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Perception of Special Needs Dentistry Education and Practice Amongst Australian Dental Auxiliary Students

Abstract

Introduction:

The role of dental auxiliaries in collaborative care of patients with special needs is compelling. This study was undertaken to investigate the perceptions of Special Needs Dentistry (SND) education and practice among students enrolled in Australian programs in dental auxiliary, namely dental hygiene, dental therapy and oral health therapy (DH/DT/OHT).

Materials and methods:

All Australian institutions offering DH/DT/OHT programs (n = 14) were invited to participate in a self-administered questionnaire survey, conducted online, involving students across all academic years. Twelve institutions agreed to participate, but only five institutions were included in the final analysis, with a student response rate of 31.1%. Answers to open-ended questions were coded and grouped for measurement of frequencies. Quantitative data was analysed via chi-squared and Fisher's exact tests (significance taken as $P < 0.05$).

Results:

The majority of students could not define SND (87.0%), were not aware of the existence of this specialty (53.5%), and did not have clinical experience treating patients with special needs (68.9%). Nevertheless, they felt comfortable and positive about treating these patients independently. Most agreed that they should receive clinical and didactic education in SND, with many of them expressing interest in pursuing a specialty training in this field.

Conclusion:

DH/DT/OHT students' comfort levels, positive attitudes and supportiveness for SND suggested positive implications for these practitioners to partake in multidisciplinary management of patients with special needs, thus indicating the need for standardized training requirements and practice guidelines in this area of care.

Keywords

education, dental hygiene; oral health; dental auxiliary

Introduction

The expanding population of elderly people and those living with disabilities and chronic medical conditions indicates an increasing number of people living with special needs (1, 2). These individuals are at an increased risk of developing oral diseases due to limitations that they face in undertaking satisfactory personal and professional oral health care (3, 4). The high prevalence of oral diseases reported amongst people with special needs highlights the need for an increased intervention in providing preventative, emergency, definitive and long-term oral health care (5).

Alongside dentists, the dental auxiliary team, which includes dental hygiene, dental therapy and oral health therapy (DH/DT/OHT) practitioners, plays an important role in multidisciplinary care of patients with special needs (6-11). The DH/DT/OHT team may contribute, within their scope of practice, to promoting comprehensive oral health maintenance in these patients, who may require increased attention and assistance in many aspects of care (12).

The challenging nature of managing patients with special needs may, however, limit the involvement of dental practitioners with provision of care for this patient cohort (13-15). Some dentists have been reported to be reluctant in treating patients with special needs, resulting in an increased oral disease burden and unmet treatment needs (13). While perceptions of dental students and professionals in treating patients with special needs have been previously studied (16-18), little is known about the scenario for their DH/DT/OHT counterparts.

This study explored Australian DH/DT/OHT students' perceptions of education and practice in oral health management of patients with special needs, a field of dental practice that sits within the domain of Special Needs Dentistry (SND). It also aimed to determine the current exposure, comfort level and attitudes in managing these patients experienced by current DH/DT/OHT trainees.

Materials and methods

This was a descriptive, quantitative, cross-sectional study using a self-administered questionnaire, conducted online. The study involved students currently enrolled in DH/DT/OHT programs in all (n = 14) tertiary institutions across Australia. Students were invited to participate in the study via an email sent to each of them at the start of the 2013 academic year (in March 2013). A document detailing the purpose of the study and

confidentiality information was attached to this email. Students who were interested in participating were asked to complete an online survey conducted via Survey-Monkey®. After an initial period of six weeks, a second reminder email was sent to participants.

The questionnaire used in this study was developed based on previously validated questionnaires, and then modified to suit the local conditions (16, 17). It consists of four sections: 1) socio-demographic characteristics, 2) perception of SND, 3) perception of managing patients with special needs, and 4) perception of SND education. The questionnaire contained fifty questions using a five-point Likert Scale (1 = very negative to 5 = very positive), as well as yes-or-no and open-ended questions.

Students' ability to define SND was categorized based on the definition set by the Royal Australasian College of Dental Surgeons (RACDS), which identified four patient categories, namely those with intellectual, physical and psychiatric conditions, as well as individuals with complex medical issues (19). Respondents' answers to this question were grouped according to these patient categories, and were analysed for frequencies. Statistical analysis of quantitative data was performed using the SPSS software program (version 20) and consisted of chi-squared regression analysis and Fisher's exact test with significance taken as $P < 0.05$.

