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Dental students' behavioral intent after comprehensive exposure to Special Care Dentistry: A survey in two dental Universities

Abstract

Aim and Objectives

To assess dental students' intentions to treat people with disabilities (PWDs), from two dental universities after didactic and clinical training regarding treatment provision for PWDs.

Methodology

Students from the class of 2023 in Arizona School of Dentistry & Oral Health A.T. Still University (ATSU) (n=77) and the Université Clermont Auvergne in France (n=62) were recruited. The response rate was 100% in Arizona and 98.4% in France. A validated and standardised international tool was employed to assess the attitudes and intended behaviours of undergraduate dental students concerning the treatment of PWDs. Responses to question one were reported as the percentage of respondents answering 'Yes' while questions two to nine were reported as means and standard deviations. Descriptive statistics and Mann-Whitney U tests served for statistical analyses.

Results

The mean age of respondents (N=139) was 26.8 years. Most (56.5%) were female. The dental students from universities in France and Arizona had a positive intention (85.9%) to treat PWDs. The means calculated for the length of time needed to provide care for this patient was of greater concern to students from Arizona (1.84) than France (0.95). The legal obligation was moreimportant to students from France (2.10) versus Arizona (1.39).

Arizona's students were moreconfident (0.30) that they could treat this patient compared to French students (-0.65).

Conclusions

The dental students' intention to treat PWDs at both universities was positive. The levels of clinical exposure, healthcare systems and cultural expectations may have accounted for the differences seen between universities that offered exposure to PWDs.

Key words: special care dentistry, dental students, attitudes, behavioural intent.

INTRODUCTION

Healthcare providers often attribute their inability to manage and treat issues of people with disabilities (PWDs) due to their lack of knowledge and experience in this field, their discomfort in working with PWDs, and their attitudes and misconceptions about disability (Lam et al., 2010). Dental care providers have raised similar issues concerning their lack of knowledge and discomfort in treating PWDs (Balkaran et al., 2022; Scambler & Curtis, 2019). These issues may lead to inequalities in the delivery of dentistry in this population. Research has demonstrated barriers to accessing oral healthcare at the primary level, such as inadequacy of care (Balkaran et al., 2022; Faulks et al., 2013). In many instances, PWD have limited access to oral care and are often referred to pediatric or special care dentists instead of receiving treatment from general dentists, who lack the training to treat this population (Suhasini et al., 2021). Studies have shown that comfort levels and readiness of dental graduates can reduce the significant unmet dental needs associated with PWDs when dental care has been provided by both general dental practitioners and specialists (Fuad et al., 2015).

Many international dental schools do not offer comprehensive dental education to their students in the dental management of PWDS, and if they do, it may only comprise didactic education and little or no clinical exposure. In one study in Canada, half the dental schools provided no didactic training, and only one-third had clinical rotations to treat PWDs (Sherman & Anderson, 2010). Research has shown that curricula that include both didactic and clinical components in treating and managing patients with special needs at the

undergraduate level can positively affect both the preparedness and comfort of dental graduates in treating this population (Mohebbi, Chinipardaz, Batebi, 2014; McQuistan et al., 2008). Given the importance of dental undergraduates having both knowledge and clinical experience with PWDs in their curriculum, in 2020, the Commission on Dental Accreditation (CODA) issued a modification to their new standard that stated that "graduates of dental programs must be competent in assessing and managing the treatment of patients with special needs" (CODA, 2023). The intent of their statement was for students to assess "the treatment needs compatible with the special need and provide services or referral as appropriate" (CODA, 2023).

