using a mix of forced choice, Likert-scale and free text questions (see File S1). Survey data were collected and managed using LimeSurvey hosted by the University of Tasmania.

A total of 115 survey respondents agreed to be contacted for a further interview, 60 of which were selected using random selection software. All 60 students were contacted; however, 20 did not respond, five declined to be interviewed and one failed to attend their scheduled interview time and could not be contacted again to reschedule. The remaining 34 students were interviewed individually via Zoom web-conferencing by one of four trained members of the project team (BJ, JB, LS, SH). Students were asked about scheduled rural placements during 2021 and 2022, together with questions regarding graduate preparedness, and rural practice intention (see File S2). Interviews ranged from 21 to 79 min (average 45 min). All interviews were audio-recorded via Zoom and transcribed verbatim. Transcripts were provided to interviewees to check for accuracy and allow for amendments. Once transcripts were confirmed as accurate, they were deidentified by allocating a numeric code to denote participant number and removing identifying details.

2.4 | Data analysis

As this study was specifically concerned with the latter stage of the public health emergency, only survey

responses and interview data from nursing and allied health students with a scheduled placement in 2022 were included for analysis. Placement locations for included data were recoded into a Modified Monash Model (MM) category of remoteness,[22] with responses retained for placements defined as rural by the RHMT program (MM2-7).[6]

First, survey data were analysed using SPSS (Version 27), with survey questions used for analysis related to demographics (gender, age, health discipline, Aboriginal and Torres Strait Islander identity, rural origin), items asking about changes to placement aspects (placement tasks, experience of the local community, travel around the region, supervision, accommodation, connection with other students, placement setting, rural location), and student perspectives of their rural placement experience (questions 18 and 19). Cross-tabs with frequencies were produced for the assessment of associations between categorical variables, with odds ratios calculated and Chi-squared tests conducted to determine significant differences between nursing and allied health groups, and for placements longer than 4 weeks versus 4 weeks or less. All differences were accepted as significant at $p < 0.05$ level. Open-ended survey responses were imported into NVivo (Version 1.7) and independently coded by the project team (BJ, MK) using deductive content analysis,[23] with a focus on coding data related to changes to placement aspects specified in the survey (placement tasks, experience of the local community, travel around the region, connection with other students, supervision, accommodation, placement setting, rural location).

Second, interview data were also subjected to content analysis to understand more broadly rural placement experiences during 2022.[23] With the unit of analysis set at the whole interview, transcripts were firstly subjected to multiple readings by members of the project team (BJ, PA, MK, AB). Deductive content analysis was then independently conducted using NVivo (Release 1.7) with a focus on coding data related to changes to placement aspects as defined in the survey (placement tasks, experience of the local community, travel around the region, connection with other students, accommodation, supervision, placement setting, rural location). Relevant data were coded under each placement aspect, with themes then developed through consensus discussions between the research team (BJ, PA, MK, AB) regarding factors associated with changes experienced across all placement aspects.

Given the same approach to coding, open-ended survey responses and interview data were triangulated after coding.[24] Verbatim quotations were used from either survey or interview data to exemplify student concerns.

2.5 | Ethics approval

Ethics approval was obtained from the University of Tasmania Human Research Ethics Committee (Project ID: 27664), with reciprocal ethical approval granted by other participating universities (University of Melbourne, University of Newcastle, La Trobe University, Flinders University, University of Western Australia and James Cook University).

3 | RESULTS

A total of 857 students responded to the survey, representing an overall response rate of 12.1%. However, 322 responses did not provide usable data for analysis (304 non-responses and 18 responses were incomplete). Of the 535 complete responses, 333 were identified as nursing and allied health students who had a rural placement scheduled in 2022. Just over half ($n = 177$, 53.2%) were nursing students who were studying a range of degrees including nursing ($n = 160$), midwifery ($n = 4$), nursing and midwifery ($n = 5$), and nursing and paramedicine ($n = 8$). The remaining respondents ($n = 156$, 46.8%) were allied health students studying occupational therapy ($n = 29$), pharmacy ($n = 22$), dietetics or nutrition ($n = 17$), physiotherapy ($n = 16$), speech pathology ($n = 15$), social work ($n = 14$), medical radiation science ($n = 12$), paramedicine ($n = 11$), exercise physiology ($n = 4$), podiatry ($n = 3$), dentistry ($n = 3$), psychology ($n = 2$), audiology ($n = 2$), chiropractic ($n = 2$), medical laboratory science ($n = 1$), optometry ($n = 1$), public health ($n = 1$) and orthotics/prosthetics ($n = 1$). The demographic profile of survey respondents is detailed in Table 1.

Of the 34 interviewees, 21 were identified as a nursing or allied health student who had a scheduled rural placement in 2022 and were subsequently included in the analysis. Nine (42.9%) interviewees were from the discipline of nursing while 12 (57.1%) represented the allied health disciplines of occupational therapy, speech pathology, physiotherapy, pharmacy, psychology, paramedicine, social work and exercise physiology. Just over half the interviewees were female ($n = 13$, 61.9%) and over 25 years of age ($n = 13$, 61.9%).

3.1 | Rural placement characteristics

Placements were scheduled in all states and territories, except for the Australian Capital Territory, with 63.7% in rural locations (MM3-5), and 21.6% in remote settings (MM6-7) (Table 2). Most students ($n = 258$, 77.5%) were

TABLE 1 Demographic characteristics of survey respondents ($n = 333$).

