

# Factors influencing consideration of dental specialisation: a survey of current dental students at the University of Western Australia

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## Summary

**Aim.** At present, little research exists regarding factors that influence dental students and recent graduates to pursue specialist training. Through the provision of a questionnaire, the study investigated student's perceptions of dental specialities and factors impacting specialisation.

**Methods.** Questionnaires (n=65) were undertaken by Doctor of Dental Medicine students in year three (n=34) and four (n=31) through paper means. An analysis was undertaken of the knowledge of speciality courses, speciality preferences and the main motivating and deterring factors influencing specialisation.

**Results.** A response rate of 70% was observed, revealing that 13% of all participants correctly identified the speciality courses available in Western Australia, with 6% of students wanting to specialise in the long term. Altruistic factors were most motivating and financial most deterring when considering specialisation. Speciality preferences also varied between cohorts.

**Conclusions.** Findings highlight that a small proportion of students want to pursue specialisation and the majority of students are unaware of the speciality courses available in Western Australia. This emphasises the need for greater exposure and education in dental specialties. Further research is advised in this field to better understand factors involved in the pathway to dental specialisation and how to encourage specialisation.

**Key words:** dental, specialisation, factors, students, survey questionnaire.

## Introduction

The dental workforce is an important healthcare resource that allows dentists, through education, diagnosis and treatment, to provide the public with an essential health service. There are over 15,000 dentists in Australia, with 10% of those working as specialist dentists (1). Dental specialists are trained as general practitioners in dentistry but have additional qualifications and experience within a chosen field. In Australia, specialist education and training with Australian Dental Council (ADC) accreditation is offered in 12 specialities (2). Specialists play a key role in maintaining clinical excellence and in providing leadership in dentistry. As such, the monitoring and surveillance of dental specialists is imperative as it can provide information about specialist training and assist in improving the geographic reach of specialists, especially in supporting primary care (3, 4) In order to cater for the replacement of retiring specialist dentists and population growth, adequate training programs aim to maintain the availability of specialist dentists within Australia. Furthermore, there is a continuing need to ensure dental students are well-informed and guided in their decision to pursue specialist training.

At present, there is little research regarding the factors that influence dental students and recent graduates to progress into specialist training pathways and postgraduate dental study. A comprehensive review of the literature revealed that there were no specific reports on Australian dental students or dentist's perceptions of dental specialties. Several studies have been conducted in the United States to explore the various reasons dental students chose to enter the profession and their subsequent career expectations (5-10). Additional literature exploring these factors has been published about dental stu-

dents in the United Kingdom, Saudi Arabia, United Arab Emirates, Thailand, Japan and Sweden (11-14). A small set of additional studies has investigated the perceptions of dental specialities, influencing factors on speciality choice and long-term career plans (15-20). The critical role of dental specialists presents the need to explore these factors in an Australian context as there is currently a gap in the literature.

The aim of this paper is to determine which factors motivate and deter current dental students and recent graduates (within the last two years) at the University of Western Australia (UWA) from pursuing specialisation in the future. Findings from this research aim to provide specialists and course conveners at the UWA Dental School with valuable information to facilitate specialisation pathways. Furthermore, as it is the first study of its kind in Australia, it may serve as a pathway for future research regarding factors motivating postgraduate dental students and newly qualified dentists to consider dental specialisation.

## Material and methods

The study design was a cross sectional qualitative study aimed at current students and recently graduated alumni at the University of Western Australia. Human ethics approval from the University of Western Australia was obtained prior to commencement of data collection (27/2/17: RA/4/1/8817). Two forms of data collection were utilized; a voluntary anonymous paper questionnaire for the third (n=52) and fourth (n=41) year students of the Doctor of Dental Medicine (DMD) program, and an online questionnaire tool, Qualtrics®, for the two alumni classes of 2014 and 2015 (combined n=140). Initially, a single trial survey was distributed to the Doctor of Clinical Dentistry (DCD) students to provide feedback regarding ambiguity and possible misinterpretation of questions. Following this, the final, revised survey was distributed in June 2017, where third and fourth year DMD students were approached after lectures with a paper questionnaire to complete. Alumni were contacted with aid of the UWA Alumni Society, via email with a Qualtrics® survey link. This was necessary to protect the identities of participants. Both surveys were voluntary and anonymous. Our participants were chosen as a convenience sample, which allowed for a range of experiences regarding choices, preferences, and motivations to be investigated. Through an analysis of current literature, examples of survey questions and survey formats were explored and modified for use in this study. Analysis of questions for relevance were then shortlisted and finalised before being presented to the supervisor. The questions were modified and tailored to an Australian audience, then grouped to increase statistical significance of results.

