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Comparison of self-perceived competence of recent dental graduates from the Universities of Otago and Dalhousie

Lee Ann Adam[1] | Michael Adel Shawky Georgy[1] | Priyangika Konthasingha[1] | Alison Margaret Meldrum[1] | Joanne Maree Oranje[2] | Rohan Mehul Sejpal[1]

[1]Faculty of Dentistry, University of Otago, Dunedin, New Zealand

[2]Division Health Sciences, University of Otago, Dunedin, New Zealand

Correspondence
Alison Margaret Meldrum, Faculty of Dentistry, University of Otago, PO Box 56, Dunedin 9054, New Zealand.
Email: alison.meldrum@otago.ac.nz

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The University of Sydney

Abstract

Introduction: This study investigates and compares the self-perceived competencies of recent dental graduates from the University of Otago (UoO) (Dunedin, New Zealand) and Dalhousie University (DU) (Nova Scotia, Canada).

Materials and Methods: A validated survey was emailed to recent graduates from the UoO (December 2019) and DU (May 2020). Chi-squared statistical analysis examined the differences between groups.

Results: The response rate was 73% from the UoO class and 75% from the DU class. Out of 59 competencies, 11 items showed a significant difference. Orthodontics and the surgical aspects of dentistry were the main areas where significant differences have been observed between the two cohorts. Out of the four items in orthodontics, a significantly higher proportion of DU graduates felt more competent than graduates from UoO in three items ("performing orthodontic treatment planning," "performing space maintenance/regaining" and "performing orthodontic full-arch alignment"; $p < .001$). Similarly, graduates from DU felt significantly more competent in three of the eight items in the oral and maxillofacial surgery domain ("managing complications of oral surgery," "performing soft-tissue biopsies" and "managing trauma to the dentofacial complex"; $p < .001$), all requiring surgical training and skills.

Conclusion: Of the differences identified, graduates from DU reported higher levels of self-perceived competence compared with their UoO counterparts, especially in the orthodontics and oral and maxillofacial surgery domains. This could be because DU students have more practice in these specialties during their training. The results suggest that increased exposure for UoO students in these areas may be beneficial to their self-perceived competence.

KEYWORDS
curriculum, dental education, dental graduates, self-perceived competence

1 | INTRODUCTION

Graduating dental students must enter the workforce as competent health professionals. As well as requiring specific skills to enter private practice, graduates also need the confidence to do so. Competence is paramount in the practice of dentistry, and confidence plays an important role in achieving competence.[1] Insufficient hands-on clinical experience during students' training is a key predictor of lesser confidence levels in performing clinical tasks.[2] For example, a study at the Cardiff School of Dentistry found that dentistry students who completed low numbers of a given task had the lowest scores of perceived confidence.[3] Deficiencies in the number of patients presenting with conditions, physical space, time and suitably trained clinical staff are aspects that can limit opportunities for clinic exposure,[4] and thus impact on students' confidence and competence.

This study was the consequence of the first two authors' clinical experience at the University of Otago (UoO) (Dunedin, New Zealand) and Dalhousie University (DU) (Nova Scotia, Canada). At present, no studies have directly compared NZ students' self-perceived competence at graduation with graduates from dental schools in other countries.

The Bachelor of Dental Surgery (BDS) programme at the (UoO) (NZ) and the Doctor of Dental Surgery (DDS) (DU) have similar hybrid problem-based learning approaches. The initial years of both programmes comprise a traditional lecture-based curriculum; however, the latter years are predominantly case-based and self-directed. In addition, both institutions primarily take a competency-based approach to learning. The UoO BDS is a 5-year degree including a prerequisite year of seven compulsory health science papers. The DU DDS is a 4-year programme with a requirement to complete a minimum of 60 credit hours degree including 36 credit hours basic science courses and 18 credit hours of social science courses. A UoO NZ graduate must demonstrate competence in the application of knowledge, skills, attitudes, communication and judgement to the delivery of appropriate oral health care within their scope of practice.[5] Although students are recommended and encouraged to complete a certain number of tasks, the key requirement is competency in carrying out tasks instead of the mere completion of a certain quota.[6] Similarly, the Association of Canadian Faculties of Dentistry, the National Dental Examining Board of Canada, the Commission on Dental Accreditation of Canada and the Canadian Dental Association's Council on Education produced a national competency document for beginning dental practitioners in Canada. The document, consisting of 47 statements, is a guideline of requirements that dental students must meet before graduation.[7] The amount of practice, expressed as the number of procedures completed, does not necessarily indicate case performance, grade point average or performance on licensure examinations.[8] Despite the requirement for competency, there is still a strong emphasis on students completing a certain number of clinical tasks before they can graduate, although at UoO the number of procedures completed is no longer a formalised requirement.[6]

