




# Nutrition employability and graduate readiness: The Australian Working in Nutrition study

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## Abstract

**Background:** Nutrition science graduates contribute to the nutrition workforce by bringing specialist knowledge and skills needed to address future food challenges. This study aims to provide a snapshot of the current employment landscape for nutrition science graduates in Australia and how well their degrees prepare them for employment.

**Method:** A cross-sectional survey of Australian tertiary nutrition graduates was conducted to explore tertiary training, employment pathways and their perceived preparedness for practice.

**Results:** This study included a final sample of 119 graduates from 17 Australian tertiary institutions. Almost two-thirds of respondents had completed further training. Most graduates (77%,  $n = 91$ ) had worked in a food, nutrition science or health-related role after their degree; the most frequently cited employment settings were government or public health organisations; research, not-for-profit or nongovernment organisations; and the food industry. Work-integrated learning was identified as a key predictor of graduates working in a role that differed from their expectations as a student. The skill categories developed during nutrition training that were most valued in the workplace included nutrition and scientific knowledge, and professional and communication skills.

**Conclusions:** This study offers first insights into the current employment landscape for nutrition graduates across Australia. Findings show that current nutrition science professionals are highly qualified and prepared to navigate the evolving demands of nutrition practice. Regular review of graduate employment will inform nutrition science curriculum to enable graduates to be well equipped in the face of dynamic practice settings.

## KEYWORDS

career, nutrition science degree, nutrition workforce, skills, tertiary education, work-integrated learning

## Key points

- The employment landscape and preparedness experienced by current Australian nutrition science graduates has not previously been examined at a national level.
- This study presents data from graduates representing 17 Australian tertiary institutions, who report employment in various settings, with almost two-thirds pursuing further postgraduate studies.

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- Graduates report valuing work-integrated learning and highlight scientific knowledge, professionalism and communication as key development skills relevant for their nutrition employment.

## INTRODUCTION

At least half of Australian universities offer a degree programme in nutrition, nutrition science, human nutrition or nutrition combined with another discipline, such as food science or dietetics. Programmes incorporate an array of core topics, including nutrition science, food and the food system, nutrition governance, sociocultural and behavioural factors, research, critical analysis, communication and professional conduct, either voluntarily as in Australia<sup>1</sup> or for accreditation as in the United Kingdom.<sup>2</sup> Degrees may also include curriculum specialisations such as public health, food industry or animal nutrition, and include elective spaces for special-interest topics, and/or a pathway into postgraduate study in dietetics. Nutrition graduates working across a spectrum of food and nutrition roles are ideally placed to address contemporary challenges that are brought by changes to the climate, local and global economies, population growth and food and health systems.<sup>3</sup> In addition to core nutrition science, future nutrition professionals will need to develop capabilities across advocacy and cultural safety; they may need to be disruptors, entrepreneurial, and utilise business skills, and more.<sup>4</sup> According to the National Committee for Nutrition,<sup>5</sup> individuals in the nutrition science workforce of the future should be upskilled in emerging research areas that impact practice, be confident in leadership positions and represent a trusted voice in nutrition.

The evolving landscape of nutrition and nutrition practice in Australia creates opportunities for education providers to diversify their topic offerings to address contemporary issues. Diversity in courses can allow nutrition graduates to develop varied skill sets to apply to career pathways across a range of settings. This diversity also presents a challenge for education providers to promote clear career pathways to students and to advocate for a professional identity that the public and industry recognise as being distinct to dietitians.<sup>6,7</sup> Even though 'nutritionist' is an occupation category in national Education and Work data,<sup>8</sup> it is unlikely that all nutrition science graduates have 'nutritionist' as their job title. For example, a nutrition science graduate who works in a nutrition research setting may be classified as 'researcher' rather than a nutritionist or in government may have the role of 'policy officer'. Access to current nutrition workforce data is crucial for universities to tailor their curricula to meet actual employment for nutritionists. By focusing curricula on the skills most in demand, universities can better prepare graduates for the workplace, equipping them with the confidence in

promoting their skill set, and thus improve their competitiveness in the job market. Understanding nutrition workforce may also highlight skills considered transferrable across workplaces. In the broader graduate employability literature, industry prioritises transferrable skills.<sup>9,10</sup> In a nutrition science context, several Australian studies<sup>11–13</sup> suggest that students would benefit from additional curriculum content regarding professional skill development and need more opportunities for networking and work-based learning. This finding warrants further investigation in a larger sample before extrapolating more broadly across the Australian higher education sector.

