

Project Title: Special Care Dentistry – How prepared are we?

Abstract:

Aim: To assess and evaluate the confidence of the undergraduate dental team regarding their training in the field of Special Care Dentistry (SCD).

Method: A questionnaire was distributed amongst the undergraduate dental teams within Cork University Dental School and Hospital (CUDSH) and Dublin Dental University Hospital (DDUH).

Results: Twenty-seven percent ($n = 30$) agreed that their training has been sufficient in providing treatment/assistance under supervision for patients requiring SCD. Seventy-five percent of students agreed that more emphasis should be placed on clinical training in SCD ($n = 76$). Thirty one percent of students anticipated a high level of confidence in treating patients requiring SCD upon graduation ($n = 43$), with dental students feeling the least prepared and dental hygiene students the most prepared.

Conclusion: Confidence levels of the undergraduate dental team were low with regard to SCD. The existing hands-on clinical training in SCD was deemed insufficient. Students believed more emphasis should be placed on SCD training in the undergraduate curriculum.

Introduction:

Special Care Dentistry (SCD) is an important field of dentistry of increasing demand.¹ Individuals with disabilities, impairments and additional needs deserve equal access to oral health care services.²

Recent literature suggests that undergraduate dental students may graduate with a lack of experience in SCD, particularly with regards to clinical training.^{3, 4} Lack of knowledge, confidence or experience may become a barrier to delivery of oral health care to patients requiring SCD.^{3, 4} Increased student confidence in SCD may increase the likelihood of a General Dental Practitioner (GDP) providing SCD in a community setting.^{3, 5} This may reduce strain placed on Health Service Executive (HSE) resources and referral based special care dentists. The aim of this study was to evaluate current confidence levels of Irish undergraduate dentistry, dental hygiene and dental nursing students in SCD and to determine whether they felt further SCD training is required at an undergraduate level.

Literature review:

Using the WHO International Classification of Functioning (ICF), those requiring SCD can be defined as those with “a disability or activity restriction that directly or indirectly affects their oral health, within the personal and environmental context of the individual”.⁶ Special Care Dentistry aims to ensure that all members of the community receive optimal oral health care. The WHO estimates that there are over a billion people with disabilities worldwide.^{7, 8} In 2006, almost 400,000 Irish people reported living with a disability.⁹ It is widely accepted that there is poor access to SCD at a global level.¹⁰⁻¹⁶ General practitioners often find this population too challenging to treat¹⁷⁻²⁰ and often have difficulties with communication, creating huge barriers to access of mainstream dentistry by this population. It has been estimated that 90% of people requiring SCD can receive treatment in a local, primary care centre;²¹ however the provision of optimal SCD in a primary care setting depends upon adequate education and training for the whole dental team. Evidence shows that undergraduate dental students may graduate with a lack of experience in SCD, particularly with regards to their clinical training.³ One study reported that only one in four GDPs had experienced any education with regard to SCD.²² Furthermore, this lack of experience may negatively affect the provision of care for SCD patients after graduation.^{3, 5} Qualitative research has established that a correlation exists between undergraduate dental training and the treatment of patients requiring SCD upon graduation.³ It has been shown that those who had treated more SCD patients as students go on to treat a higher percentage of these patients in practice.²³ The generally accepted consensus is that formal SCD education can enhance confidence and make a difference in this area of dentistry.²⁴

Unfortunately, the worldwide provision of undergraduate education and teaching in SCD is inconsistent and under-reported. Of the data available, it is clear that SCD education is often provided on an informal basis with unacceptably low allocated clinical and didactic time.²⁵⁻²⁶ An American study described how clinical training in SCD comprised up to five percent of pre-doctoral students' time in 73% of the responding schools.²⁷ Another American study regarding dental hygiene programmes reported comparable findings: 48% of 170 programmes had ten hours or less of didactic training (including 14% with five hours or less) in SCD; and 57% of programmes reported no clinical experience whatsoever.²⁸

The literature suggests that improved undergraduate SCD education and increased clinical exposure would instill confidence in graduates, increasing the provision of care by GDPs and reducing the volume of referrals.^{3, 22-24, 29-31} There is limited available literature concerning education in SCD in dental nursing and dental hygiene programmes.

