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Ready or Not? Oral Health Therapists' Preparedness for Dental Practice in Aotearoa New Zealand

Jacqui Smith | Heuiwon Han | Karen Lansdown

Department of Oral Health, School of Acute and Primary Health, Faculty of Health and Environmental Sciences, Auckland University of Technology, Auckland, New Zealand

Correspondence: Jacqui Smith (jacqui.smith@aut.ac.nz)

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ABSTRACT

Introduction: The Dental Council of New Zealand requires oral health therapists (OHTs) to meet competency in seven domains to be considered safe to practise clinically in Aotearoa New Zealand (NZ). The aim of this study was to explore OHT graduates' preparedness for clinical practice.

Methods: OHT graduates from the Auckland University of Technology and the University of Otago from the 2020 to 2023 cohorts were invited to participate in an online survey. The survey used an adapted version of the Dental Undergraduates Preparedness Assessment Scale (DU-PAS) to retrospectively evaluate their self-perceived preparedness to practise at the time of graduation.

Results: Of 103 responses, 79 were eligible with complete DU-PAS data (response rate of 24.5%). Mean total DU-PAS score was 73.1 ± 13.4; Part A (clinical) mean score was 33.8 ± 8.0, and Part B (behavioural/cognitive) score was 39.3 ± 7.8. Participants reported they performed most clinical procedures independently upon graduation; however, low confidence was recorded in orthodontic auxiliary tasks, amalgam restorations and pulpotomies. Participants also reported confidence in communication, professionalism and confidentiality, while they noted challenges with managing treatment expectations, colleague behaviour, and evaluating new materials and products. Perceived factors that influenced preparedness to practise included clinical placement time, COVID-19, mentorship, and previous dental industry experience.

Conclusion: This study is the first to evaluate OHTs' preparedness for practice in NZ using a modified DU-PAS tool. Participants perceived themselves to be prepared clinically and cognitively, comparable to international dental counterparts. Despite overall confidence, this study identified clinical and behavioural/cognitive gaps, demonstrating the need for curriculum and practice-based learning improvements to better support OHTs' preparedness for practice.

1 | Introduction

Good oral health is a cornerstone for good general health, and in Aotearoa New Zealand (NZ), oral health therapists (OHTs) play an integral role in promoting the prevention of oral health disease across diverse communities [1, 2]. Oral health therapy, in NZ, is a three-year bachelor's degree offered at two public universities, the Auckland University of Technology and the University of Otago [3, 4]. Working across both public and private health sectors, OHTs provide assessment, diagnosis, treatment, and prevention of oral diseases across all age groups [5]. Their scope of practice includes paediatric dental treatment 17 years and under as well as prevention and periodontal treatment for patients of all ages [6, 7]. OHTs work collaboratively with dentists, dental specialists, and other health professionals to support patient-centred outcomes [8]. Similar oral health professions exist outside of NZ in countries, including but not limited to, Australia, Canada, Singapore, South Africa, and

the United Kingdom; however, each has their own individualised scopes of practice and practising environments including age and restoration restrictions [9–13]. Through a community-focused approach, OHTs contribute to reducing oral health inequities, enhancing access to care, supporting education and research, and health promotion within the dental sector [8].

To practise clinically in NZ, OHTs must be registered with the Dental Council of New Zealand (DCNZ). The seven DCNZ domains of competence outline the key capabilities required for safe and effective oral health practice [6]. At their core, professionalism (Ngaiotanga) involves practising ethically and legally while maintaining ongoing professional development, and communication (whakawhiti kōrero) supports clear, respectful interactions that enable informed and collaborative care [6]. Cultural safety (haumarutanga ahurea) is central in NZ, requiring practitioners to honour Te Tiriti o Waitangi and provide care that respects Māori and diverse worldviews [6]. These domains are strengthened by critical thinking (ngā whakaaro kaikini), which promotes evidence-based decision-making and reflection, alongside scientific and clinical knowledge (mōhiotanga pūtaiao me te haumaru), which underpins accurate assessment and treatment planning [6]. Together, these are applied in patient care (tiaki turoro), ensuring safe and effective clinical practice [6]. Finally, community oral health (te hauora ā-waha o te hapori) extends this responsibility beyond individuals, focusing on prevention, equity, and improving oral health outcomes for the wider population [6]. Oral health practitioners are expected to deliver care that supports patient and whānau (family) wellbeing, and to self-evaluate their practice. All practitioners must maintain an annual professional development plan and engage in ongoing learning to ensure their knowledge and skills remain current [14].

