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Dental student readiness to treat special care patients upon graduation

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Abstract

Introduction: There has been a global increase in patients with special needs. Undergraduate dental curricula need to adjust to meet the needs of these patients. This study aimed to identify how confident final year dental students felt about treating patients with special needs upon graduation and evaluate the influence that the curriculum had on their preparedness based on competencies outlined by the International Association for Disability and Oral Health (iADH).

Methods: A questionnaire was administered to final year dental students at two different Universities in Scotland and in Spain to: (1) evaluate how prepared students felt when treating patients with special needs and (2) assess the competencies outlined by iADH.

Results: The response rate was 18.4% (30/163 students). Overall, 83.3% of the students ($n = 25$) perceived they would benefit from more practical sessions with patients with learning and physical disabilities to improve their clinical management of these patients. 53.3% ($n = 16$) didn't feel that had the knowledge to properly treat all special care dentistry (SCD) patients upon graduation (scored 5 or 6 on the IADH competency framework). 83.3% of the students ($n = 25$) felt that the mode of teaching should be problem-based complemented with small group seminars.

Conclusion: Students from both Universities agreed that more clinical practice might be required for them to further their skills to treat special needs patients upon graduation, which correlates with the need to have more practical sessions to consolidate competency 4 (communication skills with SCD) and competency 6 (clinical management of patients requiring SCD).

KEYWORDS
clinical management, competency, patients with special needs, special care dentistry

1 | INTRODUCTION

Special care dentistry (SCD)is concerned with the improvement of oral health of individuals and groups in society who are unable to accept routine dental care because of some physical, intellectual, medical, emotional, sensory, mental or social impairment, or a combination of these factors and pertains to adolescents and adults.[1] It requires a holistic approach that is specialist led to meet the complex requirements of people with impairments.

In 2016, 24.1% of the people aged 16 and over living in Europe declared having a disability; 7.5% had a severe disability (strongly limited), and 16.6% had a moderate disability.[2] Patients with disabilities reported difficulties with access to dental services as the main reason why they were not attending a dentist.[3] In a study conducted by Morgan et al.[4] they estimated that approximately 90% of people that need SCD could receive it in a local or primary care setting.[5] Although there are specialists in this discipline, there is a generalized lack of provision of care from mainstream General Dental Practitioners (GDPs).[6]

Therefore, there is a need to evaluate possible issues in GDP training that need to be addressed to improve their skills in this area, bearing in mind that the majority of dental students will become GDPs upon graduation. Developing dental student training to better prepare GDPs for providing SCD could have an impact on reducing the inequalities that patients with special needs face in accessing oral health services.

A number of studies, irrespective of location, concluded that GDPs' previous education, usually described as poor, had an impact on their decision not to treat special care patients as they didn't feel confident in treating them.[7–10] Others also attributed the lack of SCD treatment provision to the lack of financial viability for the GDPs and suggested the need for governments to subsidize SCD treatments as they tend to require more time and resources.[8]

The International Association for Disability and Oral Health (iADH)[5,6,11–13] published a curriculum in SCD based on competencies. They recommended that each dental school redesigns its program according to local needs and/or curriculum guidelines.

As proposed originally by iADH, each country and each University has implemented their own way of delivering SCD teaching, from seminars[14] to convey different ways on how to improve the communication with these patients, or how to manage refusal of treatment, to a blended learning approach, including modules with lectures, experiential workshops and access to e-learning resources and online tutorials.[15] All studies reported some sort of practical component, mainly in the form of observation of the management of special needs patients. Nonetheless, there was no standardization of the minimum number of practical sessions students would require, or indeed the type of patients or facilities they should attend. Some schools in developing countries do not provide any clinical training for this discipline,[16] whilst others may have the SCD practical sessions under the pediatric departments, and hence not being involved in the management of the adult patient with special needs during their undergraduate training.[7]

Therefore, there is a clear need to assess the delivery of SCD to undergraduate dental students in different schools in order to develop curricula to better prepare GDPs to treat patients with special needs.

The overarching aim of this study was to evaluate how confident final year dental students felt when treating patients with special needs upon graduation and evaluate the influence that the SCD teaching had on their preparedness.

2 | MATERIALS AND METHODS

This study was approved by the University of Aberdeen College Ethics Review Board (CERB/2020/7/1979).

We designed an observational, cross-sectional study by means of developing a questionnaire with open and closed questions.