Additionally, the International Association for Disability and Oral Health (iADH) developed guidelines for an 'Undergraduate Curriculum in Special Care Dentistry' in 2014 based on international consensus (Dougall et al., 2014). Some international dental schools have utilized these guidelines to ensure their undergraduate curricula meet this benchmark, although, as expected, the curriculum is delivered differently between various schools (Holzinger, 2020). Feedback given to the iADH reported ease of assessing knowledge and skills, but difficulty in evaluating the impact of teaching Special Care Dentistry on attitudes and intended behavior of dental students toward PWDs. In response, the iADH developed a validated toolbox of questionnaires to assess attitudes (Faulks et al., 2017). A previous study found that the attitudes of dental students towards PWDs did not change after exposure to a comprehensive course using the Attitudes Towards Disabled Persons Scale as a measure (Mac Giolla Phadraig et al., 2015).

One of the questionnaires in the iADH toolkit employed the Theory of Planned Behavior (TPB) to determine the intended behavior of dental students in treating PWDs (Francis et al., 2004; Ajzen, 1991). TPB is a proposed model that predicts certain intentional behaviors, based on people's attitudes, subjective norms, and perceived level of control over their behavior (Francis et al., 2004). The model assesses people's intentions and future behavior, including integrity, altruism, and attitude (Faulks et al., 2017).

The study aimed to assess dental students' intentions to treat PWDs, after receiving didactic and clinical training regarding treatment provision for PWDs from two different schools, one European and the other American.

MATERIAL AND METHOD

Overview of TPB

The TPB outlines a model for understanding human behaviors and attempts to predict a future specific deliberate behavior (Ajzen, 1991). Habitual or automatic behaviors are not predicted in this model (Francis et al., 2004). The TPB model shown in Figure 1 outlines these three cognitive variables that the theory postulates will forecast intention, the precursor to behavior (Ajzen, 1991):

- Attitudes: the more positively an individual evaluates a behavior, the more determined they are to engage in it.
- Subjective norm: the stronger the perceived social pressure to act in a certain way, the more likely an individual would intend to follow through with that behavior
- Perceived behavioral control: the greater the perceived control over the behavior, the more robust an individual's intention to carry it out

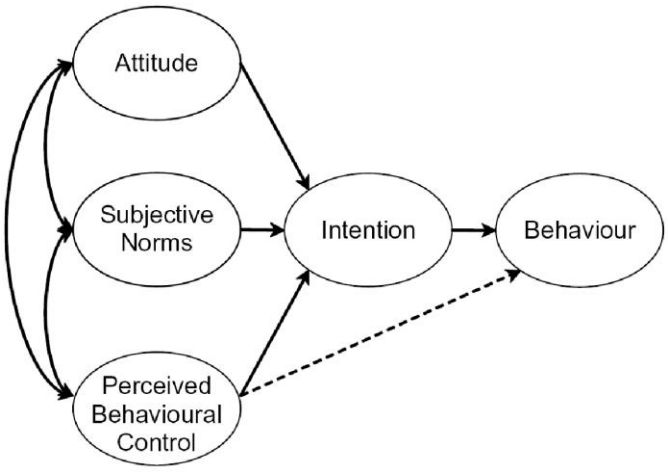

Figure 1: Theory of Planned Behavior (Ajzen, 1991, cited by Luzzi & Spencer, 2008)

This cross-sectional survey was conducted at the Arizona School of Dentistry & Oral Health, A.T. Still University (ATSU) and the Université Clermont Auvergne in France. All students from the class of 2023 in both schools were invited to complete a self-administered questionnaire at the end of their respective curricula during the final year in school. Convenience samples included a cohort of dental students from the USA (n=77) and a cohort of students from France (n=62). The questionnaire used a validated and standardized international tool (Faulks et al., 2017). The items were grouped in different scales related to constructs following the Theory of Planned Behavior (Francis et al., 2004), including the following six domains: beliefs, values, subjective norms, normative beliefs, motivation to comply, and perceived behavioral control. The chosen questionnaire from the toolbox was question #4 which assessed the attitudes and intended behaviors of undergraduate dental students. The specific Scenario #2 was chosen out of the twelve scenarios in the iADH Toolbox for Measuring Attitudes and Intended Behaviours in Special Care Dentistry (Faulks et al., 2017). The scenario asked was as follows:

Scenario and questions

A patient with intellectual disability:

You receive a phone call from the carer of an adult with Down syndrome living in sheltered housing. She says that the patient has lost a restoration in an upper front tooth. Assuming that the treatment required was within your clinical competence, would you provide care for this patient?

