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The first dental visit of a 3-year-old child. Reasons and socioeconomic determinants

Pierwsza wizyta dziecka w wieku żłobkowym w gabinecie stomatologicznym. Powody i uwarunkowania socjoekonomiczne

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KEYWORDS

first dental visit (FDV), 3-year-olds, socioeconomic determinants

SUMMARY

Introduction. Early childhood caries affects 41.1% of Polish 3-year-olds. If left untreated, it can affect overall health, cause local infections, and reduce quality of life.

Objective. To evaluate the first dental visits of children in the first three years of life in the Warsaw agglomeration.

Material and methods. A questionnaire survey of parents/legal guardians of children aged 12 to 36 months, living in the Warsaw agglomeration was conducted. The questionnaire included questions about socioeconomic factors (level of education and age of both parents, number of children in the family, economic level of the family) and the child's first dental visit (age and reason for visiting). Statistical analysis was performed on data obtained from correctly completed questionnaires (Spearman's rank correlation coefficient to assess the relationships between selected variables and using the chi-square test to compare the percentages, $p < 0.05$).

Results. 496 out of 827 returned questionnaires were included in the analysis. The mean age of the children was 24.16 ± 6.92 months. 249 (50.2%) children visited the dentist. The most common reasons for the first visit were: dental check-up (47.4%), tooth trauma (19.7%) and the presence of carious lesions (13.3%). The first visits due to trauma were usually reported by children aged 12-18 months. Only 57 (11.5%) children visited the dentist in the first year of life. Among them, the most frequent reason for the visit was check-up (34; 6.9% of the entire study group). There was an increasing frequency of the first dental visit with the age of the child, as well as a negative correlation between the level of education of parents and the visit caused by toothache, abscess or the presence of carious lesions. Tooth decay as a reason of first dental visit was also associated with the lower age of the mother.

Conclusions. The recommendation to schedule the first dental visit in the first year of a child's life is not satisfactorily implemented in Poland. It is necessary to disseminate recommendations among the medical personnel providing pediatric and dental care.

STRESZCZENIE

Wstęp. Próchnica wczesnego dzieciństwa dotyka aż 41,1% polskich dzieci w wieku 3 lat. Nieleczona może mieć wpływ na ogólny stan zdrowia, być przyczyną miejscowych infekcji oraz obniżyć jakość życia.

Cel. Ocena odbywania pierwszych wizyt w gabinecie stomatologicznym dzieci w pierwszych trzech latach życia w aglomeracji warszawskiej.

Materiał i metody. Przeprowadzono badanie kwestionariuszowe rodziców/opiekunów prawnych dzieci w wieku powyżej 12 do 36 miesięcy, zamieszkających w aglomeracji warszawskiej. Kwestionariusz zawierał pytania dotyczące czynników socjoekonomicznych (poziomu wykształcenia i wieku obojga rodziców, liczby dzieci w rodzinie, poziomu ekonomicznego rodziny) i pierwszej wizyty dziecka w gabinecie stomatologicznym (wiek

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pierwsza wizyta stomatologiczna, wiek żłobkowy, determinanty socjoekonomiczne

i powód jej odbycia). Analizie statystycznej poddano dane z prawidłowo, kompletnie wypełnionych kwestionariuszy (współczynnik korelacji rang Spearmana w celu oceny powiązań między wybranymi zmiennymi oraz z użyciem testu chi-kwadrat do porównania udziałów procentowych, $p < 0,05$).

Wyniki. Do analizy włączono 496 z 827 zwróconych kwestionariuszy. Średni wiek dzieci osiągnął wartość $24,16 \pm 6,92$ miesiące. Wizytę u dentysty odbyło 249 (50,2%) dzieci. Najczęstszymi powodami pierwszej wizyty były: przegląd uzębienia (47,4%), uraz zęba (19,7%) i obecność ubytków próchnicowych (13,3%). Pierwsze wizyty z powodu urazu odbywały najczęściej dzieci w wieku 12-18 miesięcy. Tylko 57 (11,5%) dzieci zgłosiło się do dentysty w pierwszym roku życia. Wśród nich najczęstszym powodem wizyty było badanie kontrolne (34; 6,9% całej badanej grupy). Stwierdzono wzrastającą częstość odbywania pierwszej wizyty u dentysty z wiekiem dziecka, a także ujemną zależność między poziomem wykształcenia rodziców a wizytą spowodowaną bólem zęba, pojawieniem się ropnia lub obecnością zmian próchnicowych. Odbycie wizyty z powodu próchnicy zębów było także związane z niższym wiekiem matki.

