

Original Research Article

Use of dental care services and related factors in students with special health care needs in a rehabilitation and education center

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Abstract

Introduction: People with special health care needs (SHCN) have a higher risk of contracting certain oral diseases, such as dental cavities and gingivitis, and a limited use of dental care services can significantly affect these risks. **Objective:** To assess the use of dental care services and related factors in students with SHCN. **Materials and methods:** This cross-sectional study included subjects from a rehabilitation and education center. The guardians were asked about whether the students already made a dental appointment and about the last time they had visited their dentist. The students were examined for dental cavities. Fisher's exact test for the association between the outcome and independent variables was employed. **Results:** The study sample comprised 51 guardians. Forty-seven students had already visited their dentist at least once, and 68% underwent a dental exam within the past year. A recent use of dental service (1 year or less) was more prevalent among female subjects, which did not present a history of dental cavities and about whose caregivers already had received oral health information. **Conclusion:** Most of the participants already had visited their dentist and regularly use dental services. Caregivers should be encouraged to make regular dentist appointments for SHCN subjects, especially for those who already have oral problems, are male, and whose families have never received oral health information.

Introduction

People with special health care needs (SHCN) are those with any condition, temporary or permanent, that requires specialized care [5]. This condition can be physical, sensory, mental, behavioral, and/or pertaining to growth [5]. A national health survey conducted in Brazil in 2013 showed that 6.2% self-reported some kind of disability (intellectual, physical, auditory, and visual) [12].

Studies of with people with SHCN have shown that these individuals have a higher risk for certain oral diseases, such as dental caries and gingivitis [16, 25, 30], which may be due to their general/medical condition, motor difficulties, use of drugs that reduce salivary flow, and delay in receiving preventive guidance regarding oral health [25].

In some cases, the patient's medical condition is so severe that oral health care becomes secondary, and arranging dental care is delayed [1]. Delayed dental care is aggravated when professionals from other areas, as well as schools and rehabilitation centers, are unaware of the importance of oral health and the need for early dental referral [16, 18].

Access to the dentist is defined as the ability to obtain and make use of dental services [10]. Limited access has been associated with high prevalence of oral diseases [4, 17]. The most commonly reported factors that influence access to professional dental care are the following: personal factors (anxiety about dental procedures, dental fear, lack of adequate behavior to allow dental treatment, inability to communicate dental pain) [15]; lack of caregiver motivation or caregiver accumulation of tasks, since most individuals with SHCN are partially or totally dependent on caregivers to perform activities of daily living [29, 31]; and environmental factors, such as costs of dental treatment, physical access such as access ramp or elevators, and other transportation difficulties [6, 23]. However, there is a lack of information in the literature about whether and how often dental services are accessed by people with SHCN, and factors associated with access to dental care [13, 19].

Thus, the aim of this study was to investigate the use of dental care services and associated factors in students with SHCN in a center for rehabilitation and education from a southern Brazilian city.

Materials and method

Ethics

The study was approved by the Local Human Research Ethics Committee of the Dental School at the Federal University of Pelotas (Protocol number: 820.645) and written informed consent was obtained from each parent or guardian.

Study setting and population

This cross-sectional study was carried out between March and August 2015 and was nested in a clinical trial that assessed the effectiveness of an oral health education intervention to prevent oral diseases. More information can be obtained in the educational intervention article made with this sample [11].

The sample comprised individuals 7 to 24 years of age from a center for rehabilitation and education located in Pelotas, a city in southern Brazil. The center is a philanthropic institution that serves people with SHCN and their families by promoting adaptive strategies enabling people with SHCN to live in society as well as providing special education supports.

Data collection

Data such as sex, age, and medical condition were collected from the institution clinical records of each individual. Medical conditions were categorized as Down syndrome, intellectual impairment, developmental delay, cerebral palsy, and other conditions (hypomelanosis of Ito, Prader-Willi syndrome, and Saethre-Chotzen syndrome). Age was categorized as children (up to 9 years), adolescents (10 to 19 years), and adults (20 years and older), according to the World Health Organization (WHO) [34].

