

# The effect of parents' education level and antibiotics administration in early childhood on the oral health of 13-15-year-old adolescents in Brno

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## OBJECTIVES

A considerable body of evidence has shown that parental education level as well as health status in early childhood play a significant role in child dental caries. Multicentric European Longitudinal Study of Pregnancy and Childhood (ELSPAC) carried out also in the city of Brno collected a great amount of data from clinical and socio-economic areas related to children's general health.

## AIMS

To assess the relationship between caries experience of 13-15-yr-olds and the education level of their parents/step parents; and the relationship between enamel opacities prevalence and antibiotic (ATB) administration in early childhood in a retrospective case-series.

## MATERIAL AND METHOD

The study comprised 780 adolescents of Czech nationality, aged 13-15 years. Children included in the study came from 5000 families from Brno (regional capital) and 1500 families from Znojmo (district town). Of these 6500 children, 900 individuals, chosen by a random selection of codes of health records, were invited to participate in the study. Parents of 780 adolescents agreed and signed informed consent to inclusion of their children into the study. All these adolescents were referred to the Clinics of Stomatology, St. Anne's University Hospital and Faculty of Medicine, Masaryk University for dental examination using dental mirror and a probe/WHO probe at good lighting and their dental status (D<sub>3</sub>MFT; WHO 1997 criteria) and enamel opacities (Dean's fluorosis index) were recorded (Table 1).

Data on parents/step parents education level and antibiotics administration (ATB) were retrieved from the ELSPAC database. The study was approved by the Ethical Committee of Masaryk University. Written informed consent was obtained from all participants (and their parents), in line with the Helsinki declaration before inclusion in the study.

### Statistical evaluation

Associations between DMFT vs parental education level, ATB administration during the following periods: birth – 8 mo, 8 – 18 mo and 18 – 36 mo vs enamel opacities and D<sub>3</sub>MFT index were calculated. The significance of differences between groups in quantitative values (e.g. DMFT index) was determined by ANOVA, in qualitative values the chi-square test and Fisher's-exact test were used. P-values < 0.05 were considered statistically significant. Statistical program package Statistica v. 8.0 (Statsoft Inc., Tulsa, USA) was used for statistical analysis.

Table 1: Dean's score of enamel opacity severity

severity	degree
normal	0
questionable	1
very mild	2.0
mild	3.0
moderate	4.0
severe	5.0