Wnioski. Zalecenie odbycia pierwszej wizyty stomatologicznej w pierwszym roku życia dziecka nie jest w Polsce realizowane w zadowalającym stopniu. Konieczne jest rozpowszechnianie rekomendacji wśród personelu medycznego sprawującego opiekę pediatryczną i stomatologiczną.

INTRODUCTION

Dental caries in primary teeth is characterised by high dynamics of its clinical course and a high risk of tooth destruction and pulpopathy. Untreated caries may cause pain, local and systemic infections, the need for tooth extraction, antimicrobial therapy, hospital stay, and even death (1-3). Decayed or missing teeth make it difficult to chew food and reduce the quality of child's life (4, 5).

Early Childhood Caries (ECC) is still a health issue in many countries. Its occurrence in freshly erupted teeth in the youngest children is particularly alarming. Dental caries affects up to 41.1% of Polish 3-year-olds (6). The incidence among 3-year-olds in European countries varies. Lower incidence compared to Poland was recorded in Italy (8.7%), England (11.7%), Germany (13.7%), Wales (14.5%) and Latvia (36.5%), whereas higher incidence was reported in Lithuania (50.6%) (7-13).

Early prevention of dental caries is necessary to reduce the risk of caries in the youngest children, and thus the incidence of this disease. Proper home prevention, referred to as "dental home", is of key importance (15). The Canadian Dental Association (CDA) (16), the European Academy of Pediatric Dentistry (EAPD) (17), the American Academy of Pediatric Dentistry (AAPD) (18) and the American Academy of Pediatrics (AAP) (19) recommend that the first dental visit (FDV) should take place by 12 months of age, i.e. during the eruption of the first primary teeth. Its main goals include reduction of the risk of ECC, parental education and motivation in terms of healthy behaviours, as well as application of fluoride varnish, especially in the case of high risk of caries (EAPD, AAPD, AAP).

A nationwide survey conducted in Poland in 2017 in a group of 1,638 parents/legal guardians of 3-year-olds showed that up to 52.4% of children have never been to the dentist's. More than half of children who were reported for dental appointment had their visit between 2 and

3 years of age (26.7% of the total population), while only one in 10 children had their visit in the second 6 months of life (4.6% of the total study population). Unfortunately, carious lesions and dental pain were the reason for the visit in up to 16.3 and 2.4% of children, respectively (6).

AIM

The aim of this paper was to assess reporting for the first dental visit among 3-year-olds in Warsaw.

MATERIAL AND METHODS

We conducted a questionnaire study among parents/legal guardians invited to participate in a programme assessing oral health and tooth eruption in children in the Department of Paediatric Dentistry, Medical University of Warsaw between 2010 and 2017. The study was approved by the Bioethics Committee of the Medical University of Warsaw (No. KB/221/2009).

The inclusion criteria for parents/legal guardians included a written consent to participate in the study, child's age between > 12 to 36 months, residence in Warsaw (≤ 20 km from Warsaw). The questionnaire included questions on socioeconomic factors (parental age and education level, number of children in the family, family's financial status) and the child's first dental visit (age and reason). The questionnaire was checked and verified after a pilot study among 20 parents reporting their children for a routine check-up.

Properly completed questionnaires with all questions answered were included in the final analysis. The obtained data were analysed statistically using the Spearman rank correlation coefficient to assess the relationships between selected variables, and the chi-square test to compare percentages. A p-value < 0.05 was considered statistically significant.