	Nursing	Allied health	Total
	$n = 177$	$n = 156$	$n = 333$
Demographic characteristic	***n* (%)**	***n* (%)**	***n* (%)**
Gender			
Female	155 (87.6)	133 (85.3)	288 (86.5)
Male	22 (12.4)	22 (14.1)	44 (13.2)
Non-gender binary	0 (0.0)	1 (0.6)	1 (0.3)
Age			
Under 25 years	80 (45.2)	102 (65.4)	182 (54.7)
≥25 years	97 (44.8)	54 (34.6)	151 (45.3)
Aboriginal and Torres Strait Islander			
Yes	3 (1.7)	4 (2.6)	7 (2.1)
No	169 (95.5)	152 (97.4)	321 (96.4)
Undisclosed	5 (2.8)	0 (0.0)	5 (1.5)
Origin			
Rural	112 (63.3)	71 (45.5)	183 (55.0)
Metropolitan	65 (36.7)	85 (54.5)	150 (45.0)
Course level			
Undergraduate	169 (95.5)	117 (75.0)	286 (85.9)
Postgraduate	8 (4.5)	39 (25.0)	47 (14.1)
Location while studying			
Victoria	78 (44.1)	38 (24.4)	116 (34.8)
New South Wales	22 (12.4)	45 (28.8)	67 (20.1)
Western Australia	15 (8.5)	28 (17.9)	43 (12.9)
Queensland	11 (6.2)	27 (17.3)	38 (11.4)
Tasmania	32 (18.1)	3 (1.9)	35 (10.5)
South Australia	15 (8.5)	13 (8.3)	28 (8.4)
Northern Territory	4 (2.3)	1 (0.6)	5 (1.5)
Australian Capital Territory	0 (0.0)	1 (0.6)	1 (0.3)
Employed			
Yes	140 (79.1)	119 (76.3)	259 (77.8)
No	37 (20.9)	37 (23.7)	74 (22.2)

required to relocate to attend placement, with 71.7% travelling distances greater than 200 kilometres. Just over half of the scheduled placements were 4 weeks or less in duration ($n = 173$, 52.7%), while 47.3% ($n = 155$) were longer than 4 weeks. Nursing recorded proportionately more scheduled placements of 4 weeks or less (67.1%) compared to allied health (36.8%).

3.2 | Rural placement changes

Of the 333 students surveyed, 328 (98.5%) were able to undertake their scheduled placement in some form, with the remaining five (1.5%) students reporting their placement was either cancelled or changed to a metropolitan location (Figure 1). Of those able to undertake their scheduled placement, 43 (13.1%) students reported a change in placement setting, timing or design. Most commonly, students were allocated a different rural placement and location than originally planned ($n = 16$, 4.9%), or started their placement but failed to complete their full placement hours ($n = 14$, 4.3%).

Among the 328 students surveyed who were able to undertake their scheduled placement in some form, the most common changes reported were to placement tasks ($n = 155$, 47.3%), followed by experience of the local community ($n = 128$, 39.0%), and connection with other students ($n = 121$, 36.9%) (Table 3). Nursing students had higher odds of reporting changes to rural location (OR 2.37, 1.19–4.87, $p < 0.01$), connection with other students

TABLE 2 Rural placement characteristics ($n=333$).

Placement characteristics	Nursing $n=177$ n (%)	Allied health $n=156$ n (%)	Total $n=333$ n (%)
Location – State			
Victoria	76 (42.9)	29 (18.6)	105 (31.5)
New South Wales	24 (13.6)	42 (26.9)	66 (19.8)
Western Australia	17 (9.6)	30 (19.2)	47 (14.1)
Tasmania	33 (18.6)	6 (3.8)	39 (11.7)
Northern Territory	12 (6.8)	21 (13.5)	33 (9.9)
Queensland	5 (2.8)	21 (13.5)	26 (7.8)
South Australia	10 (5.6)	7 (4.5)	17 (5.1)
Location – MM			
Regional (MM2)	21 (11.9)	24 (15.4)	45 (13.5)
Rural (MM3-5)	129 (72.9)	83 (53.2)	212 (63.7)
Remote (MM6-7)	26 (14.7)	46 (29.5)	72 (21.6)
Mixed (MM2-7)	1 (0.6)	3 (1.9)	4 (1.2)
Duration			
≤4 weeks	116 (67.1)	57 (36.8)	173 (52.7)
>4 weeks	57 (32.9)	98 (63.2)	155 (47.3)
Relocation required			
Yes	130 (73.4)	128 (82.1)	258 (77.5)
No	47 (26.6)	28 (17.9)	75 (22.5)
Travel distance to placement when relocating[a]			
<50 km	6 (4.6)	2 (1.6)	8 (3.14)
51–100 km	21 (16.2)	1 (0.8)	22 (8.5)
101–200 km	31 (23.8)	12 (9.4)	43 (16.7)
201–500 km	58 (44.6)	47 (36.7)	105 (40.7)
More than 500 km	14 (10.8)	66 (51.6)	80 (31.0)
Travel mode to placement when relocating[a]			
Private car	112 (86.2)	89 (69.5)	201 (77.9)
Plane	13 (10.0)	43 (33.6)	56 (21.7)
Other (bus, train, boat)	13 (7.3)	12 (7.7)	25 (7.5)

[a]($n=258$) as only respondents who relocated for placement answered.

(OR 2.02, [95% CI 1.24–3.30, $p<0.01$]), travel around the region (OR, 1.83 [95% CI 1.10–3.06, $p=0.01$]) and supervision (OR, 1.69 [95% CI 1.03–2.77, $p=0.03$]) than allied health students. Students who had placements of more than 4 weeks were more likely than those with shorter placements of 4 weeks or less to report changes in placement tasks only (OR, 1.62 [95% CI 1.02–2.56, $p=0.03$]).