Self-rated preparedness to practise refers to practitioners' perceived readiness and competence to perform clinical and professional tasks [15]. It encompasses the ability to apply theoretical knowledge, perform clinical procedures, and communicate effectively [16]. This sense of preparedness also supports the development of professional identity and ongoing reflection. The transition from student to registered OHT may present several challenges including workplace constraints, increased workloads, patient expectations, and the pressure to meet the expectations of colleagues, issues that are shared across many health professions [16–20]. While the undergraduate degree equips students with essential theoretical knowledge and clinical skills, some new graduates may feel less confident in managing complex cases and adapting to the unfamiliar demands of clinical practice [21, 22].

Although numerous studies have examined dental students' and new graduate dentists' preparedness to practise, research focusing on OHTs remains limited [16–20]. To date, only four studies have explored OHT preparedness to practise, with three conducted in Australia [21–23] and one in NZ [24]. While the NZ study provided valuable insights at the time, some aspects may no longer fully reflect current practice due to the study's age and was limited to University of Otago graduates of one cohort. While the Australian studies have provided limited data specific to OHTs [21–24]. Literature on dentists' self-reported preparedness suggests that while graduates generally feel confident performing basic procedures, they often feel less prepared for more complex tasks and may overestimate their preparedness compared to educators' perceptions [16, 25–31]. Findings from these studies also reveal regional differences in preparedness to practise [16, 25–31]. Therefore understanding preparedness is important for education providers, communities, and stakeholders.

The Coronavirus disease 2019 (COVID-19) pandemic impacted universities and healthcare settings [32]. Prior to the pandemic, dental education was primarily delivered in person; however, restrictions necessitated a shift to online modalities, cancellation of placements, and adaptation of assessments for remote delivery [33, 34]. Studies have shown that dental graduates during the pandemic experienced heightened anxiety and reduced preparedness for clinical practice [33, 35–37]. No NZ-based research has explored the impact of COVID-19 and its associated complexities on OHTs' preparedness to practise at graduation despite research existing for graduating dentists in NZ [32].

This study aims to explore how oral health therapy graduates from the 2020–2023 cohorts in NZ perceived their preparedness for clinical practice at the time of graduation.

2 | Methods

2.1 | Ethics

Ethics approval was obtained from the Auckland University of Technology Ethics Committee (reference number AUTEC 24/103).

2.2 | Research Instrument

This study used a modified version of the Dental Undergraduates' Preparedness Assessment Scale (DU-PAS) tool embedded alongside 23 questions relating to demographics, Likert-scale items, and open-ended questions to explore preparedness to practise. The open-ended items enabled a richer and more nuanced understanding of participants' experiences, including perceived enablers and barriers to preparedness to practice. Participants rated their own preparedness for practice on a scale of 1–5 (completely unprepared to very prepared), enabling comparison between self-perceived preparedness and DU-PAS outcomes.

DU-PAS is a validated tool used to assess dental students' preparedness for practice [38]. DU-PAS evaluates both clinical (Part A) and behavioural/cognitive attributes (Part B) through 50 self-rated items scored from 0 to 2, yielding a total score out of 100 [16]. Participants rate their experience as follows: '0' for no experience, '1' for partial experience or assistance from a colleague, and '2' for independent or consistent performance [16].

The original DU-PAS tool, designed to assess dental graduates' competencies, was adapted for this study by modifying 15 questions to reflect the OHT scope of practice [16]. These changes were reviewed for contextual validity and clarity by a panel of five experienced OHTs, with no revisions required (Supporting Information 1). The final survey took 10–15 min to complete.

Prior to distribution, the survey was piloted with two OHTs (who did not meet eligibility criteria) and two laypeople to assess clarity, timing, and usability. Feedback was used to refine question wording and survey flow. The *modified* DU-PAS tool exhibited strong internal consistency, as indicated by a Cronbach's alpha of 0.919.

2.3 | Eligibility Criteria

Eligibility criteria included DCNZ-registered OHTs who graduated from the Auckland University of Technology or the University of Otago (public universities) between 2020 and 2023 that had practised clinically for at least 6 months since graduation.

