

Workforce practices of orthodontists in Australia: now and in the future

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Objective: To investigate current and future workforce practices of qualified orthodontists (QOs) and trainee orthodontists (TOs) in Australia.

Methods: An original piloted e-survey with questions regarding current practices and intended working practices of QOs and TOs was developed. The survey was distributed to 514 QO and 46 TO members of the Australian Society of Orthodontists (ASO) from January to June 2024 via REDCap (<https://www.project-redcap.org/>). Reported hours were converted to full-time equivalent (FTE) units. One FTE unit equated to working 35 hr per week for 46 weeks in one year.

Results: The response rate was 30.7% for QOs and 69.5% for TOs. FTE units per clinician, on average, was 0.80 (SD: 0.28) for QOs and 1.01 (SD: 0.14) for TOs. There was no difference between female and male clinicians related to FTE units ($p < 0.05$). For QOs and TOs, 48.3% and 34.3%, respectively, reported that they would work in metropolitan areas only. "Prefer to be close to friends and family" for QOs (84%) and "enough work in metropolitan areas" for TOs (100%) were the most reported reasons for working in metropolitan areas only. For QOs, 43.6% of respondents reported that they spent most of their hours working in "solo owner" roles. Fifty-one (29.9%) of the QO respondents indicated that they intended to retire within the next 5 years.

Conclusions: Over the next 5 years, the specialist orthodontic workforce in Australia is likely to experience losses particularly in non-metropolitan areas and in "solo owner" practices. This may have a significant impact on orthodontic treatment provision in Australia.

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Introduction

In Australia, orthodontic treatment is principally carried out by orthodontists or general dental practitioners (GDPs). To be registered as an orthodontist in Australia, a dentist must have undertaken further training at an accredited Australian university or a recognised overseas institution.¹ The precise proportion of orthodontic treatment provided by orthodontists and GDPs in Australia is unknown. However, investigations conducted in Australia and abroad suggest that orthodontists remain responsible

for the majority of orthodontic treatment, particularly for complex malocclusions, fixed appliance therapy or growing patients.²⁻⁵

Several studies have indicated changes in the characteristics and working patterns of orthodontists in other countries. In the United Kingdom (UK), there appears to be an increasing number of male orthodontists leaving the workforce compared to a corresponding number of females who are reportedly entering the profession.^{6,7} This so called "feminisation" of the orthodontic workforce is speculated to alter the

supply of orthodontic treatment provision, as female orthodontists are reported to work fewer hours per week and take longer and more frequent career breaks compared to their male counterparts.^{8,9} In the United States (US), there is a noted shortage in the number of orthodontists working in both academia and in rural areas, with this shortage expected to worsen into the future.^{10,11} US trainee orthodontists have also been reported to be less likely to buy or open their own practices as their initial choice of employment, preferring to work in group practices or corporate companies.^{12,13}

These trends were reported over 10 years ago, and whether similar trends exist within the orthodontic workforce in Australia and internationally is unknown. The last Australian report on orthodontists' working patterns was published almost 20 years ago and while it provided a snapshot of the workplace practices and demographic characteristics of orthodontists at the time, it did not speculate on how these workplace practices may change into the future.¹⁴ Recent studies investigating orthodontic treatment within Australia tended to focus on how and what populations received these services, with little emphasis on the workplace patterns of the providing orthodontists.^{5,15}

Studies from abroad suggest that the demand for orthodontic treatment is increasing.^{16–18} However, as orthodontists retire and leave the Australian workforce, research is lacking regarding the entry into the workforce of newly qualified orthodontists. If the future workforce cannot meet the demand for orthodontic treatment, patients may increasingly seek orthodontic services from GDPs or direct-to-consumer (DTC) treatment providers. This may have potential ramifications for patients as the evidence suggests that orthodontists may be able to achieve higher quality treatment outcomes in less time compared to GDPs.¹⁹ In addition, while little research has been conducted on the potential harm of DTC aligners, several international organisations have warned of the possible risks when undergoing this treatment modality.²⁰

The aim of the present study was to investigate current and future workforce practices of qualified orthodontists (QOs) and trainee orthodontists (TOs) in Australia. The study also speculated on how the specialist orthodontic workforce in Australia may change in the future.