The next set of questions assessed the behavior outcome evaluation using a 7-point Likert scale which ranged from “Extremely likely” (1) to “Extremely unlikely” (7). This was

followed by two sets of questions on the subjective norms, each using a 7-point Likert scale which ranged from “Strongly disagree” (1) strongly agree (7). The next set of questions assessed the participants’ motivation to comply and control beliefs using a 7-point Likert scale which ranged from “Strongly disagree” (1) to strongly agree (7). Finally, the influence of various control beliefs on the likelihood of treating this patient was assessed using a 7-point Likert scale which ranged from “Much more likely to treat” (1) to “Much less likely to treat” (7), (Faulks et al., 2017).

Demographics were also ascertained. The inclusion criteria were students in the class of 2023 at each of the two schools. Participation was voluntary and anonymous; unique identification numbers were given to students. The students were advised that their responses were anonymous and that no item had a right or wrong answer.

When data were collected, the scoring was applied to each item based on the toolkit by Faulks et al. (2017). Question 1 was reported as the percentage of respondents replying ‘Yes’. Questions 2 to 9 were reported as means and standard deviations. The Mann-Whitney U Test was used in the statistical analyses. Data were analyzed with SPSS version 26.

The students were informed that it was voluntary, and their responses were anonymous for the post-assessment of the course for internal review. Ethical approval was not required in either institution for this study.

RESULTS

The response rate in the French university was 61/62 (98.4%), and in Arizona, 77/77 (100 %) to items on Scale 4 (TPB)—Influence of control beliefs. The mean age of respondents was 26.8 years. Most were female (56.5%). There was missing data for the first three questions where Arizona had 47 missing responses (61.0 %) from their data. In question 1, 'Assuming that the treatment required was within your clinical competence, would you provide care for this patient?' Most of the respondents answered positively (85.9%), in both France (82.3%) and Arizona (93.3%). In question 2, 'How difficult was it for you to make this decision?' the majority (24.2%) in France stated the decision was 'A bit difficult', and in Arizona (56.7%) of participants stated it was 'somewhat difficult.'

The behavior outcome evaluation with a mean comparison of both dental universities showed the participants from Arizona had a higher mean compared to those from France (Table 1). The response to the question 'If I were to provide care for this patient it would' was statistically significant in two outcomes between the universities: "Take too long" Arizona (1.84) and France (0.95) (p=0.000) and, "Make the patient anxious" Arizona (2.45) and France (2.03) (p= 0.025).

When both universities were compared, the participants' responses to subjective norms showed a mean difference that was statistically significant for the subjective norms 'Legally, I am expected to treat this patient' Arizona (0.86) and France (1.53) (p= 0.040) and 'I would feel under social pressure to treat this patient' Arizona (-0.84) and France (1.34) (p= 0.000) (Table 2).

Furthermore, there were also statistically significant mean differences for the subjective norms ‘Society thinks I should treat’ Arizona (0.82) and France (1.33) (p= 0.05). When the motivation to comply was compared between these two universities, the mean difference was statistically significant for the statement ‘My legal obligation is important to me’ Arizona (1.39) and France (2.10) (p= 0.031).

The control beliefs comparison showed higher means in participants from France compared to those from Arizona. In the specific questions of ‘It would be easy for me to treat this patient’ Arizona (0.13) and France (-0.48) (p= 0.004) and ‘I am confident that I could treat this patient’ Arizona (0.30) and France (-0.65) (p= 0.000), the mean differences were statistically significant (Table 3).