The survey instrument covered the following four areas: Demographics, Long-term career goals, Knowledge of specialty Fields, and Factors Affecting future Specialisation. In the fourth section, Factors affecting future specialisation, participants chose from a list of factors known to influence pursuit of postgraduate specialist studies and future career choices. Students rated the factors on a three point Likert scale; motivating, deterring or neutral. The factors were grouped into four major categories: Financial, Altruistic, Professional and Personal factors which may influence their decision towards dental specialisation.

All hard copy records are kept in a locked cupboard at all times within academic staff offices at the UWA Dental School. It is only available to the research team and will be retained for a minimum of 7 years. All digital records are unidentifiable and kept on UWA servers which are protected by user login permissions.

All participants were given a clear option to opt in or out of the study. They were given a clear explanation of the research aim, objectives and how the data will be used. Consent forms were given to current students who chose to participate whilst the consent forms were combined in the online survey for alumni participants.

Data analysis was undertaken to identify the motivating and deterring factors influencing consideration to specialise. As such, a combination of descriptive and inferential statistics was utilised to ascertain knowledge of specialty courses, specialty preferences and the main motivating and deterring factors influencing specialisation. a univariate analysis was undertaken to present an overview of findings from the study.

## Results

The questionnaire was completed by 65 DMD students out of a possible 93 dental students (52 DMD3 students and 41 DMD4 students). Though the total response rate was 70% across DMD3 and DMD4, not all questionnaires were completed in full. Questions which were answered incorrectly or left blank were voided from the study. The survey had a 0% response rate from alumni.

*Demographics:* The study sample consisted of 34 students from third year DMD (DMD3) and 31 students from fourth year DMD (DMD4). Of the 65 students, there were 32 males (49%) and 33 females (51%). The majority of participants were science graduates (n=55, 85%) and the prevalent age group amongst participants was “20-24 years old” (n=30, 46%). The survey found that 54 out of the 65 participants (83%) had previously obtained a bachelor degree as their high level of education (Tab. 1).

Table 1 - Demographics Table.

<b>Class Year</b>	DMD3	34	
	DMD4	31	
<b>Gender</b>	Male	32	
	Female	33	
<b>Previous Degree</b>	Science	10	
	Non-Science	55	
<b>Age Group</b>	20-24 years	30	
	25-29 years	27	
	30-34 years	5	
	35+ years	3	
<b>Marital Status</b>	Single	42	
	Married	4	
	Non-Married	19	
	Other	0	
<b>Education Attained</b>	Bachelor	54	
	Honours	9	
	Masters	0	
	Doctorate	0	
	PhD	2	
<b>Location</b>	WA	34	50
	Interstate	Metropolitan	7
	International	23 Rural	8

**Long term career goals:** The number of respondents who indicated that they wanted to specialise long term was 6% (n=4). Additionally, the survey revealed five participants were considering applying to a post-graduate speciality course. The survey found that 42% participants (n=27) showed a long-term career goal of becoming a general dentist while 52% (n=34) showed a long-term career goal of being a general dentist with a speciality interest (Fig. 1).

**Knowledge of speciality courses:** The survey found that 51% of respondents (n=33) believed that they were aware of current specialisation courses offered in Western Australia. In addition, 45% (n=29) stated they were somewhat aware whilst 3% of students (n=2) were not aware of the courses available. The results demonstrated that 84% of respondents (n=56) were incorrect when asked to identify what speciality courses are currently available in Western Australia, with only 13% (n=9) correctly responding. Two surveys had incomplete responses for this section and thus they were voided from the results (Fig. 2).