A questionnaire was administered to parents/guardians at the center. Four meetings on different days and times were scheduled to ensure all parents/guardians were able to attend.

Information on family income per month was collected as continuous data and dichotomized as ≤ 1000 Brazilian reals and >1000 Brazilian reals (1 Brazilian real corresponds to approximately \$0.26 US dollars).

Parents/guardians were asked whether students had already attended a dental appointment; if the answer was affirmative they were asked a closed question about time since last visit to the dentist (less than 6 months, 6 months to 1 year, and more than 1 year). This question was the outcome and was categorized as never, 1 year or less, and more than 1 year. The main reason for seeking dental treatment at the last dental appointment was also asked and divided based on the problem (pain, dental caries, endodontic treatment, dental extraction, dental calculus) or prevention/routine. Parents/guardians were asked about the frequency of oral hygiene; this variable was dichotomized as 'once a day or less' or 'twice a day or more', the use of dental floss (Yes or No), and whether they had already received some guidance on how to

take care of oral health of the person with SHCN (Yes or No).

On another day, the students were assessed for dental caries in a private room at the center. The examination was performed with the examiner and student seated face to face, using a clinical mirror and probe under artificial light. The WHO's criteria were used to assess dental caries experience; the DMFT (Decayed, Missing and Filled Teeth) index was used for permanent dentition and the dmft (decayed, missing and filled teeth) index was used for primary dentition [33]. Afterward, the indices were summed to create the variable "dental caries experience", which was dichotomized as 'No' (DMFT + dmft = 0) or 'Yes' (DMFT + dmft > 0).

The examiner was a postgraduate student who was previously trained and evaluated for accuracy. The training consisted of a 4-hour theoretical session on the DMFT index, and the practice training was undertaken on 10 individuals. Calibration of the dmft/DMFT indexes was performed and the results were compared with a gold standard record (kappa: 0.84).

Statistical analyses

The data were double-typed and analyzed using Stata software version 11.0 (StataCorp, College Station, Texas, USA). Absolute and relative frequencies were obtained by descriptive statistical analysis. Fisher's exact test was used to evaluate the association between the outcome (use of dental care: never, 1 year or less, or more than 1 year) and the independent variables (sex, age,

family income, medical condition, dental caries experience, dental hygiene frequency, use of dental floss, and receiving oral health information). P-values less than 0.05 were considered to be statistically significant.

Results

Of the 107 individuals attending the center, 80 had the consent form signed by their parents/guardians. Data from 27 (33.75%) parents/guardians were lost because they did not attend any of the four scheduled meetings. A total of 53 parents/guardians attended a meeting; however, two of them were guardians at a shelter and could not answer the questions related to the study outcome. Therefore, the total sample included in the study analysis comprised 51 parents/guardians.

The mean age of students whose parents/guardians attended a meeting was 12 years, and the average household income was 1121.51 Brazilian reals, corresponding to less than 1.5 of Brazilian minimum wage. The frequency distribution of the study sample according to sex, age, family income, medical condition, and dental appointment status of the students enrolled in the center are reported in table I. There were more male students in the sample (56.86%). Almost one-half of the students had been diagnosed with Down syndrome. With respect to dental evaluation, 47 (92.16%) caregivers stated that the student had already visited a dentist, and in 53.19%, the most recent visit to the dentist was for prevention.

Table I - Use of dental care among students with special health care needs in a center of educative and rehabilitation according to demographic, socioeconomic, medical condition and oral health considerations. Pelotas, Brazil (n=51)

Variable	Use of dental care			
	Total	Never went	One year or less	More than one year
	N (%)	N (%)	N (%)	N (%)
Total	51 (100.00)	4(7.84)	32 (62.75)	15 (29.41)
<u>Sex</u>				p=0.044*
Male	29 (56.86)	3 (10.34)	14 (43.75)	12 (41.38)
Female	22 (43.14)	1 (04.55)	18 (81.82)	3 (13.64)
<u>Age</u>				p=0.449*
Children	15 (29.41)	2 (13.33)	7 (46.67)	6 (40.00)
Adolescents	33 (64.71)	2 (06.06)	22 (66.67)	9 (27.27)
Adults	3 (05.88)	-	3 (100)	-
<u>Familiar income</u>				p=0.432*
Until 1000,00 BR	30 (61.22)	3 (10.00)	20 (66.67)	7 (23.33)
More than 1000 BR	19 (38.78)	1 (05.26)	10 (52.63)	8 (42.11)