The mixed method used for this study was a convergent parallel mixed method design, where qualitative and quantitative data were collected in parallel, analyzed separately, and then finally merged.[12]

2.1 | Participants

We recruited final year dental students studying at the University of Aberdeen (UoA) in Scotland, United Kingdom (graduate entry BDS degree) ($n = 17$), and at the Universitat Internacional de Catalunya (UIC) in Catalonia, Spain (non-graduate entry BDS degree) ($n = 146$), during their last term of studies, when their SCD teaching had been completed or was nearly completed.

Students were invited by email where they were sent the link to the online questionnaire as well as an invitation letter and the participant information sheet.

2.2 | Development of the questionnaire

We developed a questionnaire using the themes described in the qualitative study performed on dental students in Newcastle.[17] The questions covered aspects of their theoretical and practical teaching as well as the methods used to train them in SCD. We also included the curriculum

TABLE 1 Frequencies of students' perception of the SCD course and their preparedness to treat SCD patients upon graduation.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	I do not know
I think special care dentistry (SCD) should be part of the undergraduate dental curriculum	$N = 0$	$N = 1$ (3.3%)	$N = 1$ (3.3%)	$N = 10$ (33.3%)	$N = 18$ (60%)	
I received sufficient theoretical training on SCD	$N = 1$ (3.3%)	$N = 2$ (6.7%)	$N = 2$ (6.7%)	$N = 19$ (63.3%)	$N = 6$ (20%)	
I received sufficient clinical practice providing treatment or assistance under supervision specific to SCD	$N = 7$ (23.3%)	$N = 13$ (43.3%)	$N = 3$ (10%)	$N = 6$ (20%)	$N = 1$ (3.3%)	
I think more emphasis should be placed on clinical training for SCD	$N = 0$	$N = 3$ (10%)	$N = 3$ (10%)	$N = 12$ (40%)	$N = 12$ (40%)	
I feel confident in providing dental care to patients with learning disabilities upon graduation	$N = 1$ (3.3%)	$N = 8$ (26.7%)	$N = 5$ (16.7%)	$N = 13$ (43.3%)	$N = 3$ (10%)	
I feel confident in providing dental care to patients with physical disabilities upon graduation	$N = 1$ (3.3%)	$N = 7$ (23.3%)	$N = 9$ (30%)	$N = 10$ (33.3%)	$N = 3$ (10%)	
I feel confident in providing dental care to geriatric patients upon graduation	$N = 1$ (3.3%)	$N = 1$ (3.3%)	$N = 3$ (10%)	$N = 19$ (63.3%)	$N = 6$ (20%)	
I feel confident in providing dental care to medically compromised patients upon graduation	$N = 0$	$N = 8$ (26.7%)	$N = 5$ (16.7%)	$N = 13$ (43.3%)	$N = 4$ (13.3%)	
I think it is a professional responsibility to address the needs of all patients without discrimination, including those with disabilities.	$N = 1$ (3.3%)	$N = 1$ (3.3%)	$N = 1$ (3.3%)	$N = 6$ (20%)	$N = 21$ (70%)	
I think time pressure (delivering quotas) upon graduation might influence my ability to treat SCD patients.	$N = 0$	$N = 0$	$N = 7$ (23.3%)	$N = 18$ (60%)	$N = 4$ (13.3%)	$N = 1$ (3.3%)
Being unable to communicate effectively to some patients influences my perception of being ready to treat SCD on my own	$N = 2$ (6.7%)	$N = 5$ (16.7%)	$N = 10$ (33.3%)	$N = 11$ (26.7%)	$N = 2$ (6.7%)	
I know when and how to refer special care patients when I cannot treat them	$N = 1$ (3.3%)	$N = 5$ (16.7%)	$N = 3$ (10%)	$N = 14$ (46.7%)	$N = 7$ (23.3%)	

structure described by iADH[5] and asked students to rate on a scale from 1 to 10 how confident they felt about each competency (competency 1: scope of SCD, competency 2: access and barriers to oral health for people with disability and other marginalized groups, competency 3: consent for people requiring special care, competency 4: communication skills in SCD, competency 5: impact of impairment, disabilities and systemic conditions on oral health and oral function, and competency 6: clinical management of patients requiring SCD).

The questionnaire also included two open ended question to understand what the students' views were on the term disability, as well as being able to express what features they would include in the SCD course at their University if they were able to redesign the curriculum. A copy of the full questionnaire can be found in Appendix 1.

2.3 | Data collection and analysis

The method chosen to collect the data from the participants was an online questionnaire using SNAP software. Three email reminders were sent to the students during the 4 weeks that the questionnaire was open (between the end of January and the end February 2021).

Students signed a consent form electronically. This was saved separately from the rest of the questionnaire data. The resulting data were fully anonymized before analysis.