Material and methods

Ethical approval

The University of Adelaide Human Research Ethics Committee provided ethical approval (H-2023-288) for this study.

Survey development

An original survey was developed from previous relevant surveys.^{13,17–20} A published questionnaire which explored the attitudes and plans of TOs or orthodontic residents was also adapted.¹¹ Pre-piloting and piloting was performed using 4 QOs and 2 TOs to ensure the relevance of the questions to Australian-based respondents and establish the time taken to complete the survey. Test-retest reliability was determined using Cohen's kappa analysis. This was performed using 1 QO and 1 TO who completed the survey at two timepoints, two weeks apart.

Content of the final survey

The survey comprised five sections, mainly containing multiple-choice and short answer questions as well as providing respondents with the opportunity to provide their own opinions in free-comment text boxes. Section A sought respondent demographic details. Sections B and D were targeted at QOs only and contained questions regarding their current working patterns and retirement intentions. Sections C and E contained questions for TOs and their planned working patterns and retirement intentions.

Population and sampling

In Australia, the specialist title of "orthodontist" can only be used by individuals who satisfy the standards prescribed by the Dental Board of Australia and who are registered in the orthodontic specialty division with the Australian Health Practitioner Regulation Authority (AHPRA).²¹ The Australian Society of Orthodontists (ASO) is the main professional organisation for orthodontists in Australia. Society membership requires individuals to be registered as an orthodontist with AHPRA or to be currently undertaking a relevant AHPRA accredited postgraduate training program. Presently, approximately 90% of registered orthodontists in Australia are purportedly members of the ASO.²²

Disseminating the survey

The online survey distribution tool, REDCap (Research Electronic Data Capture, Vanderbilt, Tennessee 37240, USA) was used to create the electronic survey (e-survey). On behalf of the researchers, the ASO distributed an email containing pertinent information and a link to the e-survey to 560 eligible full, semi-retired, honorary life, academic and student members in January 2024. Reminder emails were sent in February and April 2024 requesting participation of those who had not completed the survey. Before the e-survey was closed in June 2024, quick response (QR) codes for the e-survey were also displayed at national meetings organised by the ASO.

Statistics

Survey responses were exported from REDCap to a Microsoft Excel (version 16.0; Microsoft, Redmond, WA, USA) spreadsheet for data cleaning and initial analysis. The responses from respondents who did not complete all pertinent sections were excluded from analysis. Descriptive analyses were conducted to determine means and percentages of responses within Microsoft Excel. Further statistical analyses were conducted using IBM SPSS Statistics (version 28.0. IBM Corp, Armonk, NY: IBM Corp). Chi-squared tests and one-way Analysis of Variance (ANOVA) were used to determine statistically significant differences between responses recorded by QOs and TOs based on different experience levels and gender. Spearman's correlation was also used to assess the relationship between the years of experience and reported hours worked. *P* values less than 0.05 were considered statistically significant.

Reported hours worked by QOs and intended hours to be worked by TOs were converted to full-time equivalent (FTE) units for ease of comparison between the groups. One FTE unit is equivalent to an orthodontist working 35 hours per week for 46 weeks in 1 year.^{23,24} Only clinical hours worked were recorded. The time spent completing paperwork or other administrative tasks was not included. FTE units/clinician was also calculated to indicate the average output worked per clinician. The term “non-metropolitan” was used to indicate locations which were greater than 50 km from the state capital cities Melbourne, Sydney, Brisbane, Perth and Adelaide.

This definition for “non-metropolitan” was agreed upon during the pre-piloting process to minimise confusion and ensure ease of e-survey completion.

Results

Following the removal of incomplete entries (28.8%; *n* = 77), 190 responses were recorded. This corresponded to response rates of 30.7% (*n* = 158) for QOs, 69.5% (*n* = 32) for TOs and 33.9% for the total eligible ASO membership.

The kappa value for components completed by QOs and TOs were 0.97 and 0.81 respectively, indicating good to excellent reliability for all components of the e-survey.