Research investigating the self-reported confidence levels of final year dental students in NZ found little difference compared with their counterparts around the world.[6] In line with NZ, studies from the UK, Australia, Canada and Hong Kong reported a consensus that graduating students felt most prepared or confident with the basic aspects of dental practice, such as general patient management and conservative dentistry. However, graduates were least confident or felt ill prepared in complex specialty treatments, such as orthodontics and management of dental trauma.[1,6,9–16] A number of these studies assessed confidence rather than competence, the latter being arguably of greater relevance to the practice of dentistry.[1]

Unlike previous studies[1,3,6] this current study does include questions on surgical, periodontic, endodontic procedures and non-clinical practice management skills.

The need to distinguish between confidence and competence was identified in a study of medical house officers' self-evaluations.[17] Confidence was found to be a judgement that determined whether an individual was willing or not willing to undertake a procedure. In comparison, competence reflected the ability an individual perceived they had, which was based on previous experience in the task. Surveys of students' perceptions of their skills that are conducted close to students' graduation date do, however, need cautious interpretation as students may not be forthcoming in admitting that they lack confidence in skills deemed essential for entry into practice.[11] Despite this, because the Dalhousie programme is a graduate course, and the Otago programme is undergraduate, we anticipate that the Dalhousie students, being older and more experienced at tertiary learning, will report higher confidence levels.

At present, no studies have directly compared NZ students' self-perceived competence at graduation with graduates from dental schools in other countries. The aims of the current study were to investigate and compare the self-perceived competencies of recent dental graduates from the UoO in NZ and DU in Canada. Although it is beyond the scope of this study to undertake a full curriculum comparison, this comparison could help identify similarities and differences that could explain graduates' diverse self-perceived competencies and help inform improvements to the respective universities' curricula or delivery of same, where relevant.

2 | METHODS

The study population comprised the most recently graduated class from the BDS programme at the UoO (December 2019) and from the DDS programme at DU (May 2020). These graduation dates are reflective of the different academic calendars in the northern (DU) and southern (UoO) hemispheres. Ethical approval was obtained from the Human Ethics Committee (reference #D20/281) and from the Health Sciences Research Ethics Board at DU (DENTUNIT2020-02). The Ngāi Tahu Research Committee at UoO was consulted.

Data were gathered via a survey. Question items were originally developed by Greenwood et al.[18] and have since been used and validated in similar studies in Australia, Canada[11] and Hong Kong.[16]

Some questions were reworded to reduce ambiguity and ensure clarity for both study populations. The survey was piloted with a small group of non-finalist dental students at Otago and checked by an academic staff member at Dalhousie. The first six tick-box style questions gathered basic demographic information, including university attended, age range, gender, ethnicity, current area of practice (if applicable) and any previous tertiary education. The remainder of the survey comprised 59 Likert-style questions asking respondents to rate their self-perceived competencies on a four-point rating scale (very well = 4, well = 3, poorly = 2 and very poorly = 1). An even number of responses meant a "neutral" option was not available, forcing participants to indicate a positive or negative response.[19]

The survey was hosted on the online Qualtrics platform, and a link to the electronic survey was distributed a few months post-graduation via social media groups (UoO) and email (DU). The different distribution methods were used to maximise the responses from UoO students and to fulfil ethical requirements for DU. An information sheet was displayed on the first page of the survey for prospective participants to consider when deciding whether to participate. Participants were advised that completion of the survey provided consent for their responses to be used in the research. The survey responses were anonymous, and participation was voluntary. UoO participants who completed the survey were given the option to enter a prize draw. In compliance with the DU Health Sciences Research Ethics Board requirements, DU participants were not provided the option to enter the prize draw; hence, no incentive was given for their participation.