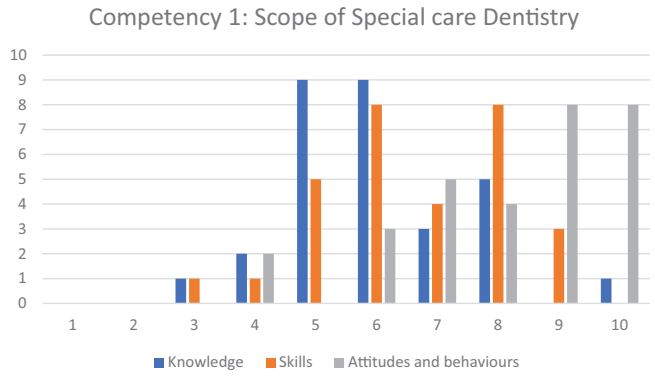

FIGURE 1 Bar charts representing frequency of responses on competency 1 for knowledge, skills, and attitudes and behaviors (score 1 to 10).

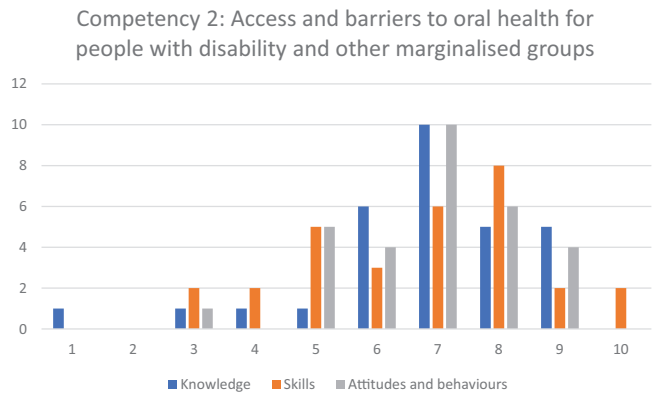

FIGURE 2 Bar charts representing frequency of responses on competency 2 for knowledge, skills, and attitudes and behaviors (score 1 to 10).

SPSS (IBM SPSS Statistics Version 25) was used for the statistical analysis.

Qualitative data from the open questions were assessed to identify common themes. A deeper thematic analysis could be followed for larger sample sizes in the future.

3 | RESULTS

3.1 | Demographics

All the student cohorts were invited to participate, and 30 students completed the questionnaire: twenty from UIC (13.69%) and 10 from UoA (58.82%), making the response rate 18.4% (30/163 students). Given the small sample size, we combined responses from both universities.

Most students that completed the questionnaire were female (83.3%), with an overall male:female ratio of 5:25.

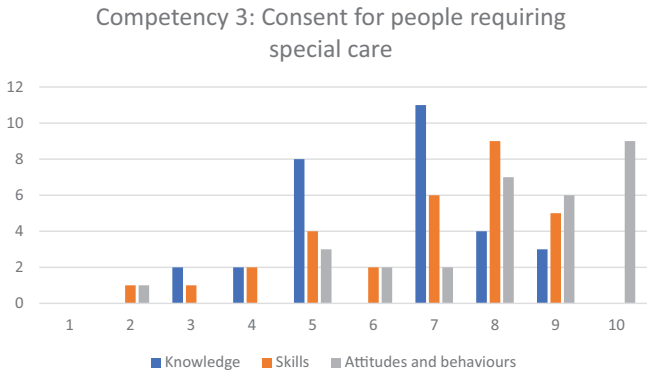

FIGURE 3 Bar charts representing frequency of responses on competency 3 for knowledge, skills, and attitudes and behaviors (score 1 to 10).

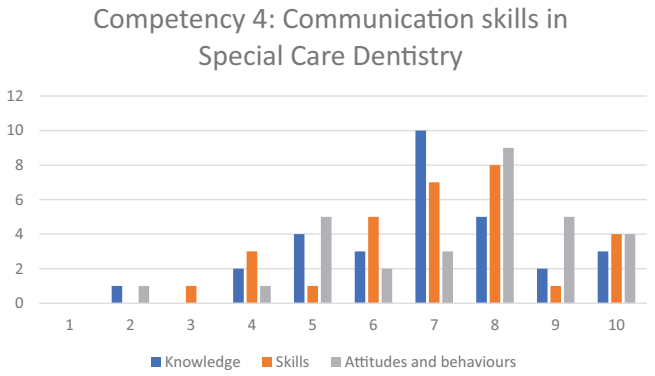

FIGURE 4 Bar charts representing frequency of responses on competency 4 for knowledge, skills, and attitudes and behaviors (score 1 to 10).

