Australian dental practitioners' experience and confidence in providing oral health care for people with cerebral palsy and other disabilities.

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ABSTRACT

Objective

To investigate dental practitioners' experience and confidence in providing oral health care for people with cerebral palsy (CP) and other disabilities in Australia.

Methods

A cross-sectional online survey exploring dental care for people with CP and other disabilities was distributed to registered dental practitioners. Snowball sampling was used to recruit participants via professional associations and social media. Data was collected between December 2023 and August 2024. Descriptive statistics were used to summarize the findings.

Results

Fifty-six surveys were completed by oral health therapists (48%), dentists (25%), dental hygienists (13%), dental therapists (9%), and specialists in special needs dentistry (5%). Most were female (88%) and based in major cities (62%). Clinical experience varied from ≤10 years (30%), 11 to 20 years (29%) and >20 years (39%). More than half the dental practitioners (57%) had received disability-related training. For most practitioners (64%) people with disabilities made up less than 10% of their patient population. Participants reported moderate confidence and experience working with people with disabilities more generally but were less confident and experienced providing services for people with CP. Commonly reported challenges in working with people with CP and people with other disabilities included perceived difficulties with cooperation (52%), accessibility (57%) and behavioural concerns (70%). Most but not all dental practitioners were aware of appropriate referral pathways (80%). Most dental practitioners were interested in further education, particularly CP-specific training, (91%), online modules (87%) and formal accreditation (59%).

Conclusion

Improving oral health for people with CP and other disabilities requires a trained and experienced workforce and accessible services. Building clinical skills, expanding education and improving accessibility are key to supportive effective care. Investment in post graduate education in disability-inclusive practice for oral health practitioners, clearer referral pathways and inclusive infrastructure may build a more confident and responsive dental workforce.

Keywords

Cerebral palsy, disability, dental practitioner, experience, confidence, attitudes

Introduction

Cerebral palsy (CP) refers to a group of lifelong movement disorders resulting from non-progressive damage to the developing brain (Rosenbaum et al. 2007). In addition to motor impairments, people with CP may also experience a range of associated conditions, including speech, intellectual and hearing impairments, epilepsy and sensory or communication challenges (Hollung et al. 2020; Brown et al. 2011). In high-income countries such as Australia, CP occurs in approximately 1.5 out of every 1,000 live births (Australian Cerebral Palsy Register 2025).

Evidence suggests that people with CP experience a greater risk for oral health diseases and conditions compared to the general population, including dental caries, periodontal disease, malocclusion, epilepsy related medication concerns and dental trauma, (Lansdown et al., 2022) requiring ongoing dental care across the lifespan. Given this elevated oral health need, the preparedness of dental practitioners to provide appropriate care is critical.

Existing international literature indicates that dental practitioners often report limited education and clinical exposure to treating people with disabilities (Casamassimo et al. 2004, Abraham et al. 2019; O'Rourke et al. 2023). An Australian study found that dental students frequently lack 'hands on' experience with people with disability and expressed a desire for more focused education in this area (Borromeo et al. 2017).

Although the Australian Dental Council (2022) identifies people with disability as a priority population, this recognition is broad and lacks guidance. The competencies do not detail how practitioners should demonstrate care for people with disabilities, instead disability is grouped with other priority populations, relying on the individual to remember and apply this focus. This risks
disability-specific needs being overlooked in practice.

At present, it remains unclear whether dental practitioners in Australia feel sufficiently experienced and confident to deliver appropriate dental care to people with CP (Pani et al., 2023). Therefore, this study aimed to investigate dental practitioners' experiences of and attitudes towards and confidence in providing oral health care for people with CP and other disabilities in Australia.

Methodology

This study utilised a cross-sectional survey design to explore dental practitioners' experiences and confidence in providing dental care to people with CP and other disabilities. Ethical approval was obtained from The University of Sydney Human Research Ethics Committee [2023/HE000622]. Purposive snowball sampling was used to reach across practitioners across networks.

Participants

Eligible participants were Australian registered dental practitioners, including dental hygienists, dental prosthetists, dental therapists, dual qualified dental hygienist/therapists, oral health therapists, dentists, and dental specialists. Individuals who were not registered dental practitioners and students were ineligible to participate. Recruitment occurred via targeted email invitations and advertisements through professional associations including the Dental Hygienists Association of Australia (DHAA), Australian Dental and Oral Health Therapists' Association Inc. (ADOHTA) the Australian Dental Association (ADA), and the Australasian Council of Dental Schools (ACODS) and associated social media channels, with follow up posts to encourage participation. Data collection occurred between December 2023 and August 2024. Participation was voluntary, and to minimise duplication, surveys that were incomplete or duplicated (identified through demographic data including postcodes and years of practice) were excluded from analysis.