Prior to performing statistical analysis, data were categorised into nine different disciplines of dentistry referred to as "domains," with each containing between 4 and 10 individual items. These domains were adopted from Yiu et al.[16] Categorisation allowed for analysis at both the group (domain) and individual (item) level to help further identify differences between the study populations. The domains and their underlying items are listed in Table 2. Data were retrieved from Qualtrics and exported to Microsoft Excel for verification and validation. Statistical analyses were performed using IBM SPSS Statistics (version 26). A Chi-squared (χ^2) test was used to analyse the differences between the groups, and two-sided $p < .001$ was considered as statistically significant.

3 | RESULTS

A total of 109 (from 137) graduates started the survey; however, eight responses were excluded from analysis as they were incomplete. A total of 101 survey responses were included in the final analysis. The survey was completed by 65 of the 89 (73%) graduates from the UoO class of 2019 and 36 of the 48 (75%) graduates from the DU class of 2020. Three respondents left some demographic questions unanswered, but their Likert-style responses were still included in the analysis. Demographic questions were not "forced response" in order to ensure that students who could/would not answer one or more questions would carry on with the survey; hence, the different response totals stated in Table 1; some participants elected not to respond to these. The demographic characteristics of each graduating class were similar in terms of gender. The majority of UoO graduates self-identified as Asian ethnicity (53.5%), whereas the majority from DU identified themselves as European/Pākehā (48.5%) ($p < .05$). The total of the ethnicity responses exceeded the number of participants as graduates could identify as more than one ethnicity. Due to the entry requirements to the DU programme, all respondents had previous undergraduate (85.7%) or postgraduate (14.3%) qualifications. The primary mode of entry into the dentistry programme at UoO was through Health Sciences First Year (70.0%), which is a single-year course designed to prepare students for entry into various health professional programmes. The differences in the mode of entry explain the disparity in age groups between the two institutions, where the majority of graduates from DU identified in the 25–29 age group (80.6%) while many from UoO were in the 20–24 age group (55.4%) ($p < .05$). Three respondents from DU had a previous dental qualification from a different country, and one respondent from UoO had previous experience in the dental field (dental assistant). A much higher proportion of graduates from UoO were currently employed (92.3%) compared with graduates from DU (50.0%) ($p < .05$). Of those currently practising, more than half of the graduates from UoO (66.7%) and DU (55.6%) were employed by a private practice, with no significant difference between the two universities. The remainder of the respondents from UoO who were currently employed had entered the workforce as dental house surgeons in the public sector (33.3%). Those from DU who were not employed by a private practice were either working in the public sector (27.8%) or in other areas, such as the military or non-hospital-based General Practice Residency (16.7%).

Comparison of graduates' self-perceived competence at the domain level is displayed in Figure 1. Of the nine domains, four showed a significant difference between the two cohorts ($p < .001$). Both cohorts felt least competent in orthodontics, with graduates from UoO feeling significantly less competent than their Canadian counterparts.

Self-perceived competence levels within each domain were dichotomised and are reported in Table 2. Out of the 59 competencies, 11 items showed a significant difference, with a higher proportion of graduates from DU reporting that they felt "very well" or "well" prepared in these domains ($p < .001$).

The main areas of significant differences between the two cohorts were in the domains of orthodontics and the surgical aspects of dentistry. A significantly higher proportion of DU graduates felt more competent than graduates from UoO in three of the four orthodontic items ("performing orthodontic treatment planning," "performing space maintenance/regaining" and "performing orthodontic full-arch alignment"; $p < .001$). More DU graduates felt better prepared than UoO graduates in the remaining item in orthodontics; however, the difference was not significant. Similar findings were observed in oral and maxillofacial surgery where graduates from DU felt significantly more competent in three of the eight items, all requiring surgical training and skills ("managing complications of oral

TABLE 1 Demographic characteristics of dental graduates from Dalhousie University and University of Otago