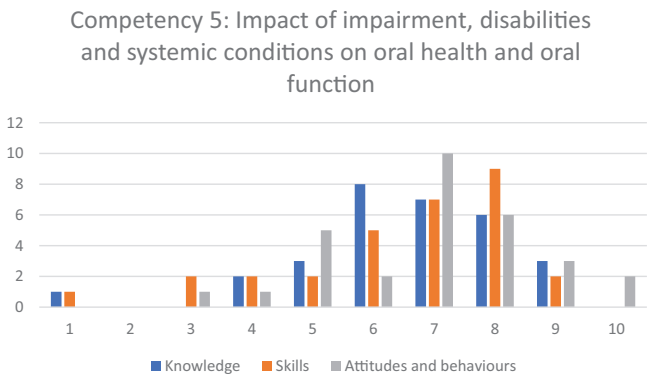

FIGURE 5 Bar charts representing frequency of responses on competency 5 for knowledge, skills, and attitudes and behaviors (score 1 to 10).

The mean age of the students from the UIC was 24.6 and from the UoA was 29.

We could not find any differences or correlations with age, gender, or gross annual household income and the student preparedness in treating special care patients.

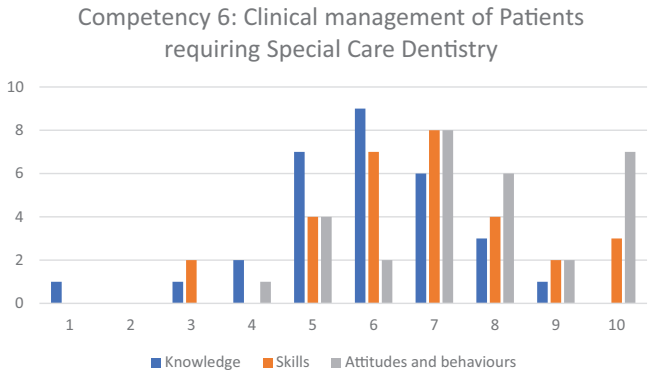

FIGURE 6 Bar charts representing frequency of responses on competency 6 for knowledge, skills, and attitudes and behaviors (score 1 to 10).

3.2 | Evaluation of the SCD course and preparedness to treat SCD upon graduation

The majority of students ($n = 28$, 93.3%) agreed or strongly agreed that SCD should be part of the undergraduate course. Similarly, most students ($n = 24$, 83.3%) thought they had received sufficient theoretical training. However, most students felt that they had not received sufficient clinical practice providing treatment or assisting under supervision specific to SCD ($n = 20$, 66.7%).

The majority of students felt confident in treating elderly patients upon graduation ($n = 25$, 83.3%), however fewer students felt able to treat patients with learning disabilities ($n = 16$, 53.3%), physical disabilities ($n = 13$; 43.4%) or those who were medically compromised ($n = 17$, 56.7%). The details of the student responses can be observed in Table 1.

3.3 | iADH competencies of the SCD curriculum[5] (Table 2)

Competency 1 (scope of SCD): the majority of students ($n = 28$, 93.3%) from both Universities scored 5 and above (on a scale of 1 to 10, where 10 is fully confident) for the three subdivisions of knowledge, skills and attitudes, and behaviors (Figure 1).

Competency 2 (access and barriers to oral health for people with disability and other marginalized groups): Most students scored 6 and above for all the three subdivisions, meaning that their competencies in knowledge, skills, and behaviors in terms of promoting oral health with those individuals with disabilities was achieved (Figure 2).

Competency 3 (consent for people requiring special care): 63.3% of students scored 5 or 7 on being able to outline the appropriate consent process with patients with various degrees of impairment (knowledge), meaning that they were not completely proficient in this field; however in terms of skills and attitudes the vast majority scored 8 or above which demonstrated that they acknowledged the respect and autonomy required in those patients (Figure 3).

Competency 4 (communication skills in SCD): regarding attitudes and behaviors, the range of scores was between 5 and 10, which implies that some students did not feel that specific learning outcome had been fully met within their training (Figure 4).

Competency 5 (impact, impairment, disability, and systemic conditions on oral health and oral function): for this competency the majority of scores were between 6 and 8 for all the three domains, inferring that students were able to identify elements of impairment and disability and when interprofessional liaison might be required in various degrees (Figure 5).

Competency 6 (clinical management of patients requiring SCD): students mainly scored 5 to 8 on the subtheme of Skills and knowledge explaining that they did not feel completely competent to treat patients with special needs, however, 90% ($n = 27$, scored 7 to 10) knew when it was appropriate to refer patients (Figure 6).

