

Dental Status Among 2-6 year old children in Riga City, Latvia

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SUMMARY

Dental caries is a significant health problem for people of all ages, but the magnitude of the problem is greatest among very young children [1]. The survey was conducted in Riga in year 2000 among 2-6 year olds attending kindergarten. The aim of the survey was to assess dental status (oral health) of the children and to evaluate severity of dental caries.

638 children, aged from 2 to 6 years were examined. Overall, 52% children were caries free and 48% of children had dental caries with highest rates among 4 and 6 year olds. The highest dft and dfs was registered among 6-year-old children. The highest rate of Care index of treated teeth was observed among 5 and 6 year olds and lowest – among 2 and 3 year-old children. The results of our survey indicate the slight trend of caries decline among 6 year-olds.

Key words: caries prevalence, caries severity, care index.

INTRODUCTION

Good oral health is essential to improving overall health and well being [3].

Dental caries is a significant health problem among the people of all ages in Latvia, but the magnitude of the problem is greatest among very young children [1]. Because dental caries is both a common disease and is largely preventable, it is important to monitor its occurrence in children, one of the most important target groups for prevention [4]. In order to plan preventive program it is necessary to have basic information on caries prevalence as well as distribution of related risk factors [5].

As there was no similar study carried out in Latvia among 2-6-year-old children in order to evaluate dental status according to WHO criteria so far, information was needed to monitor the achievements of existing preventive programs and, in particular, disease trends. The results of our survey showed the slight trend of caries decline among 2-6 year olds [6].

The Stomatology Institute of P.Stradins University recognizes the need for effective and regular measure of oral health in order to determine the need for state programs [2]. Our study is only the one of studies conducted in order to evaluate the oral health status among population of different age groups.

MATERIAL AND METHODS

The study was carried out among 2-6-year-old children attending kindergarten in Riga in year 2000. The kindergartens were randomly selected and based on willingness to cooperate. Prior the beginning of study, the children, parents and personnel were informed about the purpose of study. The aim of the study was to collect data on children

dental health, evaluate the severity of dental caries in order to create and implement preventive program.

Four examiners were previously/specially-trained dentists from Stomatology Institute of P.Stradins University. They participated in a calibration. Examination was performed in medical offices of kindergartens at natural lighting conditions, using plane mouth mirror and explorer, according to the WHO recommendations [19]. In this study caries was recorded as present when a lesion has a detectably softened floor, undermined enamel. All questionable lesions has been coded as sound.

Data was recorded in specially designed record form and transferred to computer data file for statistical analysis, corrected for logical errors. The analysis was performed using the Statistical Program for Social Science (SPSS 8.0). The dmft, dmfs (decayed, missing and filled) indices were used to determine the dental status. The score “missing due to caries” was used if the subject up to 4 years. The segment of treated teeth for each age group was assessed using the Care index (measure of the amount of treated caries, in relation to total caries experience x100)[21].

RESULTS

Characteristics of study population

Participants of the study were 638 children, aged from 2 to 6 years. 52% of them were boys and 48% girls. The mean age of study population was 4.45 (1.26 SD) years. The main characteristics of study population are listed in Table 1.

Prevalence of caries

52% of examined children were caries free and 48% had caries. The prevalence of caries among 2 years olds was 20% , 3 years –36% and 50% for 5 years old children. The highest prevalence of caries was found among 4 and 6-year-old children – 52% and 55% respectively (Fig.2). Prevalence of dental caries among boys was higher than among girls.

Caries was more prevalent among Latvians (62%) than among Russians (36%) and other nationalities (2%), but the difference was not statistically significant.

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dmft and dmfs

Distribution of dmft according to the age is presented in Fig. 3. dmft (dft) and dmfs (dfs) of the participants of different age groups including decayed, filled, missing due to caries till age 4 and older are presented in Table 3. dmft for 2 years old children was 0.7(1.7 SD), 1.6 (2.7 SD) for 3 years olds and 2.7 (3.1 SD), 3.1 (3.4 SD) for 4 and 5 years old children respectively. The highest rate of dft and dfs was observed among primary teeth of 6 year olds. The highest amount of decayed teeth 1.86 (2.3 SD) and filled teeth 1.78 (2.56 SD) was found among the children of the same age group.