	Dalhousie University	University of Otago	Total
	Number (%)	Number (%)	Number (%)
Gender			
Male	18 (50.0%)	24 (38.1%)	42 (42.4%)
Female	18 (50.0%)	39 (61.9%)	57 (57.6%)
Ethnicity*			
Asian	11 (33.3%)	38 (53.5%)	49 (47.1%)
European/Pakeha	16 (48.5%)	20 (28.2%)	36 (34.6%)
Māori/Pacific Islander	0 (0.0%)	8 (11.3%)	8 (7.7%)
Middle Eastern	5 (15.2%)	4 (5.6%)	9 (8.7%)
Other	1 (3.0%)	1 (1.4%)	2 (1.9%)
Age group*			
20–24 years	3 (8.3%)	36 (55.4%)	39 (38.6%)
25–29 years	29 (80.6%)	25 (38.5%)	54 (53.5%)
30+ years	4 (11.1%)	4 (6.2%)	8 (7.9%)
Current employment*			
Yes	18 (50.0%)	60 (92.3%)	78 (77.2%)
No	18 (50.0%)	5 (7.7%)	31 (29.5%)
Type of current dental practice*			
Private	10 (55.6%)	40 (66.7%)	50 (64.1%)
Public (hospital based)	5 (27.8%)	20 (33.3%)	25 (32.1%)
Other	3 (16.7%)	0 (0.0%)	3 (3.8%)
Previous education*			
Health science first year—Otago	0 (0.0%)	42 (70.0%)	42 (44.2%)
Undergraduate degree	30 (85.7%)	16 (26.7%)	46 (48.4%)
Postgraduate degree	5 (14.3%)	2 (3.3%)	7 (7.4%)

*$p < .05$.

surgery," "performing soft-tissue biopsies" and "managing trauma to the dentofacial complex"; $p < .001$). Additionally, although a small proportion from both institutions felt competent in extracting impacted third molars, a higher percentage of DU graduates felt more competent compared with UoO graduates (DU = 25.0% vs. UoO = 6.2%), a significant difference at a lower statistical power ($p < .01$).

Other significant differences were widespread among various domains. When compared to graduates from DU, graduates from UoO felt significantly less well prepared in "applying epidemiological risk analysis to practice" (DU = 66.7% vs. UoO = 27.7%; $p < .001$); "treating with post-and-core for crowns" (DU = 86.1% vs. UoO = 23.1%; $p < .001$); "treating with implants (prosthodontic aspects only)" (DU = 75.0% vs. UoO = 6.2%; $p < .001$); "recognising, reporting and following up neglect and domestic abuse cases" (DU = 66.7% vs. UoO = 32.3%; $p < .001$); and "prescribing drugs and writing laboratory prescriptions" (DU = 80.6% vs. UoO = 38.5%; $p < .001$).

DU graduates felt more competent in four other items that showed significant differences at a lower statistical power. These included: "preventing workplace hazards" (DU = 94.4% vs. UoO = 73.8%; $p < .01$); "restoring teeth with complex amalgam restorations" (DU = 86.1% vs. UoO = 60.0%; $p < .01$); "restoring teeth with single crowns" (DU = 100.0% vs. UoO = 81.5%; $p < .01$); and "preventing and managing in-office dental emergencies" (DU = 86.1% vs. UoO = 61.5%; $p < .01$).

4 | DISCUSSION

Across the two cohorts, the majority of graduates reported being well prepared for general patient management, which comprised the basics of dental history and examination. Graduates also felt well prepared for most aspects of conservative dentistry as well as drug and emergency management. Students' self-reports from both cohorts showed they felt least competent in the domain of orthodontics, followed by oral and maxillofacial surgery. These findings are consistent with previous studies conducted in NZ, Australia, Canada, Hong Kong and the UK[6,9–16] and may be consistent with these aspects of dentistry being specialist areas in many countries.