Furthermore, the number of students who had discussed a speciality interest with their mentor, supervisor or specialist varied between the dental student cohorts with 80% of DMD3 students and 19% of DMD4 students stating they had enquired about specialisation.

**Specialty preferences:** The specialty preferences varied between DMD3 and DMD4 as per Figure 3 and Figure 4. Orthodontics was the most preferred speciality (24%) in DMD3 whilst Oral and Maxillofacial Surgery was the most preferred speciality (29%) amongst DMD4. No students in either cohort had selected Oral Pathology and Radiology as their most preferred speciality.

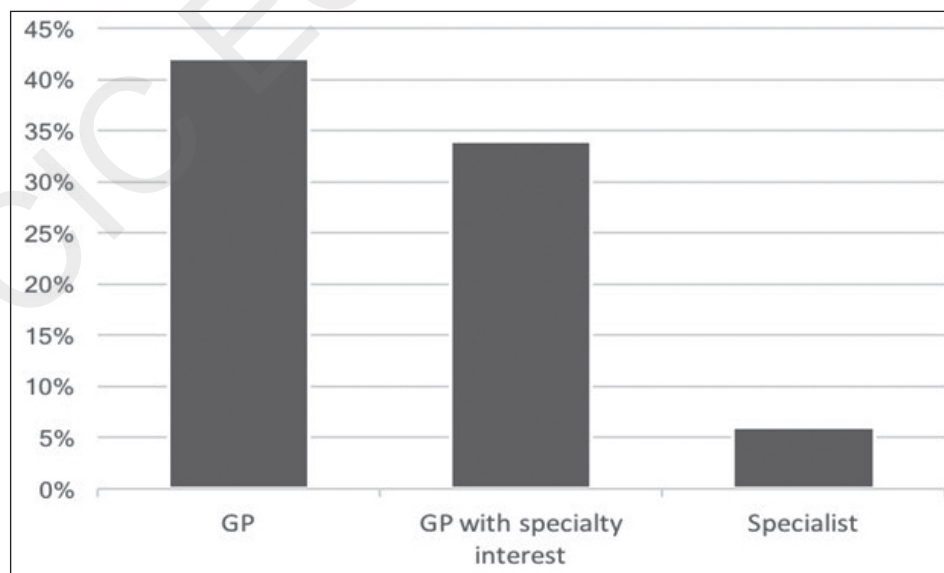


Figure 1. Long term career goals.

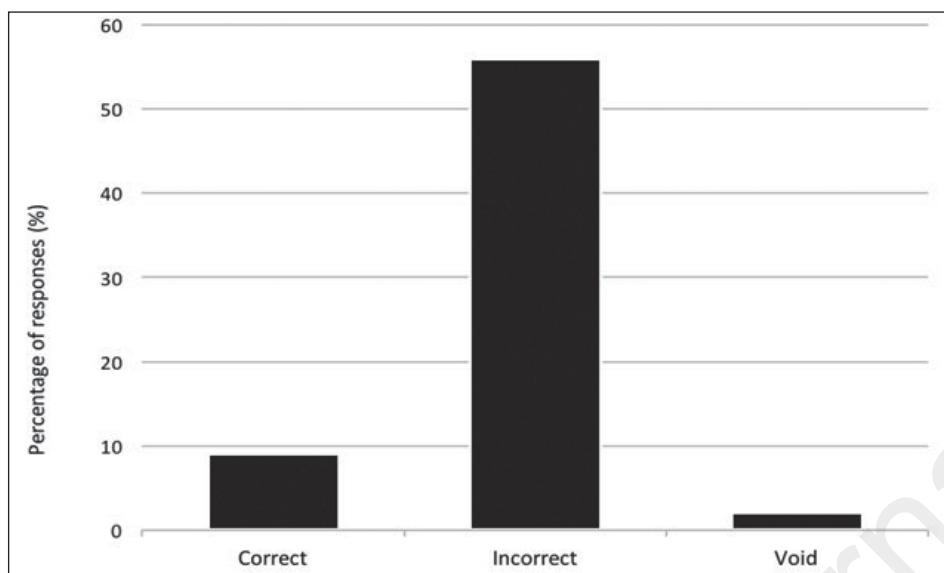


Figure 2. Knowledge of specialty courses available in UWA.

