

Orthodontic treatment of patients with special needs in Switzerland

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Abstract

Individuals with special healthcare needs have increased orthodontic treatment need, but access to care may be insufficient. The aim of this study was to assess the uptake of patients with special needs in orthodontic settings throughout Switzerland. A web-based survey was sent to all specialist orthodontist members of the Swiss Orthodontic Society. From 220 questionnaires sent, 60% were returned (n=131). 84% of participants responded that they treat patients with special needs, but most orthodontists saw only two new patients per year with special needs. Patients most frequently treated were those with Down syndrome, autism spectrum disorder, or intellectual deficiency. Many practitioners use fixed, removable or functional appliances for treatment of these patients, while aligner use was much less prevalent. Interceptive measures were also used. Chairside time was increased on average by 50%, and treatment duration increased by 25% when compared to other patients. Treatment goals for about half of these patients was compromised. Of orthodontists not providing treatment to individuals with special needs, 79% stated they would not be interested in treating these patients, while 56% of orthodontists already providing treatment stated they would not be interested in treating more of these patients. Reasons given included the lack of additional strategies to treat these patients, lack of referrals, problems with cooperation, and time constraints. In conclusion, roughly four in five orthodontists in Switzerland treat patients with special needs, with most of these orthodontists seeing one or two new patients with special needs annually. The majority of practitioners do not wish to increase their intake of patients with special needs.

Introduction

Individuals with special healthcare needs, a heterogeneous term, can refer to those individuals living with diagnoses such as Down syndrome, autism spectrum disorder, cerebral palsy, intellectual deficiency, neuromuscular disorders, and motor or sensory handicaps. A large number of these individuals have been deinstitutionalized and live in communities relying on dentists and orthodontists in the community for needed services (WALDMAN et al. 2000).

Orthodontic treatment need in this population seems to be objectively very high, with data suggesting that up to 74% of individuals with intellectual deficiency (VITTEK et al. 1994), 83% of individuals with Down syndrome (BAUER et al. 2012; ABDUL RAHIM et al. 2014), and close to 100% of individuals with muscular dystrophies (KILIARIDIS et al. 1989; MOREL-VERDEBOUT et al. 2007) have severe malocclusions. A higher incidence of malocclusions, such as Class II, Class III, and openbite, and more severe malocclusions, are seen in the population with special needs compared with the general population (VITTEK et al. 1994; BLANCK-LUBARSCH et al. 2014).

Despite the increased treatment need in this population, a discrepancy may be present with an insufficient uptake of patients with special needs in orthodontic practice. It has been suggested that despite a higher prevalence and severity of malocclusions in this population, these patients are the least likely to receive orthodontic treatment (BECKER et al. 2004).

Orthodontic treatment of individuals with special healthcare needs may require an increased complexity and difficulty of treatment, extended duration of treatment, and limited financial benefit (NOBLE et al. 2012). Special accommodations may be required for proper management of these patients, and communication issues also add complexity (RADA et al. 2015). Some data show that children with special needs need considerably more chairside time, and result in an inferior treatment outcome compared with other patients (BLANCK-LUBARSCH et al. 2014;

TADDEI et al. 2016). For these reasons, orthodontists, especially those working in the private setting, may have the tendency of limiting treatment of this group of patients (NOBLE et al. 2012). This may cause issues with access to care especially for patients and families living in more rural or isolated areas without easy access to a public healthcare setting such as university centres, hospitals, or public clinics.

In a country such as Switzerland, where orthodontic treatment is often privately funded, either through out of pocket expenses or private insurances, it is not known whether children with special needs have access to an orthodontist able and provide appropriate treatment. Some countries have created public specialised treatment centres which provide orthodontic care for individuals with special needs in order facilitate access to orthodontic treatment for these patients and their families. Before being able to address uptake of this patient population, one must firstly collect data on the existing situation. We were interested therefore in undertaking a survey to assess the uptake of patients with special needs in orthodontic settings throughout Switzerland.