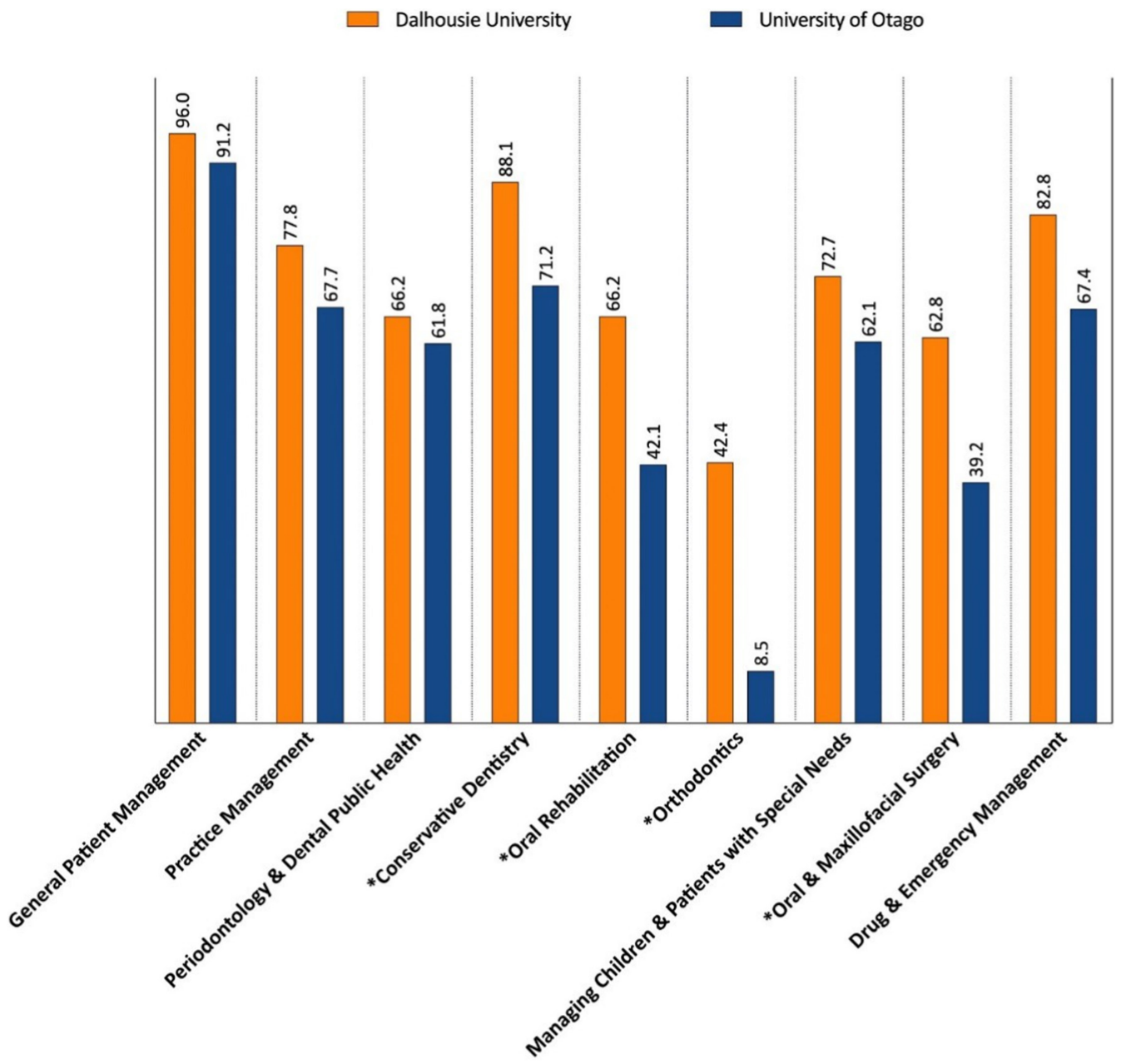

FIGURE 1 Domain-level comparison of self-perceived competence of dental graduates from Dalhousie University and University of Otago (*$p < .001$)

Five out of the nine domains (56%) of dentistry examined in this survey showed similar self-perceived competencies from both Canadian and NZ graduates. Significant differences between the cohorts were identified in conservative dentistry, oral rehabilitation, orthodontics and oral and maxillofacial surgery. Interpretation of the data at the item level (individual aspects of dentistry) further revealed the extent of these differences. In orthodontics, graduates from DU felt more well prepared to perform orthodontic treatment planning, space maintenance/regaining and orthodontic full-arch alignment compared with their UoO counterparts. This may be explained by the relative amount of clinical experience in orthodontics that students received at each institution. The importance of clinical experience has been extensively reported in the role it plays in providing students with confidence and, in turn, achieving self-proclaimed competence.[1–3] Graduates from DU were allocated a total of 70 clinical hours in orthodontics in their final 2 years, during which they treated patients for the planning and application of active fixed and removable appliances.[20] UoO graduates, on the contrary, received <10 h of clinical time during their penultimate year, and in their final year the orthodontic module solely comprised tutorial-based teaching.[21] Some aspects of orthodontics (space analysis, maintenance and regaining) both didactic and clinical are covered in the paediatric dental module of the undergraduate BDS curriculum. The study orthodontics is considered a postgraduate qualification. Despite the significant differences found between DU and UoO graduates