3.4 | Undergraduate curriculum

Most students agreed that SCD teaching should follow a problem-based teaching approach ($n = 25$, 83.3%) which correlated with students not wanting more lecture-based teaching. Regarding the use of virtual patients, there was a split between those neither agreeing nor disagreeing ($n = 10$, 33.3%) with using this way of teaching with those agreeing ($n = 17$; 56.7%) with a similar split for those students who felt that small group seminars or sessions with disability groups would improve their learning during their undergraduate curriculum for SCD (Table 2).

More than 80% of the students tended to agree that they should have more clinical exposure to patients with special needs or shadowing specialists in SCD.

3.5 | Student views on re-designing the curriculum

The main common theme across both Universities was to increase the number of clinical sessions and/or placements, with some students making generic comments around this area: "more exposure to these types of patient in clinic" and "I would increase the amount of clinical practices with special care patients," whilst other students suggested the type of clinical exposure they would like to have, for example, "one day a week for a month with

TABLE 2 Frequency distribution of the student's view of how the curriculum in SCD should be taught.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	I do not know
The curriculum in SCD should have more lecture-based teaching	$N = 0$	$N = 8$ (26.7%)	$N = 14$ (46.7%)	$N = 5$ (16.7%)	$N = 3$ (10%)	$N = 0$
The curriculum in SCD should follow a problem-based teaching approach	$N = 0$	$N = 1$ (3.3%)	$N = 4$ (13.3%)	$N = 19$ (63.3%)	$N = 6$ (20%)	$N = 0$
There should be more exposure to patients with disabilities	$N = 0$	$N = 0$	$N = 6$ (20%)	$N = 9$ (30%)	$N = 15$ (50%)	$N = 0$
Students should have shadowing sessions in specialized clinics	$N = 0$	$N = 1$ (3.3%)	$N = 4$ (13.3%)	$N = 8$ (26.7%)	$N = 17$ (56.7%)	$N = 0$
The use of virtual patients can help students improve sensitive and competent care to patients with a wide range of special care needs.	$N = 0$	$N = 3$ (10%)	$N = 10$ (33.3%)	$N = 11$ (36.7%)	$N = 6$ (20%)	$N = 0$
Small group-seminars involving people with disabilities can contribute to learning about specific impairments and understanding the special care patient point of view.	$N = 0$	$N = 1$ (3.3%)	$N = 5$ (16.7%)	$N = 12$ (40%)	$N = 12$ (40%)	$N = 0$
Sessions with disability groups in the society can contribute to learning about broader issues and needs of special care patients.	$N = 0$	$N = 1$ (3.3%)	$N = 7$ (23.3%)	$N = 12$ (40%)	$N = 10$ (33.3%)	$N = 0$

the Special Care Master's students of the University" or developing " a program to help patients with physical disabilities, where tooth brushing techniques are taught." One student pointed out that they were happy with the current educational model and practical sessions, however, they reflected on the fact that the COVID-19 pandemic had an impact resulting in the cancellation of some sessions: "We have a good structure; the only problem is the practical part which was cancelled due to COVID-19."

Similar answers were provided by other students regarding this main theme, where they expressed the desire to have "more shadowing clinics and more hospital based SCD clinics" and also asked for more diverse placements "more shadowing and visits to nursing homes or somewhere where we can talk to people with special needs" as well as "placements in the community working with patients with disability and being taught how to deal with these patients and being shown as well as being given the opportunity to do it."

The final theme was in relation to the theoretical teaching which they believed should follow a case-based approach: "case-based discussion of simple likely cases we might get in general practice."

4 | DISCUSSION

In this study, we developed a questionnaire based on the findings from a recent qualitative study that ran two focus groups from final year dental students.[17] The emerging themes from that study were the key to develop our questionnaire and include the appropriate items. The analysis of the competencies set up by the iADH, complemented by the results from Wilson's et al.[17] study added evidence to our statements by emphasizing the areas that need further development to improve the undergraduate curriculum in SCD.

Due to the variability in delivering SCD training across different schools, in this study, we assessed student views on the undergraduate dental curriculum in two different universities, running two different dental courses. The UoA in Scotland that runs a 4-year graduate entry course blueprinted to the learning outcomes set by the governing body, the General Dental Council, and the UIC in Spain, that runs a traditional 5-year dental course.

Almost all the students agreed that SCD should be part of the undergraduate teaching to be able to manage the needs of all patients without discrimination, with similar results to the study by Wilson's et al.[17] These results are also similar to the study on dental schools where staff and Deans from USA dental schools agreed with the fact that schools have a responsibility to teach students to treat patients with special needs.[18] These findings send a powerful message, emphasizing the need to adhere to the standards set by iADH to reduce the inequalities faced by this group of patients.