This study aimed to examine the current employment landscape for nutrition science graduates in Australia. This snapshot of working in nutrition included describing current employment settings and role titles, key learnings from their degrees, perceived training gaps and desirable knowledge and skills given their current workforce experiences. To our knowledge, this is the first national survey of graduates from nutrition degrees in Australia. Learnings from this study are important within the context of work being done within the nutrition profession<sup>5,14</sup> and can inform strategies by tertiary institutions to better prepare the future nutrition workforce.

## METHODS

The observational, mixed-methods study was conducted through a self-administered survey between April and December 2022. Any graduate with an Australian tertiary nutrition coursework qualification (minimum bachelor's degree) was eligible to participate.

### Question design and development

The survey comprising 32 questions was designed by the study authors, who were all academics in nutrition science degrees across eight Australian universities, and was informed by Ng et al.<sup>13</sup> Survey questions captured information on demographics, qualifications and training, employment and professional registration and perceived relevance of their nutrition studies to their employment, as well as knowledge and skills that are valued from their nutrition degree and those that would have been desirable in their tertiary training. Survey questions included multiple-choice, discrete (yes/no), and open-ended questions. Free-text responses were included

to better understand the job titles that nutrition graduates were holding and to understand how their training could better support graduates in career searches. In addition, graduates were asked about their top-five skills or knowledge that they obtained through their studies and what would have been desirable learning to support their chosen career path. Construct validation was completed with a convenience sample of six researchers experienced in survey design, providing feedback on question structure and order. The survey was administered online using Qualtrics XM Survey Platform.<sup>15</sup>

## Recruitment

Recruitment aimed to reach nutrition graduates across Australia. A social media recruitment campaign was designed and promoted to university alumni pages on Facebook, Twitter and LinkedIn by all authors. The authors reshared the advertisement with colleagues within the nutrition science education sector via the Nutrition Society of Australia newsletter and by snowball sampling. Recruitment occurred between April and December 2022. All answers were recorded anonymously, and implicit consent was assumed as participants completed the survey. All study materials and procedures, including recruitment material and survey, underwent ethics review and were approved by an institutional ethics board (approval number: A221695). Reciprocal approvals were given through the Research Ethics Offices of all study authors.

## Data analysis

The cleaned data were sorted to separate responses from graduates who had completed a nutrition science degree from those who had completed their nutrition qualification with dietetics. Only results for the non-dietetic nutrition science graduates were considered within scope for this analysis. Descriptive results and categorical responses were used to characterise the sample. Tests of association between variables were conducted using  $\chi^2$  test of contingencies, and test for goodness of fit with effect sizes given as  $\phi$  and Cohen's  $w$  where appropriate. Data were analysed using SPSS Statistics, version 29.<sup>16</sup> Qualitative content analysis based on predetermined categories derived from the set survey response options was used for free-text answers.<sup>17,18</sup>

## RESULTS

### Participant data

Initially 268 respondents provided informed consent and commenced the online survey, where 166 completed 75% or more of the survey (61.9% completion rate). Of the 166