TABLE 2 Comparison of self-perceived competence of dental graduates from Dalhousie University and University of Otago

	Dalhousie University Very well/ Well number (%)	University of Otago Very well/ Well number (%)
1. General Patient Management		
Take and interpret medical, social and dental history	36 (100.0%)	65 (100.0%)
Communicate effectively with patients	36 (100.0%)	60 (92.3%)
Discuss treatment plans and get informed consent	35 (97.2%)	58 (89.2%)
Discuss fees, payment options	30 (83.3%)	45 (69.2%)
Develop a sequenced treatment plan	33 (91.7%)	60 (92.3%)
Interpret tests and history to make a diagnosis	36 (100.0%)	62 (95.4%)
Identify and address patients' chief complaints	36 (100.0%)	65 (100.0%)
2. Practice Management		
Maintain accurate confidential patient records	36 (100.0%)	64 (98.5%)
Communicate effectively with office staff	34 (94.4%)	61 (93.8%)
Communicate effectively with colleagues (e.g. referrals)	34 (94.4%)	54 (83.1%)
Perform dental practice personnel management	36 (61.1%)	65 (54.4%)
Perform dental practice financial management	3 (8.3%)	11 (16.9%)
Select and monitor infection control procedures	32 (88.9%)	54 (83.1%)
Prevent dental workplace hazards*	34 (94.4%)	48 (73.8%)
Write laboratory prescriptions and evaluate laboratory work	33 (91.7%)	52 (80.0%)
Critically evaluate dental literature	28 (77.8%)	42 (64.6%)
Apply epidemiological risk analysis to practice**	24 (66.7%)	18 (27.7%)
3. Periodontology and Dental Public Health		
Treat early periodontal disease	31 (86.1%)	58 (89.2%)
Perform deep scaling and root planning	29 (80.6%)	45 (69.2%)
Perform periodontal surgery to facilitate home care	7 (19.4%)	10 (15.4%)
Perform periodontal surgery for crown lengthening	4 (11.1%)	2 (3.1%)
Perform oral hygiene instruction and diet analysis	36 (100.0%)	62 (95.4%)
Provide and monitor preventive treatment	35 (97.2%)	63 (96.9%)
4. Conservative Dentistry		
Restore teeth with complex amalgam restorations*	31 (86.1%)	39.0 (60.0)
Treat with resins	36 (100.0%)	64 (98.5%)
Treat with root surface restorations	33 (91.7%)	53 (81.5%)
Treat single-rooted teeth endodontically	32 (88.9%)	58 (89.2%)
Treat multi-rooted teeth endodontically	23 (63.9%)	42 (64.6%)
Restore teeth with single crowns*	36 (100.0%)	53 (81.5%)
Treat with post-and-core for crowns**	31 (86.1%)	15 (23.1%)
5. Oral Rehabilitation		
Treat with partial dentures	32 (88.9%)	51 (78.5%)
Treat with complete dentures	33 (91.7%)	44 (67.7%)
Treat with implants (prosthodontic aspects only)**	27 (75.0%)	4 (6.2%)
Treat with fixed bridges	26 (72.2%)	30 (46.2%)
Treat with resin-bonded bridges	10 (27.8%)	21 (32.3%)
Restore vertical dimension of occlusion (OVD)	15 (41.7%)	14 (21.5%)
6. Orthodontics		
Perform orthodontic treatment planning**	16 (44.4%)	9 (13.8%)
Perform space maintenance/ regaining**	16 (44.4%)	3 (4.6%)
Treat with minor tooth movement, for example, uprighting	12 (33.3%)	10 (15.4%)
Perform orthodontic full-arch alignment**	17 (47.2%)	0 (0.0%)
7. Managing Children and Patients with Special Needs		
Manage anxious dental patients	30 (83.3%)	51 (78.5%)
Manage child patients	22 (61.1%)	42 (64.6%)
Manage elderly patients	34 (94.4%)	54 (83.1%)
Manage medically compromised patients	25 (69.4%)	47 (72.3%)
Manage mentally or physically disabled patients	22 (61.1%)	27 (41.5%)
Recognise, report and follow up neglect and domestic abuse cases**	24 (66.7%)	21 (32.3%)