Ethics approval was obtained from the Human Research Ethics Committee at the University of Melbourne (ID: 1034395.4).

Results

Demographic characteristics

A total of eleven (84.6%) universities and one (100%) vocational institution agreed to allow students from their facilities to take part in the study, resulting in a cumulative total of 977 enrolled students surveyed. Institutes with a response rate of less than 20% were excluded from data analysis (n = 7 universities). In the final investigation, data from 442 students from four universities and one vocational program across Australia were analysed, with a total response rate of 31.1% (n = 138 students).

Knowledge of SND definition

Most respondents (87.0%) were not able to define SND. Of those who attempted a definition, 29.9% were able to identify at least three categories of patients in accordance with the RACDS definition. A further 12.6% of those who attempted a definition identified mental disability and physical disability, in combination or as a single answer. Individuals with complex medical conditions (8.0%), people requiring aged care (2.9%) and those with

behavioural disability (2.0%) were also cited as part of the definition, although at a very low percentage.

Terminology and awareness of SND

There was no significant association between the tertiary institute attended and preference for the term "Special Needs Dentistry" (57.0%) or "Special Care Dentistry" (43.0%) (χ^2 = 4.5, P = 0.343), with the former term described as having negative connotations.

The majority of the students (53.5%) were not aware of SND as a specialty, regardless of which academic institution they attended (χ^2 = 5.972, P = 0.201). Of those who were aware of the specialty, 59.0% reported gaining this knowledge through their studies.

Perception of patients who require SND intervention

Students considered physical disability (87.8%; χ^2 = 9.53, P = 0.050), intellectual disability (87.1%; χ^2 = 4.488, P = 0.344), behavioural/psychological disability (80.6%; χ^2 = 0.410, P = 0.126) and aged care (62.6%; χ^2 = 7.976, P = 0.092) as categories of patients who require SND intervention, regardless of the tertiary institute they attended. Students also noted patients with complex medical conditions (70.5%; χ^2 = 17.827, P = 0.001) and infectious diseases (54.0%; χ^2 = 18.892, P = 0.001) as part of the categories, with a significant difference across the tertiary institutes.

Students' experiences in treating patients with special needs

The majority of students (68.9%) had not treated any patients with special needs at the time the survey was completed. Students in later years (68.2%) were significantly more likely to have performed treatment on these patients compared to those in their first year (14.9%) (χ^2 = 35.271, P = 0.01).

Students who had treated patients with special needs had managed those with complex medical conditions (38.8%), intellectual disabilities (37.5%), behavioural or psychological issues (32.5%) and physical disabilities (29.1%). Other categories of patients treated by these students included the elderly (26.7%) and individuals with infectious diseases (13.8%).

The majority of students felt positive providing treatment and reported positive experiences managing patients across all special needs categories, regardless of tertiary institute (Figure 1). They were also comfortable providing treatment to this patient cohort across all areas of special needs, both during training and upon graduation (Figure 1). In

addition, 68.5% of all respondents felt positive about treating patients with special needs as their primary occupation.

Students' perceptions of their current training in SND

Most (70.4%) students felt that they were adequately trained to treat patients with special needs, regardless of tertiary institute represented (χ^2 = 3.219, P = 0.522). In addition, 41.7% of respondents across all tertiary institutes felt that recent graduates from their program were adequately trained to treat patients with special needs without dentist supervision (χ^2 = 6.692, P = 0.153).

Students' perceptions of their ability to treat patients with special needs upon graduation

Overall, a majority (55.2%) of the respondents felt that they could work independently with patients with special needs upon graduation, regardless of the institution attended (χ^2 = 5.953, P = 0.203). Such perception was significantly higher amongst students from one of the institutes (86.7%), as compared to others (33% to 65%; χ^2 = 10.332, P = 0.035).