**TABLE 1** Participant characteristics and nutrition coursework qualifications.

Characteristic	<i>n</i>	%
<b>Age (years)</b>		
18–24	15	13
25–34	53	45
35–44	31	26
45–54	14	12
55–64	6	5
<b>Year graduated</b>		
Before 2007	8	7
2007–2014	14	12
2015	5	4
2016	16	13
2017	10	8
2018	8	7
2019	15	12
2020	20	17
2021	14	12
2022	9	8
<b>Gender</b>		
Male	8	7
Female	111	93
Third gender/nonbinary/prefer not to say	0	0
<b>Nutrition qualification</b>		
Undergraduate	87	73
Undergraduate with honours	23	19
Graduate diploma	4	3
Masters	5	4
<b>University</b>		
University of Canberra	5	4
Edith Cowan University	5	4
Endeavour College	5	4
University of SA	8	7
Deakin University	9	8
La Trobe University	11	9
Newcastle University	11	9
Monash University	17	14
Curtin University	33	28
Other	15	13

*Note:* Other (all  $n = 4$  or less): Australian Catholic University, Flinders University, Queensland University of Technology, Central Queensland University, University of Adelaide, University of Otago, University of Wollongong, University of Western Australia, and Western Sydney University.

completed surveys, 119 respondents were included in the final analysis as they had nutrition science-related qualifications with no dietetics-accredited elements. Most participants were female (93%,  $n = 111$ ) and aged between 25 and 44 years (84%,  $n = 71$ ) (see Table 1).

### Nutrition-related qualifications

Most (92%,  $n = 110$ ) respondents had completed their nutrition course at bachelor's degree level (including nutrition with honours) (Table 1). The majority (81%,  $n = 96$ ) completed their qualification in nutrition or in conjunction with food science (e.g., bachelor of nutrition or bachelor of nutrition science, bachelor of food science and human nutrition). The remainder of the degrees were sciences or with health promotion. Table 1 shows that 77% of respondents ( $n = 92$ ) completed their degree between 2016 and 2022 inclusive. Responses came from nutrition graduates from 17 different higher education institutions across Australia, and one respondent who met the inclusion criteria also had a qualification from a New Zealand university.

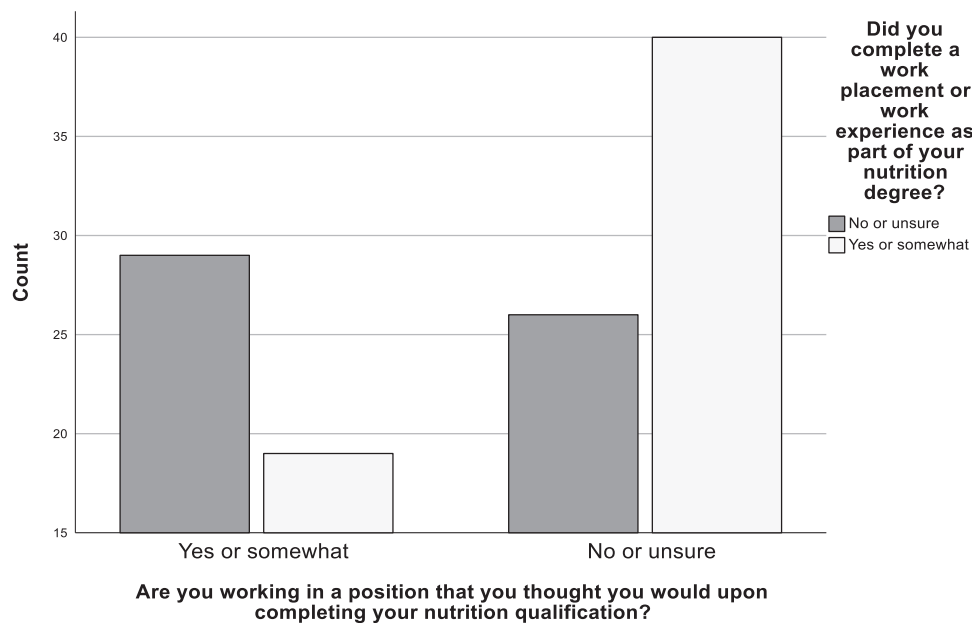
### Work-integrated learning within nutrition science qualification