3.3 | Student perspectives of rural placements

Most ($n=295$, 89.9%) surveyed students who undertook their scheduled placement in some form agreed that they met their learning objectives, and over three quarters ($n=257$, 78.4%) felt that their learning needs were well supported by their supervisor/s (Table 4). Just under three quarters ($n=235$, 71.6%) had opportunities to experience the local community, with 68.6% ($n=225$) agreeing they had opportunities to connect with other health students. There were several differences depending on discipline and length of placement. Nursing students were less likely than allied health students to agree that they learnt a lot of new skills on placement (OR, 0.50 [95% CI 0.25–0.96, $p=0.03$]), their learning needs were well supported by supervisors (OR, 0.49 [95% CI 0.27–0.88, $p=0.01$]), they had opportunities to experience the local community (OR, 0.34 [95% CI 0.20–0.59, $p=<0.001$]), or

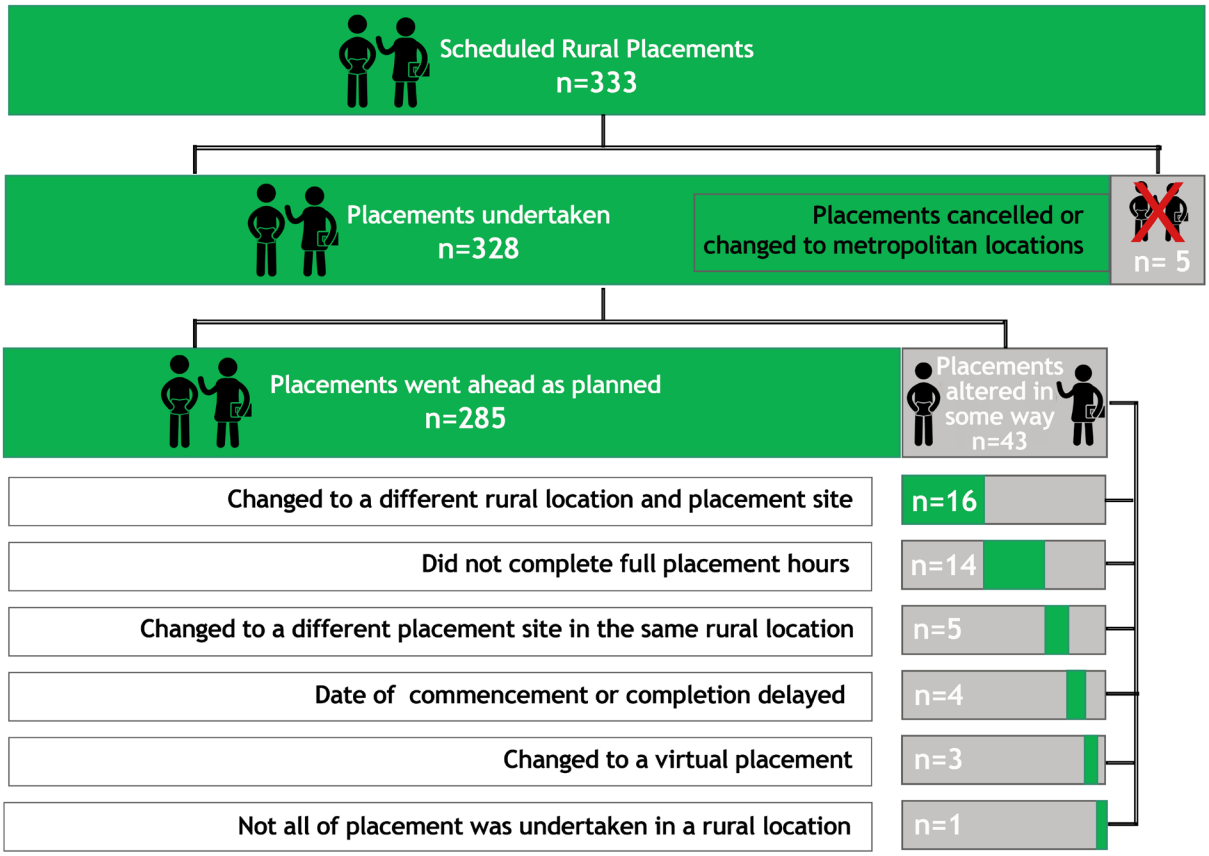

FIGURE 1 Scheduled rural placements in 2022 ($n=333$).

had opportunities to connect with other health students (OR, 0.61 [95% CI 0.37–1.00, $p=0.04$]). Students who had a placement longer than 4 weeks were more likely to agree that they met learning objectives (OR, 3.10 [95% CI 1.30–8.20, $p=0.01$]), learned a lot of new clinical skills (OR, 3.39 [95% CI 1.69–7.20, $p=<0.001$]), and had opportunities to experience the local community (OR, 1.96 [95% CI 1.16–3.34, $p=0.01$]) compared to those whose placements were 4 weeks or less.

In terms of health and well-being, around half ($n=158$, 48.2%) of students were concerned about contracting COVID-19 on placement, with those who had a placement longer than 4 weeks more likely to report they were concerned (OR, 1.58 [95% CI 1.00–2.51, $p=0.04$]). Around two thirds ($n=217$, 66.2%) of students agreed they were happy to share accommodation with other students, with nursing students less likely to agree with this statement than allied health students (OR, 0.50 [95% CI 0.30–0.82, $p=0.004$]).

Most students were satisfied with their rural placement ($n=282$, 86.0%), felt that their placement provided quality clinical training ($n=260$, 79.3%), and could see themselves working in a rural area after they graduated ($n=240$, 73.2%). However, nursing students were less likely to report satisfaction (OR, 0.49 [95% CI 0.24–0.99, $p=0.03$]) than allied health students, while students who had a placement longer than 4 weeks were more likely to report rural practice intention (OR, 1.84 [95% CI 1.09–3.15, $p=0.02$]) than those whose placements were 4 weeks or less.

3.4 | Reasons for rural placement changes

Analysis of open-ended survey responses and interview data identified four themes related to rural placement changes: fear of contracting COVID-19; circulating illness; health workforce shortages; and health and safety compliance (Table 5).

3.4.1 | Fear of contracting COVID-19

Both nursing and allied health students acknowledged they were fearful of contracting COVID-19 while undertaking placement. This fear related to the anticipated impact of close contact isolation or illness on completing placement hours and not their personal health and well-being, despite most interviewees indicating they had not

TABLE 3 Number and percentage of students who experienced changes to aspects of rural placements by discipline and placement length ($n = 328$).