Demographics

Most respondents were male. The proportion of the male respondents in the QO group (72.1%; *n* = 114) was greater than that in the TO group (59%; *n* = 19). However, this was not statistically significant (*p* = 0.338).

The median years' experience working as an orthodontist for responding QOs was 24 (IQR: 11, 31) while the median years until qualification for TO respondents was 2 (IQR: 1.25, 3). Table I outlines QO years since qualification and state of practice and Table II outlines TO years until qualification and intended state of practice.

Current and planned full-time equivalent units

The 158 responding QOs reported working a total of 127.38 FTE units, which was calculated to a mean FTE units/clinician of 0.80 (SD: 0.28). The 32 responding TOs planned to work a total of 32.34 FTE units, which was calculated to a mean FTE units/clinician of 1.01 (SD: 0.14).

The FTE units/clinician of QO respondents varied according to their level of experience (Table III). A correlation study found that there was a medium negative association between greater years of experience and FTE units/clinician (Spearman's correlation coefficient: -0.38, *p* < 0.001).

Table III provides further information regarding statistically significant differences in FTE units/

Table I. Qualified orthodontist years since qualification and state of practice

	n (%)
Years since qualification	
<5	16 (10.1)
6-10	19 (12.0)
11-20	40 (25.3)
21-30	41 (25.9)
>30	42 (26.5)
State of practice	
New South Wales	46 (29.1)
Victoria	38 (24.0)
Queensland	27 (17.0)
Western Australia	10 (6.3)
South Australia	28 (17.7)
Australian Capital Territory	6 (3.7)
Northern Territory	0 (0)
Tasmania	3 (1.8)

clinician for responding TOs and QOs depending on experience levels and gender.

Metropolitan versus non-metropolitan practice

Almost half (48.3%, $n = 75$) of QOs respondents reported that they would only work in metropolitan areas compared with 34.3% ($n = 11$) of responding TOs. However, this difference was not statistically significant ($p = 0.175$). Figure 1 summarises the reported reasons why only working in metropolitan areas was chosen. QOs reported that there was “Enough work in metropolitan areas” (84%, $n = 63$) whereas “Prefer to be close to friends and family” was the most common reason for TOs (100%, $n = 11$).

Figure 2 shows the responses of the QO and TO respondents when asked what factors would most likely motivate them to work in non-metropolitan areas. Most of the TOs responded: “financial incentives” (54.5%, $n = 6$), whereas the QOs responded: “family or partner willing to relocate” (33.3%, $n = 25$). For QOs who responded: “other”, provided comments included “to grow the business”, “lifestyle change” while others commented that they “would never do it”.

Table II. Trainee orthodontist years until qualification and state of practice

	n (%)
Approx years until qualification	
1	8 (25)
2	10 (31.2)
3	14 (43.7)
Intended state of practice	
New South Wales	9 (28.1)
Victoria	7 (21.8)
Queensland	9 (28.1)
Western Australia	0 (0)
South Australia	1 (3.1)
Australian Capital Territory	2 (6.2)
Northern Territory	0 (0)
Tasmania	0 (0)
Undecided	4 (12.5)

Type of practice

There was a statistically significant difference in how QO respondents divided their total FTE units compared with how TO respondents intended to divide their total FTE units upon qualification. For QOs, 43.6% of respondents ($n = 69$) reported that they spent most of their hours working in “solo owner” roles. By contrast, in the short term, most of the TO (50%, $n = 16$) respondents reported that they intended to spend their working hours mainly in “private practice employee” positions. However, in the long term, the TOs indicated that they would prefer to work mainly in “solo owner” (34.3%, $n = 11$) or “partnership/associateship” (31.2%, $n = 10$) positions. There were no statistically significant differences in the responses reported by females and males.