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Variable	Use of dental care			
	Total	Never went	One year or less	More than one year
	N (%)	N (%)	N (%)	N (%)
<u>Medical condition</u>				p=0.962*
Down's syndrome	25 (49.02)	3 (12.00)	15 (60.00)	7 (28.00)
Intellectual impairment	12 (23.53)	1 (08.33)	7 (58.33)	4 (33.33)
Developmental delay	7 (05.88)	-	4 (57.14)	3 (42.86)
Cerebral palsy	3 (13.73)	-	3 (100)	-
Others conditions	4 (7.84)	-	3 (75.00)	1 (25.00)
<u>Dental caries experience</u>				p=0.040*
No	14 (36.84)	-	13 (92.86)	1 (7.14)
Yes	24 (63.16)	2 (8.33)	13 (54.17)	9 (37.50)
<u>Dental hygiene frequency</u>				p=0.687*
Once a day or less	13 (26.00)	1 (7.69)	7 (53.85)	5 (38.46)
Twice a day or more	37 (74.00)	3 (8.11)	25 (67.57)	9 (24.32)
<u>Use of dental floss</u>				p=0.633*
No	40 (80.00)	4 (10.00)	24 (60.00)	12 (30.00)
Yes	10 (20.00)	-	8 (80.00)	2 (20.00)
<u>Did you receive information about oral health?</u>				p=0.002*
No	12 (24.00)	2 (16.67)	3 (25.00)	7 (58.33)
Yes	38 (76.00)	1 (2.63)	29 (78.32)	8 (21.05)

* Fisher's exact test

BR: Brazilian Reais

p-values in bold are significant

Among the 47 patients who had already visited the dentist at least once, the majority (68.08%) had a dental attendance within the last year. Table I shows the association between the use of dental care and sex, family income, medical condition, dental caries experience, dental hygiene frequency, use of dental floss, and whether they had received information about oral health.

The use of dental services was statistically significantly associated with sex, dental caries experience, and receiving oral health information. Recent use of dental services (1 year or less) was more prevalent among female students (p:0.04), those who had no experience with dental caries (p:0.04), and those in which caregivers had already received information about oral health (p:0.002).

Discussion

The present study showed that most people with SHCN had already visited the dentist at some point in their lives. This is consistent with results reported by Al Agili *et al.* [1] among children with special needs in Alabama, similar to other Brazilian

studies conducted among children and adolescents with Down syndrome [19], and consistent with a study of individuals between 3 and 97 years of age with some disability [23]. It is important to emphasize that the school where the study was conducted has offered dental services for many years, in addition to having sheltered extension projects with the School of Dentistry of Pelotas in which dental services are also offered, thus favoring access to oral health services. The municipality also has two public specialty centers, where dentists are trained to provide care to people with SHCN.

The study obtained a low response rate; approximately 50% of the caregivers invited to participate in the scheduled meetings did not attend. This fact must be taken into account when interpreting the results; caregivers who attended a meeting may be more concerned about oral health care. Thus, the prevalence and regularity of dental service use may be overestimated in this study.

Because this study comprised a sample of people with SHCN attending a rehabilitation and education center, the results cannot be extrapolated to the general population. For this reason, dental

visit coverage among the general population with special needs is expected to be lower than that found in the present study. The families that attend these centers present a particular profile; in general, with support of the center's team, they are more informed and have greater access to health services.

A limitation of this study, inherent in cross-sectional designs, is the impossibility of establishing causal relations. Another limiting characteristic of this type of study is the possibility of memory bias, since caregivers may inaccurately report the time elapsed since the last visit to the dentist. The socially desirable response bias, which is the tendency of an interviewee to give overly positive descriptions [7, 28], also cannot be ruled out as a possible limitation of this study.