	Total	Nursing	Allied health			Placement >4 weeks	Placement ≤4 weeks		
	$n = 328$	$n = 173$	$n = 155$	Odds ratio		$n = 155$	$n = 173$	Odds ratio	
	n (%)	*n* (%)	*n* (%)	(95% CI)	*p*-Value	*n* (%)	*n* (%)	(95% CI)	*p*-Value
Placement tasks	155 (47.3)	82 (47.4)	73 (47.1)	1.01 (0.64, 1.60)	0.96	83 (53.5)	72 (41.6)	1.62 (1.02, 2.56)	0.03
Experience of local community	128 (39.0)	71 (41.0)	57 (36.8)	1.20 (0.75, 1.92)	0.43	64 (41.3)	64 (37.0)	1.20 (0.75, 1.91)	0.43
Connection with other students	121 (36.9)	77 (44.5)	44 (28.4)	2.02 (1.24, 3.30)	<0.01	62 (40.0)	59 (34.1)	1.29 (0.80, 2.07)	0.27
Supervision	111 (33.8)	68 (39.3)	43 (27.7)	1.69 (1.03, 2.77)	0.03	57 (36.8)	54 (31.2)	1.28 (0.79, 2.08)	0.29
Travel around the region	100 (30.5)	63 (36.4)	37 (23.9)	1.83 (1.10, 3.06)	0.01	50 (32.3)	50 (28.9)	1.17 (0.71, 1.93)	0.51
Placement setting	98 (29.9)	59 (34.1)	39 (25.2)	1.54 (0.93, 2.57)	0.08	48 (31.0)	50 (28.9)	1.10 (0.69, 1.82)	0.68
Accommodation	89 (27.1)	55 (31.8)	34 (21.9)	1.66 (0.98, 2.82)	0.05	46 (29.7)	43 (24.9)	1.28 (0.76, 2.14)	0.33
Rural location	50 (15.2)	35 (20.2)	15 (9.7)	2.37 (1.19, 4.87)	<0.01	21 (13.5)	29 (16.8)	0.78 (0.40, 1.49)	0.42

had the illness prior to going. Students subsequently took steps to minimise the risk of contracting COVID-19 including: declining to care for COVID-19 positive patients when given the choice; reducing physical proximity with healthcare staff during placement hours; socially isolating from other students in shared accommodation facilities; self-funding private accommodation to avoid having to share with other health students; avoiding social gatherings with other students; and limiting their immersion in the local community.

3.4.2 | Circulating illness

Most students reflected that their rural placement was undertaken in the context of local community transmission of COVID-19. When case numbers were high, allied health students experienced an increase in appointment cancellations resulting in fewer clinical learning opportunities, while nursing students described increased direct exposure to COVID-19-positive patients. Students also described fellow students becoming unwell, and increased absenteeism among health professional staff at rural training sites.

Inevitably, many students, regardless of discipline, became unwell with COVID-19 or other illnesses, or were identified as a close contact, which mandated a period of self-isolation in line with government or organisational policy. While some students were able to reorganise or extend their placements to make up for lost placement hours, others were unable to complete their placements, partly due to rigidity in accommodation bookings and/or supervisor availability.

Students who became unwell or a close contact on placement described having to self-isolate in their rural location, with some having to move to alternative quarantine housing dedicated to students who were unwell or a close contact. However, quarantine housing was not available in all locations, with other students describing necessary steps to manage self-isolation in shared accommodation including: having to swap bedroom allocations to allow those isolating to access ensuite facilities; ensuring accommodation facilities underwent a deep clean after a positive case was identified; and adhering to strict hygiene and social distancing protocols.

Circulating illness also affected supervision in circumstances where supervisors became unwell or a close contact. Allied health students described transitioning to telesupervision, using either telephone or video communication to maintain contact, where supervisors were in good health but self-isolating due to close contact rules. However, when supervisors were unwell, students reflected on being left unsupported until they returned to

TABLE 4 Number and percentage agreement by discipline and placement length with questions asked about rural placements completed ($n = 328$).

	Total	Nursing	Allied health			Placement >4 weeks	Placement ≤4 weeks		
	$n = 328$	$n = 173$	$n = 155$	Odds ratio (95% CI)	p-Value	$n = 155$	$n = 173$	Odds ratio (95% CI)	p-Value
	n (%)	n (%)	n (%)			n (%)	n (%)		
Placement perspectives									
I met the learning objectives of my rural placement	295 (89.9)	151 (87.3)	144 (92.9)	0.52 (0.22, 1.18)	0.09	147 (94.8)	148 (85.5)	3.10 (1.30, 8.20)	0.01
I received an orientation at the commencement of my rural placement	279 (85.1)	146 (84.4)	133 (85.8)	0.89 (0.46, 1.72)	0.72	142 (91.6)	137 (79.2)	2.87 (1.41, 6.14)	0.002
I learned a lot of new clinical skills during my rural placement	274 (83.5)	137 (79.2)	137 (88.4)	0.50 (0.25, 0.96)	0.03	142 (91.6)	132 (76.3)	3.39 (1.69, 7.20)	<0.001
During my rural placement I felt my learning needs were well supported by my supervisor(s)	257 (78.4)	126 (72.8)	131 (84.5)	0.49 (0.27, 0.88)	0.01	128 (82.6)	129 (74.6)	1.62 (0.92, 2.89)	0.08
I had opportunities to develop my cultural awareness on rural placement	244 (74.4)	117 (67.6)	127 (81.9)	0.46 (0.26, 0.80)	0.003	122 (78.7)	122 (70.5)	1.55 (0.91, 2.65)	0.09
I had opportunities to experience the local rural community during placement	235 (71.6)	107 (61.8)	128 (82.6)	0.34 (0.20, 0.59)	<0.001	122 (78.7)	113 (65.3)	1.96 (1.16, 3.34)	0.01
I had opportunities to connect with other health students in the same location during placement	225 (68.6)	110 (63.6)	115 (74.2)	0.61 (0.37, 1.00)	0.04	114 (73.5)	111 (64.2)	1.55 (0.94, 2.57)	0.07
I was able to learn how to deliver services by telehealth during my rural placement	95 (29.0)	42 (24.3)	53 (34.2)	0.62 (0.37, 1.03)	0.05	64 (34.8)	41 (23.7)	1.72 (1.03, 2.87)	0.03
As a result of COVID-19, my rural placement was not busy	76 (23.2)	44 (25.4)	32 (20.6)	1.31 (0.76, 2.28)	0.31	35 (22.6)	41 (23.7)	0.94 (0.54, 1.62)	0.81
Health and well-being									
I was happy to be vaccinated to be able to go on placement/s	294 (89.6)	156 (90.2)	138 (89.0)	1.13 (0.52, 2.46)	0.74	137 (88.4)	157 (90.8)	0.78 (0.36, 1.68)	0.48
I was concerned about contracting COVID-19 during my rural placement	158 (48.2)	89 (51.4)	69 (44.5)	1.32 (0.84, 2.09)	0.21	84 (54.2)	74 (42.8)	1.58 (1.00, 2.51)	0.04
I was concerned about transmitting COVID-19 to a rural location by travelling to placement	130 (39.6)	69 (39.9)	61 (39.4)	1.02 (0.64, 1.63)	0.92	68 (43.9)	62 (35.8)	1.40 (0.88, 2.24)	0.14
I found undertaking rural placement during the pandemic stressful	105 (32.0)	63 (36.4)	42 (27.1)	1.54 (0.94, 2.54)	0.07	54 (34.8)	51 (29.5)	1.28 (0.78, 2.09)	0.30
I was happy to share accommodation with other students during placement	217 (66.2)	102 (59.0)	115 (74.2)	0.50 (0.30, 0.82)	0.004	107 (69.0)	110 (63.6)	1.28 (0.79, 2.08)	0.30