2.4 | Data Collection

Eligible participants ($n = 322$) were identified through the DCNZ public register, with 238 OHTs providing contact details. A target response rate of 10% was set based on similar international studies [21, 22, 39]. Invitations were emailed to eligible OHTs with a project information sheet and an online survey link. The survey was also promoted through the New Zealand Oral Health Association (OHT professional association) Facebook page and newsletter. The initial page of the survey provided participants with information about the study and confirmed that proceeding to the survey indicated informed consent to participate. Data was collected via an online Qualtrics survey, XM (United States) [40] between August 1 and September 12, 2024. A reminder email was sent 2 weeks prior to the survey closing. A prize-draw incentive of three $100 vouchers was offered for completion of the survey.

2.5 | Data Analysis

Data was analysed using IBM SPSS version 30 (United States) [41]. Descriptive statistics were calculated to describe the sample and subgroups and their distributions of scores for each part, between genders, age, universities, and year of graduation. Mann–Whitney *U*-test and Kruskal–Wallis nonparametric tests were undertaken to test differences between independent groups. A $p < 0.05$ was considered to be significant. Spearman's correlation and a Wilcoxon Signed-Rank test were also run to identify the difference and relationship between participants' DU-PAS scores and their self-rated scores. Open-ended questions were analysed using content analysis to code and identify themes, patterns, and relationships within the data gathered [42].

3 | Results

A total of 103 responses were received, 24 responses did not meet the eligibility criteria, or the questionnaire was incomplete, resulting in 79 valid questionnaires. The overall response rate was 24.5%. Participant demographics are summarised in Table 1.

TABLE 1 | Demographic characteristics of participants.

Characteristic	Frequency	Percentage (%)
Gender		
Female	69	88
Male	9	11
Prefer not to say	1	1
Age		
20–23	16	20
24–28	41	52
29–33	13	17
34+	9	11
Year of graduation		
2020	18	23
2021	23	29
2022	18	23
2023	20	25
University graduated		
Auckland University of Technology	43	54
Otago	36	46
Ethnicity		
NZ European/Pakeha	31	
Māori	7	
Pasifika	4	
African	4	
European	13	
Middle Eastern	3	
Latin American	11	
Asian	19	
Indian	9	
Prefer not to say	1	
Area of current oral health practice		
Paediatric care < 18 years	60	44.1
Periodontal and preventive care (all ages)	49	36
Orthodontic auxiliary	6	4.4
Dental assisting	17	12.5
Further study	2	1.5
Education	2	1.5

A summary of participant scores for Part A, Part B, and the total score of the DU-PAS is presented in Table 2. Part A is scored out of a maximum of 48 points, and Part B out of 52 points. The total mean score of participants was 73.1 ± 13.4.

TABLE 2 | Participant total DU-PAS scores.

Participant DU-PAS Scores	Total DU-PAS Part A (48)	Total DU-PAS Part B (52)	Total DU-PAS Score (100)
Mean	33.8	39.3	73.1
Standard deviation	8.0	7.8	13.4
Minimum	6	24	40
Maximum	48	51	99

The distribution of participant scores for part A of DU-PAS is summarised in Figure 1.

The distribution of participant scores for part B of DU-PAS is summarised in Figure 2.

A Spearman's correlation coefficient (Table 3) indicated a weak-to-moderate positive relationship between the total DU-PAS score and the self-rated score ($\rho = 0.357$, $p = 0.001$). The rescaled DU-PAS mean score was 3.6, slightly higher than the self-reported mean of 3.5. The difference was not statistically significant, $Z = -0.989$, $p = 0.323$, and had a small Cohen's effect size ($r = 0.11$).

