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## Assessment of dental care in children with disability – a sociomedical study of parents/guardians

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### KEYWORDS

children with disability, oral health, dental health care

### SUMMARY

**Introduction.** The care of a child with a disability is associated with difficulties in many areas of life, including comprehensive medical care.

**Aim.** The aim of the sociomedical study was to assess the level of dental care provided to children with disability based on the data from a questionnaire study performed in their parents/guardians.

**Material and methods.** The research was conducted among 200 parents/guardians of disabled and/or chronically ill children living in Poznań and Białystok. Information on the frequency of dental visits and their causes, access to dental offices as well as the course of treatment, particularly in primary teeth, was collected. The study was approved by the Committee of Bioethics of the Poznań University of Medical Sciences (Resolution No. 159/17) as well as the directors of institutions and parents/guardians.

**Results.** The data obtained showed that up to 18.50% of children with disability had never been to a dentist. The most common reasons for a dental visit were changes within a tooth noticed by a parent (25.50%) or a dental check-up (25.00%). Thirty-six children (18.00%) experienced a few episodes of dental pain, whereas 47.00% of children had never received dental treatment of primary teeth. Only 67.50% of respondents reported no access barriers to dental treatment. Up to 51.50% of parents/guardians reported that there was currently no need for dental treatment in their children.

**Conclusions.** The data presented show that there is insufficient dental care for children with disability, which is probably due to inadequate education of their parents/guardians, in relation to the care of oral health in children. The study also indicates the presence of obstacles in access to dental treatment, such as architectural or financial barriers as well as problems in access to dental care in the place of residence.

### INTRODUCTION

Children and adolescents with disabilities are a group of patients requiring special attention and commitment from both parents/guardians and medical personnel. Due to the limited independence resulting from motor and intellectual disorders, they need much more supervision

and support in all life activities, including those regarding oral health (1).

The special needs of children with disability include the need for appropriate dental care, easy access (location close to the place of residence) to specialist care and a short waiting time for an appointment. Additionally,

it is important to adjust the architecture of a dental office and dental setting to the needs of patients with disabilities as well as to appropriately equip dental offices in order to facilitate efficient and comprehensive dental care (2).

Dental caries and gingival inflammation are the most common dental problems affecting children with disabilities. These are mainly due to the difficulties in maintaining proper oral hygiene as a result of the lack of daily assistance in this area (3, 4). Other important factors that contribute to the development of oral conditions in this group of paediatric patients include malocclusions, which are more common in these children compared to their healthy peers, oral breathing, cariogenic diet and chronic systemic treatment (5). Furthermore, patients with disability experience mechanical injuries of the teeth and oral mucosa that require dental treatment more often compared to healthy population (6).

### AIM

The aim of the paper was to assess dental care in children with disabilities based on a questionnaire among their parents/guardians.

### MATERIAL AND METHODS

The study was conducted in 2017 in two Polish cities, i.e. in Poznań, which is located in the western part of the country (Greater Poland Voivodeship), and Białystok, which is located in the north-eastern Poland (Podlasie Voivodeship), as a part of a project entitled "Education, Promotion and Prevention in Regards to Oral Health Care Directed toward Small Children, Their Parents, Carers and Educators", which is also known under the name "Caries-Free Childhood" (7-9). The project was co-funded by Switzerland as a part of Swiss cooperation programme with new EU member states as well as the by the Ministry of Health.

The sociomedical research was conducted among parents/guardians of disabled and/or chronically ill patients aged between 3 and 17 years, who attended educational institutions (preschools and schools) and associations as well as patients staying in physical therapy wards.

The study was approved by the Committee of Bioethics of the Poznan University of Medical Sciences (Resolution No. 159/17) as well as the directors of institutions and parents/guardians.

The questionnaire for parents/guardians of children with disabilities contained single and multiple choice questions regarding, among other things, dental care provided to children, including access to dental treatment, referring to dental visits, reasons for dental appointments and the course of treatment.

Since not all parents answered the questions, the final analysis included data from 200 respondents.