When the influence of control beliefs was compared for the question, would ‘Not having to modify my usual treatment techniques’ influence the likelihood of you treating this patient? Participants from Arizona generally had higher mean scores. The influence of control belief was statistically significant between Arizona (1.01) and France (0.52) (p= 0.053)

DISCUSSION

Our results showed that there was a high rate of intention to treat the patient at both universities, and the difficulty in making this decision ranged between a bit to somewhat difficult. There were certain differences between the universities concerning behaviour outcomes, subjective norms, motivation to comply, control beliefs, and influence of control beliefs. For instance, more students in Arizona believed their dental treatment could make this patient anxious and that they would not need to modify their usual treatment techniques, compared to those in France. Furthermore, more students in France felt social pressure to treat this patient than those in Arizona. Although both universities used the same recommended competencies from the iADH curriculum, there were differences in the requirements of the students in each course, owing to the different cultures and norms. Notably, the students in France were all exposed to didactic and clinical teaching. However, only some of their students chose the Special Care clinical module, which contained extensive clinical exposure. In Arizona, all students were exposed to the same level of didactic and clinical teaching. This may have accounted for a greater proportion of students in France lacking the confidence to treat the PWD compared to those from Arizona.

Additionally, the healthcare systems were different between the USA and France. The latter has a publicly funded healthcare system, and all patients are covered by the national healthcare system (Pegon-Machat et al., 2016). There is also a financial incentive to dentists treating patients with disability, and dentists in France have a legal duty of care to all patients (Camiat et al., 2023). In comparison, the dental healthcare system in the USA

has both private and public programs; the majority of dental care is provided in private clinics through dental insurance (Fellows et al., 2022). Medicaid, Children's Health Insurance Program (CHIP), and the Affordable Care Act (ACA) have increased dental coverage for many, but some underserved populations, including those with special needs, still have limited access to oral care in the USA (Fellows et al., 2022).

These legal and cultural differences between the healthcare systems in both countries may also have impacted the students' intention to treat PWDs. For instance, students from Arizona expressed a higher concern about the length of time it would require to provide care for the patient in this scenario compared to students from France. Whereas a higher proportion of the French students felt they were both under social pressure and legally expected to treat this patient, compared to the students from Arizona.

It has been established that when dental students undergo didactic and clinical courses to develop the necessary knowledge and skills to provide quality dental care to patients with special needs, it improves their ability to do so upon graduation (López, Bovaird I, et al., 2023). The intention of dental students to treat people with special needs after exposure to these courses had been difficult to assess before the development of a validated questionnaire by Faulks et al. (2017).

In this study, the students were enrolled in both didactic and clinical courses, which exposed them to persons with various special needs. The students had didactic curricula which included the specific challenges PWDs may face and how to adapt dental treatment

to meet their unique requirements. This exposure should help develop empathy, understanding, and sensitivity towards people with special needs (Holzinger, 2020). Clinically, through supervised interactions, students learned effective communication strategies, behavioral management techniques, and how to create a supportive environment for PWDs. The hands-on experience was important given the experiential learning associated with Special Care Dentistry. Although the students in France varied in the extent of clinical exposure, a recent study highlighted the benefit of both practical and theoretical education in the undergraduate curriculum in the management of PWDs. Students reported having higher levels of confidence in providing treatment for this group of patients (O'Rourke et al., 2023). Exposure to dental didactic and clinical courses encouraged more positive attitudes of dental students to treat PWDs throughout their careers.

Recognizing and addressing the barriers faced by individuals with special needs in accessing dental care is crucial for promoting equitable oral health. PWDs face unique challenges and barriers that hinder their ability to receive adequate dental care, one of which is access to dental practitioners trained in Special Care Dentistry. Practitioners without undergraduate training lack the confidence to treat this population (Waldman & Perlman, 2002). The theory of planned behavior aims to explain behaviors where individuals can exercise self-control, for instance in professional conduct. It posits that these behavioral intentions are shaped by one's attitude toward the likelihood of achieving the expected outcome and by the subjective evaluation of the associated risks and benefits (Faulks et al., 2017).