Data Collection

Informed consent and survey responses were anonymously collected and managed using REDCap (Research Electronic Data Capture), (Harris et al. 2019; Harris et al. 2009) a secure web-based data capture platform hosted at The University of Sydney.

96

97 Demographic and Practitioner Background Information

98 The survey instrument comprised of 22 items divided into three sections. The first
99 section included demographic and practitioner background information, including
100 registration categories. All categories were listed separately, except for dual qualified
101 dental therapists/hygienists who were grouped under oral health therapist. Years of
102 clinical experience was collapsed into three categories less than ten years, 11-20 years
103 and greater than 21 years, and previous education or training related to disability care.
104 In the second section, participants were provided definitions of CP and disability to
105 calibrate understanding and ensure consistency in how these terms were interpreted
106 throughout the study. Participants were asked to self-rate their clinical experience,
107 confidence and current practices in providing dental care for people with CP and other
108 disabilities. Drawing on established measures, the third and final section examined
109 attitudes and perceptions across key domains, including ethical commitment, social
110 responsibility, workload, resources and attitudes toward disability-inclusive care (Derbi
111 & Borromeo 2016; Faulks et al. 2017). Additional questions were included to assess
112 participants perceived needs for future education and training in this area.

113

114 *Statistical analyses*

115 Data were analysed using IBM SPSS Version 29 Statistics (IBM Corp 2023). Descriptive
116 statistics including frequencies and percentages were used to summarise participant
117 characteristics and survey responses for all variables.

118

119 **Results**

120 Sixty-one surveys were submitted by registered dental practitioners. After excluding five
121 surveys due to incompleteness or duplication, 56 surveys were included in the final
122 analysis. Surveys with partial missing responses were retained, and analyses were
123 based on available data for each question; no imputation was performed.
124 Most participants identified as female (88%). Oral health therapists represented the
125 largest practitioner group (48%), followed by dentists (25%) with a small proportion of
126 participants identifying as specialists in special needs dentistry (5%) (Table 1). No

responses were received from dental prosthetists or from specialty areas other than special needs dentists.

Participants had a wide range of clinical experience, with similar proportions indicating ≤ 10 years (30%), 11- 20 years (29%) and >20 years (39%). Most participants were based in Major Cities of Australia (62%), Inner Regional areas (20%), Outer Regional areas (14%), and Remote Australia (4%). Just over half (57%) reported having received some form of disability-related training. Most participants (64%) indicated that people with disabilities comprised less than 10% of their patient population (Table 1).

Self-reported confidence in treating people with disabilities varied. While 50% felt confident or very confident in treating people with disabilities overall, confidence declined when specifically asked about people with CP (29%) (Figure 1). Similarly, whilst (37%) of participants rated themselves as experienced or very experienced in treating people with disabilities in general, fewer participants (16%) described themselves as experienced in managing dental care for people with CP (Figure 2). Nearly a quarter of participants (23%) reported their dental practice lacked accessible facilities.

One in five participants (21%) reported they were unaware of the referral pathways for patients requiring specialists in special needs dentistry. A majority (62%) indicated they would refer people with disability to a specialist in special needs dentistry if they were unsure how to proceed, with referral reasons including difficulty with patient cooperation (52%), lack of accessibility (57%) and behavioural concerns (70%). Referral for patients with intellectual impairment was common among most professional groups in this study, with 40% to 52% of dentists, oral health therapists and dental therapists indicating they would refer. However, this was higher among dental hygienists (86%). Additional reasons for referral (14%) included limitations in scope of practice, concerns regarding patient safety and consent, communication challenges, and the complexity or severity of an individual’s condition (Figure 3).