### RESULTS

Of the 200 parents/guardians included in the questionnaire study, 37 (18.50%) reported that their child had never been to a dentist. Other respondents declared that they had already reported to a dental office in order to ensure dental care for their child, including 81 parents/guardians (40.50%) reporting that the visit took place in the last 6 months. A total of 34 respondents (17.00%) did not remember the time of the last dental visit (fig. 1).

Referral to dental treatment was issued by a family doctor in 13 children (6.50%), by a specialist in 26 children (13.00%), by a dentist in 12 children (6.00%), or suggested by a family member in 19 children (9.50%). Up to 125 of 200 respondents (62.50%) declared that their child had never been referred by anyone for dental treatment (fig. 2).

The reasons for child's dental visit included dental pain (21 respondents, 10.50%), a cavity noticed by parents/guardians (51, 25.50%) or a planned preventive procedure, such as fluoride varnishing or fissure sealing (36, 18.00%). Only 10 respondents (5.00%) took their child for an adaptation visit, while a check-up visit was reported by 50 parents/guardians (25.00%). Other causes included tooth extraction, orthodontic treatment or dental tartar removal, as well as the occurrence of disturbing green-brown discolouration of erupted teeth and problems with articulation. The presence of a tuberous sclerosis was reported as reason for dental appointment in one case (fig. 3).

When asked about the presence of dental pain, the parents of 28 (14.00%) children reported only one such an episode, while more than one episode of dental pain was reported for 36 (18.00%) children (fig. 4).

Almost half of children (47.00%) had never had their primary teeth treated. Procedures were performed under

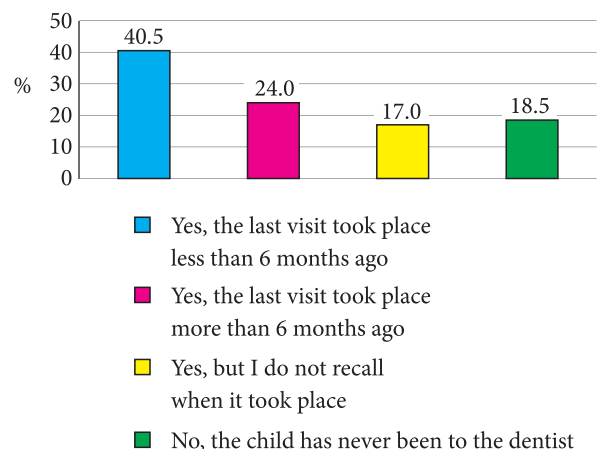


Fig. 1. Answers to a question: "Has your child ever been at the dentist's before and when was the last visit?"

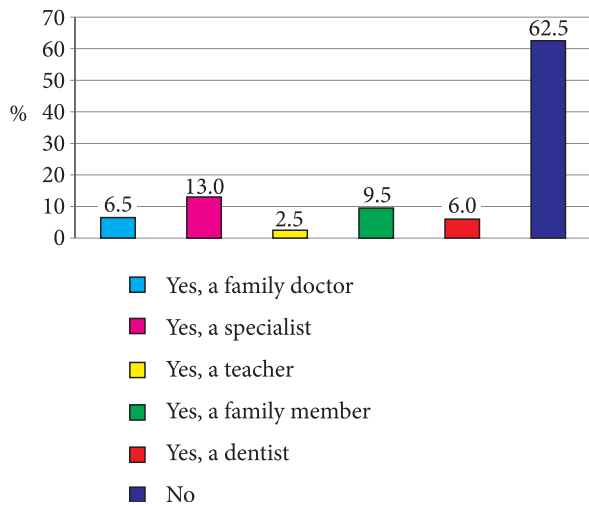


Fig. 2. Answers to a question: “Has anyone ever referred your child for dental treatment and who was it?”