Students from both Universities felt that more emphasis should be placed on clinical training for SCD. Those results are similar to the USA study where over 70% of staff felt that more time should be spent teaching students to treat patients with special needs.[18] There were some differences

observed between UoA and UIC students regarding the amount of teaching that the students receive. These differences reflect the views of Yeaton et al.[19] where only 49% of students agreed that they had received sufficient theoretical training.

Poor training has been linked with reduced intake of SCD patient by GDPs. A survey run on Italian dental students back in 2009 showed that 83% of students considered their undergraduate training on patients with "intellectual disability" to be poor and when asked about their willingness to treat those patients in the future only 50% were willing to do so.[20] In Nigeria nearly 60% of dental students felt inadequately prepared to treat SCD and this was linked to a lack of equipment as well as to a lack of appropriate special needs patients in the student clinic; they also attributed it to not having a well-defined curriculum. While these two studies predated new guidance for SCD teaching, studies carried out after publication of the guidance for the core curriculum on SCD for undergraduate students,[21] were still reporting similar results. An example is the Malaysian study where students felt negative about the sufficiency of their undergraduate training[22] or Yeaton et al. study where they investigated the two Irish dental schools and only 27% of the students agreed that their training had been "sufficient" in providing treatment under supervision to patients with special needs, and only 19% agreed that they would be confident treating SCD upon graduation.[19]

Regarding GDP willingness or capabilities to treat patients with special needs, several studies concluded that regardless of the type of education offered when they were undergraduate students, GDPs felt that their time at the dental school influenced them toward not treating SCD.[7,10,23] On the other hand, Dao et al.[10] reported that the better GDPs felt prepared to treat a patient with disabilities as a consequence of their undergraduate training, the more likely they were to set up practices to accommodate their needs and the more confident they felt treating them. Therefore, the quality of the education offered to the students is paramount in developing successful dentists that will feel confident to treat special needs patients and will have the right attitudes and professional behaviors to manage them.

As far as we are aware this is the first study that specifically asked students their thoughts on the iADH curriculum. There were two competencies that students from both universities tended to score in the middle range of 5 to 7 and those were communication skills (attitudes and behaviors) and the clinical management of patients with special needs. These two areas reinforce the student answers in other parts of the questionnaire, where they indicated that they require more practical sessions to be able to improve their attitudes with those patients by knowing how to communicate with them and how to carry out procedures independently.

Therefore, introducing different teaching modalities to help in training dental students is essential. Kleinert et al.[24] concluded that the use of interactive, computer-based multimedia, and virtual special needs patient instructions had a significant change in both knowledge and perceived difficulty levels for students and suggested that these tools could effectively address accreditation standards; although they acknowledge that teaching communication skills for this type of patients can be challenging and this method, on its own, might not be enough.

It is very important, that different teaching methods are considered by all Universities when designing their SCD curriculum. The Universities that had negative feedback about their SCD education[18,20,21] tended to only provide lectures and in some cases offered observation during the delivery of care to special needs patients. Phadraig et al.[15] analyzed the impact of a new curricular module in SCD in an Irish Dental School. This included a blended learning module with introductory short lectures to encourage reflection, experiential workshops, access to an e-learning package, and group online tutorials. Students also attended three different types of placements where they were faced with different types of patients ranging from learning disability to oncology patients, with regular feedback sessions to share their experiences. Student attitudes toward people with special needs improved but this change was not statistically significant. It is worth noting that in that study, this course was delivered to third year dental students rather than later, which was the case for the universities studied in our study, where they had more opportunities to interact with and treat special needs patients during their routine dental practical sessions.

In our study, we found that students prefer case-based or problem-based teaching over lectures. Similar studies that investigated the educational methodology also agreed that integrated case-based curricula for dental students are more effective in fostering deeper learning and improve the integration of similar cases they might come across after graduating, when comparing it with the traditional lecture-based education.[25–27] Studies by Yeaton et al.[19] and Oredugba et al.[16] emphasized that increased exposure to patients with special needs will influence the intentions that future dentists will have toward this more vulnerable groups of patients by improving their attitudes toward them.