Materials and Methods

A specific questionnaire was developed to assess orthodontic treatment of patients with special needs in Switzerland. The questionnaire comprised three sections, namely participant demographics, uptake of patients with special needs, and barriers to care. The questionnaire was created using LimeSurvey version 3.0 (LimeSurvey GmbH, Hamburg, Germany), a web server-based software enabling the development and publishing of online surveys using a web-based interface. All data collected was anonymous.

The first section of the questionnaire on participant demographics asked participants for their sex, age group, how many years they have been in practice since completing their orthodontic training, and what percentage of their time they work clinically with patients (with 10% corresponding to half day a week, 20% to a full day a week, and so on).

The second section of the questionnaire on the uptake of patients with special needs firstly asked participants if they treated patients with special needs. If the answer was yes, then there was a series of seven follow-up questions. For each of these questions, the participant was required to select one answer from a multiple-choice menu, or required to give percentages. Questions were as follows:

- What proportion of your patients do those with special needs make up?
- What kind of patients with special needs do you treat?
- How many new patients with special needs do you start on average every year?
- What type of treatment do you provide for special needs patients?
- How would you define your treatment objectives in patients with special needs?

- How would you evaluate your chairside time needed for performing equivalent procedures in patients with special needs, compared to other patients?
- In cases of ideal comprehensive orthodontic treatment, how long do your treatments last in patients with special needs on average compared to other patients?

The second section of the questionnaire on barriers to care firstly asked participants if they would be interested in treating patients with special needs patients (for those not already treating patients with special needs) or interested in treating more patients with special needs (for those already treating patients with special needs)? They were then asked to give reasons why, select one or many answers from a multiple-choice menu or inserting their own reasons under the 'other' category.

A link was sent by email to all specialist orthodontist members of the Swiss Orthodontic Society, whose information was publicly available on the Swiss Orthodontic Society website (www.swissortho.ch), in April 2020, inviting them to participate and complete the online anonymous questionnaire. An email reminder was sent approximately two weeks following the initial invitation to participate, and a third and final reminder sent in May 2020.

Anonymous data from the collected responses were exported to Microsoft Excel (Excel 2019) and the Statistical Package for Social Sciences version 25.0 for Windows (SPSS Inc., Chicago, IL), and all analyses were carried out using this software. Chi-square tests (for categorical data) or independent sample t-tests or linear regression analysis (for continuous or quasi-continuous data) were used to compare responses to questions on demographics (sex, age group, years in practice, percentage of work) and the responses to the various questions in the other two sections of the questionnaire. Statistical significance was set at the $p < 0.05$ level.

Results

Participant demographics

A total of 231 specialist orthodontist members of the Swiss Orthodontic Society were listed on the website of the association. From these members, 11 did not have valid email addresses available, and thus the questionnaire was successfully sent to 220 members. The final number of responses received was 131, resulting in a response rate of 59.5%, with 53.0% of males and 63.4% of females responding.

Participants were 60% male and 40% female, with most being in the 30-39-year age group and with having been in practice for 10-19 years (Table 1).. More than half of the participants (55%) worked more than 70% of their time clinically with patients, while 29% worked 60-70%, 10% worked 40-50%, and 6% worked less than 40% of their time clinically with patients.

Uptake of patients with special needs

With regard to those treating individuals with special needs, 84% responded that they treat children with special needs while 16% responded that they do not. No statistically significant differences were seen between those treating and those not treating children with special needs with regard to sex, age, years in practice, and percentage work. Amongst those treating individuals with special needs, in about half of the participants this group of patients comprises less than 1% of the total practice load (Figure 1).

The median number of new patients with special needs seen yearly for each of the participants was 2, with an interquartile range from 1 to 4. More than half of the participants (55%) stated that they see 1 or 2 new patients with special needs yearly (Figure 2). When asking the participants

what types of patients with special needs they saw, the most frequent was individuals with Down syndrome (n=77), followed closely by individuals with autism spectrum disorder (n=74) and individuals with intellectual deficiency (n=74) (Figure 3).

