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## Assessment of the dentition in children aged 3-4 years in the Mazowieckie Province

### Abstract

**Introduction.** Caries of deciduous teeth in the population of Polish children is a significant health, social and organizational problem.

**Aim.** The aim of the study was to evaluate the dentition of 3- and 4-year-old children in the Mazowieckie Province.

**Material and methods.** The study comprised 393 kindergarten children aged 3 and 4 years in the Mazowieckie Province, 202 girls and 191 boys, including 159 children aged 3 years and 243 children aged 4 years. In all subjects the state of dentition was assessed. The prevalence of caries was calculated as the percentage of people affected by this disease, and the intensity of dental caries was determined using the dmft index. The results were compared with those that Polish researchers obtained in the 3- and 4-year-olds after 2000.

**Results.** In the studied group of 3- and 4-year-olds the prevalence of caries was 62.85%, among girls – 61.88% and among boys – 63.87%. For all subjects the average scores for dmft index were 3.22 and its components dt – 2.72 (decayed teeth), mt – 0.1 (missing teeth), ft – 0.4 (filled teeth).

**Conclusions.** The prevalence and intensity of dental caries in 3- and 4-year-old children attending kindergartens in the Mazowieckie Province is high and close to the national average. It is advisable to increase the preventive and curative measures in this age group of children on dental caries.

**Keywords:** dental caries, deciduous teeth, caries frequency, caries prevalence.

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### INTRODUCTION

One of the conditions for the proper functioning of the stomatognathic system is to maintain full caries-free dental arches, both in the permanent as well as in the deciduous dentition [1]. The presence of untreated carious lesions in deciduous teeth increases the risk of tooth decay in permanent teeth [2]. Premature loss of deciduous molars can cause movement of the molars, which often leads to permanent teeth crowding, asymmetry of dental arches and affects the aesthetics and the development of proper articulation [3].

### AIM

The aim of the study was to evaluate the dentition of 3- and 4-year-old children in the Mazowieckie Province.

### MATERIAL AND METHODS

The study included 393 children aged 3 and 4 years of kindergartens in the Mazowieckie Province, 202 girls and 191 boys, including 159 children aged 3 years and 243 children

aged 4 years. In the study group, there were 84 three-year-old girls, 75 three-year old boys, 118 four-year-old girls, and 116 four-year-old boys. The examinations were carried out by persons previously trained within the action carried out by the Squirrel Julia Foundation, which operates at Elektoralna Dental Clinic in Warsaw. In all subjects, the state of dentition was assessed. The prevalence of caries was calculated as the percentage of subjects affected by this disease, and the intensity of dental caries was determined using the dmft index. The results were compared with those that Polish researchers obtained in the 3- and 4-year-olds after the year 2000.

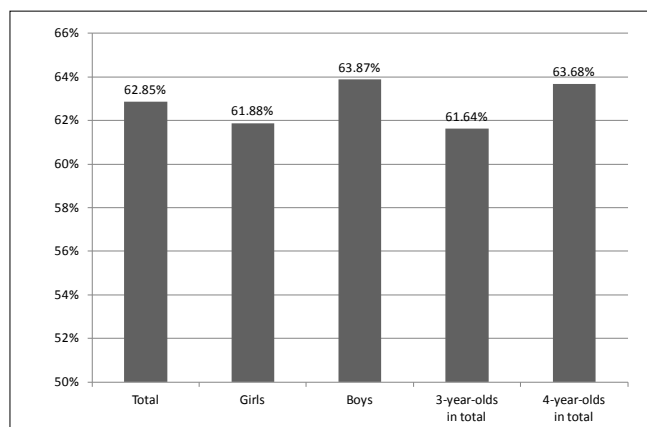
### RESULTS

In our study, it was found that for all examined 3- and 4-year-olds the prevalence of caries was 62.85%, while 61.88% of girls and 63.87% of boys were affected by tooth decay. There was found a growing trend in prevalence of tooth decay associated with age. In the 3-year-olds group, it was 61.64%, while in the 4-year-old group – 63.68% (Figure 1).

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**FIGURE 1.** The prevalence of tooth decay broken into gender and age of the studied children.