TABLE 2 (Continued)

	Dalhousie University	University of Otago
	Very well/ Well number (%)	Very well/ Well number (%)
8. Oral and Maxillofacial Surgery		
Manage acute pain or infection	34 (94.4%)	53 (81.5%)
Perform simple extractions	35 (97.2%)	60 (92.3%)
Extract impacted third molars*	9 (25.0%)	4 (6.2%)
Manage complications of oral surgery**	29 (80.6%)	21 (32.3%)
Manage chronic orofacial pain, including TMD	15 (41.7%)	13 (20.0%)
Identify and manage oral pathologies, e.g. lichen planus	26 (72.2%)	36 (55.4%)
Perform soft-tissue biopsies**	15 (41.7%)	5 (7.7%)
Manage trauma to the dentofacial complex**	18 (50.0%)	12 (18.5%)
9. Drug and Emergency Management		
Select and administer local anaesthetics (LA)	35 (97.2%)	63 (96.9%)
Prescribe drugs and write prescriptions**	29 (80.6%)	25 (38.5%)
Prevent and manage LA complications	30 (83.3%)	51 (78.5%)
Manage in-office systemic medical emergencies	24 (66.7%)	40 (61.5%)
Prevent and manage in-office dental emergencies*	31 (86.1%)	40 (61.5%)

*$p < .01$, **$p < .001$.

in their self-perceived competence in orthodontics, both cohorts felt the least competent in this area of dentistry.

Results for the domain of oral and maxillofacial surgery also showed that UoO graduates felt less well prepared than DU graduates, particularly in managing complications of oral surgery, performing soft-tissue biopsies and managing trauma to the dentofacial complex. Again, this may reflect the disparity in the number of clinical hours offered at each university. DU graduates were allocated a total of 155 clinical hours in the oral surgery discipline in their final 2 years, including a week-long rotation in the oral and maxillofacial department at the local hospital.[20] In contrast, graduates from the UoO completed a week-long oral surgery rotation in each of their last 2 years (50 h total) and gained a varied amount of additional oral surgery experience during a 5-week outplacement in their final year, depending on the location and type of clinical setting.[22] The extra clinical time experienced by Canadian graduates may have exposed them to additional aspects of oral surgery, such as managing complications or trauma, where NZ graduates felt less competent. Moreover, often associated with many aspects of oral surgery is the ability to prescribe medications to patients. DU graduates felt significantly more competent in prescribing drugs and write prescriptions compared with UoO students, again suggesting the impact of the amount clinical exposure and education in this area.

Additional differences between the two graduate cohorts were highlighted at the item level in individual aspects of dental practice. In treating with post-and-core for crowns and the prosthodontic aspects of restoring implants, DU graduates felt notably more well prepared than those from UoO. Of the 59 items in the survey, these two items showed the greatest differences between the cohorts. A potential explanation for these differences may be the relative cost of dental care and the insurance system in each country. A comparative survey conducted across the UK, USA, NZ, Canada and Australia found that adults in NZ were the most likely (37%) to not see a dentist due to treatment costs when they required dental care, compared with 26% of Canadian adults.[23] A survey of Canadian adults reported 56% was covered by private dental insurance and 4.9% by public health programmes.[24] Over 35% of NZ adults surveyed by the New Zealand Heath Surveys reported that they were covered by private health insurance. This survey did not specify if dental care was covered.[25] Most NZ adults are liable to pay full costs for their dental care.[26] Individuals with dental insurance generally have improved dental visiting behaviours and better oral health outcomes.[27] For these reasons, graduates from DU may have had greater experience in treating patients requiring more complex and expensive treatment such as crowns and implants, aided by the higher rate of private dental insurance coverage, thereby increasing their self-perceived competence in these areas.