A range of different treatments were provided to patients with special needs. Many participants used fixed appliances (n=84) while aligner use (n=16) was much less prevalent (Figure 4).

Interceptive measures were also used, and one participant stated that patients with special needs were not treated with appliances, which probably also implies some form of interceptive or preventive measures but without the use of appliances. Chairside time needed to treat individuals with special needs, for most practitioners, seems to be increased with about 50% more chairside time required (Figure 5). Moreover, in patients where a comprehensive orthodontic treatment is indicated and possible, the duration of this treatment is about 25% longer for patients with special needs than for other patients (Figure 5). When looking at demographic variables in relation to treatment type, chairside time, and treatment duration, the only correlation found was between years of practice and chairside. Questionnaire respondents who had more years in practice had a higher average chairside time for patients with special needs ($R = 0.263$; $p=0.011$).

When treating individuals with special needs, treatment goals for a little less than half of patients (46%) on average are compromised (Figure 6). Treatment goals were not associated with any demographic variables.

Barriers to care

Of orthodontists not providing treatment to individuals with special needs, 79% stated that they would not be interested in treating patients with special needs while 21% said that they would be

interested. Of orthodontists already providing treatment to individuals with special needs, 56% stated that they would not be interested in treating more patients with special needs while 44% said that they would be interested. No demographic variables were associated with the desire to treat or to treat more patients with special needs.

Orthodontists that would not like to treat patients with special needs or would not like to treat more patients with special needs, gave an array of reasons for not wanting to do so. The most common reasons selected were the lack of additional strategies to treat these individuals (such as the lack of conscious sedation possibilities like nitrous oxide), the lack of referrals, problems with cooperation of these patients, time constraints in a busy practice, oral health status, and the lack of sufficient training (Figure 7). Other reasons given that were not included as options were no capacity in a busy practice, unsatisfying outcomes, and that these patients should be treated in a specialized structure. When looking at demographic variables in relation to these reasons, time constraints was found to be a significantly more cited reasons for orthodontists who were in the younger age groups (Pearson chi-square = 11.9; $p=0.008$) and that had less years in practice (Pearson chi-square = 9.3; $p=0.026$).

Orthodontists that would like to treat patients with special needs or would like to treat more patients with special needs, gave an array of reasons for not being able to do so. The most common reason selected was the lack of referrals (Figure 7). When looking at demographic variables in relation to reasons given, the lack of additional strategies to treat individuals with special needs was cited more often by orthodontists that had less years in practice (Pearson chi-square = 11.0; $p=0.012$).

In the final part of the questionnaire where participants were asked to provide any additional comments that they desired to share, some comments were shared, such as:

- More special needs patients may be seen but many left untreated;
- Treatment of patients with special needs is stressful and thus less patients decreases stress;
- Many parents don't ask for perfection in treatment outcomes but for functional rehabilitation;
- Sometimes patients are unaware of malocclusions and better off without treatment;
- It is important to find the correct balance between treatment need and parents' wishes which may not always concur, and this is especially true in cases where orthognathic surgery is deemed to be the ideal treatment;
- Patients with special needs are a very heterogeneous group and thus combining all of these patients into one survey may make no sense;
- One participant would not mind treating patients with special needs but would not want to get a name for treating these patients so as to avoid referrals of this type of patient;
- Treatments of individuals with special needs is challenging, but a welcome challenge;
- One participant stated that they treat every patient that comes to their practice regardless of if they are a patient with special needs or not;
- One participant said that they prefer to sufficiently train their team prior to treating patients with special needs;
- Patients with special needs is a term that can encompass many different types of patients, with enormous variation, and it is best to focus on the individual patient, and not the presence or absence of special needs as such.