Regarding practical sessions, it has already been suggested that "dentists place more value on experiences that contribute to their comfort in treating specific populations."[9] One student in the study by Wilson et al.[17] also expressed that "without the exposure, you can learn the theories behind it but it's very hard to put into

practice." Consequently, including practical sessions that encompass a large variety of settings and patients is paramount to increase the confidence levels of our students. We have also been able to demonstrate that students would like to have more practical sessions to increase their assurance and attitudes toward these patients upon graduation. These findings were reinforced when we introduced the students to the patient in Scenario B in the questionnaire, who had physical disabilities and a slight speech impairment, where all students, irrespective of the University, did not feel prepared or comfortable treating, diagnosing, or communicating with that specific patient. Similarly, other studies have suggested that students do not find didactic teaching to be beneficial and they place more importance on the practical component as this helps interact with the patients and improve their experience.[17]

It is a requirement of the regulatory bodies and the Universities to modify their curricula and bring them up to date with the new requirements of iADH. Therefore, increasing the teaching on geriatric dentistry, special needs, and the management of diseases that these population will have, are paramount for a sustainable workforce, and to reduce inequalities in delivering dental care.

5 | CONCLUSION

Although the response rate for this study was low ($n = 30$), we have been able to conclude that more clinical practice might be required for students to further their skills to treat special needs patients. Students have suggested that the delivery of the subject should be a case-based or problem-based educational model.

Students from both Universities indicated a need to have more practical sessions to consolidate competency 4 (communication skills with SCD) and competency 6 (clinical management of patients requiring SCD).

Bearing in mind that the COVID-19 pandemic had an obvious effect on the ability to complete all the practical components of this subject for this cohort of dental students, we recommend running this questionnaire when we return to "normality" following the ease of the COVID-19 restrictions to have more meaningful data which is not biased by the effects of the pandemic and the need to cancel clinics.

We also recommend all dental school to follow the iADH standards set up for an undergraduate degree.

Finally, we would suggest that a 360-degree study evaluating not only student perspective of their undergraduate education, but also staff responsible for the delivery of this subject and special needs patients is undertaken. Such studies would be able to bring a deeper perspective into the pedagogical method to use that is both satisfactory for the students and the regulator but also to our patients.

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CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

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APPENDIX

Questionnaire

Please complete all the questions in this questionnaire to the best of your ability.

Some questions require you to enter text, while others only require you to tick a box. You can write your answers in Spanish/Catalan should you find this easier.

- Age: (enter age)
- With what gender were you assigned at birth?
  - ☐ Male
  - ☐ Female
  - ☐ Prefer not to say
- Is this the same gender assigned to you at birth?
  - ☐ Yes
  - ☐ No
  - ☐ Prefer not to say
- Which University do you study at?
  - ☐ University of XX
  - ☐ Universitat YY
- What is your household gross annual income?
  - ☐ Select Pounds ☐ or Euros ☐
  - ☐ <10 000
  - ☐ 10 000–30 000
  - ☐ 30 000–50 000
  - ☐ 50 000–75 000
  - ☐ 75 000–10 0000
  - ☐ >10 0000
- What do you understand by the term disability?

  Free-text

- Do you have any experience in dealing with people with disabilities?
  - ☐ Yes
  - ☐ No
- If you answered yes to the question above, please explain what type of experience you have (e.g., volunteering with children that suffer with Down syndrome)

  Free-text

- For the next section please answers how much you agree or disagree with the following statements (when we refer to special care dentistry, we include patients with learning and physical disabilities, geriatric patients, and medically compromised patients):

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	I do not know
I think special care dentistry (SCD) should be part of the undergraduate dental curriculum						
I received sufficient theoretical training on SCD						
I received sufficient clinical practice providing treatment or assistance under supervision specific to SCD						
I think more emphasis should be placed on clinical training for SCD						
I feel confident in providing dental care to patients with learning disabilities upon graduation						
I feel confident in providing dental care to patients with physical disabilities upon graduation						
I feel confident in providing dental care to geriatric patients upon graduation						
I feel confident in providing dental care to medically compromised patients upon graduation						
I think it is a professional responsibility to address the needs of all patients without discrimination, including those with disabilities.						
I think time pressure (delivering quotas) upon graduation might influence my ability to treat SCD patients.						
Being unable to communicate effectively to some patients influences my perception of being ready to treat SCD on my own						
I know when and how to refer special care patients when I cannot treat them						

- The International Association for Disability and Oral Health (iADH) developed an undergraduate curriculum in special care dentistry following a consensus approach with leading institutions worldwide[1]. They set up a list of 6 core competencies that a graduating dentist should have upon qualification regarding the managements of patients with special needs. Each competency has been further subdivided into core knowledge, skills and attitudes, and behaviors.

For the following questions, please answer using a range from 1 to 10 to indicate how confident you are about the following competencies (where 1 is not confident at all and 10 is fully confident to carry them out on your own)

[1] iADH. Undergradute curriculum in special care dentistry, 2012.