Strengths and Limitations

This is the first study to use this iADH toolbox to compare two universities from different geographical locations with different cultural and healthcare practices. A limitation is that no data were available to compare the participants before and after their exposure to these curricula. Additionally, our study acknowledges that self-reported intentions may not always align with corresponding outcome behaviors. We recommend longitudinal studies for future research to compare the participants from different universities and locations.

CONCLUSIONS:

Dental students responded positively that they would provide care for a patient with special needs in the scenario presented. However, the differences between universities were highlighted in the students' behavior outcome evaluation, subjective norms, and motivation to comply. The legal and societal differences between the countries' healthcare obligations and the time taken to treat a patient with special needs may have accounted for the disparities in these results.

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References:

Ajzen I: *The Theory of Planned Behaviour*. Organ Behav Hum Decis Process 1991; 50: 179-211.

Camiat J, Bailly J, Moussa-Badran S. *Special care in dentistry in France: Issues, current situation, outlook*. Santé Publique, 2023; 35(HS1), 57-75. DOI: 10.3917/spub.hs1.2023.0057.

Commission on Dental Accreditation. *Accreditation Standards for Dental Education Programs*. Available at: https://coda.ada.org/en/accreditation [Accessed 10 March 2024].

Devinsky O, Boyce D, Robbins M, Pressler M. *Dental health in persons with disability.* Epilepsy Behav 2020; 110,107174. DOI: 10.1016/j.yebeh.2020.107174.

Dougall A, Thompson S A, Faulks D, Ting G, Nunn J H. *Guidance for the core content of a Curriculum in Special Care Dentistry at the undergraduate level.* Eur J Dent Educ 2014; 18:39-43. DOI: 10.1111/eje.12054. Epub 2013 Apr 22.

Faulks D, Freedman L, Thompson S, Sagheri D, Dougall A. *The Value of Education in Special Care Dentistry as A Means of Reducing Inequalities in Oral Health.* Eur J Dent Educ 2012; 16: 195–201.

Faulks D, Dougall A, Ting G, Ari T, Nunn J, Friedman C, et al. *Development of a battery of tests to measure attitudes and intended behaviours of dental students towards people with disability or those in marginalised groups*. Eur J Dent Educ 2017; 22(2). DOI: 10.1111/eje.12292.

Fellows JL, Atchison KA, Chaffin J, Chávez EM, Tinanoff N. *Oral Health in America: Implications for dental practice*. J Am Dent Assoc 2022; 153(7):601-609. DOI: 10.1016/j.adaj.2022.04.002. Epub 2022 May 25.

Francis J, Johnston M, Eccles M, Walker A, Grimshaw JM, Foy R, et al. *Constructing questionnaires based on the theory of planned behaviour: A manual for Health Services Researchers*. Quality of life and management of living resources; Centre for Health Services Research. 2004. Available at: https://openaccess.city.ac.uk/id/eprint/1735/ [Accessed: 4 February 2024].

Fuad N A, John J, Koh W T, Mani S A, Lim W-L S, Wong C S, et al. *Special care dentistry curriculum at the undergraduate level: students' perspective*. J Dent Indones 2015; 22(3): 75–79.

Holzinger A, Lettner S, Franz A. *Attitudes of dental students towards patients with special healthcare needs: Can they be improved?* Eur J Dent Educ 2020; 24(2):243-251. DOI: 10.1111/eje.12490.

Lam W Y, Gunukula S K, McGuigan D, Isaiah N, Symons A B, Akl E A. *Validated instruments used to measure attitudes of healthcare students and professionals towards patients with physical disability: a systematic review*. J Neuro Engineering Rehabil 2010; 7, 55. DOI:10.1186/1743-0003-7-55.

López R M, Bovaird I, Olmo González B, Abu-Eid R. *Dental student readiness to treat special care patients upon graduation*. Spec Care Dentist 2023; DOI: 10.1111/scd.12866.

Luzzi, L., Spencer, A.J. *Factors influencing the use of public dental services: An application of the Theory of Planned Behaviour*. BMC Health Serv Res 2008;8, 93. DOI:10.1186/1472-6963-8-93.