Handover of practice ownership and partnership/associateship positions

Almost a quarter (22.5%, $n = 9$) of QO respondents who were not in practice ownership or partnership/associateship positions, responded that they intended pursue these positions in the future. The most likely pathways of pursuing practice ownership or partnership/associateship reported by these respondents were “purchase practice in which I am

Table III. Comparison of FTE units/clinician between different respondent groups

Respondent group	Average FTE units/ clinician (SD)	Comparison group	Difference in FTE units	P value
<5 years experience	1.00 (0.21)	TOs	0.00	1.000
		6 to 10 years	0.11	0.739
		11 to 20 years	0.13	0.487
		21 to 30 years	0.21*	0.039
		30+ years	0.37*	<0.001
6 to 10 years experience	0.89 (0.19)	TOs	-0.11	0.572
		<5 years	-0.11	0.739
		11 to 20 years	0.01	1.000
		21 to 30 years	0.10	0.686
		30+ years	0.25*	0.004
11 to 20 years experience	0.87 (0.25)	TOs	-0.13	0.225
		<5 years	-0.13	0.487
		6 to 10 years	-0.01	1.000
		21 to 30 years	0.08	0.611
		30+ years	0.23*	<0.001
21 to 30 years experience	0.78 (0.26)	TOs	-0.22*	0.003
		<5 years	-0.21*	0.039
		6 to 10 years	-0.10	0.686
		11 to 20 years	-0.08	0.611
		30+ years	0.15	0.068
30+y experience	0.63 (0.32)	TOs	-0.37*	<0.001
		<5 years	-0.37*	<0.001
		6 to 10 years	-0.25*	0.004
		11 to 20 years	-0.23*	<0.001
		21 to 30 years	-0.15	0.068
Males	0.83 (0.30)	Females	0.00	0.998
		Prefer not to say	-0.10	0.796
Females	0.83 (0.22)	Males	-0.00	0.998
		Prefer not to say	-0.11	0.793
Prefer not to say	0.91 (0.14)	Males	0.10	0.796
		Females	0.11	0.793
TOs	1.01 (0.14)	<5 years	0.00	1.00
		6 to 10 years	0.11	0.572
		11 to 20 years	0.13	0.225
		21 to 30 years	0.22*	0.003
		30+ years	0.37*	<0.001
		<5 years	0.00	1.00

*The mean difference is significant at the 0.05 level.

FTE, Full Time Equivalent; SD, standard deviation; TOs, Trainee Orthodontists.

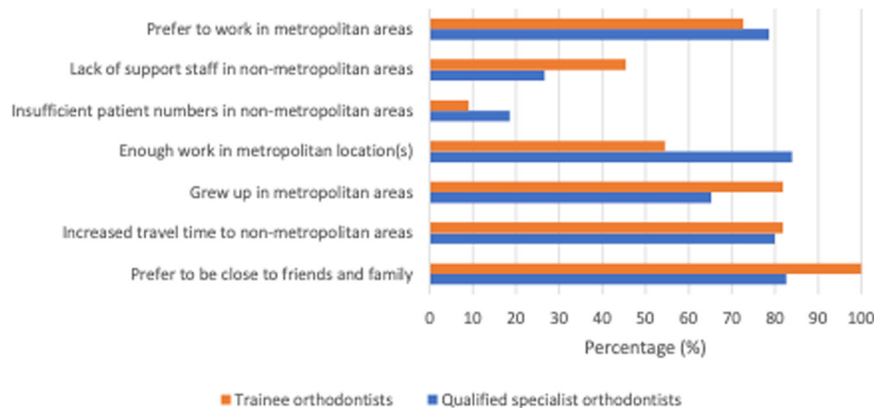


Figure 1. Factors reported to be relevant in decision of trainee and qualified orthodontists to only work in metropolitan areas.

working” (44.4%, $n = 3$) and “enter partnership/associateship with practice in which I am working” (44.4%, $n = 3$).

QO respondents in practice ownership or partnership/associate positions reported that, in the future, they would most prefer to sell their practice to “orthodontist partner/associate” (27.1%, $n = 32$) and “orthodontist employee” (26.2%, $n = 31$). For QOs who responded “other” (1.6%, $n = 2$) to this question, comments left mentioned the importance of “similar ethos” and “private equity” when selling a practice in the future.

Retirement intentions

Table IV summarises the retirement intentions QOs and TOs. When investigating the time until

intended retirement, it was found that cumulatively 29.9% ($n = 51$) of QO respondents intended to retire within the next 5 years.