Dental status of study population

The average number of deciduous and permanent teeth by age is presented in Fig. 1. The number of teeth was higher among girls.

69% of children did not have filled teeth, but 32% had one or more filled teeth. The amount of filled teeth was similar among boys and girls – 52% and 48% respectively (I would describe in different age groups or groups of similar age 3 and 4 or 5 and 6). Overall 91.5% had no missed teeth because of caries and 9.5 % had (Tab. 2).

Care index

Table 4. Shows the Care index (ft/dmft x100) of study population. Overall, Care index was 33.3%. The lowest rates were observed for 2 and 3-year-old children. Among children of the other age groups, there was gradual increase in Care index rate-24.7 % for 4 years olds, 46.1%-5 year olds, and 50%-6 year olds.

Table 1. Sociodemographic pattern of study population.

	Boys N (%)	Girls N (%)	Total N
Age			
2	28 (47.5)	31 (52.5)	59
3	65 (51.6)	61 (48.4)	126
4	79 (49.7)	80(50.3)	159
5	88 (56.8)	67 (43.2)	155
6	76 (54.7)	63 (45.3)	139
Nationality			
Latvian	205 (53.2)	180 (46.8)	385
Russian	126 (51.9)	117 (48.1)	243
Other	5 (50.0)	5 (50.0)	10
Total	336 (52.7)	302(47.3)	638

DISCUSSION

Recently there has been increased recognition that dental caries in the primary dentition is a major public health problem, particularly among high-risk children such as those from low income families [7]. Latvia has been recognized as country with the lowest BRUTO salary in Baltic states [9]. Therefore, that appears that studies giving relevant epidemiological data, assessing risk factors are particularly timely. This study was carried out in Riga, capital of Latvia.

Table 2. dmft- including filled, decayed, missed due to caries teeth by age groups.

Age group	Index		f		d		m		No. of children
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
2 years	0,7	1,7	0,11	0,45	0,55	1,3	0,03	0,26	59
3 years	1,6	2,7	0,29	0,91	1,26	2,11	0,05	0,29	126
4 years	2,7	3,1	0,67	1,54	2,04	2,65	0,13	0,66	159
5 years	3,1	3,4	1,42	2,1	1,63	2,36	0,18	0,56	155
6 years	3,6	3,4	1,78	2,56	1,86	2,3	0,28	0,74	139
total	2,6	3,2	0,97	1,92	1,61	2,35	0,16	0,58	638

Table 3. dmfs-including filled, decayed surfaces by age groups.

Age group	Index		f		d		m		No. of children
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
2 years	0,8	1,5	0,15	0,58	0,2	0,4	0,033	0,26	59
3 years	1,6	2,7	0,4	1,2	0,35	0,48	0,05	0,29	126
4 years	2,1	2,8	1,05	2,4	0,52	0,5	0,138	0,66	159
5 years	3,1	3,6	2,1	3,4	0,5	0,5	0,18	0,56	155
6 years	3,7	4,4	2,72	4,39	0,55	0,49	0,28	0,744	139
total	2,6	3,2	0,46	0,49	1,47	3,13	0,681	2,514	638

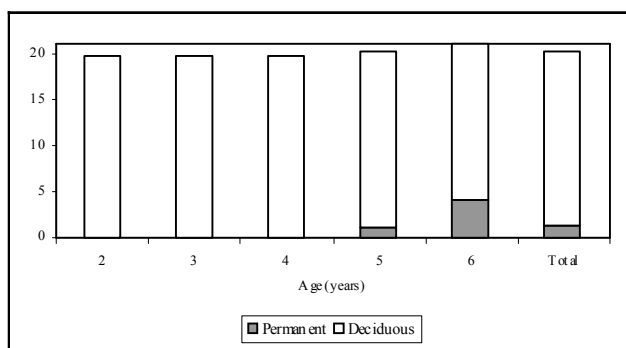


Figure 1. Average number of permanent and deciduous teeth by age.