Among those who had ever been to the dentist, most used dental services in the past 12 months. Although there is still no clear definition of recall intervals for oral health in the general population, the American Academy of Pediatric Dentistry states that people with SHCN with severe dental disease should use dental services every 2 to 3 months [5]. It is important to emphasize that the dental service use regimen should take into account the individual's medical history, behavioral factors that influence the development of oral diseases, social factors, and experiences of past and present disease [3]. Agili *et al.* [1] found that 27% of children with SHCN had not received any dental care in the past 12 months, which is consistent with the findings of the present study, in which approximately 30% of the study group had not visited the dentist in more than 1 year.

A relevant result is that a large part of the sample of this study went to the dentist for prevention. In their study, Rocha *et al.* [23] observed that pain was the main reason for seeking dental care among people with SHCN. A population-based study found that children with SHCN receive more non-preventive dental care compared with children without SHCN [13], and it was observed that when the disability was more complex, the chances of visiting the dentist for preventive reasons were lower. According to Iida *et al.* [13], individuals with SHCN commonly present other complex demands, so seeking out preventive dental care is not a priority. However, in this study, the high access to dental care may be justified by the fact that the students and parents/guardians associated with this center are already assisted by professionals, so their main demands are probably supported or solved. Thus, access to oral health care is already important to caregivers.

With respect to sex, the results of this study showed that the use of dental services in the past

year was more prevalent among female students, which is consistent with findings by Rocha *et al.* [23]. Some studies have argued that men are reluctant to use health services for cultural reasons, because they consider it to be "a woman's thing" [9, 24]. Although these discussions were drawn from studies of health care-seeking behaviors among the general population, we have to contextualize for people with SHCN, who are usually taken to the dentist by their caregivers. It is possible that the hegemonic model of masculinity that has been long established in society may also drive the use of dental services by people with SHCN [9].

Another hypothesis for the lower prevalence of dental service use among male subjects relates to behavior since, in general, men present greater physical strength and may be more difficult to manage by the dentist [26]. However, some authors did not observe an association between sex and irregular dental visits among people with SHCN [13, 21].

The association between having received information about oral health and having gone to the dentist in the past year should be analyzed with caution since, in the case of a cross-sectional study, reverse causality may occur. In other words, it is not possible to know whether the individuals went to the dentist in the past year because they received information, or whether they used the service on a regular basis and obtained more information about oral health. However, it is possible that provision of information increases the use of dental services and that the value of regular dental attendance, regardless of having a problem, should be disseminated among caregivers of people with SHCN. Reinforcing the role of information, a study showed that 90% of caregivers of children with Down syndrome who received orientation about the value of seeking dental care by other professionals had already taken the child to the dentist [19].

There was no significant association between the time of the last visit and medical condition. Finger *et al.* [6] conducted a survey regarding the perception of possible problems in obtaining dental care by caregivers of people with SHCN in California, and found that there was no association with the patient's medical condition. Even so, 60% of parents of patients with cerebral palsy reported having had problems in finding a dentist. Barriers such as cost, transportation, and finding a dentist that is familiar with the varied needs of individuals with SHCN were cited by the respondents. Thus, it is possible that the diagnosis alone does not contribute to the use of the dental service, but rather the complexity of the disability.

Family income did not show a significant association with the use of the service, probably because the center from which the data were collected was public, and therefore economically homogeneous. In addition, the city has public dental services at neighborhood health posts, at the university, and at centers of specialty. Kane *et al.* [14] observed that among families of children with SHCN, lower income was a risk factor for failure to obtain dental care, which was corroborated by the findings of Iida *et al.* [13] and Williams *et al.* [32].

The higher prevalence of the recent use of the dental service among those who did not have caries experience reiterates the importance of regular use of preventive dental services. Regularly attending the dentist enables provision of oral hygiene instructions and dietary guidelines, and the possibility of receiving preventive procedures such as the use of fluoride varnishes and pit and fissure sealants. Intervention studies reinforce the importance and effectiveness of regular and continuous oral health education among people with SHCN [11, 20, 27]. Another hypothesis is that people who make regular use of dental services may be those who have a greater self-care role in their oral health. However, as already mentioned, the design of the study prevents any direct cause-and-effect relationships to be made.