158 There was strong agreement among participants regarding the ethical and professional
159 obligations of providing care to people with disabilities. Most dental practitioners
160 agreed that access to oral health care is a societal right (96%) and that delivering care
161 to people with disabilities is a professional and ethical responsibility (98%). A high
162 proportion acknowledged potential challenges in obtaining medical histories from
163 people with disabilities (86%). However, few agreed with statements suggesting that
164 providing care to people with disabilities are excessively time-consuming (21%) or
165 resource intense (7%). The majority (82%) disagreed with the notion that only dental
166 specialists should provide care for people with disabilities. Additionally, nearly 90%
167 supported the need for further training to better prepare the dental workforce.
168 Perspectives on the most appropriate terminology for oral health services for people
169 with disability varied. Just under half of participants (43%) agreed that terms such as
170 'special care' or 'special needs dentistry' may be outdated or not inclusive, while 41%
171 were neutral and a small proportion 16% disagreed (Figure 4).
172
173 Interest in further education and professional development was high. Most participants
174 (86%) indicated they would be interested in undertaking continuing professional
175 development (CPD) related to the treatment of people with disabilities, with even
176 greater interest (91%) expressed specifically on CP. There was strong interest in
177 accessing e-learning modules focussed on providing care to people with disability
178 (87%) and CP (82%). Over half of the dental practitioners (59%) supported the idea of a
179 formal recognition program for people with CP and other disabilities, (29%) were
180 unsure, and (12%) were not interested (Table 2).
181

182 **Discussion**

183 This study explored the experience and confidence of Australian dental practitioners
184 providing oral health care for people with CP and other disabilities. Previous studies
185 have shown that more clinical experience equates to greater confidence in treating
186 people with disabilities (O'Rourke et al. 2023; Lim et al. 2021a; Nanji et al. 2024). Our
187 findings were similar with participating dental practitioners more frequently reporting
188 confidence working with people with disabilities compared to people with CP – a group

189 they had less clinical experience with. Recent studies have shown that dental students
190 who received disability specific education during their undergraduate training were
191 more likely to provide care for people with disabilities after graduation (Mandasari et al.
192 2021; O'Rourke et al. 2023). To prepare students for clinical practice, dental education
193 in disability care should include hands-on training supported by structured supervision,
194 clear guidelines, and collaboration with people with disabilities and their caregivers
195 (Nanji et al. 2024; Espinoza 2022; O'Rourke et al. 2023). Virtual and augmented reality
196 and ongoing professional development may help address educational gaps and
197 support a more inclusive dental workforce (Moussa et al. 2021).
198
199 While nearly all dental practitioners expressed a willingness to attend CPD focused on
200 disability and CP, dentists in this study dentists were less inclined, with participation
201 levels around half that of other practitioner groups. This may reflect differing priorities,
202 perceived relevance, or existing confidence levels (O'Rourke et al. 2023, Nanji et al
203 2024). While CPD is well used and valued, the potential to support inclusive care
204 deserves greater attention (Casamassimo et al. 2004; O'Rourke et al. 2023). Formal
205 recognition programmes focused on disability education could further strengthen
206 practitioner confidence and accountability, making accessibility options more visible
207 and available for people with CP and other disabilities (O'Rourke et al. 2023).
208
209 According to the Australian Bureau of Statistics (ABS), just over 21% of Australians,
210 approximately 5.5 million people live with a disability, with nearly 16% experiencing
211 physical impairments (ABS 2022). In this study, nearly one in four participants reported
212 that their dental practice was either not fully accessible or they were unsure. While the
213 Disability Discrimination Act 1992 mandates equitable access to public spaces, private
214 and group dental practices may be exempt if the modifications would cause significant
215 financial cost. This is particularly relevant in rented premises, where structural changes
216 are typically the responsibility of the property owner (Australian Human Rights
217 Commission 2025). Consequently, some dental practices may not be legally required
218 to provide disability access (Mannor et al. 2024). Greater access to care for people with
219 CP and other disabilities may depend on property or business owners (including dental
220 practitioners) making a commitment for these spaces to be more inclusive. Supportive

221 measures, funding and practical tools to assess and promote greater accessibility may
222 assist those who are keen to support change (Asiri et al. 2024).
223
224 Most but not all participants were aware of referral pathways for people with disabilities
225 and CP. Some participants in this study referred people with CP and other disabilities to
226 a special need's dental services due to concerns regarding behavioural issues or
227 perceptions that care was beyond their clinical expertise. These findings align with
228 Abraham et al. (2019) and Asiri et al. (2024), who identified low confidence, limited
229 resources and financial barriers as key reasons for referral. While referrals can be
230 clinically appropriate, over reliance may delay dental care and exclude people with CP
231 and other disabilities from general dental practice (Lim et al. 2021a; Asiri et al. 2024).
232 Referral for patients with intellectual impairment was common across all professional
233 groups, (dentists, oral health therapists, dental therapists) (Figure 3). Dental hygienists
234 were more likely to refer, possibly due to differences in education, scope of practice, or
235 clinical experience. While dentists have structured postgraduate pathways in special
236 need dentistry, dental hygienists, and dental and oral health therapists could similarly
237 benefit from postgraduate programs focused on disability care (O'Rourke et al. 2023;
238 Nanji et al. 2024; Lim 2021b). Expanding educational opportunities (particularly in
239 managing complex cases) could help build confidence, enhance clinical capability, and
240 reduce the reliance on specialist referrals (Lim et al. 2020; Derbi & Borromeo, 2016).
241
242 Interestingly, 21% of participants agreed or strongly agreed with statements indicating
243 that providing care for people with disabilities was time-consuming. An Australian study
244 found that obtaining essential information (e.g. medical history) to effectively manage
245 dental care for patients with disabilities can be challenging for dental practitioners,
246 often described as both frustrating and time-consuming (Lim et al. 2021a). These
247 additional time demands may be perceived as a barrier to providing care for people with
248 complex conditions. This may reflect broader systemic issues, such as inflexible
249 appointment lengths and/or remuneration models (Lim et al. 2021a; Lim et al. 2021b).
250 In commission-based practices, longer appointments may reduce earning potential,
251 making it less financially viable to accommodate people with CP and other disabilities
252 (Lim et al 2021a; Lim at al. 2021b).