Future trends

Using reported FTE units weighted against the respective response rates for QOs and TOs, Figures 3 and 4 demonstrate the predicted net changes in FTE units for the specialist orthodontic workforce over the next 10 years.

The survey data indicated that there will be a net loss of 47.07 FTE units from the specialist orthodontic workforce in five years’ time. In 10 years, the net loss will be slightly less at 40.69 FTE units (Figure 3).

Figure 4 demonstrates that over the next 10 years, non-metropolitan and metropolitan areas are

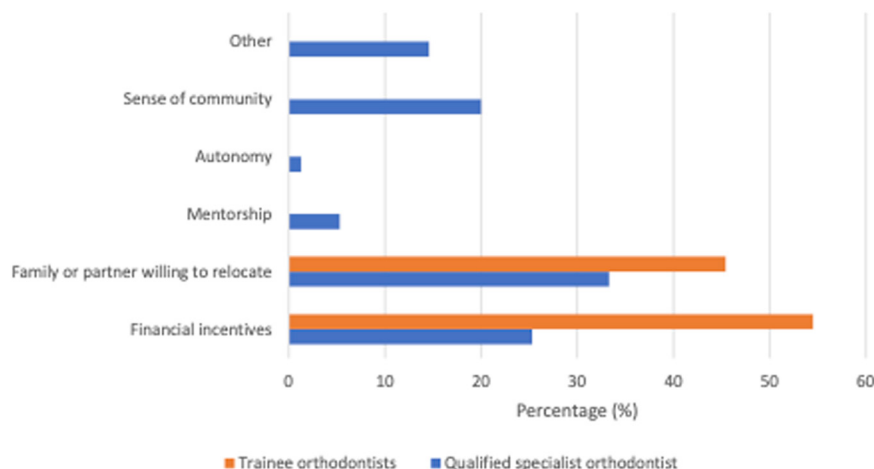


Figure 2. Factors which would most motivate trainee or qualified orthodontists to consider working in non-metropolitan areas.

Table IV. Retirement intentions of QOs and TOs

	QOs	TOs
	From now, when do you intend to retire?	From qualification, when do you intend to retire?
Time until retirement	<i>n</i> (% of total FTE)	<i>n</i> (% of total FTE)
<1 year	10 (4.6)	0 (0)
1 to 2 years	9 (5.1)	0 (0)
2 to 5 years	32 (20.2)	0 (0)
5 to 10 years	28 (17.1)	0 (0)
10 to 20 years	25 (18.2)	3 (7.6)
20 to 30 years	19 (13.4)	6 (19.1)
30+ years	5 (2.9)	11 (33.7)

QOs, Qualified Orthodontists; TOs, Trainee Orthodontists.

predicted to experience a net loss of 39.96 and 0.68 FTE units respectively.

Respondents were asked to rate their concern for eight issues regarding the future of the orthodontic workforce in Australia (Table V). “Not enough orthodontists in academia” was rated as a “major concern” by most QOs (52.5%, $n = 82$). Table VI indicates the themes categorised according to

respondent comments of other concerns regarding the future of the orthodontic workforce in Australia. Only the QOs provided comments.

Discussion

The aims of the present e-survey were to determine the current and future workforce practices of QOs and TOs in Australia. This is the first Australian survey undertaken and the findings provide valuable information regarding orthodontic practice both now and into the future. The information gathered can indicate whether the specialist orthodontic workforce will continue to meet the needs of patients seeking orthodontic care. In a world of increasing globalisation, the findings from the present study may also provide insight into trends which may also be occurring on a global level and hold some relevance to the orthodontic professions in other countries.

The findings of the present study suggested that the specialist orthodontic workforce in Australia is likely to experience a net loss in FTE units over the next 10 years, with a potentially larger drop occurring between 2025 and 2028. As orthodontists are responsible for the majority of orthodontic treatment carried out in Australia, this net loss in FTE units is likely to place a strain on the existing workforce and potentially reduce the availability of specialist orthodontic service provision in Australia.^{2–4} In response to a reduction in FTE units, public demand for orthodontic treatment may be met by GDPs, DTC treatment providers or changing models of