(Continues)

TABLE 4 (Continued)

	Total	Nursing	Allied health	Odds ratio	p-Value	Placement >4 weeks	Placement ≤4 weeks	Odds ratio	p-Value
	n = 328	n = 173	n = 155			n = 155	n = 173		
	n (%)	n (%)	n (%)	(95% CI)		n (%)	n (%)	(95% CI)	
Rural training quality, satisfaction and rural practice intention									
I felt my rural placement provided quality clinical training	260 (79.3)	132 (76.3)	128 (82.6)	0.68 (0.38, 1.21)	0.16	128 (82.6)	132 (76.3)	1.47 (0.83, 2.64)	0.16
Overall, I was satisfied with my rural placement	282 (86.0)	142 (82.1)	140 (90.3)	0.49 (0.24, 0.99)	0.03	138 (89.0)	144 (83.2)	1.63 (0.82, 3.32)	0.13
Based on my recent placement experience, I can see myself working in a rural location after I graduate as a health professional	240 (73.2)	121 (69.9)	119 (76.8)	0.70 (0.42, 1.19)	0.16	123 (79.4)	117 (67.6)	1.84 (1.09, 3.15)	0.02

work. Nursing students described different experiences, with absent supervisors (or preceptors) being replaced by alternative nursing staff who students reported as inexperienced and/or unprepared to support student learning.

3.4.3 | Workforce shortages

Students completing placements described understaffing at rural placement sites, attributed to burnout, vaccination mandates, and personal or family illness and associated self-isolation requirements. Students attending rural placement sites that were experiencing workforce shortages described the strategic use of their labour to support frontline healthcare delivery and sustain business as usual service capacity. This situation left students feeling conflicted, with some recognising greater opportunities for autonomy and personal growth in clinical skills and knowledge. However, others described feeling exploited, with the focus on healthcare delivery diverting attention away from achieving learning goals. Some students also expressed concern that they may have stepped beyond their scope of practice. Partly, this was exacerbated by decreased supervisory attention, brought about by the burden of increased clinical demands, and in some cases, remote supervision arrangements. Other students experienced new supervisors who were only recently recruited to the role after the loss of previous supervisory staff, leaving students feeling inadequately supported. Nursing students especially described the challenge in gaining consistency with supervisory support, with temporary agency staff or enrolled nurses employed to fill workforce gaps described as less capable and invested in student learning.

3.4.4 | Health and safety compliance

Finally, students described that rural placement sites required adherence to a range of health and safety measures including: social distancing, room density limits, the use of personal protective equipment and frequent testing for COVID-19 with Rapid Antigen Tests (RATs). This impacted students' ability to move freely within and between clinical spaces, access communal spaces for staff (e.g. tea rooms), attend staff meetings/handovers, observe theatre sessions, and specifically for allied health students, deliver therapy in group settings. Some placement sites also prohibited access to emergency departments, aged care facilities, community outreach, and designated COVID-19 or respiratory wards as they were perceived high-risk settings. However, rules around student interaction with

COVID-19-positive patients varied considerably among both nursing and allied health students. Some universities and placement sites prohibited student interaction with COVID-19 or suspected COVID-19 patients. Others gave students the choice provided strict infection control measures were adopted, while some (more common among nursing students than allied health) described no limitations on their clinical engagement with COVID-19 patients.

All students who commented on masks described the specific challenge of mask mandates, with students noticing the impact on personal health and well-being (e.g. difficulties breathing, skin related conditions on the face, sinus related illnesses), socialisation, as well as patient interaction and verbal communication. The types of masks required to be worn also varied across placement sites, with some students required to have professionally fitted N95 masks to access placement sites or specific clinical spaces (e.g. emergency departments). This was an additional expense for students when mask fitting was not covered by the university or placement facility.

4 | DISCUSSION

Unlike the early stages of the public health emergency which saw around 20% of rural placements cancelled,[7] almost all UDRH-facilitated rural placements scheduled in 2022 were undertaken in some form. However, over one in 10 students experienced changes to the timing, delivery or setting of their placement, illustrating that the 'living with COVID' phase of the public health emergency continued to influence the delivery of rural training for some students. Up to half of students also reported changes to placement tasks, with slightly fewer indicating changes to experience of the local community and connection with other students. These findings concur with rural placement experiences during 2020,[7] highlighting the aspects of rural training most vulnerable to disruption, regardless of pandemic stage. Despite these placement changes, students largely perceived their training experiences as positive, with high levels of agreement among those surveyed that placements provided quality clinical training, left them satisfied, and wanting to work rurally post-qualifying. These findings are similar to both

TABLE 5 Themes associated with placement changes.