Conclusion

In summary, the data from this study showed that a large proportion of the sample had already visited the dentist and made regular use of dental services. In general, it seems that people with SHCN who are being assisted by a program or specialized center are more likely to seek dental services. Thus, rehabilitation centers and other professionals should encourage caregivers to seek dental care early in life to establish oral health as an integral part of general health care. In addition, caregivers should be encouraged to make regular dental appointments for individuals with SHCN, especially for those who already have oral problems, who are male, and whose families have never received information regarding oral health. More investigations with representative samples are needed in order to better understand the factors that influence the regular use of the dental service by people with SHCN. This information will be fundamental in the planning of health care strategies in this population.

References

1. Al Agili DE, Roseman J, Pass MA, Thornton JB, Chavers LS. Access to dental care in Alabama for children with special needs: parents' perspectives. *J Am Dent Assoc.* 2004 Apr;135:490-5.
2. Arnold C, Brookes V, Griffiths J, Maddock S, Theophilou S. Guidelines for oral health care for people with a physical disability. British Society for Disability and Oral Health 2000 [cited 2018 Feb 4]. Available from: URL:<http://www.bsdh.org/documents/physical.pdf>.
3. Beirne PV, Clarkson JE, Worthington HV. Recall intervals for oral health in primary care patients. *Cochrane Database of Syst Rev.* 2013 Dec;(12):CD004346. doi: 10.1002/14651858.CD004346.pub4.
4. Carvalho EMC, Araújo RPC. A saúde bucal em portadores de transtornos mentais e comportamentais. *Pesq Bras Odontoped Clín Integr.* 2004 Jan;4(1):65-75.
5. Council AO. Guideline on management of dental patients with special health care needs. *Pediatr Dent.* 2012 Sep;30:160-5.
6. Finger ST, Jedrychowski JR. Parents' perception of access to dental care for children with handicapping conditions. *Spec Care Dent.* 1989 Nov;9(6):195-9.
7. Finlayson TL, Siefert K, Ismail AI, Sohn W. Maternal self-efficacy and 1-5-year-old children's brushing habits. *Community Dent Oral Epidemiol.* 2007 Aug;35(4):272-81.
8. Gerreth K, Borysewicz-Lewicka M. Access barriers to dental health care in children with disability. A questionnaire study of parents. *J Appl Res Intellect Disabil.* 2016 Mar;29(2):139-45.
9. Gomes R, Nascimento EF, Araújo FC. Por que os homens buscam menos os serviços de saúde do que as mulheres? As explicações de homens com baixa escolaridade e homens com ensino superior. *Cad Saúde Pública.* 2007 Mar;23(3):565-74.
10. Guay AH. Access to dental care: the triad of essential factors in access-to-care programs. *J Am Dent Assoc.* 2004 Jun;135(6):779-85.
11. Hartwig AD, Stürmer VM, Silva-Júnior IF, Scharodosim LR, Azevedo MS. Effectiveness of an oral health educational intervention for individuals with special health care needs from a southern Brazilian city. *Spec Care Dentist.* 2017 Sep;37(5):246-52.