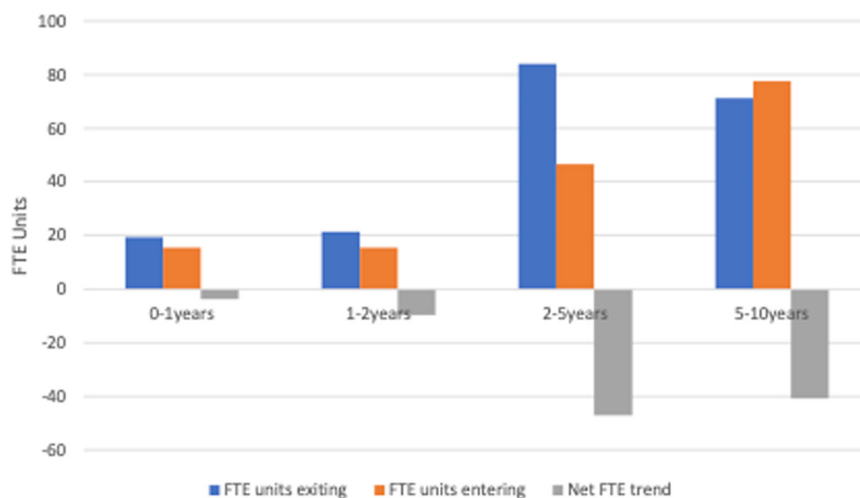


Figure 3. Predicted FTE units entering and exiting the orthodontic workforce 2023-2033.

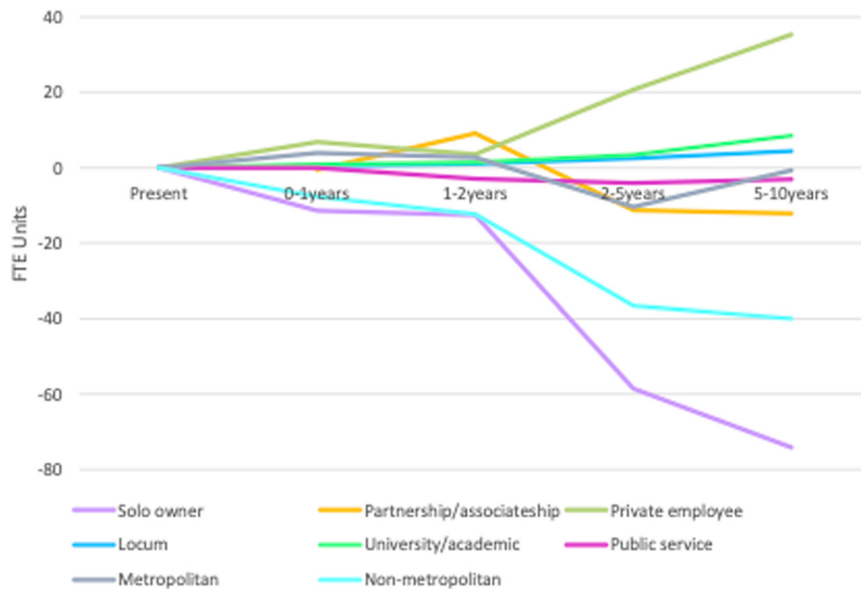


Figure 4. Predicted net changes in FTE units for different types of orthodontic practice 2023-2033.

orthodontist service delivery. How and whether this potential shift in orthodontic service provision may affect patients is just speculation at this time, but the evidence suggests it may result in poorer treatment outcomes.^{20,25,26}

The loss in FTE units is likely to largely affect non-metropolitan areas with a predicted reduction

of 28.5% and 0.2%, respectively, over the next 10 years. This is despite Australian Bureau of Statistics projections that populations in non-metropolitan areas will increase by 9.5% over the same timeframe.²⁷ In response to the reduction of specialist orthodontic services in non-metropolitan areas, tele-orthodontics may play an important role.²⁸