Similar proportions of respondents reported 'no or were unsure' if they had engaged in work experience or a placement as part of their nutrition degree (46.2%,  $n = 55$ ) compared with 49.6% ( $n = 59$ ) who responded

they had 'yes or somewhat' completed work experience or a placement. Those who had responded 'somewhat' defined their work experience/placement as self-initiated volunteer work, educational assessments (e.g., observations in childcare or aged care homes) or university-based work experience such as research projects or food laboratory work. A Pearson's  $\chi^2$  test of contingencies suggests that completing work experience or a placement as part of their nutrition degree was a small but significant predictor of graduates working in a role that they had not expected to be in after graduation ( $\phi = 0.208$ ,  $p = 0.025$ ) (Figure 1).

### Study before and after nutrition course qualifications

When asked about their additional qualifications, over one-third (37%,  $n = 44$ ) of respondents had completed another formal qualification prior to their nutrition course, mostly completing either previous vocational studies (Certificate III to Advanced Diploma) (20%,  $n = 24$ ) or another undergraduate degree (14%,  $n = 17$ ). Three participants had a previous postgraduate diploma or a master's degree unrelated to nutrition, for example, fine arts and business. In addition, 73 nutrition graduates (61%) completed additional education after their nutrition course. Of the 73 respondents with further study, 48 (40%) had completed one additional training course. Twenty-five respondents (21%) had completed more than one additional qualification. A master's degree (e.g., master of public health) (26%,  $n = 28$ ) or a vocational



**FIGURE 1** Comparison of nutrition graduate employment expectations and participation in WIL (work-integrated learning) during their degree. Graduates who had completed work experience or a placement (white bars) were more likely to answer 'no or unsure' that they were working in a position they had thought they would be in upon completing their nutrition qualification ( $\phi = 0.208$ ,  $p = 0.025$ ).

short course (e.g., facilitator training) (36%,  $n = 39$ ) was most commonly completed, followed by a graduate certificate or diploma (21%,  $n = 23$ ), a PhD (14%,  $n = 15$ ) or a second bachelor's degree (4%,  $n = 4$ ). Table 2 presents the discipline categories that respondents studied before and after their nutrition science qualification.

## Employment, work settings and professional organisations

Over three-quarters of the participants (77%,  $n = 91$ ) had worked in a food-, nutrition science- or health-related role after their degree. At the time of completing the survey, more than half of respondents (51%,  $n = 61$ ) indicated that they were currently working in a field involving food/nutrition or health. Nearly one quarter (23%,  $n = 27$ ) of participants were working in the same nutrition position since graduating, and 21% ( $n = 25$ ) were still working in nutrition but changed their role or had been promoted. The percentage of graduates where nutrition was only part of their role was 6% ( $n = 7$ ), and 2% ( $n = 2$ ) mainly worked in nutrition-related voluntary positions. Of the remaining 49% ( $n = 58$ ) respondents not currently working in nutrition, 9% ( $n = 11$ ) had left their nutrition role through advancement within the same organisation, and 14% ( $n = 17$ ) had changed career direction and were no longer working in nutrition. Finally, 3% ( $n = 3$ ) were not working due to retirement, family or other commitments, and 23% ( $n = 27$ ) selected the option 'no' without further explanation. When asked about the workplace setting that they were currently employed in,  $n = 68$  (57%) respondents reported to be working in one work setting, whereas  $n = 34$  (29%) worked across two settings and  $n = 15$  (3%) across three settings. As such workplace setting totals provided in Table 3 represents 180 responses. The most frequently cited areas of work settings were government organisations or public health (16%), research organisations (15%), not-for-profit or nongovernment organisations (13%) and food industry (12%). Examples of current job titles within the employment settings are presented in Table 3.

## Professional association membership

Over half of the respondents ( $n = 62$ , 52.1%) reported belonging to at least one professional body. Of the 15 professional organisations that respondents listed, the Nutrition Society of Australia was most frequently cited ( $n = 49$ ), followed by the Public Health Association of Australia ( $n = 15$ ) and the Australian Institute of Food Science and Technology ( $n = 11$ ). Of the 49 respondents who were members of the Nutrition Society of Australia, 35 (71%) were registered as an associate or registered nutritionist.