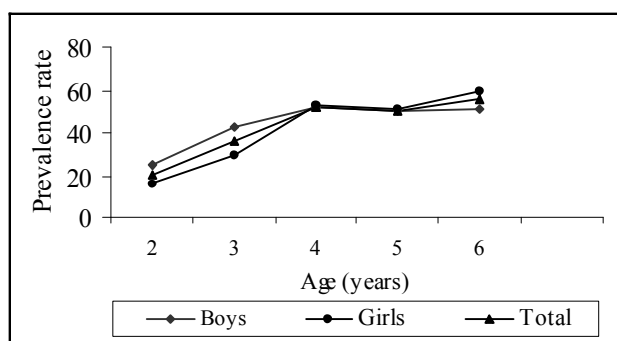


Figure 2. Prevalence of caries by age and sex (%)

Table 4. The amount of treated caries, in relation to total caries experience (ft/dmft x 100).

Age group	Care index (%)	No. of children (N)
2 years	17.7	59
3 years	28	126
4 years	24.7	159
5 years	46.1	155
6 years	50.0	139
Total	33.3	638

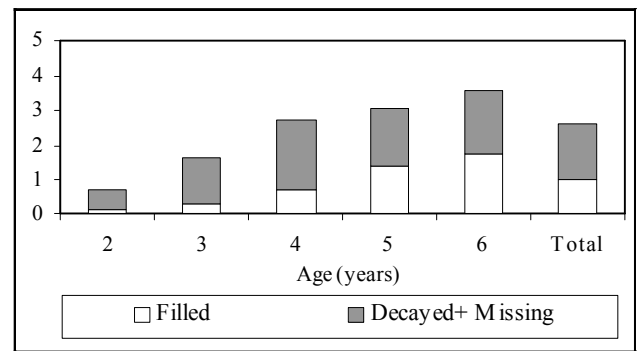
Therefore, results cannot be considered as a representative of all population.

However, study can provide useful basic information on dental health status among children in order to create and plan preventive programs and for more detailed further research.

There is a lot of studies where comparison of caries in permanent dentition between developing and developed countries is presented, however information concerning caries of the primary dentition among preschool children has not been documented to the same extent.[8],[11].

Data of the present study reveals that dmft differs in various age groups. The dmft for 3 year olds in Latvia is 1.62 (2.7 SD) while in Germany it is 1.15. [10].

In 1997 Steksen –Blicks reported that dmft of 4-year-old children in Sweden was 2.0 while in Latvia in same age group it is 2.7. [12] Available data presented from pan European epidemiological survey held in 1991-1995-reports 5-7 years olds of dmft values-1.4 in Finland, [13,14] -1.3 in Denmark [13], -1.57 in Britain [15] and -5.5 in Poland and 7.4 in Byelorussia [13]. 5-6 aged Italian kindergarten population dmft-2.3.[16], [17]. Data from northern Philippines reports higher rates of dmft than in our study-2 years-4.2, 4 years-8.8, 5 years-9.8, 6 years-10.1[20].

**Figure 3.** Distribution of dmft by age.

Data of Care index 33.3% can be compared to that of 86.4% in Britain [15] indicating that segment (ft) of treated teeth in comparison with total dmft is comparatively low. Understanding of pattern of dental caries in children can assure the most effective use of limited health care resources [18],[21].

CONCLUSIONS

According to the findings of our study the following conclusion can be drawn:

Prevalence of dental caries among 2-6-year-old children is high in comparison with developed countries and indicates the need to develop an effective caries prevention strategy.

Low rates of Care index in groups of 2, 3 and 4 year olds indicates low proportion of treated caries and suggests possibly low level of motivation among dentists and parents to provide appropriate dental care for primary teeth.

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