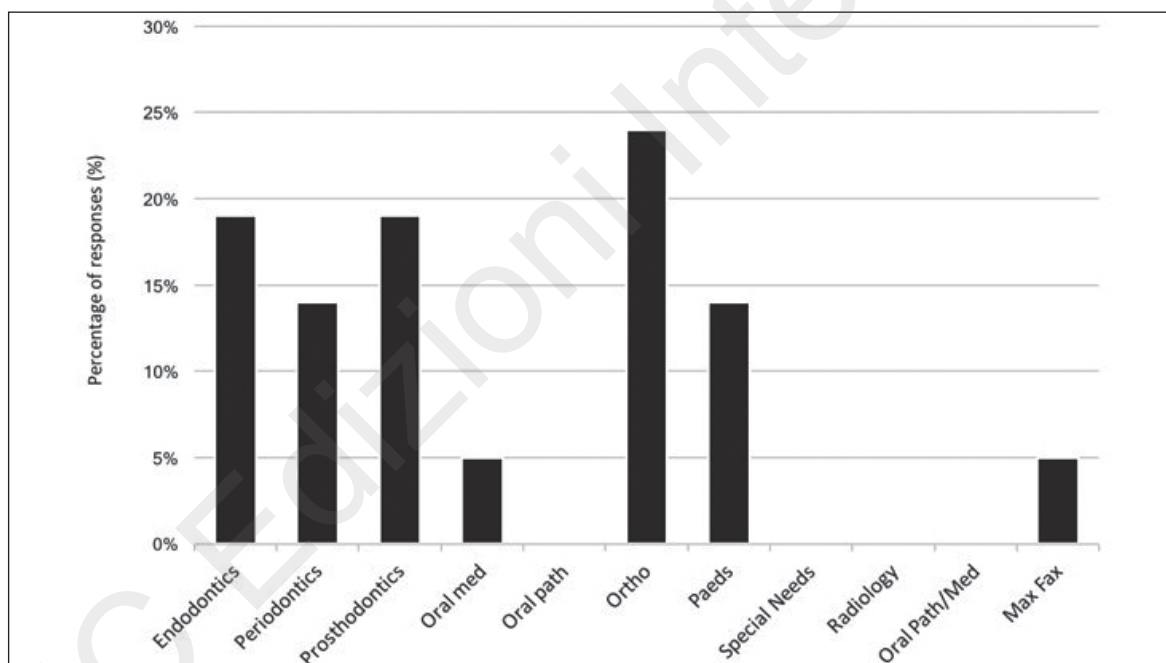


Figure 3. DMD3 Specialisation preferences.

*Factors influencing future specialisation:* The factors influencing specialisation were grouped into the following four groups: Professional, Financial, Altruistic and Personal Factors. These were charted on a Likert scale of motivating, deterring or neutral (Fig. 5). Professional factors were found to be either neutral (n=171 out of 384 responses) or motivating (n=166 out of 384 responses) amongst the sample group. Financial factors were found to be predominantly neutral when influencing specialisation (n=169 out of 384 responses) whilst altruism related factors were predominantly neutral

(n=172 out of 384 responses) or motivating (n=201 out of 384 responses). Personal factors had most responses as neutral (n=224 out of 384 responses). Overall, the factors which the most number of participants found to be deterring were financial whilst the factors found to be the most motivating were altruistic factors. The question which was the most deterring factor amongst students was the “financial impact of returning to study” whilst the question determined to be the most motivating factor was the altruistic factor of “providing a service to the community”.