RESULTS

Out of 827, a total of 496 questionnaires properly completed by parents/legal guardians of children aged between 12 and 36 months (105 children aged \leq 18 months, 129 children aged $>$ 18 to 24 months, 133 children aged $>$ 24 to 30 months, and 129 children aged $>$ 30 to 36 months) were included in the final analysis. Mean age was 24.16 ± 6.92 months. The exclusion of 331 questionnaires was due to missing answers to any of the questions or child's age $<$ 12 or $>$ 36 months. The characteristics of parents/legal guardians is presented in table 1. The number of children in the family ranged from 1 to 4 (mean 1.63 ± 0.71).

A total of 249 (50.2%) children in the study group visited the dentist. The frequency of dental appointments increased with the age of children (tab. 2). Dental check-up was the most common reason for dental visit (118 respondents, 23.8% of the study group), followed by dental injury and carious lesions (tab. 3). Other reasons included dental pain accompanied by fistula or abscess ($n = 2$), dental discolouration ($n = 17$), delayed tooth eruption ($n = 6$), gingival lesions accompanying tooth eruption ($n = 5$), incorrect alignment of teeth ($n = 4$), foetal teeth ($n = 2$), mucosal lesions ($n = 1$), and abnormal shape of the tooth ($n = 1$). The frequency of check-up visits increased with child's age. First visits due to an injury were most common among children aged 12-18 months. Other reasons, such as problems associated with tooth eruption in 4/33 (12.1%) cases, were also most commonly reported in this age group.

Only 57 (11.5%) children were reported for a dental visit in the first year of life (tab. 2). Dental check-up was the most common reason for dental appointment in the first year of life (34; 6.9% of the total study group). Other children were reported for the visit due to health issues (fig. 1). In addition to dental injuries and evident carious lesions, other reported health-related reasons included oral mucosa

Tab. 1. Socioeconomic characteristics of parents/legal guardians

Parameters	Number N (%)	
Maternal age	\leq 25 years	43 (8.7%)
	26-35 years	364 (73.4%)
	\geq 36 years	89 (17.9%)
Paternal age	\leq 25 years	21 (4.2%)
	26-35 years	329 (66.3%)
	\geq 36 years	146 (29.5%)
Maternal education	primary	19 (3.8%)
	secondary	157 (31.7%)
	higher	320 (64.5%)
Paternal education	primary	16 (3.2%)
	secondary	156 (31.5%)
	higher	324 (65.3%)
Maternal self-assessment of financial status	low	8 (1.6%)
	average	234 (47.2%)
	high	254 (51.3%)

lesions ($n = 1$), impaired tooth eruption ($n = 4$), dental discolouration ($n = 3$), foetal teeth ($n = 1$), incorrect alignment of teeth ($n = 1$), dental pain ($n = 1$) and abnormal shape of the tooth ($n = 1$).

Spearman's correlation analysis confirmed the increasing frequency of FDV with the child's age (tab. 4). It also showed a negative correlation between parental education level and a visit due to dental pain, abscess or carious lesions. Visits due to dental caries were also associated with lower maternal age.

Tab. 2. The frequency of dental appointments and child's age at FDV in the total study population and age subgroups

Age	Visit N (%)	Age at first visit mean \pm SD	Visit in the first year of life N (%)
12-18 months	33/105 (31.4%)	13.32 \pm 3.63	18/105 (17.1%)
19-24 months	59/129 (45.7%)	15.74 \pm 4.80	16/129 (12.4%)
25-30 months	77/133 (57.9%)	20.33 \pm 7.18	17/133 (12.7%)
31-36 months	63/129 (48.8%)	22.58 \pm 7.02	6/129 (4.6%)
Total	249/496 (50.2%)	-	57/496 (11.5%)

Tab. 3. Reasons for the first dental visit in the total study population and age subgroups