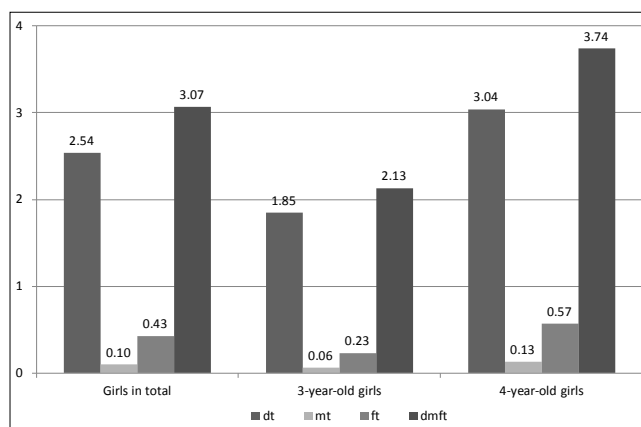
**TABLE 1.** Average dmft index values and its components broken by age of the respondents.

	dt (decayed teeth)	mt (missing teeth)	ft (filled teeth)	dmft (decayed,missing, filled teeth)
Total	2.72	0.1	0.4	3.22
3-year-old children	2.35	0.09	0.3	2.73
4-year-old children	2.97	0.16	0.47	3.56

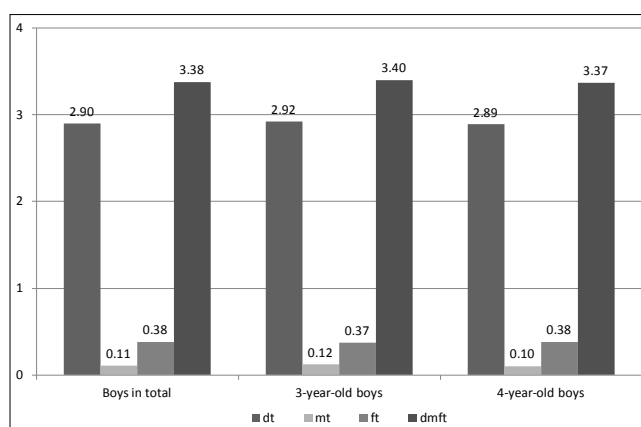
Table 1 shows the mean values of dmft index and its components for all subjects and in a group of 3- and 4-year-olds, while for girls and boys broken by age – Figure 2 and 3. The average dmft index was higher for boys and amounted to 3.38 compared with the girls, in whom it amounted to 3.07. A growing trend associated with age was found in the group of girls, with a mean value of the dmft index amounting to 2.13 in the 3-year-olds, while in 4-year-olds it amounted to 3.74. In the group of 3- and 4-year-old boys average dmft index values were similar and were respectively 3.40 and 3.37.

## DISCUSSION

The results obtained in the present study are similar to those obtained in other studies conducted in Poland. Research in Poznań from the year 2000 shows that tooth decay is present in 41.58% of 3-year-olds (in 40.82% of the girls and in 42.31% of boys) and in 59.62% of 4-year-olds (in 57.84% girls and in 61.26% of boys) [4]. The prevalence of decay among 4-5-year-old children in Wrocław was on average 78.84% and was higher for boys (81.56%) than girls (75%) [5]. The study of up-to 5 year-old children of Łódź confirms that the prevalence of caries in children aged 3 years amounted to 45.4%, and aged 4 years – 66% [6]. Assessment of the dentition in 4- and 5-year-old children in Chelm- Lublin Province, showed the prevalence of decay at 80.2%, including 84% for girls and 68% for boys [7]. Among the children in Białystok the prevalence of decay for 3.5-year-old children amounted on average to 32% (30% – girls, 35% – boys) and for 4-year-old children – on average 51% (48% – girls, 53% – the boys), and the number of the studied 3,5- and 4-year-old children was respectively 86 and 69 subjects [8]. Studies conducted in Szczecin nurseries



**FIGURE 2.** Average dmft index values and its components for 3- and 4-year-old girls.



**FIGURE 3.** Average dmft index values and its components for 3- and 4-year-old boys.

showed that in the group of children aged from 3 years and 9 months the prevalence of dental caries amounted to 72.9%, including 73.3% in girls and 72.4% in boys [9]. Research of 4-year-olds from Lublin shows that the prevalence of decay amounted to 67.11% [3].