Mac Giolla P C, Nunn J H, Tornsey O, Timms M. *Does Special Care Dentistry undergraduate teaching improve dental student attitudes towards people with disabilities?* Eur J Dent Educ 2015 May;19(2):107-112. doi: 10.1111/eje.12110. Epub 2014 Jul 15.

McQuistan, MR, Kuthy RA, Heller KE, Qian F, Riniker KJ. *Dentists' comfort in treating underserved populations after participating in community-based clinical experiences as a student.* J Dent Educ 2008; 72(4): 422–430.

Mohebbi SZ, Chinipardaz Z, Batebi A. *Effectiveness of training senior dental students on oral health care for disabled patients.* Eur J Dent Educ 2014; 18(4): 214–221.DOI: 10.1111/eje.12090.

O'Rourke S, Dougall A, O'Sullivan M. *Does education in special care dentistry increase people's confidence to manage the care of a more diverse population?* Spec Care Dentist 2023; 43(6), 743–750. DOI:10.1111/scd.12926.

Pegon-Machat E, Faulks D, Eaton K, Widström E, Hugues P, Tubert-Jeannin S. *The healthcare system and the provision of oral healthcare in EU Member States: France*. Br Dent J. 2016; 220(4): 197–203. DOI: 10.1038/sj.bdj.2016.138.

Scambler S, Curtis S A. *Contextualising disability and dentistry: challenging perceptions and removing barriers.* Br Dent J 2019; 227(1):55–57.DOI: 10.1038/s41415-019-0463-8.

Sherman C M, Anderson R D. *Special needs education in Canadian dental school curriculum: is there enough?* J Can Dent Assoc 2010;76: a11.

Suhasini K, Rajashekhar R, Reddy J S, Hemachandrika I, Tarasingh P, Shaik H. *Awareness and Attitude of General and Specialist Dentists in Providing Oral Health-related Quality of Life for Children with Special Healthcare Needs.* Int J Clin Pediatr Dent 2021; 14(5):601-603. DOI: 10.5005/jp-journals-10005-1968.

Waldman HB, Perlman SP. *Preparing to meet the dental needs of individuals with disabilities*. J Dent Educ 2002; 66:82-85.

Table 1 Responses to the question 'If I were to provide care for this patient it would' with a mean comparison (Mann-Whitney U Test) of both dental universities in Arizona (n=77) and France (n = 62).