TABLE 2 Discipline of formal qualifications completed before and after nutrition science qualification.

Discipline category	Study before nutrition ( $n = 44$ )		Study after nutrition ( $n = 73$ )	
	$n$	%	$n$	%
Nutrition	4	9	24	22
Public/global health/ promotion	5	11	19	17
Did not specify	7	16	18	17
Allied health (not including dietetics)	3	7	14	13
Education/teaching	1	2	11	10
Food/food science/ technology	3	7	9	8
Business related	8	18	8	7
Science/other biomedical science	5	11	4	4
Health information management/ biostatistics/data management	1	2	2	2
Arts/journalism	7	16	–	–
Total	44		109 <sup>a</sup>	100

<sup>a</sup>Graduates could list more than one postgraduate qualification.

## Key learning and gaps in knowledge and skills

Participants were asked to identify the five nutrition and food science or health-related knowledge or skills that they developed during their nutrition science degrees that were most valuable for their role. Four prominent categories were evident from the free-text responses: *nutrition knowledge* ( $n = 122$ ), *scientific knowledge* ( $n = 84$ ), *professional skills* ( $n = 127$ ) and *communication skills* ( $n = 67$ ). Each category had several subcategories, as seen in Figure 2. The topics cited most frequently for *nutrition knowledge* were the diet–disease relationships ( $n = 25$ ), public health ( $n = 19$ ), sociocultural determinants of health ( $n = 20$ ), food regulations and policy ( $n = 17$ ), life-span nutrition and cultural considerations in nutrition ( $n = 13$ ) and dietary guidelines ( $n = 12$ ). *Scientific knowledge* included biochemistry ( $n = 22$ ), microbiology/food safety ( $n = 21$ ), food chemistry ( $n = 16$ ), laboratory science ( $n = 14$ ) and physiology ( $n = 9$ ). *Professional skills* encompassed evidence-based research skills ( $n = 44$ ); career development, including work-integrated learning (WIL) experiences and transferrable skills such as critical thinking and holistic practice approaches ( $n = 29$ ), general communication skills ( $n = 22$ ), project management such as team work and organisational and time management skills ( $n = 14$ ); and to a lesser extent dietary analysis extending to recipe/menu design, product development ( $n = 10$ ) and information technology, including proficiency in various software packages ( $n = 8$ ). *Communication skills*

**TABLE 3** Settings where graduates report they are working and example role titles.

Current employment setting	(n)	(%)	Example role title (n)
Government organisation or public health	29	16	Nutritionist/public health nutritionist (4)
			Primary healthcare coordinator (1)
			Community development officer (1)
			Policy officer (3)
			Workplace health promotion officer (1)
			Data analyst (1)
			Research and impact coordinator (1)
Research organisation, university or nonuniversity	27	15	Research assistant (8)
			Research fellow (5)
			Project coordinator/manager (5)
			PhD student (1)
Not-for-profit or nongovernment organisation	23	13	Nutritionist/public health nutritionist (7)
			Food trainer (1)
			Project officer (1)
			Laboratory technician (1)
Food industry	21	12	Brand manager (1)
			Regulatory and compliance technologist (1)
			Quality assurance manager nutrition and regulatory compliance (2)
Education – tertiary	17	9	Lecturer (5)
			Tutor/demonstrator (3)
			Programme director (2)
Self-employed/own business	12	7	Nutrition consultant/nutritionist (4)
Clinical – private practice	8	4	Nutritionist (2)
			Allied health assistant (2)
			Communications manager (1)
Retail	8	4	Retail manager (1)
			Supermarket team member (2)
Education primary or secondary school	8	4	Secondary teacher (e.g., food studies, science and biology) (4)