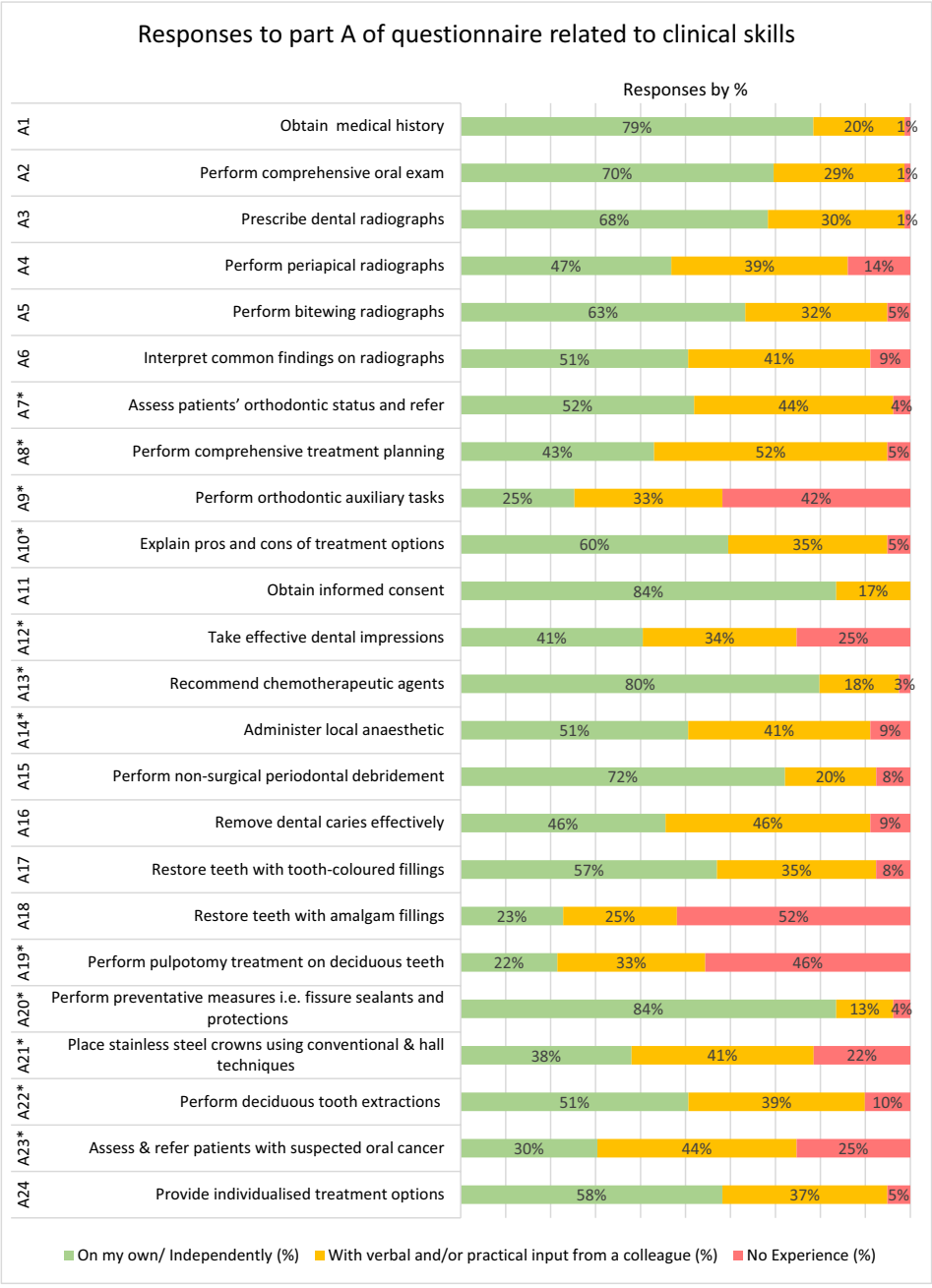

FIGURE 1 | Part A—DU-PAS participant scores. *Indicates modified question.

FIGURE 2 | Part B—DU-PAS participant scores. *Indicates modified question.

TABLE 3 | Self-reported participant scores versus rescaled total DU-PAS score.

	Minimum	Maximum	Mean	Standard deviation
Self-reported preparedness to practice	1.0	5.9	3.5	1.1
Rescaled total DU-PAS score	2.0	5.0	3.6	0.7

The impact of COVID-19 on participants was explored. A Kruskal–Wallis *H*-test was conducted to examine whether the impact of COVID-19 differed across graduation years. The results indicated a statistically significant difference across the four groups ($p = 0.006$). The mean rank scores were 35.24 for 2020, 47.64 for 2021, 43.56 for 2022, and 26.05 for 2023. Pairwise Mann–Whitney *U*-tests were conducted with Bonferroni correction, and 2021 versus 2023 graduates demonstrated a $p < 0.001$; other comparisons were not significant after correction. Therefore, 2021 graduates perceived a