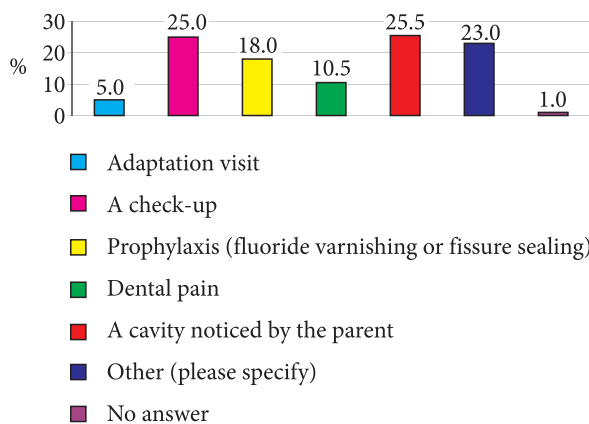


Fig. 3. Answers to a question: “What was the reason for the visit?”

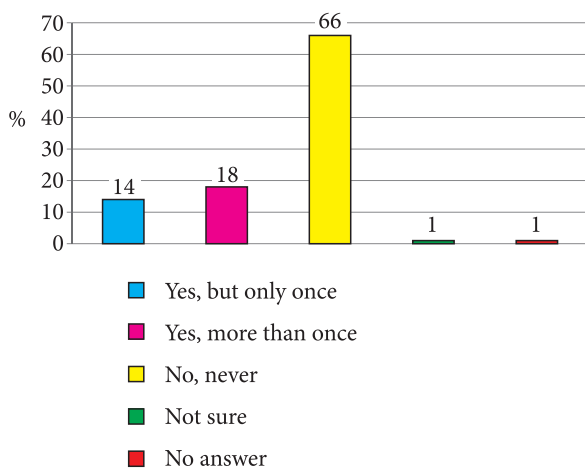


Fig. 4. Answers to a question: “Has your child ever experienced dental pain?”

inhaled sedation in 5 (2.50%) children, local anaesthesia in 23 (11.50%) patients, while 12 (6.00%) children required general anaesthesia (fig. 5).

Unobstructed access to dental treatment for the disabled child was reported by 135 patients/guardians (67.50%). Other respondents faced problems such as doctor’s refusal to treat the child (8.00%), lack of dental office adapted for children with disabilities in the place of residence (6.50%), or the lack of information on the location of a dental office that would undertake the treatment of a disabled child (4.50%). High treatment costs (13.00%) and prolonged waiting time for an appointment (11.50%) were significant barriers for the parents/guardians of the disabled children. The problem of the lack of child’s cooperation with the dentist was reported by 16 respondents (8.00%) (fig. 6).

When asked about the present oral health status of their children, more than half of respondents (51.5%) claimed that dental treatment was not necessary, while 25 (12.50%) respondents reported that the treatment was needed, but only for primary dentition. The need for treatment limited to permanent dentition was reported by 25 (12.50%) respondents, while 45 (22.50%) respondents claimed that both primary and permanent teeth required treatment (fig. 7).

## DISCUSSION

Our data indicate that the level of oral health protection in the subjects attending education and care institutions, associations and physical therapy wards is insufficient. Most children are not included in the specialist oral health monitoring. Parents do not report to dentists for preventive procedures, which may be due to the lack

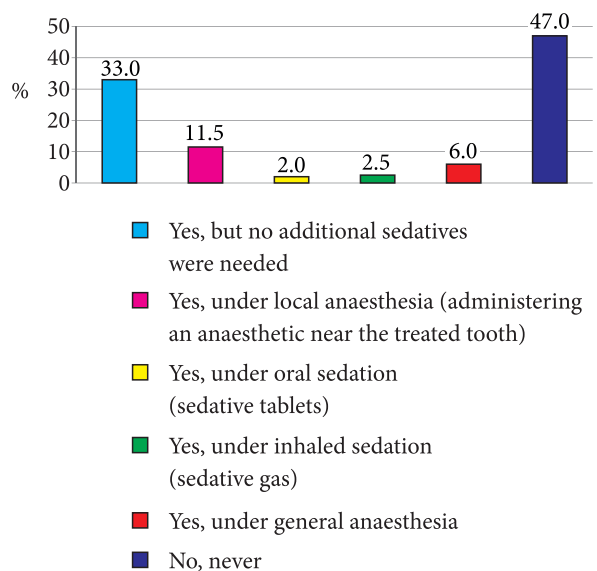


Fig. 5. Answers to a question: “Has your child ever had their deciduous teeth treated?”

