Oral health status of 13-year-olds from the ELSPAC study

Language: English

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Introduction

The ELSPAC project (European Longitudinal Study of Pregnancy and Childhood) organized by WHO has been conducted in several European countries including the Czech Republic. Institute of Social and Public Medicine, Masaryk University Brno has participated in the study. Many anamnestic data were gathered, most of them was collected by special questionnaires, a part of the group was examined anthropologically, psychologically and by general paediatricians at the children hospital. The health state of children was centred upon biological, environmental, social and psychosocial factors that are associated with the survival, health and development of the child. Oral health state of the Elspac group has not been investigated.

Objectives

The aim of the present study is to gather oral health data of children from the ELSPAC group monitored in the city of Brno and to compare them with those of the countrywide survey.

Material and Methods

Randomly selected children (ELSPAC) (n=83) were clinically examined for dental and periodontal status, dental plaque and orthodontic anomalies and the means of the DMFT score and components, restorative index, treatment need and the prevalence of orthodontic anomalies were calculated. Data obtained were compared with those of the countrywide survey (CWS) of 12 (n=316) and 15 yr-olds (n=352) in 2003 (Broukal et al. 2003). Statistical processing: linear extrapolation of both age groups from CWS to 13 years; differences between ELSPAC and CWS tested by Student T-test and Fisher exact test (P=0.05).

Results

The results for dental status, caries experience and restorative index of Elspac children did not differ significantly from that of CWS children, but the prevalence of moderate malocclusion was significantly higher (P<0.05). The significantly positive correlation between caries experience and gingivitis was found in Elspac children (P<0.05).
The results are summarized in tables and graphs

| n	gender	age (SE)	caries free DMFT=0	caries treated DMFT>0, DT=0	carious DMFT>0, DT>0	DT (SE)	FT (SE)	MT (SE)	DMFT (SE)	RI (SE) %
45	boys	13.16	24.40%	66.70%	8.90%	0.44	2.09	0.02	2.56	78.20
		0.22				0.12	0.32	0.02	0.35	6.00
					NS					
38	girls	13.12	36.80%	57.90%	5.30%	0.18	1.71	0.00	1.89	86.50
		0.16				0.08	0.35	0.00	0.35	6.30
83	all	13.14	30.10%	62.70%	7.20%	0.33	1.92	0.01	2.25	81.60
		0.19				0.07	0.24	0.01	0.25	4.40

Table 1: Dental status and caries experience of ELSPAC children

significant difference against caries free and caries treated (P<0.05).				
children	**DMF=0**	**DMF>0,D=0**	**DMF>0,D>0**	**all**
n	40	25	18	83
GI				
Vestibular	**0.33**	**0.20**	**0.53**	**0.35**
SE	0.06	0.04	0.08	0.06
Oral	**0.09**	**0.11**	**0.30**	**0.17**
SE	0.03	0.05	0.09	0.06
All	**0.21**	**0.15**	**0.42**	**0.26**
SE	0.04	0.04	0.07	0.05
Highest GI	**0.97**	**0.84**	**1.56**	**1.12**
SE	0.12	0.15	0.12	0.13

Table 2: GI vs dental status

|	ELSPAC			Czech Republic 2003 *		
	boys	girls	all	boys	girls	all
n	45	38	83	312	356	668
mean age	13.16	13.12	13.14	13.16	13.12	13.14
SD	0.22	0.16	0.19	–	–	–
dental status						
n caries free	11	14	25	–	–	–
%	24.4	36.8	30.1	28	25.9	26.9
n caries treated	30	22	52	–	–	–
%	*** 66.7	*** 57.9	*** 62.7	52.5	52.5	52.5
n carious	4	2	6	–	–	–
%	*** 8.9	*** 5.3	*** 7.2	19.5	21.5	20.6
permanent teeth erupted	26.69	** 27.32	** 26.98	26.17	26.68	26.27
SE	0.41	0.25	0.25	0.15	0.12	0.09
caries experience						
D teeth	0.44	0.18	0.33	0.32	0.38	0.34
SE	0.12	0.08	0.07	0.05	0.05	0.04
F teeth	2.09	1.71	1.92	2.58	2.75	2.44
SE	0.32	0.35	0.24	0.17	0.17	0.12
M teeth	0.02	0.00	0.01	0.01	0.02	0.01
SE	0.02	0.00	0.01	0.01	0.01	0.01
DMF teeth	2.56	** 1.89	2.25	2.9	3.16	2.8
SE	0.35	0.35	0.25	0.18	0.18	0.12
RI (%)	78.2	86.5	81.6	85.2	84.9	85
SE	6	6.3	4.4	1.7	1.6	1.2