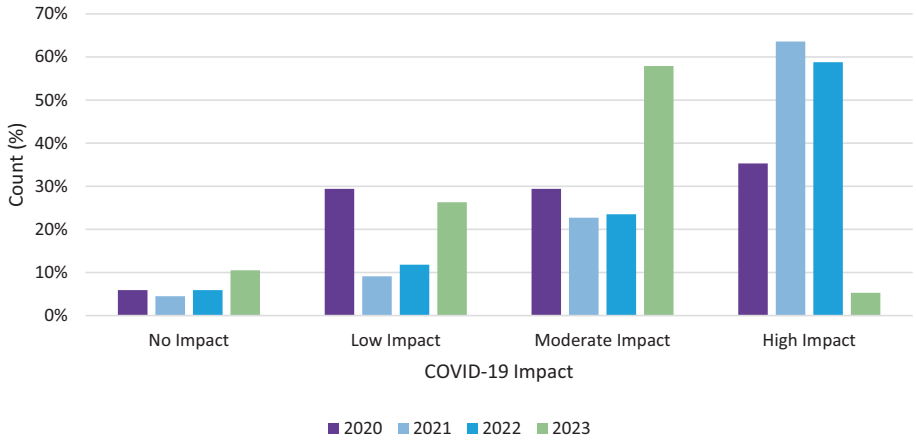

FIGURE 3 | Perceived impact of COVID-19 based on graduation year.

TABLE 4 | Enablers and barriers of OHTs' graduates' preparedness for practice.

Enablers	Barriers
Previous industry experience	Limited clinical hours
Solid theoretical base	High student-to-supervisor ratios
Supportive learning environments	Covid-19 interruptions
Mentorship (post-graduation)	Stress and anxiety
	Real-world appointment lengths
	Dental agreements (Accident Compensation Corporation, Combined Dental Agreement, and Work and Income New Zealand)
	Working without an assistant
	Lack of knowledge in sterilisation and ergonomics

significantly greater impact of COVID-19 than 2023 graduates (Figure 3).

Content analysis of open-ended responses identified enablers and barriers of OHT graduates' preparedness, summarised in Table 4.

4 | Discussion

To our knowledge, this is the first study to assess OHT graduates' preparedness for clinical practise in NZ using the DU-PAS tool. The mean score of 73.1 indicates an overall preparedness for clinical practice aligning with international dentist-based benchmarks [16, 19, 25–31, 43–45]. However, the total score range of 40–99 suggests variability in graduate preparedness across clinical and cognitive/behavioural domains; therefore, not all graduates may be perceived as prepared for practice. Consistent with international DU-PAS studies, these gaps may be attributed to curriculum design, training and education, and/or case exposure [16, 19, 25–31, 43–45].

Participants felt most prepared for clinical tasks, including obtaining a medical history, informed consent, and recommending chemotherapeutic agents, findings consistent with overseas literature [16, 19, 27, 44]. Participants reported feeling least prepared for orthodontic procedures, amalgam restorations, and pulpotomies. These results may reflect limited clinical exposure as orthodontic work constitutes a relatively small component of the clinical responsibilities of OHTs, with only 4.4% of participants working in this area post-graduation. The declining use of amalgam in NZ, largely replaced by resin-based restorations due to aesthetic and material property preferences and direction from the FDI World Dental Federation [46], may also contribute to reduced clinical exposure and confidence in this area [47]. Pulpotomy, a complex procedure requiring careful case selection and management, is being performed less frequently in NZ since the introduction of the Hall technique (a minimally invasive method for placing stainless steel crowns), which may explain self-reported preparedness. These findings are consistent with international studies, which have also identified lower confidence among dental students in performing endodontic procedures and amalgam restorations [19, 43].

In Part B, participants reported feeling most prepared for protecting patient confidentiality, maintaining professional boundaries with patients, and communicating appropriately with colleagues. These strengths echo overseas literature where DU-PAS studies have continually highlighted communication with colleagues and patient confidentiality and boundaries as the main self-reported strengths [19, 48, 49]. However, despite feeling able to communicate appropriately with colleagues, participants reported low levels of confidence in raising concerns about colleagues. This highlights the need to have appropriate guidelines and education for students around how to manage these situations. Managing patient expectations was also regarded as a challenge by participants; interestingly, only two other DU-PAS studies [29, 30] identified this as a challenge. Participants also found the evaluation of new dental materials

and products as well as interpreting research challenging. These challenges align with all DU-PAS literature which identifies a key gap for all dental students [19, 25, 37, 49, 50]. The implementation of research projects and critical appraisal of literature within the undergraduate degree could help to bridge this gap [25, 28, 31, 43, 49].