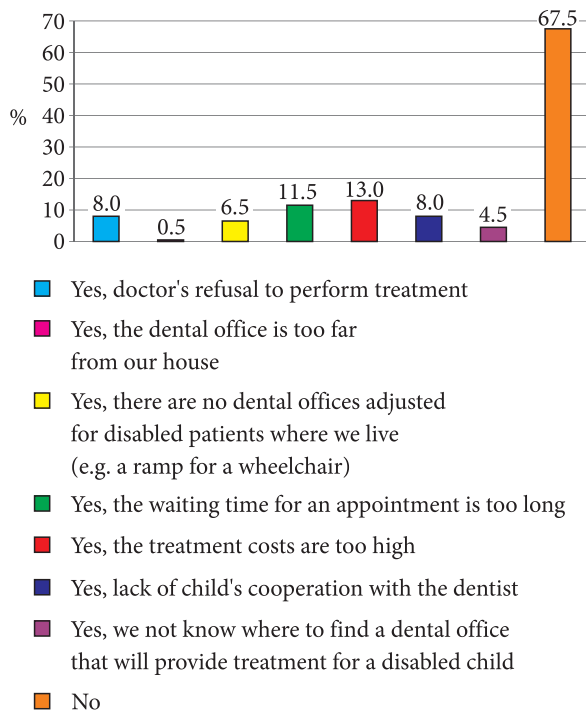


Fig. 6. Answers to a question: "Have you ever encountered any barriers in the access to your child's dental treatment?"

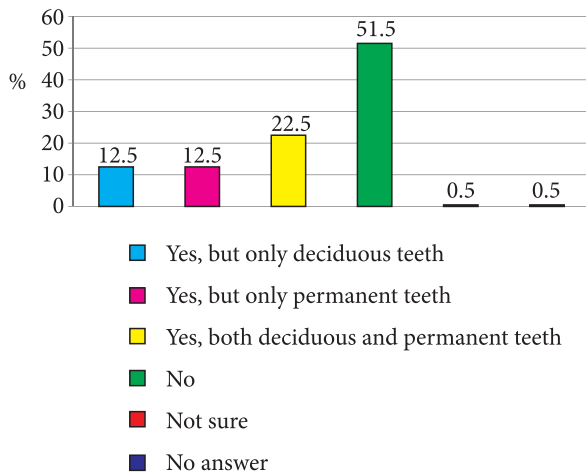


Fig. 7. Answers to a question: "Do you think your child should be undergoing dental treatment at present?"

of knowledge. Less than half of respondents (40.50%) reported their child to the dentist in the last 6 months, with a check-up visit reported by 25.00% of cases, and an adaptation visit declared by only 5.00% of cases. As many as 62.50% of respondents declared that they had never reported their child to the dentist. It can be concluded that the participation of a family doctor or a teacher in educating parents about the need for dental prevention and treatment of oral diseases is limited (6.50 and 2.50%, respectively).

The obtained data confirm the results of studies conducted between 2006 and 2007 in four voivodships in Poland as a part of an expertise entitled "An epidemiological assessment of oral health in disabled and chronically ill children", which was commissioned by the Ministry of Health among paediatric patients affected by intellectual disability, nervous system diseases and reduced sensory functions (impaired vision, blindness), which also indicated significant neglect in dental care, insufficient integrity of dental, general medical and specialist care, as well as insufficient health education on dental problems, both in patients with disability, their parent/guardians, as well as medical personnel (10-12). It was then declared by the parents that only 9.9% of children were referred to the dentist by a paediatrician, and only 67.0% of parents believed that their children needed constant dental care, with only 46.5% of respondents satisfied with dental care provided to their children (10). Furthermore, 48.3% of respondents experienced difficulty accessing dental care services for their child (11). Therefore, the need for developing and implementing a special dental education programme devoted to the prevention of oral diseases and targeting this group of patients should be again emphasised.