253
254 Dental practitioners had mixed views on terms such as "special needs" with some
255 seeing these as outdated or non-inclusive, while over half of participants either
256 supported their use or were unsure. Language in this space is evolving. Embedding
257 terms/language in the oral health space that is informed by lived experience will
258 support respectful person-centred care, reflect professional values, guides practice,
259 and improves dental experiences for people with CP and other disabilities (Haley &
260 Doubleday 2025).
261
262 **Strengths and Limitations**

263 In this study, 88% of participants identified as female, higher than the 56% of females'
264 practitioners registered with the Dental Board of Australia (AHPRA & National Boards
265 2025). Additionally, 25% of participants in this study were dentists, compared to nearly
266 75% nationally (AHPRA & National Boards 2025). Oral health therapists were
267 overrepresented in this study (48% vs. ~12%), as were dental hygienists (13% vs. ~7%),
268 and dental therapists (9% vs. 4%). This may reflect the role of oral health practitioners
269 who have a focus on preventive and community-centered care. Additionally, purposive
270 snowball recruitment may have also increased the likelihood of those already engaged
271 in disability care choosing to participate in this research.
272
273 A strength of this study was that participants from rural and remote areas were well
274 represented, exceeding the proportions we would have expected from national
275 population data (AIHW 2024).
276
277 While informative, the small sample size and self-reported data cannot fully reflect
278 national practice. Future studies should include larger sample sizes and seek to
279 include more diversity of participants including greater male representation.
280
281 The emphasis on CP as a distinct population is both a unique contribution and an
282 important step forward, addressing a critical gap in disability and oral health research
283 in Australia.

Conclusion

This study provides insights into opportunities to build capacity for more inclusive dental care for people with CP and other disabilities. While most practitioners are motivated to provide equitable access to care, gaps in clinical experience, education, confidence, and accessibility remain. Investing in education, ongoing professional development and ensuring clear referral pathways are strategies that can support a better prepared and more responsive dental workforce. By strengthening skills, systems and infrastructure we can move closer to achieving equitable dental care for people with CP and other disabilities.

Implications for Policy and Practice

This study highlights several critical areas for improvement in dental care for people with CP and disabilities. These include:

1. Integrate experiential learning into dental curricula through virtual and augmented reality to address the complexities of providing dental care for people with CP and other disabilities.
2. Develop postgraduate programs in disability-inclusive oral health for oral health practitioners to build clinical expertise and inclusive practice.
3. Establish structured CPD programs that support dental practitioners to develop their confidence and increase their capabilities for providing care for people with CP and other disabilities.
4. Improve the awareness, criteria and coordination of referral pathways for specialists in special needs dentistry to ensure timely and appropriate access to care for people with CP and other disabilities.
5. Consider formal recognition programs for disability inclusive dental practices to acknowledge expertise and foster trust within the CP and disability community.

In addition, accreditation standards play a pivotal role in shaping workforce preparedness (Australian Dental Council 2022). Currently, Australian accreditation frameworks for dentists and oral health practitioners do not include explicit competency requirements for disability-inclusive care (Australian Dental Council

2022). Embedding these competencies into the Australian Dental Council's standards could ensure that inclusive practice becomes a core expectation of professional education and lifelong learning. This approach may strengthen workforce capability and support the development of a dental sector that is responsive to the needs of people with CP and other disabilities.