Theme	Placement aspect impacted	Demonstrative quotes – nursing	Demonstrative quotes – allied health
Fear of contracting COVID-19	Connection with other students, experience of the local community, accommodation	*Travelling to [remote location] during COVID-19 was quite stressful. I was very concerned about getting the virus and it affecting my placement experience/hours. I heard from other students that making up hours due to sick leave was very stressful and challenging during the pandemic. (Survey respondent #837, nursing)* *[Placement] was a bit far away from where I live... I felt like if I get sick with COVID and I'm just alone in this place what do I do? Maybe I'm so sick I can't drive maybe more than 2 h to get home so it meant that if I get sick, I'll be alone in the house. I thought it was going to be difficult. (Interviewee #33, nursing)* *I actually knew somebody with a house down there and I was a bit nervous about COVID just stuffing things up and I thought, oh, look, I'll just pay the extra money, because it was dearer, and I'll go and stay in this house on my own for the second week. (Interviewee #12, nursing)*	*People were still at their peak caution levels, so everyone wore their masks, people socially distanced ..., and I was obviously very cautious in terms of doing the same to the patients and making sure I didn't get anyone sick, but also making sure no one gets me sick, because then I'd end up kind of sitting in accommodation in a rural town not being able to participate in the placement. So I was a lot more cautious and even when I took my mask off to eat, I would go sit somewhere outside that's not like in a busy staffroom. (Interviewee #17, pharmacy)* *[I missed out on] connection with other students in the shared accommodation due to people being more cautious with COVID-19. (Survey respondent #89, podiatry)* *There was a lot of going between houses and barbecues and things like that ... we tended to avoid the barbecues once COVID really ramped up. (Interviewee #1, speech pathology)*

(Continues)

TABLE 5 (Continued)

Theme	Placement aspect impacted	Demonstrative quotes – nursing	Demonstrative quotes – allied health
Circulating illness	Placement tasks, supervision, accommodation	*I had a lot of practice donning PPE off and on while nursing Covid-positive patients. (Survey respondent #585, nursing)* *I wasn't able to fully complete my placement (missed final 3 days) due to testing positive for COVID-19. (Survey respondent #190, nursing)* *Supervision, there wasn't enough support I don't think. I think that that comes down to staffing in general with any kind of facility in some respect for students and to have that kind of support. I know that a couple of nursing staff were away and there was a preceptor who was actually the fill in preceptor who wasn't an original preceptor for some reason, I'm not quite sure. (Interviewee #34, nursing)* *One of the roommates that I was staying with, they got COVID while I was there, and they had to leave and they had to do a full COVID clean. And then we got a new roommate in and … they had tested RAT positive. For me that was a bit worrying because they were still in the house; they hadn't moved them out yet. They stayed in the house and they were also quite symptomatic, they had a snotty nose, they were quite coughy and chesty … [They] ended up not having COVID and I was okay [but] I was RAT testing every day, trying to check it was okay. (Interviewee #29, nursing)*	*Because there were a couple of COVID waves while I was up there, there were a lot of client absences. Potentially, there are clients that I may have been able to do more work with if there hadn't been the interruptions and absences due to either isolating family members or positive tests and that kind of thing. (Interviewee #15, psychology)* *I missed quite a few weeks of my placement, due to myself contracting COVID, and then both my supervisors also contracting it throughout my placement period. (Survey respondent #546, occupational therapy)* *My week of placement at the private practice was not beneficial. My supervisor could not look at how I was working since [they] had Covid … I ended up staying an extra week because my supervisor felt as though the week off was detrimental to my learning experience and I was still not up to standard. (Survey respondent #292, physiotherapy)* *There were a few times my supervisor [became a close contact] … so [they] would go home and test [themselves] and make sure there was like no symptoms before [they] would come back. So that impacted me a little bit because we then switched to tele-supervision and tele-support, which worked fine for me, I was like really comfortable with that, I still felt very supported. [They] were always calling me, always texting me, always having some sort of video chat, but that definitely was not what I expected kind of going into it. (Interviewee #21, occupational therapy)* *[University] did have a house that was specifically for quarantining students who'd come down with COVID. (Interviewee #24, pharmacy)* *The house I was at it had four rooms and then the last room had an ensuite and I took the room with the ensuite because I came in first. Whenever someone was a close contact or anything, they had to move into my space because they had their own bathroom. (Interviewee #1, speech pathology)*

TABLE 5 (Continued)

Theme	Placement aspect impacted	Demonstrative quotes – nursing	Demonstrative quotes – allied health
Workforce shortages	Placement tasks, supervision	*COVID-19 exacerbated staff shortages. As a consequence, I felt that our education opportunities and supervision were limited. At times we became just another set of hands to complete work tasks. While this may be required at certain times, it did not feel like my skills and knowledge were being challenged or utilised. (Survey respondent #435, nursing)* *We had a number of staff get COVID and so we were short-staffed as well there. So donning, we'd go in, we'd get handover and then it'd be straight into getting the first resident up. And in an aged care facility, you do one thing and while one residents in the shower, you go get the next one ready, and then when they're getting dressed and ready, you make the next ones bed. It really put a spin on time management. (Interviewee #8, nursing)* *You would always be short staffed for some reason and I think that put a lot of pressure on just the learning side of things … my placement then just became work and not learning. (Interviewee #9, midwifery)* *My last placement was supervised under mainly agency nurses, who though are very competent, I feel that they were not as invested as the permanent staff that were there. (Survey respondent #892, nursing)*	*The rural clinical sites I went to, especially the most recent one, were extremely understaffed. They lost a lot of staff during the pandemic. I found as a student that we were left to do the work alone a lot of the time and they expected a lot from us to pick up the work quickly. (Survey respondent #857, medical radiation science)* *It was very challenging … ultimately, I felt like it was one of those [placements] where the balance is really skewed towards the students really giving a lot, essentially propping up the service. Between the two students, they're providing five to six times the FTE of the actual paid staff and not really receiving a whole lot in return. I felt quite exploited to be honest. (Interviewee #13, psychology)* *Supervision was more poor and learning not as well as could have been due to lack of staff and lack of consistency. (Survey respondent #854, physiotherapy)* *Lower levels of staffing meant that at times, there was minimal student supervision which allowed me to gain a lot of independence. (Survey respondent #588, medical radiation science)*