For comparison, studies published in 2013 by Leroy and Declerck, which involved a 7-year monitoring of dental care in a population of 326 children and adolescents with disabilities and 53,589 healthy individuals, may be cited (13). The authors found that three or more urgent dental interventions were needed in 25% of children with disabilities during the seven years of observation. Higher numbers of diagnostic radiological images and fillings were observed in the group of healthy children. Also, higher rates of orthodontic treatment were reported for this paediatric population. However, Belgian studies indicate that a similar proportion of healthy and disabled individuals attend regular dental visits, i.e. 49.1 and 48.8%, respectively.

The presented studies point to the problem of the abandonment of dental treatment in children. More than half of respondents (51.50%) consider dental treatment unnecessary, 22.50% of parents/guardians point to the need of both primary and permanent teeth treatment, and 12.50% of respondents found treatment necessary only in primary dentition. A study conducted in Wrocław (Poland) among 548 parents of healthy children aged 6-7 years showed that only 35.4% of respondents reported that deciduous cavities did not require treatment (14). Attempting to comment on this difference between data, it may be assumed that the attention of a parent/guardian of a disabled child is focused on the systemic disease and chronic illness of the patient rather than the prevention of other diseases, including oral conditions. However, this situation requires intensified activities in the sector of education of children regarding oral health care for both deciduous and mixed dentition (14). Negligence of this

problem may lead to consequences in the form of dental pain, which occurred in up to one-third of disabled children from the study group. Similar findings were obtained in a study conducted in a multiethnic group of parents in the United States, indicating that the problem concerns both healthy and ill children, regardless of their origin or cultural background (15).

It seems that the limited access to or lack of information about facilities providing dental treatment for children with disabilities is a significant barrier to proper specialist care. Furthermore, long waiting time for an appointment is another inconvenience reported by parents/guardians. The fact that many dentists refuse to treat patients with disabilities is also important.

The access to treatment under inhaled sedation, which is considered to be an alternative for general anaesthesia, as well as a safe and effective method to facilitate treatment of non-cooperative patients, including those with disabilities, is also limited (16). Procedures using inhaled sedation are not covered by the state health insurance system, which increases treatment costs. This is a significant financial encumbrance for the parents/guardians. Caring for a disabled child is associated with significant fixed costs, such as payment for chronically received medications, prostheses, wheelchairs or rehabilitation.

Patients affected by disabilities are undoubtedly a great challenge for medical personnel. Difficulties in the treatment process are caused by the problems of disabled children in understanding the concepts and therapeutic procedures as well as insufficient patient cooperation (17). Therefore, it is obvious that dental procedures performed in this population often require greater engagement of the medical personnel and parents/guardians.

To sum up, it should be emphasised that insufficient dental care and, possibly, limited parental knowledge of oral health care, requires greater engagement of people from the child's environment, such as a family doctor/paediatrician, educators or teachers. Therefore, it is necessary to establish facilities, where these patients could be provided with easy access to dental treatment using different methods adjusted to their general condition.

## CONCLUSIONS

The presented data illustrate the lack of sufficient dental care for children with disabilities. The study further points to the still present problem of encountering difficulties in access to dental treatment, such as architectural or financial barriers, and access to dental care in the place of residence.