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Authors contributions

Karen Lansdown contributed to the study design, preparation of materials, data collection and analysis. Hayley Smithers-Sheedy, Margaret McGrath and Kim Bulkeley contributed to the study design, preparation of materials, and data analysis. Claudia Zagreanu contributed to data analysis. Michelle Irving contributed to the study design. All authors provided commentary on the manuscript and approved the final version.

Declaration of interest

The authors report no conflict of interest.

Consent

All participants provided their consent to participate in the research.

Data availability statement

All relevant data and material will be made available upon request.

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452 **Table 1. Dental practitioners' demographics and clinical experience working with**
453 **people with cerebral palsy and other disabilities**

Variable	Frequency (n=56)	Percentage
Which of the following best describes your sex?		
Male	7	12
Female	49	88
In which of the following category are you registered?		
Dental Hygienist	7	13
Dental Therapist	5	9
Oral Health Therapist	27	48
Dentist	14	25
Special Needs Dentist	3	5
How many years have you been working as a dental practitioner?		
≤ 10 years	17	30
11 – 20 years	16	29
> 20 years	22	39
Missing	1	2
Remoteness		
Major Cities of Australia	35	62
Inner Regional Australia	11	20
Outer Regional Australia	8	14
Remote Australia	2	4
Have you as part of your initial training or post graduate development received training on working with people with disability?		
Yes	32	57
No	20	36
Unsure	4	7
Approximately what percentage of your patients would you describe as having a physical disability?		
<10%	35	64
10-30%	15	28
31-50%	2	4
>50%	2	4

454

Figure 1. Dental practitioners self-reported confidence treating people with disabilities and people with cerebral palsy specifically