The differences in the demographic characteristics of the two cohorts may also have had an influence on the results of this study. Due to the entrance requirements into the DDS programme at DU, applicants were required to complete an undergraduate degree prior to commencing dental school, and, as a result, the majority of dental graduates from DU were between 25 and 29 years old (80%). UoO graduates, who were not required to have a previous degree, were largely in the 20–24-year-old age group (55%). The combination of previous undergraduate study experience and increased maturity may have contributed to greater confidence in general, which may translate to higher confidence levels in dentistry.[28] This age discrepancy may also help explain why DU graduates felt significantly more competent to "recognise, report and follow up neglect and domestic abuse cases" than UoO graduates. Younger students may not have the benefits of increased life experience, including raising a family, compared with their older graduate counterparts, and hence may have felt less competent in identifying and confronting difficult situations.

Cultural differences in willingness to express positive self-appraisal might also be at play and cannot be discounted as an explanation for differences between the two cohorts. The majority of UoO graduates identified themselves as Asian ethnic background (53.5%), whereas the majority from DU identified themselves as European/Pākehā (48.5%). Previous studies have found that individuals from East Asian countries report lower self-esteem than those from Western countries, hence are less inclined to evaluate themselves in an excessively positive manner.[29,30]

Employment status differed between the two sets of graduates. To become a licensed dentist in Canada, graduates of accredited dental programmes (as is the Dalhousie Faculty of Dentistry programme) must successfully complete the National Dental Examining Board of Canada's Certification Process, whereas Otago graduates are not required to complete a formal registration examination and can apply for registration upon graduation. The large majority of UoO graduates were currently practising, whereas only half of the DU graduates were practising. While this can most likely be attributed to the respective graduation dates of the northern (May) and southern (December) hemisphere, it does mean that those from UoO had more clinical experience outside of the dental school setting. This may have allowed for better identification of their own weaknesses and provided a retrospective outlook on whether their dental school clinical experience was adequate, especially compared with those who had yet to experience "real world" dental practice. It is also important to note that the COVID-19 global pandemic may have delayed the start of employment for DU graduates or impacted the clinical experience of those who had already started practising.

One limitation of this research is the response rate of approximately three-quarters of each cohort. While this is a relatively high response rate to an online survey, there is potential for non-response bias. Those who did not respond to the survey may have a lower or higher self-perceived competence than graduates who participated in the study, and this needs to be taken into consideration when interpreting the results. While the question items used in the survey had previously been tested in other studies, there is still some potential for questions to be interpreted differently between the two cohorts. One example of such is the item, "apply epidemiological risk analysis to practise" in the domain of practice management. The question was originally developed from a North American standpoint, and "epidemiological risk analysis" is a North American term; therefore, NZ students may have had difficulty understanding it. A more appropriate version of the same item might include the term "evidence-based practice." A full curriculum comparison between the two programmes might also shed light on some of the differences in graduates' responses.

5 | CONCLUSION

Although there were differences in the demographics of both cohorts, especially age groups, the disparities in self-perceived competence of graduates from UoO and DU in many aspects of dentistry are notable. Graduates from DU felt more competent mainly in the areas of orthodontics and oral and maxillofacial surgery, which could be linked to the increased clinical hours DU graduates experience in these fields compared with UoO. Other aspects where discrepancies have been observed may perhaps be due to the differences in insurance systems and cost-sharing between NZ and Canada, influencing patients' treatment needs. Dental care is expensive, and public funded dental treatment is often limited to providing the relief of pain. Globally, dental education needs to consider the impact of this on students' clinical experience. Regardless, the UoO may need to consider increasing students' clinical exposure in the specialty aspects of dentistry to ensure their graduates enter the workforce feeling adequately competent.

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CONFLICT OF INTEREST

The authors' have no conflict of interest to declare.

DATA AVAILABILITY STATEMENT

Research data are not shared.

ORCID

Lee Ann Adam https://orcid.org/0000-0002-2957-3887
Alison Margaret Meldrum https://orcid.org/0000-0001-8234-3418

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