Age	Check-up	Tooth injury	Dental caries	Other
12-18 months	9/33 27.3%	9/33 27.3%	3/33 9.1%	12/33 36.3%
19-24 months	24/59 40.7%	11/59 18.6%	9/59 15.3%	15/59 25.4%
25-30 months	47/77 61.0%	9/77 11.7%	9/77 11.7%	12/77 15.6%
31-36 months	34/63 54.0%	14/63 22.2%	7/63 11.1%	8/63 12.7%
p	0.005*	0.201	0.824	0.023*
Total	118/249 47.4%	49/249 19.7%	33/249 13.3%	49/249 19.7%

*statistical significance $p < 0.05$

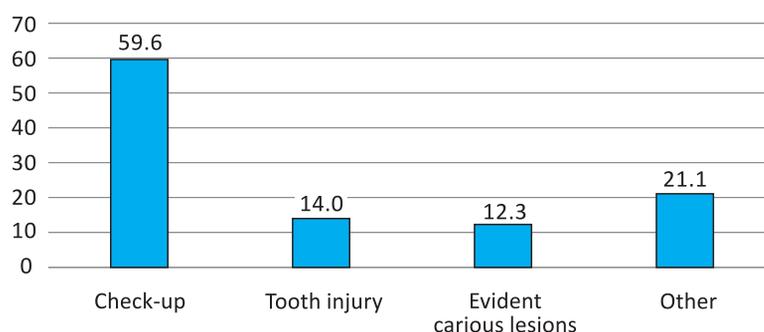


Fig. 1. Reasons for the first dental visit in the first year of life

Tab. 4. Spearman's correlation coefficients between socioeconomic factors and FDV and its reason

	Visit in the first year of life (≤ 12 months of age)	Dental visit	Reasons for FDV				
			dental pain or abscess	injury	check-up	dental caries	other
Child's age	-0.082 (0.067)	0.187* (< 0.001)	0.081 (0.072)	0.013 (0.776)	0.242* (< 0.001)	0.029 (0.525)	-0.063 (0.163)
Maternal education	0.029 (0.521)	-0.048 (0.294)	-0.119* (0.009)	0.001 (0.977)	0.026 (0.564)	-0.115* (0.011)	0.040 (0.380)
Paternal education	-0.017 (0.715)	-0.036 (0.425)	-0.116 (0.011)	-0.058 (0.205)	0.054 (0.233)	-0.088 (0.053)	0.003 (0.940)
Financial status	-0.007 (0.872)	-0.044 (0.342)	-0.051 (0.272)	0.018 (0.701)	-0.008 (0.854)	-0.079 (0.085)	-0.024 (0.600)
Maternal age	-0.007 (0.883)	-0.027 (-0.554)	0.054 (0.232)	-0.044 (0.332)	0.056 (0.214)	-0.128* (0.004)	0.067 (0.140)
Paternal age	-0.025 (0.582)	-0.026 (0.566)	0.091* (0.045)	-0.058 (0.202)	0.017 (0.711)	-0.061 (0.175)	0.052 (0.249)
Number of children in the family	0.015 (0.750)	-0.014 (0.756)	0.074 (0.105)	-0.050 (0.271)	0.077 (0.090)	-0.103* (0.023)	-0.018 (0.695)

*statistically significant

DISCUSSION

The AAPD recommends that infants should be scheduled for the initial dental visit by no later than 12 months of age (15, 18). Our study showed that this recommendation was implemented in 57 (11.5%) children. Mika et al. reported such a visit for 0.63% of infants (20). Other authors also showed that Polish children are scheduled for dental appointment later than by 12 months of age. Grzesiak and Kaczmarek reported 2.7 years as the mean age of FDV (21), whereas Marcinkowska et al. (22, 23) and Mika et al. (20) reported 2.9 years and 3.79 years. Similar observations were reported in the United States (24, 25) and Bulgaria (26), where 2 and 1.73% of children were scheduled for their first visit by the age of 12 months.