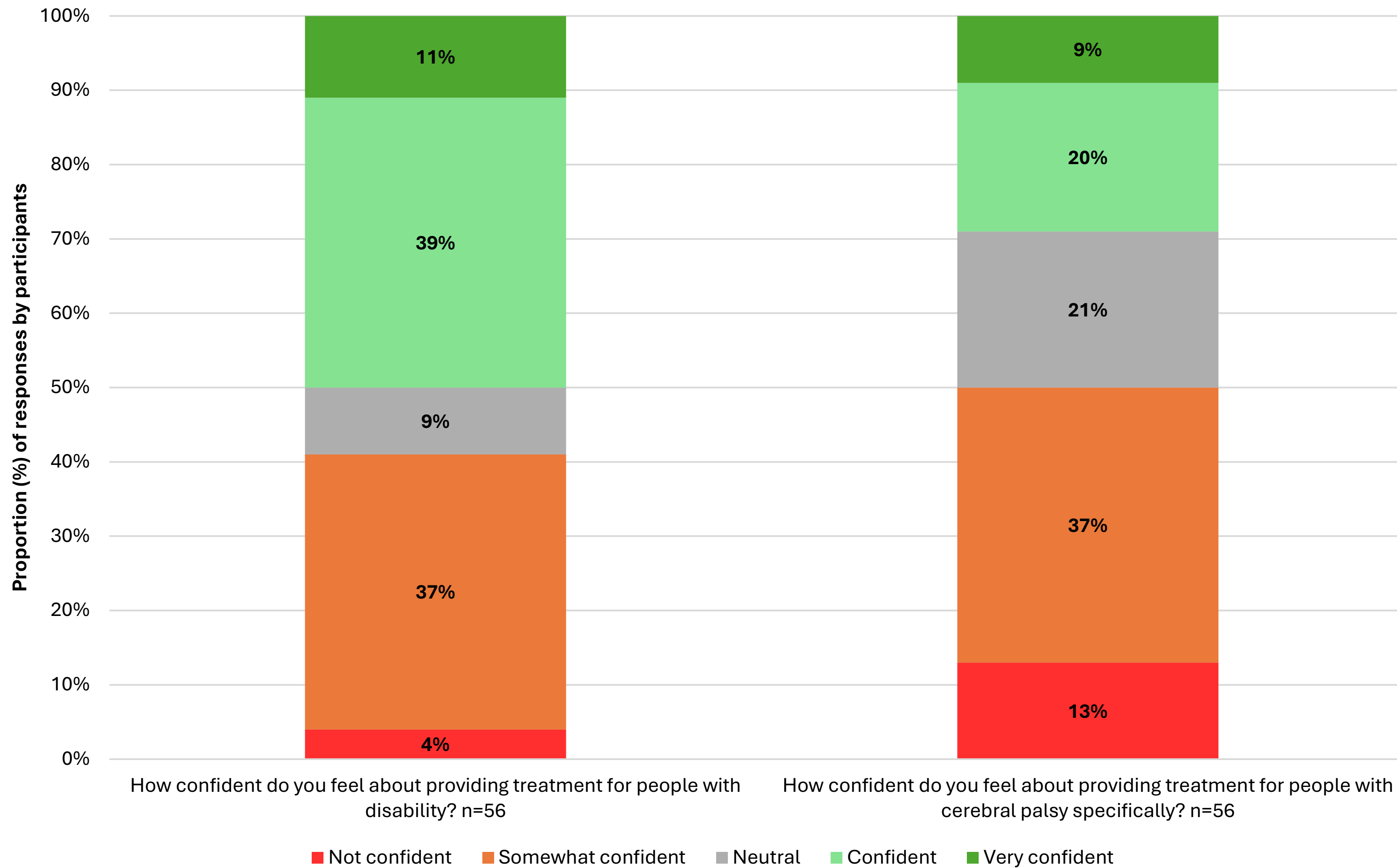

Figure 2. Dental practitioners self-reported experience treating people with disabilities versus cerebral palsy specifically