**TABLE 3** (Continued)

Current employment setting	(n)	(%)	Example role title (n)
			Curriculum administrator (1)
Other <sup>a</sup>	6	3	
Food service management and hospitality (e.g., restaurants, hotels)	6	3	Food trainer (1)
			Nutrition assistant (1)
Not currently employed	6	3	
Hospital: clinical and nonclinical	4	2	Nutrition assistant (1)
			Staff development officer and support groups coordinator (1)
			Clinical orthopaedics specialist (1)
Sports or fitness industry	3	2	Community development officer (recreation and health) (1)
			National Disability Insurance Scheme support worker (1)
Media	2	1	
Total	180	100	

<sup>a</sup>Other role titles include mining, accounting, technology, telecommunications, early education, beauty salon, health and fitness recruitment.

included group education and public speaking ( $n = 17$ ), synthesising scientific information ( $n = 20$ ) and scientific writing ( $n = 16$ ), counselling ( $n = 5$ ) and social and popular media communications ( $n = 9$ ).

When asked what additional skills, opportunities or knowledge topics respondents would have valued during their nutrition science course, the top-five responses were more nutrition and science knowledge topics ( $n = 12$  responses each), more WIL opportunities ( $n = 11$ ), greater focus on building research capability, for example, grant applications and scientific writing ( $n = 7$ ), and career development and advice ( $n = 6$ ). When probing the type of theory content that graduates were interested in having more of, the following were most commonly listed: food industry, such as novel food development and food safety; and sports nutrition, an overview of global nutrition context and public health.

## DISCUSSION

This study is the first national survey representing employment outcomes of Australian nutrition science graduates. We investigated aspects from respondents' nutrition science studies that they valued in their

Nutrition knowledge	Scientific knowledge	Professional skills	Communication skills
<ul style="list-style-type: none"> <li>• Diet-disease relationships</li> <li>• Public health</li> <li>• Sociocultural determinants of health</li> <li>• Food regulations and policy</li> <li>• Life-span nutrition and cultural considerations in nutrition</li> <li>• Dietary Guidelines</li> </ul>	<ul style="list-style-type: none"> <li>• Biochemistry</li> <li>• Microbiology</li> <li>• Food safety</li> <li>• Food chemistry</li> <li>• Laboratory science</li> <li>• Physiology</li> </ul>	<ul style="list-style-type: none"> <li>• Evidence-based research</li> <li>• Career development</li> <li>• Work integrated learning</li> <li>• Critical thinking</li> <li>• Holistic practice approaches</li> <li>• General communication</li> <li>• Project management</li> <li>• Teamwork</li> <li>• Organisational and time management</li> <li>• Dietary analysis</li> <li>• Product development</li> <li>• Proficiency in software packages</li> </ul>	<ul style="list-style-type: none"> <li>• Synthesising scientific information</li> <li>• Group education</li> <li>• Public speaking</li> <li>• Scientific writing</li> <li>• Social and popular media communications</li> <li>• Counselling</li> </ul>

FIGURE 2 Valuable knowledge and skill areas developed through respondents' nutrition degrees.

workplace, as well as the perceived gaps in their skill set and qualification. Responses came from 119 participants representing 17 different Australian universities across 6 states and territories, the majority of whom had completed their nutrition science coursework at an undergraduate level. Most respondents in our survey were female, which represents the typical gender balance in nutrition graduates. For example, similar to previously published work,<sup>19</sup> 86% of the 2022 nutrition course completions were female at the university of one of the authors. More broadly across health sciences, 75% of course completions in Australia are female.<sup>20</sup> This study included only the non-dietetic respondents, as specific information to promote clear pathways and guide the careers of non-dietetic nutritionists is needed.