Referring patients with special needs to a general dentist

Many respondents reported that they would "always" refer patients to a general dentist for a second opinion (33.3%) when there is no facility to treat patients who are physically disabled (31.0%), and when they are unsure of how to proceed with treatment on a patient who is medically compromised (30.3%). They also noted that they would "sometimes" refer patients to a general dentist if they experience challenges in undertaking treatment while treating patients who have behavioural difficulty (40.4%) and psychological issues (29.3%). In addition, students would also "sometimes" refer these patients to a general dentist if they encounter difficulty in managing patients with an intellectual disability who demonstrate behavioural resistance (37.4%), and when they are uncomfortable in performing the necessary procedure on patients with special needs (37.0%).

Referring patients with special needs to a SND specialist

Only 25.0% of respondents cited that they would "always" refer to SND specialist for a second opinion. Students also noted that they would "always" refer to an SND specialist if the patient was physically disabled and they did not have appropriate facilities to treat them (45.8%), if the patient had psychological problems which precluded treatment in the dental

surgery (36.5%), if they were unsure how to proceed with treatment for a patient who was medically compromised (34.5%), if the patient was intellectually disabled and unable to cooperate (33.3%), if they were uncomfortable performing the necessary procedure (30.2%), and if the patient had behavioural problems which made treatment delivery difficult (29.2%). It was also found that a small proportion of those surveyed (1.0%) said they would "never" refer to a special needs dentist for any reason.

Perception of SND education

Nearly all (91.7% to 100%) students from the different institutes thought that there should be a didactic component in the teaching and learning of SND during their basic training, except for those from Institute 3, who demonstrated significantly lower response (78.1%; χ^2 = 12.225, P = 0.016). Regardless of institution (χ^2 = 30.081, P = 0.182), students felt that SND training should take place in either second year (39.5%) or a combination of either second or third year (19.7%). Across all institutions, the majority of students felt that more didactic (78.6% to 91.7%; χ^2 = 2.278, P = 0.685) and clinical training (90.9% to 100%; χ^2 = 2.645, P = 0.619) would improve their confidence in treating these patients.

Post-graduate training in SND

The majority of students felt that post-graduate education should exist for oral health therapists (66.7% to 95.2%; χ^2 = 6.463, P = 0.167) and more specifically in SND (66.7% to 92.9%; χ^2 = 4.420, P = 0.352), regardless of tertiary institution. Students across all tertiary institutes expressed interest in pursuing specialty training (68.8% to 91.7%; χ^2 = 5.238, P = 0.264), and specifically specialty training in SND (54.8% to 85.7%; χ^2 = 7.466, P = 0.113) if it were available.

Discussion

In Australia, dental hygienists, dental therapists and oral health therapists constitute the 'dental health practitioner' category (20), with registration standards regulated by the Dental Board of Australia, under the support of the Australian Health Practitioner Regulation Agency (21).

The dental hygiene qualification is offered at advanced diploma level (Australian Qualification Framework Level 6) and is conducted full-time, within a minimum time period of two years (20). The scope of practice of a dental hygienist includes providing oral health assessment, diagnosis, periodontal treatment and preventative management in patients of

all ages (20). In addition, they are also involved in educating society about oral disease prevention and oral health promotion (20). The dental therapy qualification is also offered at advanced diploma level (Australian Qualification Framework Level 6), with a minimum requirement of two-year full-time training (20). Whilst its scope of practice is similar to that of a dental hygienist, a dental therapist's other services include restorative treatment, tooth extraction and additional oral care (20). Dental therapists' services are, however, only limited to children, adolescents and young adults, unless these practitioners obtain approval from the National Boards to practice on adults of all ages (20). As dental hygiene and dental therapy courses are being phased out, the Bachelor of Oral Health program is claiming its footing in Australia, with both former courses combined into a study program that produces graduates with a bachelor qualification (Australian Qualification Framework Level 7) (20).

Despite the level of qualifications of these professions, the Dental Board of Australia has a written regulation that the practice of DH/DT/OHT practitioners must be carried out under dentists' supervision (20). Nevertheless, it was interesting to find that most of the respondents in this study felt confident that they were capable of treating patients with special needs without supervision, despite a majority of them having no clinical experience in this area. Absence of clinical experience also did not negatively affect the students' comfort and attitudes towards managing patients with special needs, both during phases of training and professional practice. As comfort levels and positive attitudes in treating dental patients with special needs would usually relate to having previous clinical exposure (16), further investigation is required to explore factors that could contribute to the conflicting findings in this study.