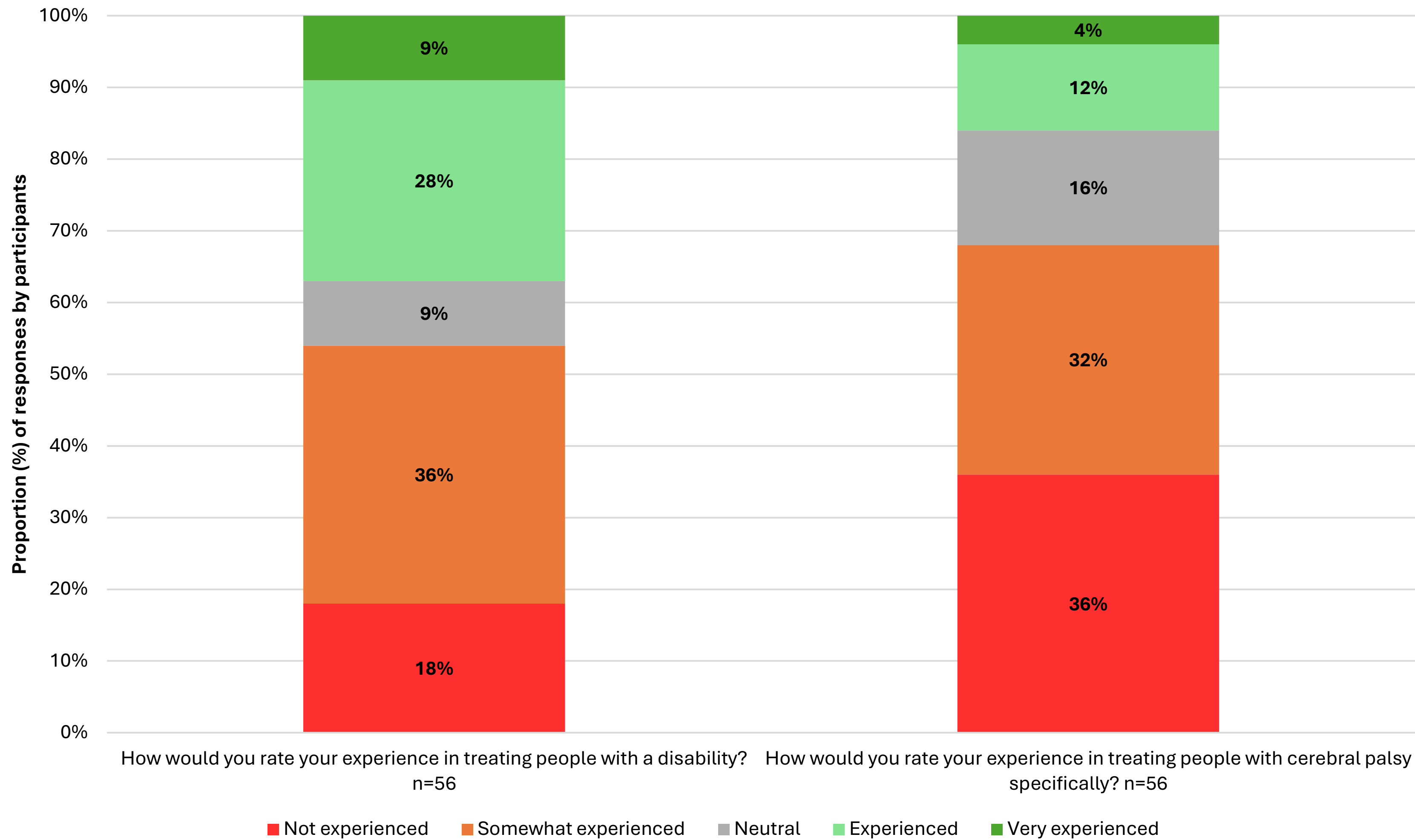

Figure 3. Reasons for referral to a specialist in special needs dentistry

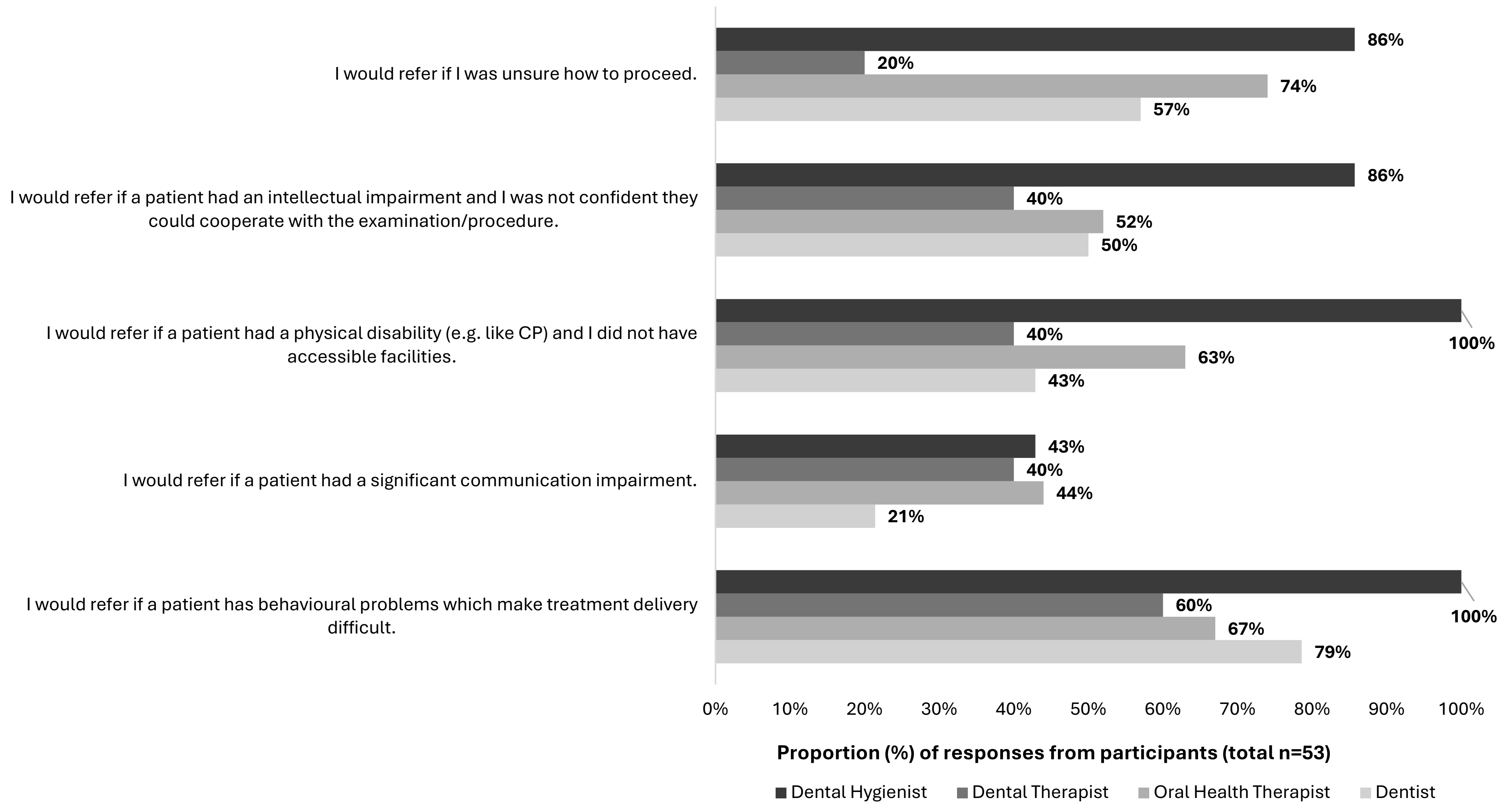

Figure 4. Dental practitioners self-reported attitudes toward providing care for people with disabilities