Study design:

The aim of this study was to collect qualitative and quantitative data to assess the opinions of undergraduate dentistry students, dental nurses and dental hygienists with regards to their experience of the delivery of SCD education. Data was collected by means of an anonymous, self-administered, opinion-based questionnaire (Appendix 1). A Likert-type scale was used. These questionnaires were distributed to fourth and fifth year undergraduate dentistry students, final year dental hygiene students, and final year dental nursing students at CUDSH and DDUH. The information from the questionnaires was collated and statistically analysed.

Results:

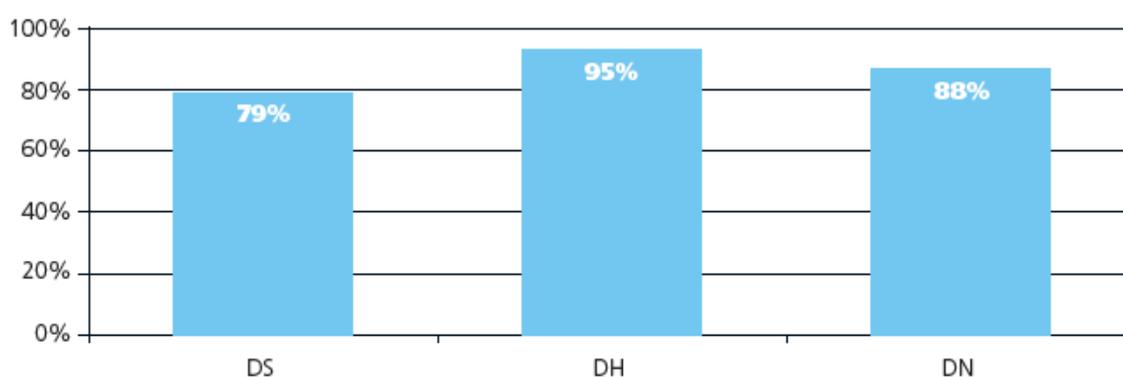
A total 139 students participated in the study out of a potential of 204 students (response rate 68%); 82 from DDUH (59 dentistry students, 7 dental hygiene students & 16 dental nursing students) and 57 from CUDH (43 dentistry students & 14 dental hygiene students).

Table 1: Proportion of students who had received any education in SCD; DS = dentistry students, DH = dental hygiene students, DN = dental nursing students.

Student group	Proportion of students who had received any education in SCD (%)
DS	75% (n = 76)
DH	100% (n = 21)
DN	100% (n = 16)

Figure 1: Proportion of students who had received education in SCD who agreed or strongly agreed that SCD should still be part of their curriculum; DS = dentistry students, DH = dental hygiene students, DN = dental nursing students.

Proportion of students who agreed/strongly agreed that SCD should be part of their curriculum



Of those students who had received some education in SCD (81%, $n = 113$), a significant proportion agreed or strongly agreed that SCD should be part of the undergraduate dental curriculum (85%, $n = 96$). Students who had not received any education in SCD (19%, $n = 26$) still agreed or strongly agreed that SCD should be included in the curricula of their respective courses (77%, $n = 20$) [Table 1 and Figure 1].

Table 2: Proportion of students within the different groups who agreed or strongly agreed that their theoretical training in SCD was adequate; DS = dentistry students, DH = dental hygiene students, DN = dental nursing students.

Student group	Proportion of students who agreed or strongly agreed that their theoretical training in SCD was adequate (%)
DS	43% ($n = 33$)
DH	71% ($n = 15$)
DN	81% ($n = 13$)

Table 3: Proportion of students within the different groups who agreed or strongly agreed that their level of clinical observation in SCD was adequate; DS = dentistry students, DH = dental hygiene students, DN = dental nursing students.