## CONFLICT OF INTEREST

None

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## REFERENCES

- Diéguez-Pérez M, de Nova-Garcia MJ, Mourelle-Martínez MR, Bartolomé-Villar B: Oral health in children with physical (Cerebral Palsy) and intellectual (Down Syndrome) disabilities: systematic review I. *J Clin Exp Dent* 2016; 8(3): 337-343.
- Gerreth K: Sprzęt wykorzystywany podczas leczenia stomatologicznego pacjentów niepełnosprawnych i przewlekle chorych – przegląd piśmiennictwa. *Mag Stomatol* 2013; 23(2): 158-162.
- Morgan JP, Minihan PM, Stark PC et al.: The oral health status of 4,732 adults with intellectual and developmental disabilities. *J Am Dent Assoc* 2012; 143(8): 838-846.
- Gerreth K: Sposoby utrzymywania higieny jamy ustnej u pacjentów niepełnosprawnych i przewlekle chorych – na podstawie piśmiennictwa. *Prz Lek* 2013; 70(1): 31-34.
- Pini DM, Fröhlich PC, Rigo L: Oral health evaluation in special needs individuals. *Einstein* 2016; 14(4): 501-507.
- Batista C, Ramos-Jorge ML, Coelho M et al.: Dental trauma in individuals with severe cerebral palsy: prevalence and associated factors. *Braz Oral Res* 2011; 25: 319-323.
- Borysewicz-Lewicka M, Gerreth K: Działania populacyjne w zapobieganiu chorobie próchnicowej zębów. *Stomatol Współcz* 2016; 23(3): 36-39.
- Borysewicz-Lewicka M, Gerreth K, Gmerek P: Program stomatologicznej edukacji prozdrowotnej w ramach projektu „Edukacja, promocja i profilaktyka w kierunku zdrowia jamy ustnej skierowana do małych dzieci, ich rodziców, opiekunów i wychowawców”. *Stomatol Współcz* 2015; 22(4): 26-29.
- Borysewicz-Lewicka M, Gerreth K, Gmerek P: Promowanie zdrowia jamy ustnej dzieci przedszkolnych – materiały edukacyjne. *Dental Forum* 2015; 43(2): 99-102.
- Borysewicz-Lewicka M, Wochna-Sobańska M, Mielnik-Błaszczak M et al.: Ocena stomatologicznych zachowań prozdrowotnych dzieci i młodzieży niepełnosprawnej z wybranych województw Polski – badania socjomedyczne. *Czas Stomatol* 2010; 63(1): 18-26.

11. Borysewicz-Lewicka M, Wochna-Sobańska M, Mielnik-Błaszczak M et al.: Wyniki ekspertyzy oceniającej stan jamy ustnej, potrzeby lecznicze, a także dostępność do stomatologa dzieci oraz młodzieży niepełnosprawnej i przewlekle chorej. *Czas Stomatol* 2010; 63(2): 90-101.
12. Borysewicz-Lewicka M, Gerreth K, Wiśniewska K, Wysocki J: Leczenie stomatologiczne jako część wymaganej opieki medycznej nad dziećmi niepełnosprawnymi – opinia rodziców. *Dent Med Probl* 2011; 48(1): 45-53.
13. Leroy R, Declerck D: Oral health care utilization in children with disabilities. *Clin Oral Invest* 2013; 17: 1855-1861.
14. Grzesiak-Gasek I, Kaczmarek U: Wiedza rodziców na temat zdrowia jamy ustnej w odniesieniu do intensywności próchnicy u ich dzieci w wieku 6-7 lat. *Dent Med Probl* 2015; 52(2): 184-191.
15. Hilton IV, Stephen S, Barker JC, Weintraub JA: Cultural factors and children's oral health care: a qualitative study of carers of young children. *Community Dent Oral Epidemiol* 2007; 35(6): 429-438.
16. Galeotti A, Garret Bernardin A, D'Antò V et al.: Inhalation Conscious Sedation with Nitrous Oxide and Oxygen as Alternative to General Anesthesia in Precooperative, Fearful, and Disabled Pediatric Dental Patients: A Large Survey on 688 Working Sessions. *Biomed Res Int* 2016; 2016: 7289310.
17. Bartolomé-Villar B, Murrelle-Martínez MR, Diéguez-Pérez M, e Nova-Garcia MJ: Incidence of oral health in paediatric patients with disabilities: sensory disorders and autism spectrum disorder. Systematic review II. *J Clin Exp Dent* 2016; 8(3): 344-351.

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