Whilst adequate clinical experience is integral to ensuring the competency of clinicians in providing treatment, acquisition of sound knowledge is crucial to delivering safe and effective patient care. Understanding of oral health in association with systemic health and other health determinants is important, as these patients may present with complex health care requirements that may affect the delivery and outcome of treatment. It has been found that an educational program in managing individuals with special needs has helped to improve dental hygiene students' understanding and level of critical thinking in dealing with multiple issues in patient care (22). Although the extent of didactic education in areas relating to oral health care for patients with special needs received by the respondents was not investigated in this study, it was evident that the understanding of the definition of SND amongst the DH/DT/OHT students was lacking. Many were unaware that patients with complex medical conditions were considered as patients with special needs, thus placing this

group of patients at risk should DH/DT/OHT practitioners be allowed to provide unsupervised care without proper training. Furthermore, prompt referral of patients who require intervention by an SND specialist may be hindered if students are unable to identify the appropriate specialty that this group of patients should me managed under. Appropriate referral of patients for specialist care is further compromised by the lack of recognition of the existence of SND as a specialty by a majority of respondents. In addition, the subjects' preferences to seek a second opinion from a general dentist, rather than from an SND specialist, may affect the quality of patient care, as some patients may require specialized intervention and management strategies that are beyond the capability of a general dentist (19).

The varying degrees of knowledge, clinical experience and criteria for referral demonstrated by respondents in this study justify the need for a standardization in training requirement and practice guidelines pertaining to their roles in managing patients with special needs. A consensus on the extent of oral health treatment and the group of patients that are suitable for them to manage, as well as a standardized referral protocol, such as that available in Malaysia (23, 24), should be established and disseminated to ensure the safety of patients while the profession strives to provide a high quality of care. The dental fraternity, including those from the higher education and clinical practice sectors, needs to establish a standardized requirement for the training of future and current DH/DT/OHT practitioners in managing patients with special needs, possibly through training in SND (19). Whilst SND education is taught to all dental students across Australia (25), the availability and extent of teaching of SND in DH/DT/OHT curricula in this country are unreported. Availability of continuous professional programs in areas relating to SND for DH/DT/OHT practitioners is also unknown, and should be publicized where it exists, as many of the participants in this study showed interest in pursuing further training in this area. Future research to investigate the existence and extent of SND training in the curriculum and/or during professional practice could provide important information for future development of educational programs for DH/DT/OHT practitioners in managing patients with special needs. Establishment of such programs is important, as Australian institutions seek to comply with the standard of education for dental auxiliary practitioners in other countries, such as the United States, where training in this area of practice has been introduced (26).

Students' support for enhanced education and practice in SND indicated positive implications for empowering the roles of DH/DT/OHT in collaborative oral health management of this group of patients. In other countries, support for DH/DT/OHT roles in

managing patients with special needs has also been demonstrated, while there is an increased demand for more clinical exposure in an environment that promotes interprofessional practice (27, 28). Active participation of DH/DT/OHT in collaborative care of patients with special needs has resulted in an improvement of patients' oral health statuses and their access to oral health care services (6-8). Enhancement of oral health knowledge, attitudes and practice among individuals with special needs, and their caregivers, was also observed through active participation of DH/DT/OHT practitioners in promotion and provision of care (9-11). It is hoped that the roles of DH/DT/OHT practitioners in Australia can be further developed, through adequate training and established practice guidelines, in an attempt to provide patients with the benefit of multidisciplinary intervention. Involvement of DH/DT/OHT practitioners is important to support the oral health needs of the expanding population of people with special needs in Australia, especially those living in the rural regions, where paucity of dentists had been reported (29, 30).

As findings of this study may be limited by the low response rate, strategies to improve participation need to be considered to obtain more valid research findings. Nevertheless, the study provides useful early findings of such a situation in Australia, which could lead to further investigations and development of initiatives targeted at empowering the roles of DH/DT/OHT practitioners in the area of SND.

Conclusion

The current study reported DH/DT/OHT students' support for education and practice in managing patients with special needs. Although they demonstrated varying extents of clinical experience and knowledge of SND, these students felt comfortable and positive about treating this group of patients. Findings of this study have provided useful information that could lead to further development of training requirements and practice guidelines aimed at empowering DH/DT/OHT practitioners for collaborative management of patients with special needs.

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Declaration of interest

The authors report no declarations of interest.