Student group	Proportion of students who agreed or strongly agreed that their levels of clinical observation in SCD was adequate (%)
DS	41% (n = 46)
DH	45% (n = 51)
DN	17% (n = 19)

Students' perceptions of the adequacy of their theoretical training received in SCD varied, with 49% ($n = 55$) agreeing or strongly agreeing, 35% ($n = 40$) disagreeing or strongly disagreeing, and 19% ($n = 21$) neither agreeing nor disagreeing that their training in SCD has been sufficient in theory [Table 2]. Of the different undergraduate courses, the median response for dentistry students regarding sufficiency of theoretical training received was 'neither agree nor disagree' compared with that of dental hygiene students whose median response was 'agree'. This difference was statistically significant ($P < 0.01$) [Table 5] with 71% ($n = 15$) of dental hygiene students agreeing or strongly agreeing about adequacy of theoretical training received compared with only 43% ($n = 33$) of dentistry students agreeing or strongly agreeing. In contrast, 81% ($n = 13$) of dental nursing students agreed or strongly agreed that their theoretical training in SCD was sufficient.

Sufficiency regarding clinical observation in SCD saw 41% ($n = 46$) of students agreeing or strongly agreeing adequate levels in this area, 45% ($n = 51$) disagreeing or strongly disagreeing and 17% ($n = 19$) neither agreeing nor disagreeing. Within the individual courses, the median responses were ‘disagree’ for dentistry students and ‘agree’ for both dental hygiene and nursing students. Again the differences evident were statistically significant ($P = 0.01$, $P < 0.01$ respectively) [Table 5] with dental nursing students seeing the highest levels of satisfaction, with 94% ($n = 15$) agreeing or strongly agreeing that their level of training in SCD has been sufficient in clinical observation, followed by 52% ($n = 11$) of dental hygiene students agreeing or strongly agreeing and 34% ($n = 26$) of dentistry students agreeing or strongly agreeing [Table 3].

Table 4: Proportion of students within the different groups who agreed or strongly agreed that their levels of treatment/assistance in SCD was adequate; DS = dentistry students, DH = dental hygiene students, DN = dental nursing students

Student group	Proportion of students who agreed or strongly agreed that their levels of treatment/assistance in SCD were adequate (%)
DS	11% ($n = 8$)
DH	67% ($n = 14$)
DN	63% ($n = 10$)

Twenty-seven percent of students ($n = 30$) agreed or strongly agreed that their training had been sufficient in providing treatment/assistance under supervision for SCD patients,

while 60% ($n = 68$) disagreed or strongly disagreed and 16% ($n = 18$) neither agreed nor disagreed. The median response for dentistry students was ‘disagree’ and ‘agree’ for both dental hygiene and dental nursing students. Once again this result is statistically significant ($P < 0.01$) [Table 5] with volume of training in this area highest among dental hygiene students with 67% ($n = 14$) agreeing or strongly agreeing that their training has been sufficient in treatment/assistance under supervision for SCD patients, followed by dental nursing students with 63% ($n = 10$) of students agreeing or strongly agreeing whilst only 11% ($n = 8$) of dentistry students agreed or strongly agreed [Table 4].

Most students agreed or strongly agreed that more emphasis should be placed on clinical training in SCD (75%, $n = 104$), with the highest levels of agreement coming from dental nursing students (81%, $n = 13$), followed by dentistry students (75%, $n = 76$), and then dental hygiene students (71%, $n = 15$).

Sixty-two percent of students ($n = 86$) strongly agreed or agreed, 23% ($n = 32$) strongly disagreed or disagreed and 15% ($n = 21$) neither agreed nor disagreed that hands-on clinical teaching in SCD was suitable for undergraduate students.

Nineteen percent ($n = 26$) of students agreed or strongly agreed that they currently feel confident in providing care for patients requiring SCD and few students anticipate a high level of confidence in treating patients requiring SCD upon graduation (31%, $n = 43$). The median response for dentistry students regarding current confidence levels was ‘disagree’ compared with a median response of ‘agree’ for both dental hygiene and dental nursing students. Upon graduation, similar median responses were anticipated with dentistry students again responding ‘disagree’ and dental nursing and dental hygiene