(Continues)

TABLE 5 (Continued)

Theme	Placement aspect impacted	Demonstrative quotes – nursing	Demonstrative quotes – allied health
Health and safety compliance	Placement tasks, placement setting	*Poor connection to patients due to amounts of PPE required at all times, poor personal health of dehydration and skin irritation due to mask wearing and less freedom to walk out of clinical space when needed. (Survey respondent #76, nursing)* *I was unable to partake/listen to handover as the handover room was too small for students to fit. I was also unable to use the tearoom on breaks. (Survey respondent #689, nursing)* *Hospital policy made each staff member test twice a week and wear N95 masks all shift. (Survey respondent #444, nursing)* *The change was only the infection control measures like wearing a mask. You were required to wear a mask the whole shift which is something very difficult … You feel like you're not breathing. You feel like maybe someone is starving you of air, but at the same time you want to feel safe. (Interviewee #33, nursing)* *I thought that I actually had COVID at that particular time but it ended up being just a really bad sinus infection … it seems to be quite common with masks and constriction of the nose that a lot of people have been getting sinus infections and illness just from that not necessarily COVID. (Interviewee #34, nursing)*	*There was actually a COVID outbreak in one of the nursing homes out at [remote town] … When we went to visit there, we had to avoid one half of the hospital. (Interviewee #14, pharmacy)* *They could only have 25% of their workplace within the office at any one time, so it was simply a numbers game and I'd drawn an unlucky card. (Interviewee #32, social work)* *As a student, I wasn't able to enter ICU at one hospital when there were quite a few COVID-19 patients in there. (Survey respondent #820, dietetics)* *I had to be assessed to make sure I knew how to wash my hands properly and put on my PPE properly and take off masks and swap masks and when to do all that sort of thing. (Interviewee #24, pharmacy)* *I think they used to run a lot more group sessions, like kids to learn how to ride bikes through the holidays and that sort of thing, and they didn't have any of any of those, just from they're sort of trying to avoid people gathering. (Interviewee #6, physiotherapy)* *I think the biggest change was masks to be honest, not being able to see people's faces and people not seeing your face. I mean we adapted and it began to feel really normal, but definitely not ideal as a psychologist. (Interviewee #13, psychology)* *I think the only thing was when we had the N95 masks they asked the uni to pay for us to have them fitted, or we had to pay out of our pocket to have them fitted. Unfortunately, the uni I went to didn't pay for our mask fitting and so I, as a student with very little revenue at that point, I thought I can't afford this. (Interviewee #1, speech pathology)*

pre-pandemic[2] and early pandemic literature,[7,12,14] illustrating that UDRHs have continued to promote interest in rural employment despite the challenges and changes posed by the evolving public health emergency.

Placement changes during Australia's transition to 'living with COVID' were associated with four key themes. First, students' were fearful of contracting COVID-19, which likely reflected the sudden and widespread community transmission of the disease across all states and territories following the reopening of state and national borders.[25] While the near half of students in this study who expressed concern around contracting COVID-19 on placement was therefore anticipated,[26] students' concerns related primarily to the impact of illness on completing placement hours rather than for their personal health and safety. This corroborates previous literature,[27] and is a likely corollary of previously cancelled placements, fears about graduating on time and with adequate clinical competency,[7,26,27] along with lessening fear of COVID-19 itself.[28] The observed trend that concerns about contracting

COVID-19 were higher among students with placements longer than 4 weeks may reflect health disciplines which have less frequent opportunities for clinical placements, or students in the latter stages of their health degree, therefore driving student anxiety about illness related interruptions. To minimise the risk of infection, students described avoiding social contact with other staff and students on placements, socially isolating in accommodation facilities, and reducing exploration of the rural location; all factors which are perceived to be inherently important to quality rural placement experiences,[29,30] and place-based learning.[31] This demonstrates the continued loss of rural experience despite the absence of physical limitations accessing rural communities.[10]

Despite students' risk minimisation strategies, circulating illness meant some students ultimately became a close contact, or unwell while on rural placement. Although some were fortunate to have been able to extend or restructure their placements to make up for missed time, others lost placement hours due to rigidity in accommodation bookings or supervisory commitments. As placement completion is an important component of supporting graduate preparedness[7,10] and student health and well-being,[26,32] this exemplifies the flexibility needed by UDRHs to ensure continuity in access to clinical learning during the latter stage of a public health emergency.[33] Scheduling students at less regular intervals may allow greater responsiveness to unanticipated absences. With students largely remaining in rural locations to self-isolate, UDRHs also need to consider the limitations of shared accommodation infrastructure to better respond to infectious disease threats. Although some students had access to dedicated quarantine housing, others were required to continue shared living arrangements, relying on room swapping, social distancing measures, and deep cleaning regimes to promote safety. This likely exacerbated student anxiety around contracting the illness, further reinforced self-imposed social isolation measures, and ultimately prevented the social connectedness and peer support promoted by co-location of students.[29]

Circulating illness also impacted the broader health workforce at rural placement sites, including supervisors and preceptors. This compromised the supervision afforded to students in some circumstances, highlighting the vulnerability in both quality and consistency of supervisory support to health students at rural placement sites throughout public health emergencies.[8,16,33] Illustrative of the literature, this study observed examples where remote supervision sustained student support in circumstances of sudden supervisory absences.[16,33] This strategy may need strengthening for nursing students who spoke specifically of the difficulties obtaining support required from agency staff, or those inexperienced or unprepared for supervisory roles. With the success of remote supervision depending on adequate planning and preparation,[34] UDRHs may need to develop remote supervision pathways for all placement sites to ensure resilience in areas with high staff turnover rates, and continuity in support provided to students.