A total of 249 (50.2%) 3-year-olds in the study group visited the dentist. Similar findings were reported in epidemiological studies conducted by the Ministry of Health (more than 60% of children aged 3 years have never been to the dentist) (6) and by Mika et al. – 27.51% of children aged ≤ 3 years were reported for the visit (20). Nainar and Straffon investigated children younger than 3 years from Iowa (USA) and reported that only 44% of them visited the dentist (24). Savage et al. found that in North Carolina (USA) 73% of children under 5 years had never been to the dentist (27). In India, Meera et al. found that only 8.52% of children visited the dentist by the age of 3 years (28). Ghimire et al. found that only 7% of children were younger than 3 years (29) compared to 32.2% reported by researchers from Saudi Arabia (30).

In our study, the frequency of visits increased with the age of children, which is consistent with reports of other

researchers (20). Most authors report treatment needs and pain as the most common reasons for the first visit (20, 26), whereas check-up and prevention (47.4%), followed by tooth injury (19.7%) and carious lesions (13.3%) were the most common reasons in our study. This may be due to the age criterion (≤ 3 years) compared to other studies, which included older children (20, 26, 30). Similar percentages for the reasons of first dental visit were observed in a group of children who visited the dentist by the age of 12 months.

The increasing frequency of FDVs with child's age may be explained by the lack of parental knowledge of the recommendations regarding the date of the first visit, the use of preventive services and health-promoting behaviours (proper hygiene habits and diet in the home environment), which results in dental visits for symptomatic reasons. This may be also confirmed by the observed correlation between lower parental education level and a visit due to dental pain, abscess or carious lesions, as well as a visit due to dental caries and maternal age.

A large percentage of incorrectly or incompletely completed questionnaires, which may result from the used parental self-report method, is a limitation of this study.

CONCLUSIONS

The recommendation to schedule a child for the first dental visit by the age of 1 year is not satisfactorily implemented in Poland. Therefore, there is a need to disseminate recommendations to paediatric and dental medical personnel.

CONFLICT OF INTEREST KONFLIKT INTERESÓW

None
Brak konfliktu interesów

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REFERENCES/PIŚMIENNICTWO

1. Milsom KM, Tickle M, Blinkhorn AS: Dental pain and dental treatment of young children attending the general dental service. *Br Dent J* 2002; 192(5): 280-284.
2. Pine CM, Harris RV, Burnside G, Merrett MC: An investigation of the relationship between untreated decayed teeth and dental sepsis in 5-year-old children. *Br Dent J* 2006; 200(1): 45-47.
3. Casamassimo PS, Thikkurissy S, Edelstein BL, Maiorini E: Beyond the dmft: the human and economic cost of early childhood caries. *J Am Dent Assoc* 2009; 140(6): 650-657.
4. Jackson SL, Vann WF Jr, Kotch JB et al.: Impact of poor oral health on children's school attendance and performance. *Am J Public Health* 2011; 101(10): 1900-1906.
5. Pahel BT, Rozier RG, Slade GD: Parental perceptions of children's oral health: the Early Childhood Oral Health Impact Scale (ECOHIS). *Health Qual Life Outcomes* 2007; 5: 6.
6. Olczak-Kowalczyk D (red.): Monitorowanie stanu zdrowia jamy ustnej populacji polskiej w latach 2016-2020. Ocena stanu zdrowia jamy ustnej i jego uwarunkowań w populacji polskiej w wieku 3, 18 oraz 35-44 lata w 2017 roku. Wyd. Dział Redakcji i Wydawnictw Warszawskiego Uniwersytetu Medycznego, Warszawa 2018.
7. Dental public health epidemiology programme. Oral health survey of three-year-old children 2013. A report of the prevalence and severity of dental decay. Crown Copyright 2014; www.facebook.com/PublicHealthEngland.
8. In the news: Survey of 3-year-olds reveals caries levels. *Brit Dent J* 2014; 217(8): 390-391.