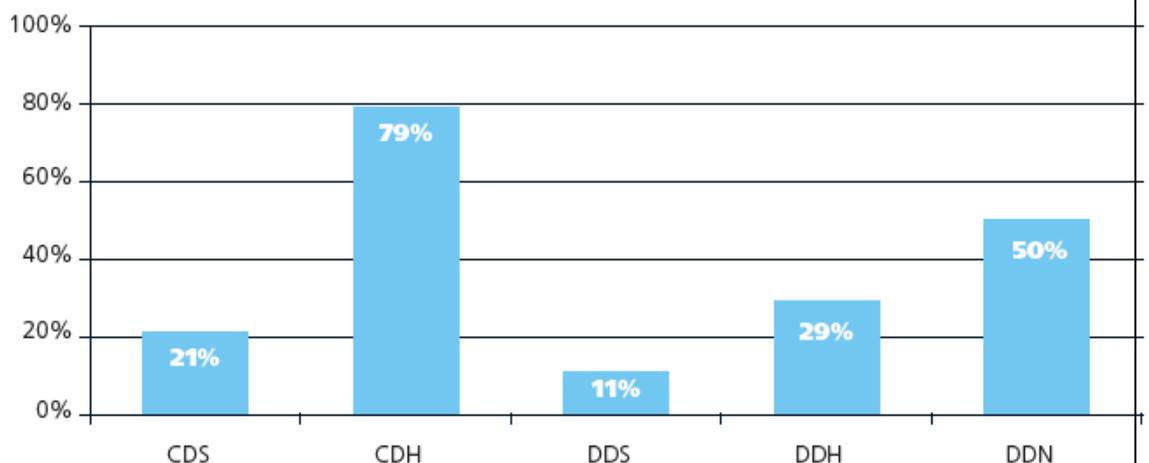
students responding ‘agree’ for future confidence levels in providing care for SCD patients. These results were statistically significant ($P < 0.01$) [Table 5] with Cork dental hygiene students anticipating the highest level of confidence (79%, $n = 11$), followed by Dublin dental nursing students (50%, $n = 8$) and Cork dentistry students (28%, $n = 12$). Lowest levels of anticipated confidence came from Dublin dentistry students with only 15% ($n = 9$) of students anticipating a satisfactory level of confidence in treating SCD patients upon graduation [Figure 2]. Variation in confidence levels upon graduation was evident among mature and non-mature students. Forty-five percent ($n = 18$) of mature students anticipate adequate confidence levels upon graduation compared with 25% ($n = 25$) of non-mature students.

Table 5: Comparison of median responses to questions 7(a) – 11 [see appendix]; DS = dentistry students, DH = dental hygiene students, DN = dental nursing students; SD = Strongly Disagree, D = Disagree, N = Neither Agree nor Disagree, A = Agree, SA = Strongly Agree; * = Significant result ($P < 0.05$) using Wilcoxon rank sum test, ^ - Median value lies between D and N in coded data.

	4th DS - 5th DS	DS - DH	DS - DN	DH - DN
Theory	N - D P=0.03*	N - A P<0.01*	N - N P=0.22	A - N P=0.07
Clinical Observation	D / N^ - D P=0.051	D - A P=0.01*	D - A P<0.01*	A - A P=0.88
Treatment/ Assistance	D - D P=0.24	D - A P<0.01*	D - A P<0.01*	A - A P=0.21
More emphasis on clinical training	A - A P=0.93	A - A P=0.57	A - A P=0.82	A - A P=0.57
Hands-on training	A - A P=0.86	A - SA P<0.01*	A - A P=0.82	SA - A P<0.01*
Current confidence levels	D - D P=0.99	D - A P<0.01*	D - N P<0.01*	A - N P=0.12
Confidence levels upon graduation	D - D P=0.41	D - A P<0.01*	D - A P<0.01*	A - A P=0.1

Figure 2: Proportion of students within the different student groups of the different schools who feel confident in providing care for patients requiring SCD upon graduation; CDS = Cork dentistry students, DDS = Dublin dentistry students, CDH = Cork dental hygiene students, DDH = Dublin dental hygiene students, CDN = dental nursing students, DDN = Dublin dental nursing students.

Proportion of students who agreed or strongly agreed that they feel confident in providing care for patients requiring SCD upon graduation



Discussion and conclusions:

The Irish undergraduate dental team is aware of the importance of equality of provision of care for patients requiring SCD – a significant proportion of the respondents strongly agreed that SCD should be part of the undergraduate dental curriculum, in accordance with the literature.³² Many students (60%, n = 68) disagreed or strongly disagreed that their exposure to treatment or assistance under supervision for patients requiring SCD was sufficient. The median response rate for dental science students was ‘disagree’, compared with ‘agree’ for dental hygiene students ($p < 0.01$) This reflected the variance in levels of SCD training between the courses with dental hygiene students in DDUH and CUDSH describing the highest amount of clinical exposure. It is clear from the literature that increased clinical exposure would improve the quality of oral health care for the population requiring SCD.^{3, 22-24, 29-31}