Discussion

Among specialist orthodontists in Switzerland responding to a survey on the orthodontic treatment of patients with special needs, eighty-four percent treat individuals with special needs. This includes mostly patients with Down syndrome, autism spectrum disorder, or intellectual deficiency. The median number of new patients with special needs per year however per orthodontist is two. Moreover, the majority of orthodontists would not be interested in treating more patients with special needs. No demographic variables were associated with the uptake of patients with special needs in the present sample.

The reasons given by orthodontists stating why they would not like to treat patients with special needs or would not like to treat more patients with special needs were numerous. The most common reasons selected were the lack of additional strategies to treat these individuals, lack of referrals, problems with cooperation, time constraints in a busy practice, oral health status, and lack of sufficient training. Time constraints was a more commonly cited reason for younger orthodontists who had been in practice for a shorter period of time.

In comparison, a North American survey found that a little more than half of orthodontic postgraduate students seem to show the desire to treat patients with special needs, but barriers such as limited experience and inadequate expertise, financial considerations, or the duration of treatment (NOBLE et al. 2012) may result in them not treating this patient population when they go into private practice. This finding is reinforced by the results of another North American survey which established that orthodontic postgraduate students have more positive attitudes concerning treating patients with special needs than practicing orthodontists (BROWN & INGLEHART 2011).

It has been suggested that issues with access to care in the community may be primarily due to insufficiencies within orthodontic training programmes to offer adequate education in the area of special needs orthodontics, which consequently can negatively influence the motivation of orthodontists to treat this patient population (NOBLE et al. 2012). Postgraduate students as well as treating orthodontists feel that they are not well prepared to treated patients with different special needs, and report relatively low confidence in treating this group of patients (BROWN & INGLEHART 2009). Perhaps the creation of specialised structures treating patients with special needs within University orthodontic clinics will help overcome this barrier by offering postgraduate students adequate preparation to be able acquire the necessary expertise in treating this patient population.

Among survey respondents, chairside time needed to treat this population seems to be increased with an average of about 50% more chairside time required. Required chairside time was higher for orthodontists that had been in practice longer. Moreover, in patients where a comprehensive orthodontic treatment is indicated and possible, the duration of this treatment is on average about 25% longer for patients with special needs than for other patients. This translates to an approximate treatment duration of 2.5 years, of a treatment that would otherwise take 2 years to complete, and thus an extra six months.

Data from other studies also suggest that children with special needs show a higher rate of utilisation of considerable chairside time (BLANCK-LUBARSCH et al. 2014). Some studies have found that orthodontic treatment may take longer to complete in individuals with special needs, and the reasons given include the complexity of the malocclusions, the greater number of appointments required and issues such as traumatic lesions, gingival thickening and poor oral hygiene (ABELEIRA et al. 2014; ABELEIRA et al. 2016).

With regard to orthodontic treatment outcome in the population with special needs, survey participants stated that treatment goals only about one third of these patients finish treatment to an ideal outcome. Studies have also looked at orthodontic treatment outcome objectively, as opposed to based on self-reporting in a survey, and found that inferior treatment outcomes are achieved in patients with special needs (BLANCK-LUBARSCH et al. 2014). Possible reasons for the inferior outcomes include the fact that both the families and the orthodontist focus more on functional outcomes and are more willing to make compromises with regard to aesthetics, as well as issues with oral hygiene (TADDEI et al. 2016). The absence of an adequate level of oral hygiene in patients with special needs may oblige a premature termination of orthodontic treatment with fixed appliances leading to insufficient success (BECKER et al. 2001).

Despite the observation that orthodontic treatment outcome may be inferior in patients with special needs, advantages are also numerous, and may outweigh any possible compromise in treatment results. Orthodontic treatment in the population with special needs has been shown to improve not only facial appearance but also masticatory function, speech, and drooling control (BECKER et al. 2000). The improvement in function such as chewing and speech, and the reduction in dental trauma are also considered principle benefits of orthodontic treatment by parents (TRULSSON & KLINGBERG 2003; ABELEIRA et al. 2014).