Beyond absenteeism directly associated with circulating illness, students in this study observed changes to placement experiences from broader workforce shortages at rural placement sites. With fewer available staff, students recognised that excess clinical demands reduced supervisory capacity and necessitated greater student autonomy and contribution to sustain frontline healthcare services. This moves beyond the recognition of rural placements as an important component of healthcare access in underserved rural communities,[2,33] and acknowledges the key role of students in bridging service gaps in rural settings during a 'living with' phase of a public health emergency. Given the vulnerability of rural workforce to infectious disease threats,[35] adequate preparation of students by universities and UDRHs regarding possible changes in placement design and delivery may help to reshape expectations and build awareness of potential supervisory changes and workforce demands. This may help students view changed placement experiences more positively while reducing the burden on rural placement sites and supervisors by providing students who are ready, capable and willing to operate in changed learning environments.

Although placement changes associated with the widespread adoption of a range of health and safety measures were anticipated,[7,10] many students in this study spoke specifically of the novel challenge of extensive mask wearing while on rural placement.[8] Not only did students describe masks as impacting their personal health and well-being, but they also reported the loss of facial expression posed a barrier to patient interaction, rapport building and verbal communication; challenges well documented among healthcare professionals more broadly,[36,37] and observed by supervisors in rural training settings.[8] This study also found the type of masks required to be worn across rural placement sites differed. Although the literature suggests N95 masks may be better in preventing transmission of COVID-19,[37] they may have exacerbated student difficulties with communication,[38] and were an additional financial burden when mask fitting was not covered by the placement site or university. This is an important consideration for UDRHs given the monetary burden rural training can present,[29] along with the challenging financial situation some students may find themselves in during a public health emergency.[15]

This study observed nursing students were more likely to report changes to a range of rural placement aspects

including rural location, supervision, connection with other students and travel around the region as Australia began 'living with COVID'. With many of these aspects important for positive placement experiences,[2,29] this may explain why nursing students had lower odds of reporting placement satisfaction than allied health students; a novel finding in the literature.[7] The Australian College of Nursing reported that as a profession, nursing has experienced a higher than average incidence of COVID-19 infections, illness and mortality, resulting in reduced nurse retention rates, burnout and fatigue.[39] In rural settings already faced with workforce vulnerability,[35] this may explain the greater odds of change in rural location and supervision for nursing students observed in this study. It is also anticipated that nursing students experienced increased exposure to suspected and confirmed COVID-19 patients on placements,[39] making them vulnerable towards becoming a close contact or contracting the illness. We can postulate that this likely fuelled their anxiety about contracting the illness,[27,40] and strengthened their resolve to socially isolate in accommodation facilities to protect themselves and others more than allied health students. Universities and UDRHs may therefore need to pay particular attention to rural workforce issues and respond with support for nursing students undertaking rural placements during the latter stages of a public health emergency to maintain health and well-being, and clinical learning and teaching.[26]

Finally, this study adds to the contention in the literature as to the optimal length of rural placements to build future rural health workforce.[1] In the context of 'living with COVID', greater depth and breadth in opportunities for clinical learning and community engagement undoubtedly helped to counterbalance pandemic-related changes to training. UDRHs may therefore need to advocate for rural placements to be at least 5 weeks to maximise clinical learning opportunities and promote rural intention during the latter stages of a public health emergency. Advocacy appears especially important among the nursing discipline given the higher proportion of shorter placements.

This study has limitations. First, there is the possibility of recall bias, with a delay for some students between completion of their placement and when they were surveyed. Second, there is potential response bias in which the students who self-selected to participate were impacted to a greater degree. Third, the response rate was low, suggesting that these results may not be generalisable to all nursing and allied health students who completed a rural placement across Australia during 2022. However, the response rate is comparable to other online surveys conducted among health students outside of teaching periods.[26,40] Fourth, there was heterogeneity among student placement experiences given that 2022 was a time of transition, and not all rural placements were undertaken with the same policies or directives in place, or with a similar level of threat from COVID-19 'waves'. Similarly, varying supports may have been offered by the different UDRHs facilitating placements which may have further contributed to diversity in placement experiences. Therefore, while the findings reflect common trends during this time, it is acknowledged that some students may not have experienced the placement changes reported in this study. Further, students who completed a rural placement experience unaffiliated with a UDRH during 2022 may have faced different challenges and changes not reflected in this study.

5 | CONCLUSION

As Australia began 'living with COVID', nursing and allied health students were largely able to undertake scheduled rural placements and, despite experiencing changes, perceived them to provide quality training, left them satisfied, and wanting to work in a rural location after they graduate. UDRHs can sustain quality rural training during the latter stages of a public health emergency by advocating for placements of at least 5 weeks, spacing placement allocations, improving remote supervision and accommodation infrastructure, and rigorously preparing students for challenging learning environments. Additional support for nursing students may also be necessary during such periods of transition to promote mental health, well-being and clinical learning.

AUTHOR CONTRIBUTIONS

Belinda Jessup: Conceptualisation; methodology; investigation; formal analysis; writing – original draft; writing – review and editing. **Anthea Brand:** Conceptualisation; methodology; formal analysis; writing – review and editing. **Melissa Kirschbaum:** Formal analysis; writing – original draft; writing – review and editing. **Penny Allen:** Formal analysis; writing – review and editing. **Lisa Bourke:** Conceptualisation; methodology; investigation; supervision; writing – review and editing. **Jodie Bailie, Susan Heaney, Lyndal Sheepway, Tegan Podubinski, Ha Hoang, Kehinde Obamiro, Santosh Jatrana, Sabina Knight, Robyn Fitzroy, Rohan Rasiah:** Conceptualisation; methodology; investigation; formal analysis; writing – review and editing.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

This project was approved principally by the University of Tasmania Human Research Ethics Committee (Project ID: 27664), and other participating universities (University of Melbourne, University of Newcastle, La Trobe University, Flinders University, University of Western Australia and James Cook University).

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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