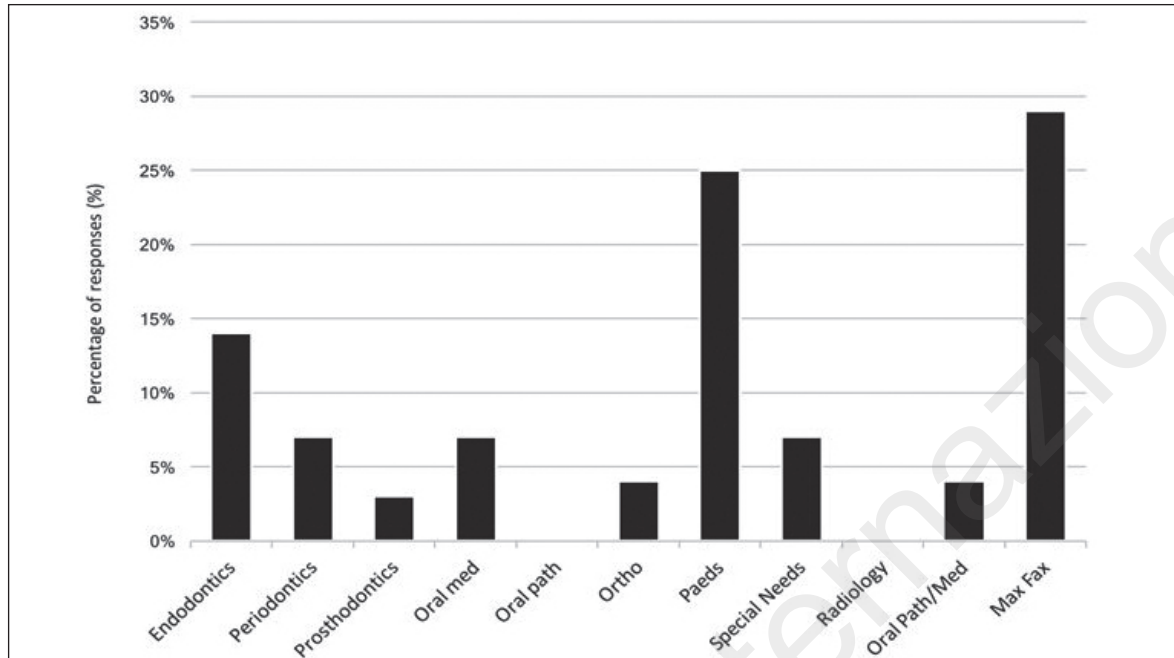


Figure 4. DMD4 Specialisation preferences.