Only 19% (n = 26) of students agreed or strongly agreed that they would be confident in providing SCD upon graduation. Dental hygiene students’ responses were more positive than that recorded in the literature.³³ A lack of confidence amongst undergraduate dental students leads to a reduction in the number of patients requiring special care being treated in practice. This is also supported in the literature.¹⁰ Sixty two percent of students felt hands-on clinical teaching in SCD is suitable for undergraduate students. A CUDSH student stated “it is such a specialized area that needs exposure before we graduate... it should be compulsory. The only way to learn is via hands on clinical exposure”.

On evaluation some limitations of the study were observed. The questionnaire may have introduced an element of bias to the study.³⁴ A relatively small sample size was available for the study, limited by the fact that SCD education doesn’t begin in Irish dental schools until fourth or fifth year. Class sizes for dental hygiene were relatively low, but they did

demonstrate high response rates, possibly allowing for further bias. Cancellation of scheduled lectures and absences reduced response rates of some samples. To increase sample size, further studies may involve including students from the UK or further afield. Furthermore this study was conducted over a short period of six months. Many of the participants in this study were at different stages in their training. The questionnaire only picked up their opinion regarding SCD at that moment in time. If more time was available for this study students' responses could be monitored throughout their training and after graduation.

The high levels of people living with a disability in Ireland (CSO) and worldwide combined with the emergence of an aging population, makes it very likely that the need for SCD will continue to rise.^{7, 8} There are huge levels of inequality and unmet needs with regards to SCD worldwide. In order to lower these inequalities and remove barriers to care, the dental team must firstly graduate with knowledge, good clinical experience and sufficient confidence levels to provide mainstream oral health care for this population. According to this study and the wider literature, currently, this is not the case.^{3-5, 17, 22, 23, 26, 32} Ultimately an increase in undergraduate training could lead to a better standard of care for patients requiring SCD thus reducing inequality of care worldwide. It is vital that dental leaders and educators worldwide make urgent positive steps towards this change.

There have been some positive steps forward in Ireland regarding this issue. Within the last year, an Ireland-wide strategy meeting was held to address these issues and the possibility of developing an Ireland wide core-teaching element for SCD was discussed.³⁵ The International Association for Disability and Oral Health (IADH) have been developing universal guidelines for SCD education at an undergraduate level and this guidance could help form these core teaching elements. Currently in the UK, the British Society for Disability and Oral Health (BSDH) have established a teaching group for

SCD teaching UK wide ³⁶ – this could perhaps be implemented in Ireland and may even encompass student representatives from the Irish dental schools.

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Appendix 1: Questionnaire

1. Which dental school are you currently studying in? (Please circle correct option)

- Cork University Dental School & Hospital
- Dublin Dental University Hospital

2. Which undergraduate dental course are you currently studying?

- Dentistry (4th Year)
- Dentistry (5th Year)
- Dental Hygiene
- Dental Nursing

3. Gender:

- Male
- Female

4. Are you a mature student?

- Yes
- No

5. Do you feel Special Care Dentistry (SCD) should be part of your undergraduate course curriculum?

- Yes
- No
- Not sure

6. Have you received **any** education in SCD as part of your undergraduate course curriculum?

- Yes
- No

7. If yes, do you think that your training has been sufficient in....

a) Theory (e.g. lectures, tutorials, e-learning)

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

b) Clinical observation

- Strongly disagree
- Disagree

- Neither agree nor disagree
- Agree
- Strongly agree

c) Treatment/assistance under supervision

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

8. Do you feel that more emphasis should be placed on clinical training in SCD?

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

9. Do you think hands-on clinical teaching in SCD is suitable for undergraduate students?

- Strongly disagree
- Disagree
- Neither agree nor disagree

- Agree
- Strongly agree

10. Do you currently feel confident in providing care for patients requiring SCD?

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

11. Upon graduation, will you feel confident in providing care for patients requiring SCD?

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

12. [OPTIONAL] Do you have any additional comments relating to undergraduate training in the area of SCD?