	Knowledge	Score (1 to 10)	Skills	Score (1 to 10)	Attitudes and behaviors	Score (1 to 10)
Competency 1: Scope of special care dentistry	Describe the cultural, legal and social context of people with disability and other marginalized groups.		Discuss epidemiology, terminology, concepts, and classifications of human function, disability and health.		Demonstrate positive attitudes in relation to human difference and diversity.	
Competency 2: Access and barriers to oral health for people with disability and other marginalized groups	Identify the social determinants of health in relation to health inequalities in people with disability and other marginalized groups.		Recognize barriers and facilitators to oral health for people with disability and other marginalized groups.		Use social and environmental facilitators to oral health and oral health promotion within service structure.	
Competency 3: Consent for people requiring special care	Outline the appropriate consent process when providing care for people with communication, cognitive or sensory impairments.		Obtain valid consent for oral health procedures appropriately.		Demonstrate respect for patient autonomy and the role of the family and caregivers.	
Competency 4: Communication skills in special care dentistry	Describe appropriate methods of communication for people with cognitive, sensory and/or other communication impairments.		Use appropriate methods of communication for people with cognitive, sensory and/or other communication impairments.		Demonstrate culturally sensitive and inclusive language with patients, colleagues and care givers.	
Competency 5: Impact of impairment, disabilities and systemic conditions on oral health and oral function	Describe common impairments, disabilities and systemic conditions in relation to their impact on oral health and oral function.		Identify the key elements of impairments, disabilities and systemic conditions that may impact on oral health or oral function for individual patients.		Consider the need for and benefits of inter-professional liaison in patient assessment.	
Competency 6: Clinical management of patients requiring special care Dentistry	(i) Describe the factors (medical, social and environmental) that impact on risk assessment and treatment planning for individual patients requiring special care. (ii) Discuss behavioral and pharmacological approaches that facilitate dental treatment for individual patients requiring special care dentistry (according to local guidelines and protocols).		(i) Design oral health education for individual patients and their caregivers. (ii) Provide simple clinical treatment using appropriate facilitation techniques for patients requiring special care, likely to present to a primary care service.		(i) Recognize the value of teamwork in the management for patients requiring special care. (ii) Take responsibility for referring or arranging care for patients with more complex needs.	

- How many sessions did you have during your whole degree **observing** specialists in SCD?

- ☐ 0
- ☐ 1–5
- ☐ 5–10
- ☐ More than 10

- For the following questions, please state if your University training included attending any of the following placements. Please tick the appropriate box.

	I attended them	I was unable to attend them	The University does not offer them
Nursing home			
General anesthesia/sedation clinics			
Community dental services			
Engagement with learning disability groups in the society			
Learning disability care homes			
Other (please specify)			

- How did the current COVID-19 pandemic affect your preparedness to treat special care patients upon graduation?

- Free text

- For the next section please answers how much you agree or disagree with the following statements regarding teaching and the undergraduate curriculum in SCD:

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	I do not know
The curriculum in SCD should have more lecture-based teaching						
The curriculum in SCD should follow a problem-based teaching approach						
There should be more exposure to patients with disabilities						
Students should have shadowing sessions in specialized clinics						
The use of virtual patients can help students improve sensitive and competent care to patients with a wide range of special care needs.						
Small group-seminars involving people with disabilities can contribute to learning about specific impairments and understanding the special care patient point of view.						
Sessions with disability groups in the society can contribute to learning about broader issues and needs of special care patients.						

- Please review the following two scenarios (A and B) and answer the questions regarding each scenario. Select the option which best corresponds with how you feel about the statement.

Scenario A:

You enter your dental surgery. A middle-aged man and woman are waiting for you. He tells you he is experiencing pain on a top back tooth.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	I do not Know
I have had experiences similar to that in scenario A.						
In scenario A, I would feel comfortable determining the role of the man versus the woman in providing the history of the complaint.						
In scenario A, I would be comfortable performing a dental examination on the patient.						
In scenario A, I would be comfortable establishing a differential diagnosis for the dental pain.						

Scenario B:

You enter your dental surgery. A middle-aged man is seated in a wheel chair. Standing behind him is a woman of about the same age. The patient in the wheel chair appears to have spasticity in all 4 limbs. He greets you by saying "hello." His speech is somewhat garbled, though intelligible. The woman tells you that the patient is here because he is experiencing pain on a top back tooth.

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree	I don't Know
I have had experiences similar to that in scenario B.						
In scenario B, I would feel comfortable determining the role of the man versus the woman in providing the history of the complaint.						
In scenario B, I would be comfortable performing a dental examination on the patient.						
In scenario B, I would be comfortable establishing a differential diagnosis for the dental pain.						

- If you were able to help redesign the special care curriculum in your University, what features would it have?

Free-text