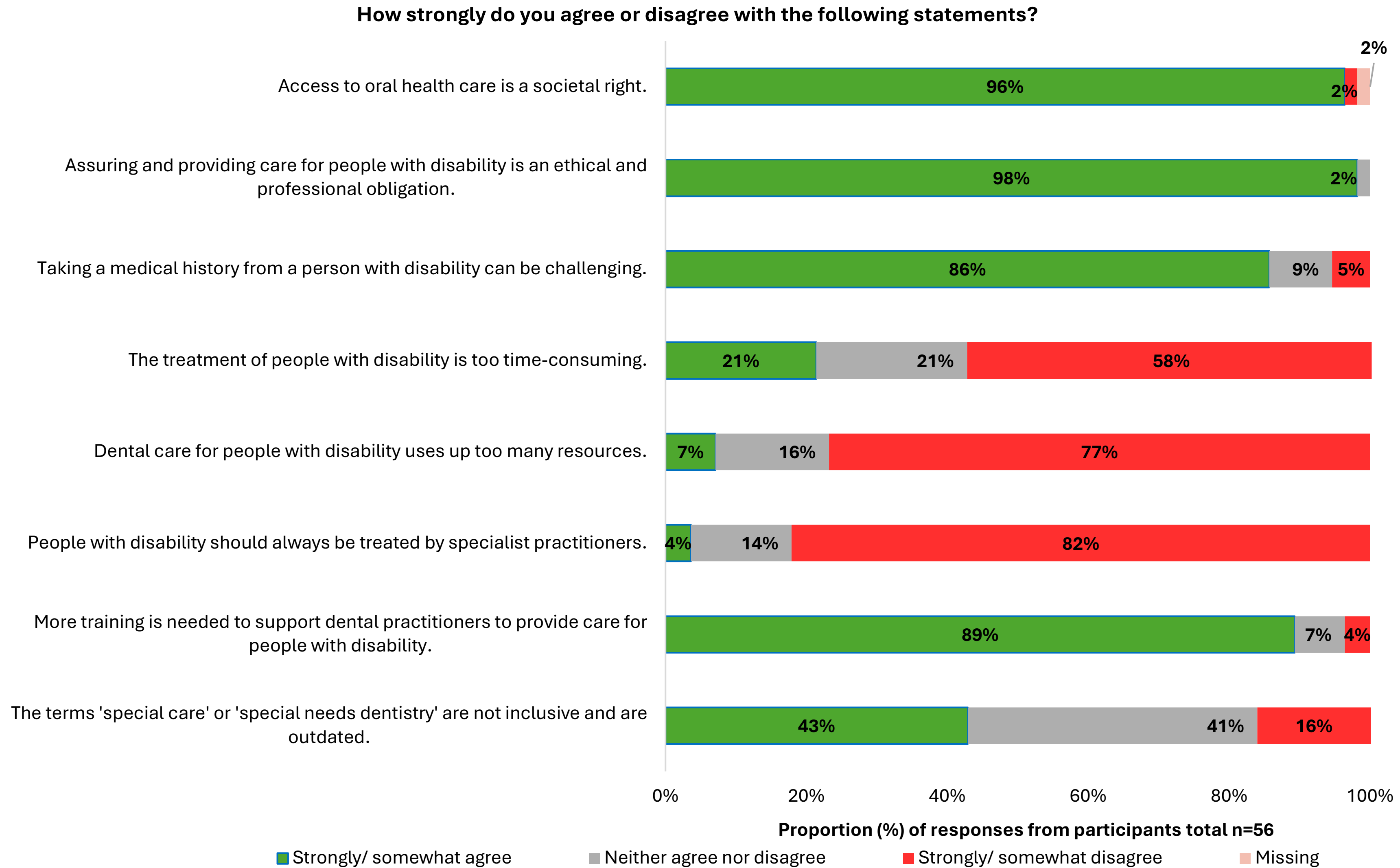

Table 2. Dental practitioners' interest in continuing professional development (CPD) and further education in treating people with cerebral palsy and other disabilities

Variable	Frequency (n=56)	Percentage
Would you attend a CPD event about treating people with a disability?		
Yes	48	86
No	8	14
Would you attend a CPD event about treating people with cerebral palsy?		
Yes	51	91
No	5	9
Would you like to access an e-Learning module about treating people with a disability?		
Yes	49	87
No	6	11
Missing	1	2
Would you like to access an e-Learning module specifically about treating people with cerebral palsy?		
Yes	46	82
No	10	18
If an accreditation scheme were available, would you be interested in being accredited and recognised (e.g., listed on a website) as a dental practitioner who is accredited to provide dental care to people with disabilities?		
Yes	33	59
No	7	12
Unsure	16	29