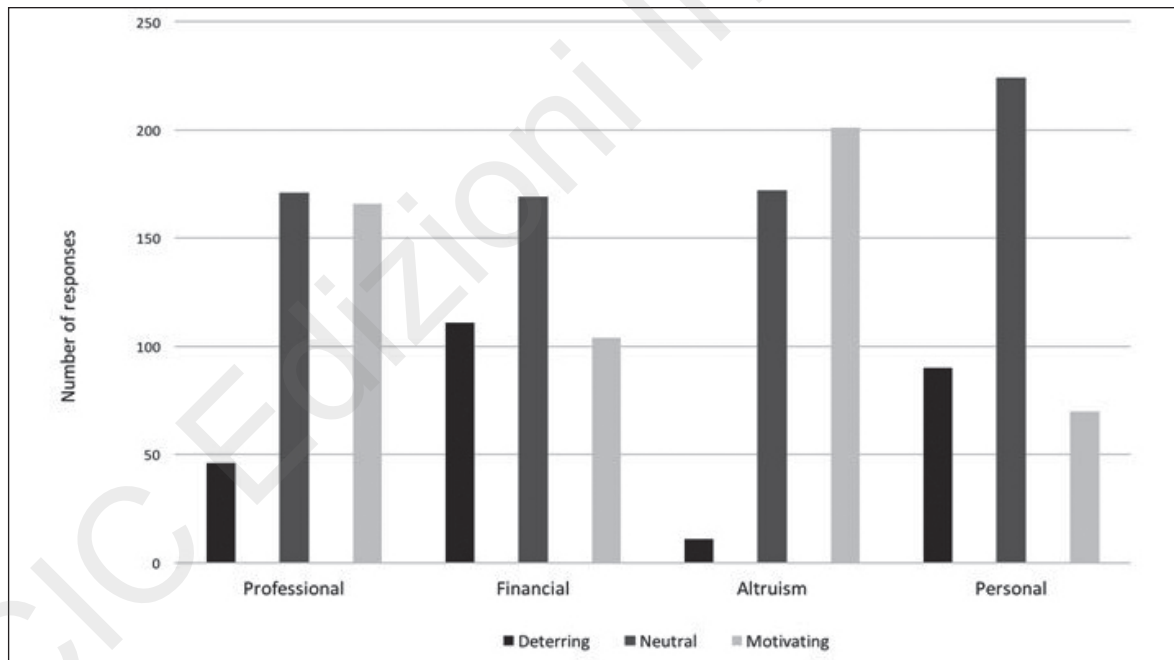


Figure 5. Factors influencing future specialization.

## Discussion

### Long-term career goals

The number of students who indicated that they had a long-term goal to specialise was only 6% of respondents (n=4) whilst five participants (8%) stated they had an interest in applying to a Doctor of Clinical Dentistry (DCD) course. Analysing the fac-

tors which motivated these students is important in understanding student's pathways to specialisation. As only a small number of participants in this survey had a view to specialise, this limits any significant analysis of factors which may have influenced their decision to consider specialisation. Nevertheless, the proportion of our sample group that indicated a desire to specialise was found to be comparable



with the current specialist workforce within Australia. There are over 15 000 dentists in Australia with 10% of those working as a specialist dentist (1). Thirty-four participants (52%) indicated they had a long-term career goal of becoming a general practitioner with a specialty interest. Therefore, there appears to be an interest within our sample group towards speciality practice. The factors which motivate or deter students to pursue dental specialisation are especially pertinent to this group. As the survey has shown they have an interest in specialty practices and may choose to undertake specialisation training in the future given the appropriate circumstances. Existing literature which examined the proportion of dental students who wish to specialise are varying in their results. In contrast to the results of this study, studies performed in United Arab Emirates and Iran found a high preference for specialisation around 92% (13). A study at a London Dental School showed that 50% of respondents wished to extend and refine their skills to train as a dentist with a special interest, or as a dental specialist. Of this group, 25% wished to become specialists and 27% were interested in general practice with a specialty interest (21). The proportion of students in our study who have an intention to specialise is reduced relative to the existing literature.

#### **Knowledge of specialty programs**

Most DMD students were not correctly aware of current specialty courses available in Western Australia. Nine students (13%) were correctly aware of the speciality pathways available in Western Australia whilst the remaining students incorrectly believed that they were aware (n=33, 51%) or “somewhat aware” (n=29, 44%). It is evident that students may be ill-informed or unaware about what specialisation courses are available and thus, students who are not aware of specialisation pathways are less likely to specialise. This reveals a key area in which dental schools can improve interest. Course convenors can use this opportunity to raise awareness of the specialty programs available and to stimulate interest for students. The low number of correct responses about the specialty programs offered in Western Australia is correlated with less than half of students (47%, n=26) discussing specialisation with a mentor, supervisor or specialist. Additionally, the proportion of students in DMD4 who had discussed with a mentor, supervisor or specialists was much less than those in DMD3. This may be attributed to the infancy of the DMD course at UWA, with current DMD4 students being the second cohort to enter the program, potentially less emphasis has been placed on garnering student interest and informing awareness of dental specialties. Nevertheless, a target to improve specialisation awareness would be implemented through greater discussion between students and academic staff to inform and facilitate interest.