Item Summary n= 139 (Valid %)									
The following outcomes would (be)	**−3 Extremely Un-important**	**−2**	**−1**	**0**	**1**	**2**	**3 Extremely important**	**Mean (SD) for each site**	**Mean (SD) [p-value] All data**
1 Take too long									
Arizona n=77	3 (3.9)	1 (1.3)	0 (0.0)	16 (20.8)	0 (0.0)	18 (23.4)	39 (50.6)	1.84 (1.60)	1.45 (1.67) **[0.000]** *
France n=62	3 (4.8)	3 (4.8)	4 (6.5)	11 (17.7)	16 (25. 8)	13 (21.0)	12 (19.4)	0.95 (1.63)	
2 Make the patient anxious									
Arizona n=77	0 (0.0)	1 (1.3)	0 (0.0)	7(9.1)	0 (0.0)	16 (20.8)	53 (68.8)	2.03 (1.50)	2.27 (1.25) **[0.025] ***
France n=62	2 (3.2)	2 (3.2)	0 (0.0)	3 (4.8)	5 (8.1)	19 (30.6)	31 (50.0)	2.45 (1.03)	
3 Not quality care									
Arizona n=77	0 (0.0)	1 (1.3)	0 (0.0)	6 (7.8)	0 (0.0)	11 (14.3)	59 (76.6)	2.56 (0.99)	2.48 (1.06) [0.127]
France n=61	1 (1.6)	0 (0.0)	1 (1.6)	2 (3.3)	4 (6.6)	14 (23.0)	39 (63.9)	2.38 (1.13)	
4 Disrupt practice organization									
Arizona n=77	3 (3.9)	6 (7.8)	0 (0.0)	13 (16.9)	0 (0.0)	19 (24.7)	36 (46.8)	1.62 (1.81)	1.55 (1.61) [0.100]
France n=62	1 (1.6)	1 (1.6)	1 (1.6)	11 (17.7)	16 (25. 8)	15 (24.2)	17 (27.4)	1.47 (1.34)	
5 No effective communication									
Arizona n=77	0 (0.0)	1 (1.3)	0 (0.0)	7 (9.1)	0 (0.0)	17 (22.1)	52 (67.5)	2.44 (1.03)	2.31 (1.15) [0.099]
France n=62	1 (1.6)	0 (0.0)	2 (3.2)	4 (6.5)	6 (9.7)	15 (24.2)	34 (54.8)	2.15 (1.27)	
6 Make me anxious									
Arizona n=77	3 (3.9)	4 (5.2)	0 (0.0)	13 (16.9)	0 (0.0)	19 (24.7)	38 (49.4)	1.75 (1.72)	1.87 (1.58) [0.646]
France n=62	2 (3.2)	0 (0.0)	1 (1.6)	5 (8.1)	7 (11. 3)	16 (25.8)	31 (50.0)	2.02 (1.34)	
7 Not safe for me and the team									
Arizona n=77	0 (0.0)	1 (1.3)	0 (0.0)	8 (10.4)	0 (0.0)	16 (20.8)	52 (67.5)	2.42 (1.07)	2.39 (1.16) [0.971]
France n=62	2 (3.2)	0 (0.0)	0 (0.0)	3 (4.8)	4 (6.5)	11 (17.7)	42 (67.7)	2.35 (1.28)	

* **p < 0.05**

Table 2 Responses to subjective norms with a mean comparison (Mann-Whitney U Test) of both dental universities in Arizona (n=77) and France (n = 62).

Item Summary n= 139 (Valid %)									
Subjective norms	**−3 Strongly disagree**	**−2**	**−1**	**0**	**1**	**2**	**3 Strongly agree**	**Mean (SD) for each site**	**Mean (SD) [p-value] All data**
1 People important to me expect me to treat									
Arizona n=77	2 (2.6)	3 (3.9)	10 (13.0)	19 (24.7)	7 (9.1)	15 (19.5)	21 (27.3)	1.01 (1.69)	1.01 (1.66) [0.978]
France n=62	2 (3.2)	4 (6.5)	3 (4.8)	14 (22.6)	11 (17.7)	15 (24.2)	13 (21.0)	1.02 (1.63)	
2 Legally expected to treat									
Arizona n=77	5 (6.5)	6 (7.8)	10 (13.0)	16 (20.8)	2 (2.6)	13 (16.9)	25 (32.5)	0.86 (1.99)	1.16 (1.90) **[0.040] ***
France n=62	3 (4.8)	2 (3.2)	2 (3.2)	9 (14.5)	9 (14.5)	10 (16.1)	27 (43.5)	1.53 (1.73)	
3 Other dentists expect me to treat									
Arizona n=77	6 (7.8)	8 (10.4)	11 (14.3)	24 (31.2)	9 (11.7)	8 (10.4)	11 (14.3)	0.17 (1.76)	0.35 (1.79) [0.145]
France n=61	4 (6.5)	6 (9.7)	7 (11.3)	11 (17.7)	12 (19.4)	11 (17.7)	11 (17.7)	0.58 (1.82)	
4 Colleagues and team expect me to									
Arizona n=77	5 (6.5)	5 (6.5)	9 (11.7)	17 (22.1)	9 (11.7)	13 (16.9)	19 (24.7)	0.75 (1.86)	0.64 (1.74) [0.335]
France n=62	3 (4.8)	4 (6.5)	5 (8.1)	22 (35.5)	11 (17.7)	9 (14.5)	8 (12.9)	0.50 (1.58)	
5 Social pressure to treat									
Arizona n=77	18 (23.4)	10 (13.0)	15 (19.5)	22 (28.6)	3 (3.9)	6 (7.8)	3 (3.9)	-0.84 (1.69)	-0.32 (1.83) **[0.000] ***
France n=62	6 (9.7)	6 (9.7)	5 (8.1)	16 (25.8)	8 (12.9)	15 (24.2)	6 (9.7)	0.34 (1.80)	
6 Other patients expect me to treat									
Arizona n=77	8 (10.4)	6 (7.8)	13 (16.9)	25 (32.5)	6 (7.8)	8 (10.4)	11 (14.3)	0.08 (1.80)	0.10 (1.74) [0.685]
France n=62	4 (6.5)	9 (14.5)	5 (8.1)	20 (32.3)	13 (21.0)	3 (4.8)	8 (12.9)	0.13 (1.68)	
7 The patient expects me to treat									
Arizona n=77	2 (2.6)	3 (3.9)	11 (14.3)	21 (27.3)	3 (3.9)	11 (14.3)	26 (33.8)	1.04 (1.77)	1.35 (1.72) **[0.020] ***
France n=62	3 (4.8)	1 (1.6)	2 (3.2)	3 (4.8)	12 (19.4)	15 (24.2)	26 (41.9)	1.73 (1.59)	