Children with normal dental aesthetics are judged to be more intelligent by their teachers, more desirable to make friends, and less likely to show aggressive behaviour, compared to children with a malocclusion (SHAW 1981; SHAW et al. 1985; OLSEN & INGLEHART 2011). Children with a severe malocclusion may also be subject to more teasing in school (HELM et al. 1985). Based therefore on the fact that malocclusions are more prevalent in the population with special needs,

providing orthodontic treatment for these children can similarly offer a large benefit in these social aspects.

Based on a previous survey of parents of children with special needs, the primary motivation for parents to have their children undergo orthodontic treatment was to increase their facial attractiveness (BECKER et al. 2000). The parents expected improvement in the child's appearance with a concomitant improvement in their social acceptance. All parents whose children with special needs underwent orthodontic treatment would recommend it for other similar children (BECKER et al. 2000).

Although many benefits may be anticipated after carrying out orthodontic treatment in children with special needs, maintaining long-term stability may be particularly challenging. In fact, difficulty in maintaining long-term stability was often given as a reason, in the current survey, for not wanting to treat more patients with special needs. Within the population of individuals with special needs there are many subgroups of children in whom the aetiology of the malocclusion may not be eliminated during treatment, such as the vertical discrepancies seen in children with neuromuscular disorders or cerebral palsy, improper lip seal, or those with abnormal tongue posture, and the orthodontic treatment of these individuals is prone to not remain stable (BECKER et al. 2004; BECKER et al. 2009; ANTONARAKIS et al. 2019). Long-term retention, sometimes active, and regular follow-up are therefore crucial.

In light of the present results, there seems to be a partial uptake of patients with special needs in orthodontic practices in Switzerland. Carrying out a survey of patients with special needs or their parents would provide useful data concerning the actual uptake of this population and the unmet need. It is hoped that any unmet treatment need can be fulfilled by the development of publicly funded specialised orthodontic treatment centres in university or hospital settings.

Taking examples from other European countries, one can see that specialised centres can succeed in meeting this unmet need, developing expertise for the various subgroups of children with special needs, and obtaining satisfactory treatment outcomes with the desired improvements. Examples of such European centres include the following. The Mun-H Center in Gothenburg, Sweden, provides highly specialised dental and orthodontic care for people with rare medical and dental conditions. The TAKO-center in Oslo, Norway, acts as a national competence and treatment centre for oral health in rare diseases. The Hadassah School of Dental Medicine in Jerusalem, Israel, has a special needs orthodontic clinic for patients with developmental, physical, or mental disabilities. Finally, the University Hospital Center in Clermont-Ferrand, France, has a special needs sector within the Odontology service providing dental and orthodontic treatment to individuals with special needs.

The expertise developed within each individual centre, and the sharing of knowledge and resources, can help in the creation of expanded collaborative efforts to improve both the uptake and the long-term treatment outcomes achieved in the population with special needs. Acting to satisfy unmet need in the population with special needs, and to develop appropriate expertise that can be translated into the provision of education, should be goals within the orthodontic specialty. This has compelled us to establish a specialised clinic for the orthodontic treatment of individuals with special needs within our University clinics of dental medicine, which we hope will help us move forward in this direction.

In conclusion, roughly four in five orthodontists in Switzerland treat patients with special needs, including patients with Down syndrome, autism spectrum disorder and intellectual deficiency, with no demographic variables being associated with uptake. Most of these orthodontists see one or two new patients with special needs annually. The majority of practitioners however do not

wish to increase their intake of patients with special needs, for various reasons including lack of additional strategies, time constraints, oral health, and lack of sufficient training.

Zusammenfassung

Einleitung

Menschen mit speziellen medizinischen Bedürfnissen können einen erhöhten kieferorthopädischen Behandlungsbedarf aufweisen, haben jedoch einen erschwerten Zugang zu den entsprechenden Behandlungsorten. Die Gegebenheiten, diese Patienten kieferorthopädisch behandeln zu können, sind sehr limitiert. Ziel dieser Studie war es zu untersuchen, wie solche Menschen von den Schweizer Kieferorthopäden betreut werden.