Table 3: Dental status and caries experience of ELSPAC children in comparison to the nation-wide data (2003) of age-match children *linear extrapolation of data in 316 12yr-olds and 352 15yr olds. **significant difference against interpolated data Czech Republic 2003(Student t-test: P<0.05) ***significant difference against 12- and 15 yr-olds of Czech Republic 2003 (Fisher exact test P<0.05)
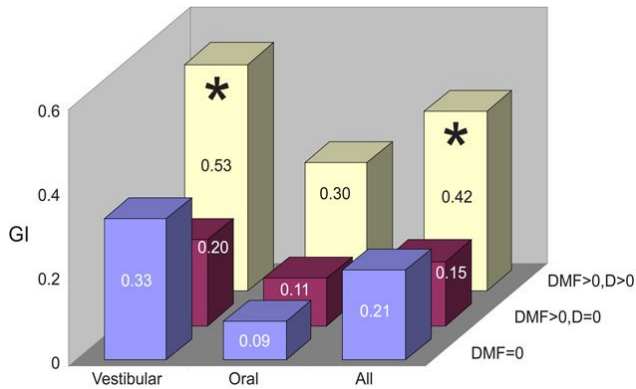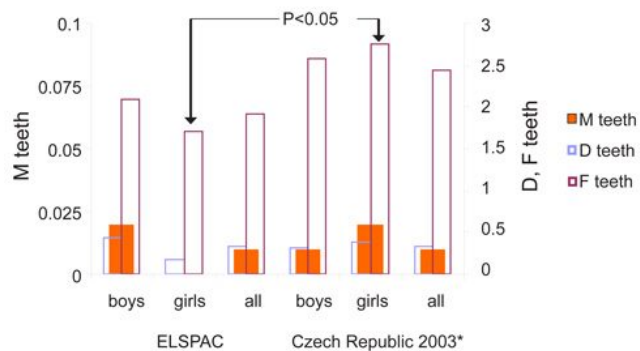

Graph 1: GI vs dental status Significant difference against caries free and caries treated (P<0.05)
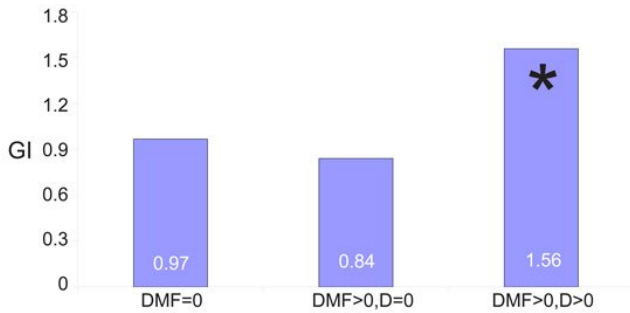
Graph 2: Highest GI score vs dental status Significant difference against caries free and caries treated (P<0.05)
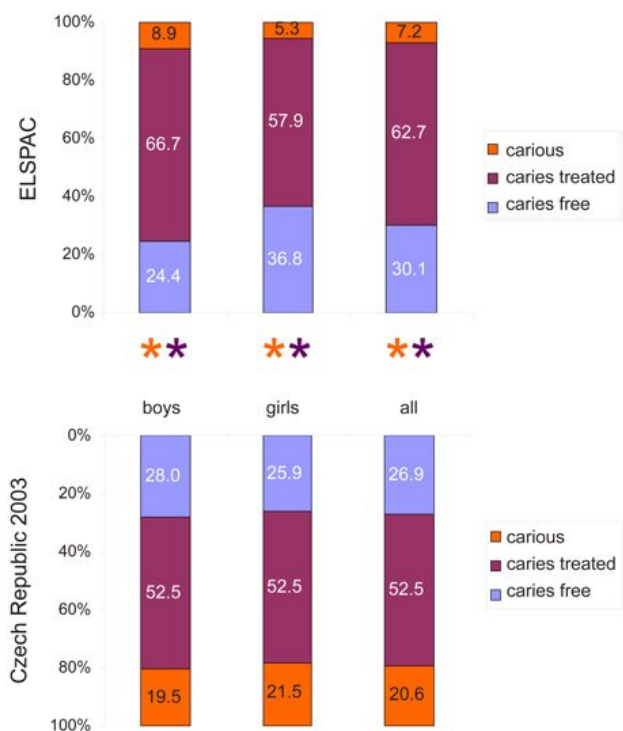
Graph 3: Dental status of ELSPAC children vs. nation-wide data 2003 Significant differences (Fisher exact test P<0.05)

Graph 4: Caries experience of ELSPAC children vs. nation-wide data 2003

Conclusions

Dental caries and diseases affecting periodontium belong in the Czech population to the diseases occurring with high prevalence. Recent studies have indicated that caries and periodontal diseases are increasing mainly in younger generation in our country (Krejsa et al., Widström et al 2001). In addition to external factors dental caries development can be influenced by internal conditions e.g. amount and composition of saliva, response to various therapeutical procedures or medications. Education of parents, their attitude towards health status of the child and oral hygiene may play a significant role. Also the social state of the family may be of importance (Whelton et al. 2004, Casanova-Rosado et al. 2005). Gingivitis is a common concomitant of inadequate oral hygiene and in some cases gingival inflammation can signify an early stage in the development of periodontitis. In recent years high prevalence of gingivitis has been reported for children and adolescent in different parts of the world (Jenkins and Papanou 2001, Albandar and Rams 2002, Bossnjak et al. 2003). In our study the significantly positive correlation between caries experience and gingivitis was found in Elspac children. The study demonstrated further that dental status of the ELSPAC children did not differ significantly from that of CWS children but the prevalence of moderate malocclusion was significantly higher. The comparison of oral health data of ELSPAC children with the development and the health anamnestic data will be the matter of future analyses.