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FIGURE 1

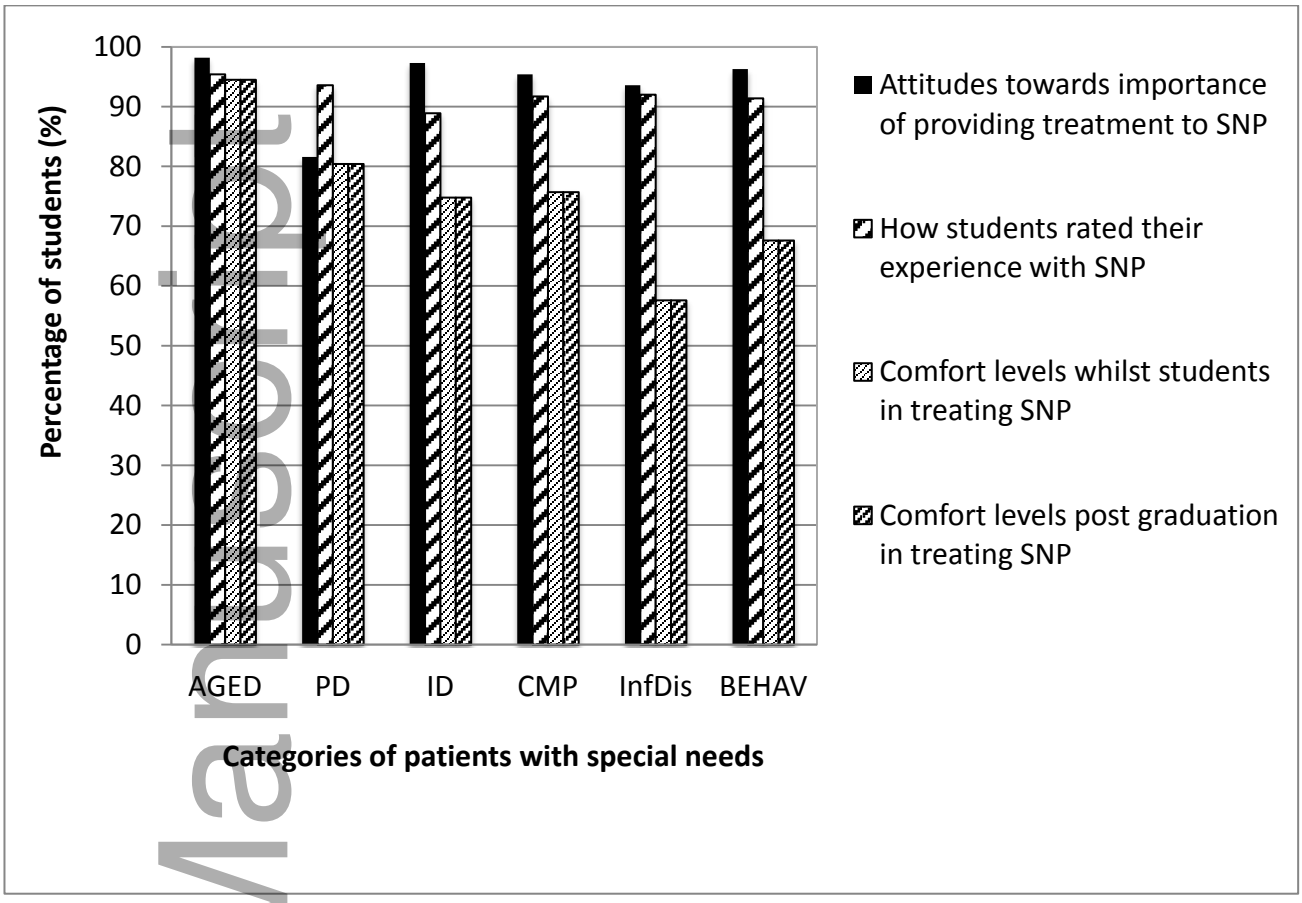

Fig. 1. Percentage of students with positive attitudes and experience providing treatment to patients with special needs, and those feeling comfortable treating these patients during training and post graduation. Note: AGED=Aged care; PD=Physical disability; ID=Intellectual disability; CMP=Medically compromised; InfDis=Infectious disease; BEHAV=Behavioural/Psychological disability.