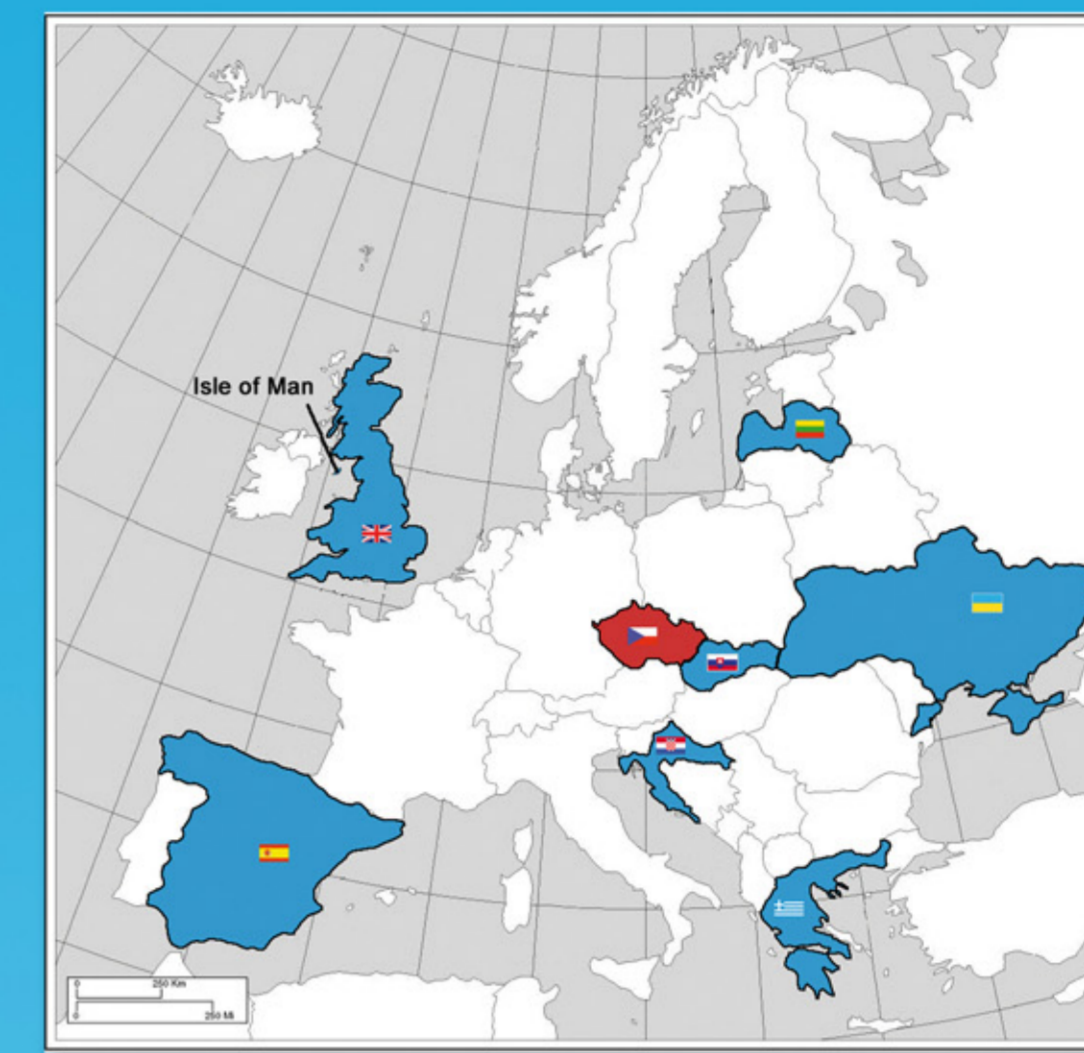


Table 5 Number of caries free children and father education level

Education of father	Number of children	Number of caries-free children	Percents
Primary school	243	51	21.0
Secondary school	150	38	25.3
University	206	59	28.6

Fisher's test  $\chi^2 = 3.552$  (DOF 2); no signif. diff. P>0.05

Table 6 Caries free children and mother education level

Education of mother	Number of children	Number of caries-free children	Percents
Primary school	166	23	13.9
Secondary school	298	86	28.9
University	149	39	26.2

Fisher's test  $\chi^2 = 13.547$  (DOF 2); signif. diff. P<0.05

Table 7 Relation between caries free children and ATB administration

ATB treatment			Number of children	Number of caries-free children	Percents
to the 6 m.	6 - 18 m.	18 - 36 m.			
-	-	-	79	23	29.1
-	-	+	107	23	21.5
-	+	+	190	53	27.9
+	+	+	87	17	19.5
Others			79	28	35.4

Fisher's test  $\chi^2 = 3.640$  (DOF 3); no signif. diff. P>0.05 (first four groups assessed)

Table 8 Relation between enamel opacities and ATB administration

Number of ATB treatments from 8 to 18 m.	Number of children	Number of children with opacities	Percents
0	48	15	31.3
1	68	18	26.5
2	84	12	14.3
3	75	14	18.7
4	54	11	20.4
vice	220	41	18.6

Fisher's test  $\chi^2 = 6.023$  (DOF 5); no signif. diff. P>0.05

Table 9 Number of children with opacity score > 1

	Number of children	Number of children with opacities	Percents
Healthy children	382	16	4.2
Children with allergy	135	14	10.4
Children with allergy and asthma	21	0	0.0
Other diseases	30	3	10.0

Fisher's test  $\chi^2 = 6.571$  (DOF 2); signif. diff. P<0.05 between groups healthy children and children with allergy

Table 10 Relation between opacity occurrence and repeated ATB administration

Number of ATB treatments from 8 to 18 m.	Number of children	Number of children with opacities	Percents
0	48	5	10.4
1	68	9	13.2
2	84	6	7.1
3	75	2	2.7
4	54	3	5.6
vice	220	8	3.6

Fisher's test  $\chi^2 = 8.820$  (DOF 5); no signif. diff. P>0.05

## RESULTS

Tables 2-3 demonstrate that mothers, but not fathers education level significantly negatively correlated with D<sub>3</sub>MFT scores of children and the same relationship was found in caries free children and mother and father education level (Tables 5-6). A history of ATB administration was not significantly associated with the prevalence and severity of enamel opacities or caries experience (Tables 7,8,10), with the exception of situation with opacity score > 1, in which significant differences were found between groups healthy children and children with allergy (Table 9).



source: middleearthnj.wordpress.com

Table 2 Relation between DMFT and parental education level

Education of father	Number of children	Mean DMFT	SE
Primary school	243	3.12	0.18
Secondary school	150	3.04	0.24
University	206	2.57	0.20

ANOVA F(2.595) 2.206; no signif. diff. P>0.05

Table 3 Relation between DMFT and parental education level

Education of mother	Number of children	Mean DMFT	SE
Primary school	166	3.69	0.24
Secondary school	298	2.74	0.17
University	149	2.47	0.21

ANOVA F(2.609) 8.415; signif. diff. P<0.05

Table 4 Relationship between DMFT and ATB administration

ATB treatment			Number of children	Mean DMFT	SE
to the 6 m.	6 - 18 m.	18 - 36 m.			
-	-	-	79	2.16	0.84
-	-	+	107	1.34	0.51
-	+	+	190	1.85	0.46
+	+	+	87	1.91	0.65
Others			79	3.28	1.12

ANOVA F(3.458) = 1.42; no signif. diff. P>0.05; (first four groups assessed)

## CONCLUSION.

The study confirmed a significant correlation of the education level of mothers and caries experience in children, while the association of ATB administration with enamel opacities and caries experience was not significant.



source: bloghop.info