12. IBGE – Instituto Brasileiro de Geografia e Estatística. Pesquisa Nacional de Saúde: 2013 – ciclos de vida: Brasil e grandes regiões. Rio de Janeiro; 2015.
13. Iida H, Lewis C, Zhou C, Novak L, Grembowski D. Dental care needs, use and expenditures among U.S. children with and without special health care needs. *J Am Dent Assoc.* 2010 Jan;141(1):79-88.
14. Kane D, Mosca N, Zotti M, Schwalberg R. Factors associated with access to dental care for children with special health care needs. *J Am Dent Assoc.* 2008 Mar;139(3):326-33.
15. Koneru A, Sigal MJ. Access to dental care for persons with developmental disabilities in Ontario. *J Can Dent Assoc.* 2009 Mar;75(2):121.
16. Nahar SG, Hossain MA, Howlader MB, Ahmed A. Oral health status of disabled children. *Bangladesh Med Res Counc Bull.* 2010 Aug;36(2):61-3.
17. Nasiloski KS, Silveira ER, César Neto JB, Schardosim LR. Evaluation of periodontal conditions and oral hygiene in school children with neuropsychomotor disorders. *Rev Odontol Unesp.* 2015 Mar;44(2):103-7.
18. Oliva L. Oral hygiene in the special needs classroom. *NASN Sch Nurse.* 2013 Nov;28:281-3.
19. Oliveira AC, Czeresnia D, Paiva SM, Campos MR, Ferreira EF. Utilization of oral health care for Down syndrome patients. *Rev Saúde Pública.* 2008 Aug;42(4):693-9.
20. Pareek S, Nagaraj A, Yousuf A, Ganta S, Atri M, Singh K. Effectiveness of supervised oral health maintenance in hearing impaired and mute children – a parallel randomized controlled trial. *J Int Soc Prev Community Dent.* 2015 May;5(3):176-82.
21. Pradhan A, Slade GD, Spencer AJ. Access to dental care among adults with physical and intellectual disabilities: residence factors. *Aust Dent J.* 2009 Sep;54(3):204-11.
22. Rapalo DM, Davis JL, Burtner P, Bouldin EDF. Cost as a barrier to dental care among people with disabilities: a report from the Florida behavioral risk factor surveillance system. *Spec Care Dentist.* 2010 Jul(4);30:133-9.
23. Rocha LL, Saintrain MVL, Vieira-Meyer APGF. Access to dental public services by disabled persons. *BMC Oral Health.* 2015 Mar;15:35.
24. Rohr R, Barcellos A. As barreiras de acesso para os serviços odontológicos. *Ufes Rev Odontol.* 2008;10(3):37-41.
25. Sacchetto MSLS, Andrade NS, Brito MHSF, Lira DMMP, Barros SSLV. Evaluation of oral health in patients with mental disorders attended at the clinic of oral diagnosis of a public university. *Rev Odontol Unesp.* 2013 Sep;42(5):344-9.
26. Santos JS, Valle DA, Palmier AC, Amaral JHL, Abreu MHNG. Availability of hospital dental care services under sedation or general anesthesia for individuals with special needs in the Unified Health System for the State of Minas Gerais (SUS-MG), Brazil. *Ciênc Saúde Colet.* 2015 Feb;20(2):515-24.
27. Shyama M, Al-Mutawa S, Honkala S, Honkala E. Supervised toothbrushing and oral health education program in Kuwait for children and young adults with Down syndrome. *Spec Care Dentist.* 2003;23(3):94-9.
28. Steenkamp J-BE, de Jong MG, Baumgartner H. Socially desirable response tendencies in survey research. *J Mark Res.* 2010 Apr;47(2):199-214.
29. Stiefel JD. Dental care considerations for disabled adults. *Spec Care Dent.* 2002 Feb;22(2 Suppl):26S-39S.
30. Tani H, Uchida H, Suzuki T, Shibuya Y, Shimanuki H, Watanabe K et al. Dental conditions in inpatients with schizophrenia: a large-scale multi-site survey. *BMC Oral Health.* 2012 Aug;12:32.
31. Uemura ST, Ramos L, Esposito D, Uemura AS, Boccia MF, Mugayar LRF. Motivação e educação odontológica em pacientes especiais. *Rev Gaúcha Odontol.* 2004 Apr;52(2):91-100.
32. Williams JJ, Spangler CC, Yusaf NK. Barriers to dental care access for patients with special needs in an affluent metropolitan community. *Spec Care Dent.* 2015 Jul;35(4):190-6.
33. WHO – World Health Organization. Oral health surveys: basic methods. 5th ed. Geneva; 2013.
34. WHO – World Health Organization. Young people's health – a challenge for society. Report of a WHO study group on young people and health for all. Technical Report Series 731. Geneva; 1986.