#### **Specialty preferences**

Specialty preferences differed between third and fourth year DMD students. Oral and Maxillofacial surgery was the most popular specialty chosen by DMD (n=8, 29%), whereas DMD3 students ranked Orthodontics as their most preferred specialty (n=5, 24%) (Figs. 3, 4). This was consistent with existing literature which found that Oral and Maxillofacial Surgery and Orthodontics as the most common specialties favoured by dental students (11-14, 22). Furthermore, literature indicates that both Orthodontics and Oral and Maxillofacial surgery are the most common dental specialties throughout the world (23). Differences in specialty preference may be influenced by the structure of the DMD course and both the timing and amount of exposure of each specialty during the course. At UWA Dental School, oral surgery rotations are introduced in third year however, it is not until final year where students gain substantial exposure to minor oral surgery procedures such as extractions. Furthermore, there are no orthodontic rotations in fourth year, which may be correlated to the decline in interest observed for Orthodontics when compared to the third year preferences. In both year groups, no students selected Radiology as a specialty as their first preference for specialisation and only 7% of final year DMD students indicated that they would consider Special Needs dentistry. One possible reason for the low interest in Special Needs and Radiology is due to the lack of exposure during the DMD course when compared to other specialties. Additionally, these two specialties are also not offered in Western Australia though they are offered at the University of Sydney (Special Care Dentistry) and University of Queensland (Special Needs and Dento-Maxillofacial Radiology).

#### **Factors influencing future specialisation**

The survey found that the most motivating factors were Altruistic factors when students considered specialisation. When compared with the other categories of Professional, Financial and Personal, Altruistic factors were found to be the most motivating, especially the aspect of “providing a service to the community”. Studies from the United States and United Kingdom have shown similar results where the enjoyment of providing specialist care was the most important factor in pursuing specialist training or career choices. Other factors found to be important by other studies in long-term career pathways include “work life balance”, “high income/financial security”, “professional development”, “enjoyment of providing care in that field”, “influence of family members in the dental profession” (8, 11, 21, 24, 25). The most deterring factors for specialisation were those within the Financial category, with the most deterring factor identified to be the “financial impact of returning to full time study”. The second most deterring factor, “cost of specialty course” further reinforces the negative impact of Financial factors on the

pursuit of specialisation. These findings are consistent with existing literature, where financial aspects have been found to negatively impact specialisation. The postgraduate nature of the DMD program at UWA may have impact on the priorities and preferences of the participants of this study, as further study may place a large financial burden.

### Limitations

Whilst this study is the first to contribute to literature on the views of dental students and specialisation in Australia, the Authors of this study recognise the potential limitations. Firstly, the data has been collected from two cohorts of dental students at the University of Western Australia and thus represents only a small sample of the population. Additionally, no responses have been obtained from alumni students which had constituted a large proportion of the intended sample size. The small sample size in this study, compounded with few students indicating future goals of specialising failed to produce any statistically significant results. Further research that encompasses a larger sample may yield more meaningful results. The addition of alumni students to the sample size may be one such way, however it may skew the results obtained as alumni students represent a different subset of participants when compared to dental students; as they would have experience working in the dental field, no longer in a tertiary teaching environment, as well as potentially earning an income. Furthermore, the limitations of the questionnaire were revealed during data analysis with the demographic questions being overly detailed and the four categories in Section IV: Factors affecting future specialisation divided into too many subsections. This resulted in an increase in permutations, which may have multiplied any potential errors. Lastly, the study was conducted by final year dental students, such that a certain degree of subjectivity may be found when analysing the results obtained.

### Conclusion

Dental students need to be well-informed in their decision to pursue specialist training following graduation. This pilot study demonstrates only a small proportion of students at present wish to pursue specialisation, with the majority of students not aware of the specialty courses available in WA. The study emphasises the need for greater exposure and education within dental specialties whilst students are still at dental school. Additionally, results showed that most students were motivated by altruistic factors when considering specialisation but deterred by the financial impact of returning to study. Further research is advised in this field to better understand factors involved in the pathway to dental specialisation and how to encourage specialisation.

### Conflict of interest

The Authors declare no conflict of interest.

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