9. Morgan M, Monghan N: Picture of Oral Health 2015. Dental Epidemiological Survey of 3 year olds in Wales 2013-14. First Release Report on Caries into Dentine. GIG Cymru NHS WAles, Cardiff University 2015; www.cardiff.ac.uk.
10. Bardsley R: Health survey of three year old children 2013. Rochdale Borough Council; democracy.rochdale.gov.uk.
11. Basner R, Splietha CH, Santamaria RM et al.: National Oral Health Survey of 3-Year-Old Children in Germany 2015/2016. *Caries Res* 2017; 51: 290-385.
12. Maj Saravanan SP, Lokesh S, Polepalle T, Shewale A: Prevalence, Severity and Associated Factors of Dental Caries in 3-6 Year Old Children – A Cross Sectional Study. *International Journal of Dental Sciences and Research* 2014; 2.6A: 5-11.
13. Slabšinskienė E, Milčiuvienė S, Narbutaitė J et al.: Severe early childhood caries and behavioral risk factors among 3-year-old children in Lithuania. *Medicina (Kaunas)* 2010; 46(2): 135-141.
14. Henkuzena I, Care R, Rogovska I: Dental Status Among 2-6 year old children in Riga City, Latvia. *Stomatol Baltic Dent Max J* 2004; 6: 28-30.
15. American Academy of Pediatrics, Section on Pediatric Dentistry: Oral risk assessment timing and the establishment of the dental home. *Pediatrics* 2003; 111(5 pt 1): 1113-1116.
16. Canadian Dental Association: CDA position on first visit to the dentist; https://www.cda-adc.ca/en/about/position_statements/firstvisit/ (data dostępu: 1.05.2020).
17. EAPD: Guidelines on Prevention of Early Childhood Caries: An EAPD Policy Document 2008; https://www.eapd.eu/uploads/1722F50D_file.pdf (data dostępu: 1.05.2020).
18. American Academy of Pediatric Dentistry: Periodicity of Examination, Preventive Dental Services, Anticipatory Guidance/Counseling, and Oral Treatment for Infants, Children, and Adolescents. *The Reference Manual of Pediatric Dentistry* 2018; 209-219; https://www.aapd.org/globalassets/media/policies_guidelines/bp_periodicity.pdf (data dostępu: 1.05.2020).
19. American Academy of Pediatrics, Clark MB, Slayton RL and Section on Oral Health: Fluoride Use in Caries Prevention in the Primary Care Setting. *Pediatrics* 2014; 134(3): 626-633.
20. Mika A, Mitus-Kenig M, Zeglen A et al.: The child's first dental visit. Age, reasons, oral health status and dental treatment needs among children in Southern Poland. *Eur J Paediatr Dent* 2018; 19(4): 265-270.
21. Grzesiak I, Kaczmarek U: The child's first dental visit. *Dent Med Probl* 2006; 43(3): 433-437.
22. Marcinkowska U, Piekarz T, Mosler B et al.: Some elements of caries prevention among children at kindergarten age. I. Prevention in family. *Dent Med Probl* 2013a; 50(1): 45-51.
23. Marcinkowska U, Piekarz T, Mosler B et al.: Some elements of caries prevention among children at kindergarten age. II. Institutional prevention. *Dent Med Probl* 2013b; 50(1): 52-56.
24. Nainar SMH, Straffon LH: Targeting of the year one dental visit for United States children. *Int J Pediatr Dent* 2003; 13: 258-263.
25. Slayton RL, Warren JJ, Levy SM et al.: Frequency of reported dental visits and professional fluoride application in a cohort of children followed from birth to 3 years. *Pediatr Dent* 2002; 24: 64-68.
26. Mileva SP, Kondeva VK: Age at and reasons for the first dental visit. *Folia Med* 2010; 52(4): 56-61.
27. Savage MF, Lee JY, Kotch JB, Vann WF: Early preventive dental visits: effects on subsequent utilization and costs. *Pediatrics* 2004; 114: 418-423.
28. Meera R, Muthu MS, Phanibabu M, Ratnaprabhu V: First dental visit of a child. *J Indian Soc Pedod Prev Dent* 2008; 26: 68-71.
29. Ghimire N, Kayatsha B, Nepal P: The first dental visit. *J Chitwan Med Coll* 2013; 3(6): 30-33.
30. Murshid EZ: Children's ages and reasons for receiving their first dental visit in a Saudi community. *Saudi Dent J* 2016; 28(3): 142-147.

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