Unlike international DU-PAS studies, typically conducted at graduation, this retrospective study asked OHTs to reflect on their preparedness at graduation based on up to 4 years of clinical experience [16, 19, 27, 44]. This approach enabled a broader, more diverse sample and allowed comparisons across graduation years. No significant differences were found in DU-PAS Part A, Part B, or total scores between graduation years. The study investigated the extent to which DU-PAS reflects participants' own perceptions of preparedness for practice. DU-PAS scores were slightly higher than self-assessments, indicating a tendency for participants to undervalue their competence. The positive correlation between the two measures reinforces DU-PAS as a valid indicator of OHT preparedness.

Participants identified key enablers of preparedness, including strong theoretical foundations, prior industry experience, and post-graduate mentorship. Many participants acknowledged that their undergraduate courses provided them with a strong theoretical base of knowledge to support clinical decision making, though some reflected that the courses may have been over-theoretical at the expense of practical experience. Prior dental industry experience was also identified as an enabler of preparedness as it allowed participants to have a realistic preview of professional expectations. Mentorship was also a key enabler of preparedness; however, statistical analysis demonstrated that mentorship in the first year after graduation had no impact on participants' preparedness scores, though it may ease the transition from student to clinician [51].

Reported barriers to preparedness included limited clinical time, COVID-19 disruptions, and unfamiliarity with clinical workflows, consistent with dental and other health practitioner literature emphasising the importance of scaffolding and transitional support in professional development [51–53]. The most common recommendation to address the barriers by participants was increased clinical placement, particularly with paediatric patients, which participants viewed as critical for building competence and confidence. This aligns with NZ-based findings concluding that exposure to complex cases and extended clinical placement enhances graduate confidence and competence [20, 24, 54]. Participants also suggested incorporating more varied placement experiences to observe and learn about different areas of clinical practice, including their workflows and how they operate within varying appointment time constraints.

The impact of COVID-19 on participants' preparedness to practice was explored in this study. Over 70% of participants reported that the pandemic had a moderate to high influence on their preparedness for clinical practice. Due to the lack of NZ-based data on OHT preparedness prior to COVID-19, the true extent of this impact is difficult to quantify. However, differences emerged across graduation years; graduates from 2023 reported the least impact, followed by 2020, whereas graduates from 2021 and 2022 indicated higher levels of disruption. This pattern aligns with NZ's COVID-19 'elimination strategy', which saw a return to near-normal conditions beginning in early 2022 [32, 55]. Findings from a NZ dentistry study looking at preparedness during COVID-19 suggest that declines in health and competency scores between pre- and post-graduation may reflect the challenges of transitioning into the workforce rather than the pandemic itself [32]. Further research is needed to explore the long-term effects of COVID-19 on the OHT workforce.

5 | Limitations

The main limitation of this study is the reliance on self-reported confidence, which may be subject to bias. For example, a 2025 study reported a 20-point difference between student and supervisor ratings [31]. The response rate for this survey was 24.5%, which is lower than comparable international studies (30%–92%) [25, 30, 31, 37, 45]. Additionally, the retrospective design may introduce recall bias and early development of self-reflection skills could influence responses [56].

6 | Recommendations

To improve generalisability, future studies should integrate self-reflection tools like DU-PAS throughout undergraduate training, enabling real-time tracking of student preparedness to improve student transition into the workforce to mitigate the risk of recall bias [56]. Incorporating objective measures such as clinical supervisor evaluation or academic performance may also help validate students' self-assessments.

Longitudinal research across the post-COVID-19 era, with stakeholder input and qualitative research may further enrich the understanding of graduate preparedness. The gaps identified in this study could inform curriculum development to better support student confidence and competence, including increased clinical placements and the incorporation of more 'real-world' training and clinic appointment timings.

7 | Conclusion

This study contributes valuable insights into the self-assessed preparedness of OHTs in NZ upon graduation. The findings indicate that OHTs generally feel adequately prepared to manage both the clinical and cognitive/behavioural demands of patient care and professional practice. However, gaps remain in specific areas of clinical knowledge and skills. These gaps highlight the need for educational improvements and transitional support to ensure graduates are sufficiently prepared for the evolving complexities of clinical practice.

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Conflicts of Interest

All authors are currently employed by the Department of Oral Health, Auckland University of Technology.

Data Availability Statement

The data used in this manuscript are not publicly available but are available from the corresponding author upon reasonable request.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section. **Supporting Information: 1.** DU-PAS question modifications.