Average number of dmft in the study group of 3- and 4-year-old children in the Mazowieckie Province was 3.22. Dmft index in children in kindergartens in Poznań was for 3-year-olds 1.65, 1.47 – for girls and 1.83 – for boys respectively and for the 4-year-olds 2.15, including 1.99 for girls and 2.22 for boys [4]. In studies of 2003 in the Łódź region in 3-year-olds the average value of dmft index was found to be  $2.1 \pm 3.2$ , while in the 4-year-olds  $3.8 \pm 4.1$  [6]. In Chelm in 4- and 5-year-olds the average dmft number amounted in total to 5.72, including 11.6 in girls and 4.12 in boys [7]. Among the children in Białystok the average dmft number for 3.5-year-old girls amounted to 0.79, and 0.96 for boys, total – 0.87. However, for four-year old girls – 3.69 and for boys – 3.16, wherein the component d was approximately 3 [8]. Research of 4-year-olds from Lublin shows that the average dmft number amounted to 5.33 [3].

An increase in prevalence and intensity of decay with age observed in our study is a regularity confirmed in other studies in Poland [10]. In this age group the value of the decay intensity index is influenced by a component d, which determines the teeth with active decay. This is a confirmation of negligence in the treatment of teeth, which also the other authors of similar studies emphasize [3-9].

Significant reduction in the prevalence and intensity of decubitus tooth decay and increase in the number of caries-free children may be achieved by implementing appropriate for age prevention programs, as shown by the experience of many countries [4,6]. According to Kaczmarek et al. the increase in health-related knowledge and implementation of primary (prevention of transmission of infections), early (reducing the level of infection) and traditional (monitoring the hygiene and dietary habits, fluoride preparations, sealing of teeth, early treatment) preventive measures implemented at home, in kindergarten and dental office will reduce the level of decubitus teeth decay[5].

## CONCLUSIONS

1. The incidence and intensity of dental caries in 3- and 4-year-old children attending kindergartens in the Mazowieckie Province is high and close to the national average.
2. It is advisable to increase the preventive and curative measures in this age group of children on dental caries.

## REFERENCES

1. Olczak-Kowalczyk D. Ocena stanu higieny jamy ustnej i uzębienia u dzieci warszawskich w wieku od 3 do 7 roku życia. *Nowa Stomat.* 2001;6(4):13-21.
2. Lee Y, Vang W. Predicting caries in permanent teeth from caries in primary teeth; an eight-year cohort study. *J Dent Res.* 2002;81(8):561-6.
3. Mielnik-Błaszczak M, Michałowski A, Skawińska A, Teleon-Przekora E. Ocena choroby próchnicowej u dzieci w wieku 4-5 lat na podstawie piśmiennictwa i własnych badań klinicznych. *Mag Stomatol.* 2010;20(9):134-9.
4. Kruszyńska-Rosada M, Borysewicz-Lewicka M. Kliniczna ocena zaawansowania próchnicy zębów mlecznych u dzieci w wieku przedszkolnym. *Czas Stomatol.* 2000;53(6):345-51.
5. Kaczmarek U, Jankowska E, Sołtan E. Stan uzębienia 4-5-letnich dzieci wrocławskich. *Dent Med Probl.* 2002;39(2):227-31.
6. Proc P, Filipińska-Skąpska R. Ocena stanu uzębienia oraz stomatologicznych potrzeb leczniczych dzieci łódzkich do lat 5. *Nowa Stomatol.* 2003;4(26):185-9.
7. Sionkowska J, Wysokińska-Miszczuk J. Ocena stanu uzębienia u 4 i 5-letnich dzieci z małych miast województwa lubelskiego (Chełm). *Porad Stomatol.* 2007;9:249-53.
8. Szafrąska B, Waszkiel D. Frekwencja i intensywność próchnicy u dzieci w wieku od 3 do 7 lat, mieszkających w Białymstoku. *Czas Stomatol.* 2008;61(7):480-7.
9. Lisiecka K, Barczak K, Szych Z. Próchnica wczesna u dzieci uczęszczających do szczecińskich żłobków. *Mag Stomatol.* 2009;19(2):62-4.
10. Szymańska J, Szalewski L. Próchnica zębów mlecznych w populacji polskich dzieci w wieku 0,5-6 lat. *Zdr Publ.* 2011;121(1):86-9.

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