Table V. QOs and TOs concerns about the future of orthodontics in Australia

	QOs			TOs		
	Neutral n (%)	Minor concern n (%)	Major concern n (%)	Neutral n (%)	Minor concern n (%)	Major concern n (%)
GDPs practicing orthodontics	13 (8.2)	74 (46.8)	71 (44.9)	4 (12.5)	15 (46.8)	13 (40.6)
Too many orthodontists	57 (36.5)	83 (53.2)	16 (10.2)	14 (43.7)	12 (37.5)	6 (18.7)
Not enough orthodontists in academia	21 (13.4)	53 (33.9)	82 (52.5)	11 (34.3)	10 (31.2)	11 (34.3)
Too few patients	62 (39.7)	78 (50)	16 (10.2)	13 (40.6)	14 (43.7)	5 (15.6)
DTC appliances	27 (17.3)	86 (55.1)	43 (27.5)	10 (31.2)	10 (31.2)	12 (37.5)
Corporate orthodontic practices	33 (21.1)	76 (48.7)	47 (30.1)	5 (15.6)	15 (46.8)	12 (37.5)
Not enough orthodontists in non-metropolitan areas	32 (20.5)	71 (45.5)	53 (33.9)	15 (46.8)	13 (40.6)	4 (12.5)
Artificial intelligence	43 (27.5)	90 (57.6)	23 (14.7)	13 (40.6)	12 (37.5)	7 (21.8)

DTC, Direct to consumer; GDP, General Dental Practitioner; QOs, qualified orthodontists; TOs, trainee orthodontists.

Table VI. Qualified orthodontist concerns about the future of orthodontics in Australia ($n = 19$)

Theme	<i>n</i> (%)
Cost of specialist training	1 (5.2%)
Not enough trainee orthodontists interested in practice ownership	1 (5.2%)
Insufficient orthodontists	3 (15.7%)
Operating costs of practice ownership	2 (10.5%)
Lack of interest in specialty training	1 (5.2%)
Low quality orthodontic care driven by marketing	3 (15.7%)
Not enough orthodontists in academia	1 (5.2%)
Overseas orthodontists working in Australia without proper qualification	2 (5.2%)
Public not aware/appreciative of specialist orthodontic qualifications	2 (5.2%)
Shortage of orthodontists in non-metropolitan areas	2 (10.5%)
ASO not doing enough for members	3 (15.7%)
Staffing issues	3 (15.7%)

ASO, Australian Society of Orthodontists; N, number.

Tele-orthodontics enables orthodontists to remotely monitor a patient's treatment progress through, for example, scans made using a smart phone which will potentially reduce the number of in-office visits.²⁸ However, the over-reliance on tele-orthodontics may erode rapport between patients and orthodontists, as well as exposing patients to cybersecurity issues with sensitive information transmitted through the internet.²⁸ Research has also suggested that approximately 15% of patients are 'dissatisfied' with tele-orthodontics and prefer in-office orthodontic visits.²⁹

In the present study, the reasons why QOs and TOs choose to work in non-metropolitan areas were mainly "prefer to be close to friends and family" and "enough work in metropolitan areas". These findings appear to correspond with a systematic review regarding GDPs, in which social and professional isolation, increased workload, decreased access to education for their children, provided fewer job opportunities for a partner and an inability to integrate into the local community were reportedly major barriers

to working in non-metropolitan areas.³⁰ Research into GDP working patterns also suggested that job security may be another concern when moving to non-metropolitan locations as these areas may not have sufficient patient numbers to adequately financially support a full-time practitioner.³¹

The present study found that "financial incentives" and "family or partner willing to relocate" were the factors most likely to motivate QOs or TOs to work in non-metropolitan areas. However, an investigation of general dental students suggested that alternative ways of improving the uptake of workers in non-metropolitan areas included fostering a "prior rural exposure".³⁰ This involves a non-metropolitan upbringing and participation in clinical placements in non-metropolitan areas. It has been suggested that a "prior rural exposure" provides general dental students with an insight into the realities of working and living in non-metropolitan areas and may provide opportunities to build support networks that would streamline their pathway to working and acclimatising to these environments in the future.³⁰ Therefore, a strategy to promote the recruitment and retention of orthodontists in non-metropolitan areas may include increasing the intake of trainees with a non-metropolitan upbringing or introducing clinical placements in non-metropolitan areas during specialist training.