Material und Methoden

Es wurde eine Onlineumfrage an alle Mitglieder der Schweizerischen Gesellschaft für Kieferorthopädie gesandt mit der Bitte, diese auszufüllen. Der Fragebogen enthielt drei Abschnitte: zur Demographie der Teilnehmenden, zur Betreuung von Patienten mit speziellen medizinischen Bedürfnissen, und zum Zugang zur jeweiligen Behandlungseinheit.

Resultate

Von total 220 Fragebögen wurden circa 60% beantwortet ($n = 131$), von 53% der angefragten Männer und 63% der Frauen. Unter den Beantwortenden waren 60% Männer und 40% Frauen. Mehr als ein Drittel von ihnen war zwischen 40 und 49 Jahre alt und praktizierte seit 10 bis 19 Jahren. Vierundachtzig Prozent gaben an, Patienten mit speziellen medizinischen Bedürfnissen zu behandeln. In der grossen Mehrheit der Fragebögen wurde angegeben, dass diese Patienten weniger als 5% der Praxisklientel ausmachten. Unter diesen Patienten waren Menschen mit Down-Syndrom die am häufigsten genannten, gefolgt von Personen mit Autismus und solchen mit kognitiven Behinderungen. Die mediane Anzahl der Neuaufnahmen von Patienten mit speziellen medizinischen Bedürfnissen pro Teilnehmer der Studie und Jahr war zwei. Diese

Patienten wurden oft mit fixen, abnehmbaren, oder funktionellen Apparaturen behandelt, während die Verwendung von Alignern viel seltener angegeben wurde. Auch vorbereitende kieferorthopädische Massnahmen wie z.B. die forcierte Dehnung wurden angewandt. Der Zeitaufwand einzelner Sitzungen wurde bei diesen Patienten als doppelt so lange und die gesamte Behandlungsdauer als 25% länger angegeben als bei anderen Patienten. Das Behandlungsziel bei ca. der Hälfte dieser Patientengruppe wurde als Kompromissbehandlung verstanden. Unter den Kieferorthopäden, welche keine Patienten mit speziellen medizinischen Bedürfnissen behandelten, deklarierten 79%, dass sie nicht daran interessiert waren, solche Menschen zu behandeln. Auch 56% der Kieferorthopäden, welche bereits solche Patienten behandelten, gaben an, nicht noch zusätzliche solche Patienten behandeln zu wollen. Die angegebenen Gründe hierfür waren fehlende Strategien wie z.B. die Wachsedierung, fehlende Überweisungen von Berufskollegen, Probleme bei der Patientencompliance, und zeitliche Restriktionen in gut laufenden Praxen.

Diskussion

Zusammenfassend kann festgestellt werden, dass viele Schweizer Kieferorthopäden Patienten mit speziellen medizinischen Bedürfnissen in ihren Praxen behandeln, aber sich nur wenige dieser Praktiker eine Zunahme solcher Patienten in ihrer Praxis wünschen. Die Betreuung von Patienten mit speziellen medizinischen Bedürfnissen bezüglich kieferorthopädischer Massnahmen könnte verbessert werden. Eine grössere Anzahl solcher Personen könnte wohl in dafür spezialisierten Behandlungszentren effizienter behandelt werden, was aufgrund dieser Studie wünschenswert erscheint.

Résumé

Introduction

Les personnes ayant des besoins de santé spécifiques peuvent avoir un besoin accru de traitement orthodontique défini objectivement, mais certains obstacles à l'accès aux soins orthodontiques.

Les données concernant le traitement orthodontique de ces personnes sont très limitées. L'objectif de la présente étude était d'évaluer la prise en charge des patients avec des besoins spécifiques par les orthodontiques en Suisse.