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Abbreviations

ELSPAC = European Longitudinal Study of Pregnancy and Childhood
CWS = Country-wide survey
GI = Gingival index Silness-Löe
DMFT index = Decayed, Missing, Filled Teeth
RI = Restorative index

This Poster was submitted by MUDr. Lucie Klapusová.

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ORAL HEALTH STATUS OF 13 YR-OLDS FROM THE ELSPAC STUDY

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Introduction

Objectives: The ELSPAC project (European Longitudinal Study of Pregnancy and Childhood) organized by WHO has been conducted in several European countries including the Czech republic aimed at identifying the features of the lifestyle and environmental conditions beneficial to the health of mothers and children. Aims: The aim of the present study is to gather oral health data of children from the ELSPAC group monitored in the city of Brno.

Methods

Randomly selected children (ELSPAC) (n=83) were clinically examined for dental and periodontal status, dental plaque and orthodontic anomalies and the means of the DMFT score and components, Restorative index, treatment need and the prevalence of orthodontic anomalies were calculated. Data obtained were compared with those of the countrywide survey (CWS) of 12 (n=316) and 15 yr-olds (n=352) in 2003. Statistical processing: linear extrapolation of both age groups from CWS to 13 years; differences between ELSPAC and CWS tested by Student T-test and Fisher exact test (P=0.05).

Results

ELSPAC vs. CWS: age- 13.14, 13.14 (NS); DMFT- 2.25, 2.80 (NS); DT- 0.33, 0.34 (NS); RI (%)- 81.6, 85.0 (NS); caries free (%) 30.1, 26.9 (NS); at need of restorations (%)- 7.2, 20.6 (P<0.05); no malocclusion (%)- 36.1, 69.4 (P<0.05), moderate (%)- 54.2, 17.5 (P<0.05), heavy (%)- 9.6, 13.1 (NS). Correlations of caries experience and gingivitis in ELSPAC children: caries free vs. caries involved GI=0.21 vs. 0.42 (P<0.05).

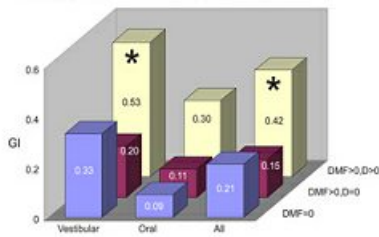**Tab. 1:** Dental status and caries experience of ELSPAC children

n	gender	age (SE)	caries free DMFT=0	caries treated DMFT>0, DT=0	carious DMFT>0, DT>0	DT (SE)	FT (SE)	MT (SE)	DMFT (SE)	RI (SE) %
45	boys	13.16 0.22	24.40%	66.70%	8.90%	0.44 0.12	2.09 0.32	0.02 0.02	2.56 0.35	78.20 6.00
					NS					
38	girls	13.12 0.16	36.80%	57.90%	5.30%	0.18 0.08	1.71 0.35	0.00 0.00	1.89 0.35	86.50 6.30
83	all	13.14 0.19	30.10%	62.70%	7.20%	0.33 0.07	1.92 0.24	0.01 0.01	2.25 0.25	81.60 4.40

Tab. 2: GI vs. dental status
significant difference against caries free and caries treated (P<0.05).

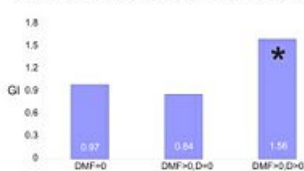| children	DMF=0	DMF>0,D=0	DMF>0,D>0	all
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Vestibular	0.33	0.20	0.53	0.35
SE	0.06	0.04	0.08	0.06
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Highest GI	0.97	0.84	1.56	1.12
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* significant difference against caries free and caries treated (P<0.05).

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SE	0.35	0.35	0.25	0.18	0.18	0.12
RI (%)	78.2	86.5	81.6	85.2	84.9	85
SE	6	6.3	4.4	1.7	1.6	1.2

Graph 3: Dental status of ELSPAC children vs. nation-wide data 2003
* significant differences (Fisher exact test P<0.05)
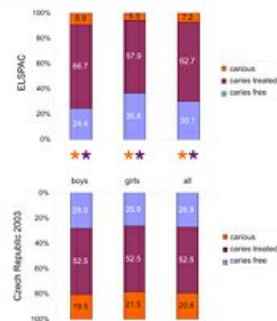
Graph 4: Caries experience of ELSPAC children vs. nation-wide data 2003
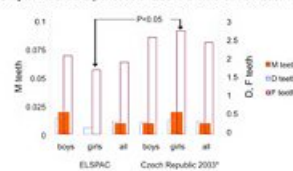
Conclusions

Dental status of the ELSPAC children did not differ significantly from that of CWS children but the prevalence of moderate malocclusion was significantly higher. The significantly positive correlation between caries experience and gingivitis was found in ELSPAC children. The comparison of oral health data of ELSPAC children with the development and the health anamnestic data will be the matter of future analyses.

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