* **p < 0.05**

Table 3 Responses to control beliefs with a mean comparison (Mann-Whitney U Test) of both dental universities in Arizona (n= 77) and France (n= 62).

Item Summary n= 139 (Valid %)									
Control beliefs	**−3 Strongly disagree**	**−2**	**−1**	**0**	**1**	**2**	**3 Strongly agree**	**Mean (SD) for each site**	**Mean (SD) [p-value] All data**
1 Be easy to treat									
Arizona n=77	1 (1.3)	6 (7.8)	18 (23.4)	22 (28.6)	17 (22.1)	13 (16.9)	0 (0.0)	0.13 (1.25)	-0.14 (1.38) **[0.004] ***
France n=62	4 (6.5)	10 (16.1)	20 (32.3)	16 (25.8)	5 (8.1)	4 (6.5)	3 (4.8)	-0.48 (1.46)	
2 Not confident to treat									
Arizona n=77	1 (1.3)	3 (3.9)	23 (29.9)	16 (20.8)	13 (16.9)	21 (27.3)	0 (0.0)	0.30 (1.33)	-0.12 (1.48) [**0.000] ***
France n=62	6 (9.7)	14 (22.6)	15 (24.2)	12 (19.4)	12 (19.4)	0 (0.0)	3 (4.8)	-0.65 (1.51)	
3 Decision not mine									
Arizona n=77	3 (3.9)	8 (10.4)	26 (33.8)	21 (27.3)	6 (7.8)	13 (16.9)	0 (0.0)	0.17 (1.76)	0.35 (1.79) [0.145]
France n=61	5 (8.1)	4 (6.5)	9 (14.5)	10 (16.1)	9 (14.5)	6 (9.7)	19 (30.6)	0.58 (1.82)	
4 Factors beyond my control									
Arizona n=77	6 (7.8)	10 (13.0)	21 (27.3)	19 (24.7)	12 (15.6)	9 (11.7)	0 (0.0)	0.75 (1.86)	0.64 (1.74) [0.335]
France n=62	6 (9.7)	11 (17.7)	15 (24.2)	18 (29.0)	3 (4.8)	4 (6.5)	5 (8.1)	0.50 (1.58)	
5 Insufficient experience									
Arizona n=77	1 (1.3)	3 (3.9)	23 (29.9)	18 (23.4)	19 (24.7)	13 (16.9)	0 (0.0)	-0.84 (1.69)	-0.32 (1.83) **[0.000] ***
France n=62	22 (35.5)	14 (22.6)	11 (17.7)	9 (14.5)	4 (6.5)	1 (1.6)	1 (1.6)	0.34 (1.80)	

*** p < 0.05**