Matériels et méthodes

Une enquête en ligne a été envoyée à tous les orthodontistes spécialistes membres de la Société suisse d'orthopédie dentofaciale, leur demandant de remplir un questionnaire. Le questionnaire comprenait trois sections, à savoir les données démographiques des participants, la prise en charge des patients avec besoins spécifiques, et l'accès aux soins.

Résultats

Sur un total de 220 questionnaires envoyés, environ 60% des orthodontistes spécialistes (n = 131) ont répondu, y compris 53% des hommes et 63% des femmes. Parmi ceux qui ont rempli le questionnaire, 60% étaient des hommes et 40% des femmes, et plus d'un tiers avaient entre 40 et 49 ans et pratiquaient la profession depuis 10 à 19 ans. Quatre-vingt-quatre pourcents des participants ont répondu qu'ils traitent des personnes avec besoins spécifiques, et parmi eux dans la grande majorité des cas, ces patients représentent moins de 5% de la charge totale du cabinet. Les types de patients avec besoins spécifiques les plus fréquemment traités étaient les personnes atteintes du syndrome de Down, les personnes atteintes de troubles du spectre autistique et les personnes présentant une déficience intellectuelle. Le nombre médian de nouveaux patients avec

besoins spécifiques par an pour chacun des participants était de deux. Ces patients sont traités souvent avec des appareils fixes, amovibles ou fonctionnels, tandis que l'utilisation de gouttières d'alignement était beaucoup moins répandue. Des traitement interceptifs sont également utilisées. Le temps passé au fauteuil nécessaire pour traiter les personnes avec besoins spécifiques semble augmenter d'environ 50% et la durée du traitement de 25% par rapport aux autres patients. L'objectif des traitements pour environ la moitié de ce groupe de patients était un traitement de compromis. Parmi les orthodontistes ne traitant pas des patients avec besoins spécifiques, 79% ont déclaré qu'ils ne seraient pas intéressés à traiter ces, tandis que 56% des orthodontistes faisant déjà des traitements à ce groupes de patients ont déclaré qu'ils ne seraient pas intéressés à en traiter plus. Les raisons invoquées étaient principalement le manque de stratégies supplémentaires pour traiter ces personnes (telles que la sédation consciente), le manque d'envoi des patients par des collègues, des problèmes de coopération et des contraintes de temps dans un cabinet bien occupé.

Discussion

En conclusion, il semble y avoir une prise en charge partielle des patients avec besoins spécifiques dans les cabinets d'orthodontie en Suisse, mais peu de praticiens souhaitent augmenter le nombre de patients avec besoins spécifiques qu'ils traitent. La prise en charge du traitement des patients avec besoins spécifiques dans un cadre orthodontique peut encore s'améliorer et il est à espérer que le traitement d'un grand nombre de ces patients puisse être effectué par la mise en place des centres compétence pour le traitement orthodontique spécialisés de ce groupe de patients.

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Captions

Figure 1: Proportion of patients with special needs in orthodontic practices in Switzerland.

Figure 2: Bar chart showing number of new patients with special needs seen yearly by each respondent.

Figure 3: Number of questionnaire participants seeing patients with a particular diagnosis. DS = Down syndrome; ASD = autism spectrum disorder; ID = intellectual deficiency; CP = cerebral palsy; NMD = neuromuscular disorders. Other patients included diagnoses such as Epidermolysis bullosa and attention deficit hyperactivity disorder.

Figure 4: Number of questionnaire participants providing a specific type of orthodontic treatment to patients with special needs.

Figure 5: Chairside time and duration of comprehensive orthodontic treatment required for treatment of patients with special needs, in comparison to healthy patients without special needs.

Figure 6: Box plots showing percentage of patients with special needs treated by the responding orthodontists to an ideal outcome, compromised outcome, or with a minimum treatment approach. Whiskers represent minimum and maximum values, each box defines the lower quartile and upper quartiles, while the median is represented by a line within each box.

Figure 7: Bar chart showing number of participants giving the selected reasons for not wanting to, or inversely for wishing to but not being able to, see more patients with special needs.