Most graduates in our study had worked or were still working in a food/nutrition or health setting. The most frequently cited workplace settings were government or public health organisations (16%), research organisations (15%), not-for-profit or nongovernment organisations (13%) and food industry (12%) (Table 3). Forty-four per cent of respondents reported to be working in roles across multiple settings, which included those working in one role across multiple settings and those in several part-time roles. As we expected, the role titles of nutrition science graduates were more diverse than 'nutritionist' (Table 3). Even for those graduates who identified as working in a nutrition/food/health-related setting and were using their nutrition training, the term 'nutrition' did not necessarily appear in their job title. Having national data available on workplace setting and example job titles will be valuable to help graduates widen their job-search criteria to include roles with more generic titles such as 'policy officer' in a public health setting or a 'project coordinator' in research. For those working with students in tertiary education, the role title

information could be embedded into the ongoing nutrition careers narrative, and events such as career nights. When respondents were asked to list the top-five most valuable knowledge and skills acquired during their nutrition course training, the responses reflected core aspects in nutrition science knowledge competencies framework<sup>1</sup> and were consistent with the workplace role. For example, diet-disease relationships, public health, food policy and regulation, food safety, evidence-based research skills, synthesising and communication scientific information were all listed as critical to performing their professional role. These responses overlap with findings from Barber et al.<sup>11</sup> that research skills, food regulation and composition and public health within curriculum are critical for graduate employability in food/nutrition or health settings.

Engaging with industry through WIL offers nutrition science students insight into potential career options.<sup>21</sup> *Career development* and *WIL* were listed in the top-five professional skills that graduates both valued or would have valued but did not get in their nutrition course. Interestingly in our study, those who had undertaken some placement or work experience throughout their degree were less likely to be working in a role that they expected to be in after graduation. Given the wide scope of our study, the WIL offering across the 17 different institutions was inconsistent. Croxford et al.<sup>12</sup> reported that industry stakeholders perceived the sourcing of WIL opportunities as a responsibility of the university curricula. However, our survey found that many respondents had to self-source their work experiences, most likely because work placement in nutrition science degrees is not a standard offering as it is with other disciplines.<sup>21,22</sup> This finding could suggest that the work experience activities undertaken were insufficiently tailored to the scope of nutrition practice or did not

showcase the diverse range of roles that graduates can hold. Even though placement is not standard in nutrition science degrees, tertiary providers should be encouraged to explore meaningful ways to incorporate career development into their programmes, such as internships, industry projects, placement, field trips or other examples of WIL,<sup>23</sup> using lessons from others.<sup>24</sup> Strategically developing WIL throughout a degree would enrich the educational experience, help to build awareness of the types of roles available and give students early exposure to the workforce to influence job seeking.<sup>11</sup> WIL also provides opportunities for universities to connect with industry and the future workforce to advocate for the scope of practice for nutrition scientists. A future research opportunity would be to explore the extent to which employers offering WIL opportunities subsequently employ graduates from these programmes.

In addition to career development and WIL, other perceived skills and knowledge gaps from their nutrition training included skills particular to building research capacity (e.g., grant applications, scientific writing), as well as knowledge topics in food and the food industry, sports nutrition and global and public health nutrition. Sixty-one per cent of respondents had upskilled beyond their nutrition degree, most likely to suit or find their career niche. The most frequently occurring disciplines of further study include specialist nutrition, public/global health, (non-dietetic) allied health, education/teaching and food science and technology. Further training is a key priority to enable the nutrition workforce to remain agile and operate in emerging areas<sup>5</sup> and diverse professional spheres,<sup>4</sup> and this was evident in our sample. From a transferrable skills perspective, further training of respondents in our study showed their *willingness to learn*, a trait ranked among the top 10 employability skills for the 21st century.<sup>10</sup> Jobs and Skills Australia<sup>3</sup> cited the importance of lifelong learning through modular and stackable qualifications to address national workforce priorities, including developing Australia's sovereign capability and food security, supply chain; decarbonising the economy; and tackling pressures in healthcare.<sup>3</sup>