The findings of the present study indicated that TOs were more likely to pursue private employment over practice ownership or partnership/associateship positions. It is therefore considered that over the next 10 years, there may be a potential net loss of 74.11 and 12.12 FTE orthodontists in "solo owner" and "partnership/associateship" positions compared to a net gain of 35.35 FTE orthodontists in "private employee" positions. This was comparable to the findings of a survey of orthodontic residents in the US, where it was found that 46% of the residents intended to work as private employees compared to 20% who intended to pursue practice ownership.³² The rising cost of specialist orthodontic training programs in the US is suggested as the reason why TOs are increasingly choosing private employment over practice ownership and may also explain why a similar trend is occurring in Australia.³² Other contributing factors may include a perceived lack of business management skills and work-life balance disruptions, which have been found to be associated

with the decline in practice management for general medical practitioners in Australia.^{33,34} In future, the shift away from solo ownership may manifest as larger multi-clinician orthodontic clinics which are increasingly owned by corporate bodies.³⁵ How corporatisation of orthodontic care will impact on orthodontic treatment provision and outcomes is unknown. However, the Australian Dental Association has stated that “dental practices should be owned or at least effectively controlled by dentists” as “there is a potential conflict of interest between the responsibilities of an employed dentist and corporate owners of dental practices”, a sentiment which may be extended to orthodontic clinics.³⁶

In the present study, “not enough orthodontists in academia” was selected by responding QOs as an issue of major concern. Despite this, responses from TOs found that in the short term, it was intended that 5.6% of their weekly hours would be spent working in university or academic positions before transitioning to 11.6% in the long term. Over the next 10 years, this may potentially translate to a net gain of 8.52 FTE units for higher education positions. This is relevant as it suggests that TOs are showing a greater interest in university or academic positions and future shortages in this field may be less likely as studies abroad may suggest. For instance, a declining interest of orthodontic trainees in the US to pursue a career in academia was reported in 2020.³² The rising cost of education in the US was again posited as a reason why this might be the case.³² It should be noted, however, that surveys of orthodontic trainees in the US asked whether respondents were intending to pursue full-time academic positions only, and may not have accurately represented respondents who wished to pursue part-time employment, as in the present survey.^{11,32}

Approximately a quarter of responding QOs were female. This corresponded to the reported proportion of the ASO which is female (31%).³⁷ In comparison, a relatively higher proportion of responding TOs to the e-survey were female ($n = 14$, 40.6%). This may suggest that a trend for “feminisation” was occurring within the specialist orthodontic workforce as has been reported in other parts of the world.^{6,7} Female orthodontists are reported to work fewer hours per week and take longer and more frequent career breaks.^{8,9} Interestingly, this was not the case in the present study which found that males and females both produced approximately 0.83 FTE units/clinician.

The present study had limitations. Of note, the lower response rate which was achieved for QOs (30.7%) when compared to similar e-surveys conducted in Australia.^{14,38} Additionally, the number of survey responses which were commenced but not completed ($n = 77$, 28.8%) may have been influenced by factors related to survey length, poor visual presentation and unstable internet connection.³⁹ The overall lack of input by the profession could be a reason why orthodontic research continues to lag behind medical research and serves as a reminder that greater participation in future surveys is required to ensure better validity of results.^{40,41} In addition, while there was good test-retest reliability of the e-survey, planned working and retirement intentions may not always be the same as actual working and retirement intent. However, a systematic review of physician patterns regarding expected retirement age, found that generally the age physicians expected to retire tended to agree with their actual age of retirement.⁴² Furthermore, when speculating on future trends in FTE units, it was assumed that the hours worked and time proportioned between different types of practice would remain the same for TOs.

Despite these limitations, the present study is the first to report on the current and planned working intentions of both QOs and TOs in Australia. It will provide valuable information in the planning of orthodontic treatment provision and baseline data for future relevant research.

Conclusions

Almost one-third (29.9%) of the current specialist orthodontic workforce is expected to retire over the next 5 years

Shortages in specialist orthodontic supply are likely to affect non-metropolitan areas more than metropolitan areas

Trainee orthodontists are increasingly preferring private employment positions over practice ownership or partnership/associateship positions

Conflict of interest

The authors declare that there is no conflict of interest.

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