Championing a national trusted nutrition voice and building the reputation of nutritionists is an ongoing priority for the workforce in Australia.<sup>5</sup> The need for such credibility points towards the importance of having consistent qualification expectations, potentially achieved through the endorsement of tertiary education competencies by relevant professional associations. Although non-dietetic nutrition courses in Australia are generally not accredited, aligning with an association can reinforce an individual's professional identity through the networking, continuing professional development opportunities or voluntary registration. In our sample, the majority of those in nutrition-related roles were members of an organisation such as the Nutrition Society of Australia, the Public Health Association of Australia or the Australian Institute of Food Science and Technology. The high proportion of

respondents who were members of professional organisations might limit generalisability to the broader nutrition graduate population. We used convenience sampling based on online recruitment and advertising, willingness to participate and meeting inclusion/exclusion criteria. Since our pooled data represents 17 different institutions around the country we are confident it provides adequate representation. A future area of research would be to survey how many students and new graduates join a professional society, and this could provide scope for nutrition educators to work more closely with these organisations to build the reputation of university-qualified nutritionists.

We have focused this report on respondents who identified as having a food/nutrition or health-related role; however, nearly one quarter of respondents reported to have never worked in such a role. For these respondents, most of whom had additional training, the most frequent workplace settings included education (schools and university), food industry, government/nongovernment and not-for-profit organisations, public health and research settings. Most of those who reported to have never worked in a nutrition role were not working in a position they thought they would be upon completing their degree ( $n = 21/27$ ). Instead, they used their nutrition science degree as a platform for further training to find another career avenue. The Australian National Committee for Nutrition<sup>5</sup> (p. 27) writes that 'other professionals can be central to improving health literacy ... to impact the nutritional health of the nation', and this includes other allied health workers (speech pathology, midwives, exercise physiologists), allied health assistants, personal trainers, early childhood educators and teachers, all of whom are represented in our responses. A common reason respondents indicated for not being in a position they thought they would be upon completing their degree related to perceived scarcity of nutrition roles (38%, 27 of the 71 responses). This finding might relate to the spectrum of career pathways and nutrition roles not being evident to those studying nutrition, which could be addressed by universities with strategic career development and WIL. But there were also comments from those who had never worked in nutrition about the under-recognition of university-qualified nutritionists in the workplace that are also reported elsewhere.<sup>11,13</sup> For example, 'I am very disheartened and discouraged by the lack of value and recognition of the role of university-qualified nutritionists who are NOT dietitians'. This strong sentiment, reinforced by the public narrative that 'anyone can call themselves a nutritionist regardless of their qualifications',<sup>25</sup> points to the ongoing priority to advocate for the nutrition science profession within industry stakeholders as well as other health professionals. Registration as an associate or registered nutritionist is a way that university-qualified nutrition professionals can be identified, through the schemes that operate in Australia<sup>26</sup> and in other countries, for example, in the United Kingdom and in New Zealand.<sup>27,28</sup> However, in Australia registration is not compulsory for practice, and the voluntary nature of the



scheme could mean inconsistent uptake among nutrition scientists. Greater promotion of the voluntary registration scheme among students and new graduates may serve to reduce this disparity.

Findings from this study suggest that current nutrition professionals value their foundation in nutrition science and evidence-based training. Many have upskilled and are highly qualified to navigate the dynamic nutrition and food systems career environment. It is important for tertiary providers to continually adapt curriculum in response to the evolving landscape of food systems and health and consider initiatives like WIL. Regular review of graduates' scope of employment and preparedness for practice will ensure graduates are well equipped for the evolving demands of nutrition practice. Conducting surveys like this in the future and surveying the employers of graduates would be valuable in continual curriculum improvement in nutrition science education. Career development and advocacy through professional associations would aid concerted efforts of nutrition professionals to be a trusted voice and address contemporary challenges in food, nutrition and health.

#### AUTHOR CONTRIBUTIONS

All authors conceived the idea of the project, developed the study design and generated research questions. Katya Clark managed data collection and project administration. All authors were involved in data analysis, interpretation and writing the manuscript. All authors approved the final version of this manuscript.

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#### CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

#### DATA AVAILABILITY STATEMENT

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

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