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ORIGINAL ARTICLE

Will the role of family influence dental caries among seven-year-old children?

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Abstract
The present study analyzed the prevalence of dental caries as well as associations of dental health and family competence among 7-year-old children and their families. Dental caries status was the outcome variable of the 7-year prospective follow-up study. Pre-tested questionnaires were used to gather data individually from the parents at six points in time (at the public maternity health-care clinic during the mother's pregnancy and at childbirth, at the well-baby clinic at 18 months, and at ages 3, 5, and 7 years). Clinical examinations at dental health-care clinics were used to record dental status indicators of the child at ages 3, 5, and 7 years. A child had caries more often when the mother did not regard it as important to teach a healthy lifestyle right from birth; when the mother undervalued consistent action in child-rearing; when the father preferred merely to explain the causes and consequences during child-rearing (giving no examples); when the father had several new carious teeth per year; when the child consumed sweets several times a week; or when the child's toothbrushing was infrequent. The child's daily dental health behaviors and a strong influence of family competence emerged in the final logistic regression analysis. Dental and well-baby clinic staff members need to discuss consistency in child-rearing with the parents and there is a need for modeling adult dental health behaviors at the time of the mother's pregnancy if the child's future preventive dental health is to function properly.

Key Words: *Children, dental health, family, prevention, prophylaxis*

Introduction

In most Western countries, dental caries rates have improved among children in recent decades, but progress has recently ceased. The rates may have reached the established confines with the contemporary methods of prevention [1].

Polarization described in the dmft + DMFT index is a situation in which a small proportion of a cohort has the highest dmft + DMFT indices, with the rest of the cohort remaining virtually healthy [2]. Polarization has been observed in patient groups with carious teeth in Finland and Sweden [3–5].

In Finland, dental health care is free of charge to everyone under the age of 18 years. Children have access to high-quality dental health care, but, nevertheless, polarization is evident in the child population of Finland [6]. As is evident in the study by Hausen et al. [7], a fresh approach is now needed in preventive work. Shoefield et al. stated that: "Evidence is a narrower concept than information . . .", continuing that "consent, sharing and choice are different points on the continuum between medical and patient choices" [8]. Similarly, we have evidence of polarization but no specific information about its causes. As far as the continuum between dental professionals and client made choices is concerned, competence in raising children may be one aspect to consider. The family bears responsibility for the everyday activities of dental hygiene. Family resources are essential in such health education work. How can dental health staff motivate and support the family in its efforts? What are the risk factors?

In 1985, the Finnish Family Competence (FFC) study [9] coined the term *family competence* in an effort to describe a way of life and health behavior of young

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Table I. Percentages of children with missing questionnaires or missing dental examinations ($n = 1287$ children)

Child's age	Missing questionnaires %	Received questionnaires %	Missing dental examinations %	Performed dental examinations %
18 months	20.7	79.3	Not examined	
3 years	31.0	69.0	18.0	82.0
5 years	22.3	78.2	36.0	64.0
7 years	31.7	68.3	17.0	83.0

Finnish families. A set of three characteristics is involved: *improved knowledge of child care*, *proper parental attitudes*, and *child-rearing skills and abilities suitable to the situation*. In dental health, practical cases in point include, for example, appropriate tooth-brushing behaviors, an appreciation of dental health, and the adoption of suitable attitudes. The mutually dependent marital relationship of the parents and their team working together (even with the grandparents) will contribute to various family competence issues in positive terms [10]. Education and health education (including but not limited to nutrition, hygiene, clothing, rest, and sleep) will provide the balance between freedom and responsibility.

Factors describing a family's capacity to promote and maintain proper dental health behaviors are key aspects of pediatric dental health care. Parents with poor dental health behaviors are risk factors for caries in their own children [11,12].

We examined dental caries with associations of dental health and family competence among 7-year-old children and their families. Dental caries status at 7 years of age was the outcome variable in this 7-year prospective follow-up study.

Material and methods

The present analysis was part of the prospective population-based study entitled Finnish Family Competence Study (FFCS) [9] carried out in south-western Finland. Researchers in the Department of Public Health, University of Turku initiated the study in 1985 and teamed up with staff members at maternity health-care clinics (MHCC) to put it into practice. The study region comprised 11 health authority areas weighted according to degree of urbanization [13]. A stratified random cluster sampling procedure was used. The sample was representative of the total population of the (then) Province of Turku and Pori. The details of the study design have been described elsewhere [14].

An infant cohort was formed of mothers expecting their first child. The participating children were born between May 1986 and August 1987. Public health nurses helped the mothers-to-be to become involved with the study early in their pregnancy (the 10th week of pregnancy on average). Informed consent was received from 1443 of 1582 mothers.

Pre-tested questionnaires were used to gather data individually from the parents at six points in time (at the public maternity health-care clinic during the mother's pregnancy and again at childbirth, at the well-baby clinic at ages 18 months and 3, 5, and 7 years). Clinical examinations at dental health-care clinics were used to record dental status indicators at ages 3, 5, and 7 years.

Acceptably completed questionnaires returned by mothers at well-baby clinics at the end of the follow-up periods numbered 1025 (at 18 months), 887 (at 3 years), 1003 (at 5 years), and 881 (at 7 years). A total of 1059, 828, and 1070 children were given follow-on clinical dental examinations at 3, 5, and 7 years of age, respectively. The data on non-participants are given in Table I together with associations of caries and missing questionnaire data as well as with associations of caries and participation in clinical dental examinations.

In the case of the children who experienced caries during the previous 3-year and 5-year clinical dental examinations, questionnaires may have been missing during the next collection point of data, but had no significance as far as participation in the follow-on dental examination at 7 years of age was concerned.

The only statistical differences between participants and dropouts were the young ages of the non-participant parents (at their child's age of 18 months as well as ages 3, 5, and 7 years), the 9-year basic education of the mother (at her child's age of 18 months as well as ages 3, 5, and 7 years), and the 9-year basic education of the father (at his child's age of 5 years).

Trained dentists, including two authors (M.-L.M. and P.P.), carried out the clinical dental examinations at public dental health clinics as part of annual routine check-ups. The extent of caries was recorded for every surface by means of a mirror, probe, and, on occasion, fiberoptic light. Two repeat examinations were used to check inter-examiner variance when the children were 3 years old [15]. The procedure was not repeated at the children's ages of 5 and 7 years.

Dental caries status used as the outcome variable was measured with the dmft + DMFT index (16):

(1) *dmft + DMFT index* (dental health: good = 0, fairly good = 1–4, poor dental health = 5–9, and very poor $\geqslant$10).

(2) *Occurrence of caries* (dmft + DMFT = 0, no dentinal caries or only enamel caries in deciduous or permanent teeth; dmft + DMFT > 0, dentinal caries exists).

Classification into dmft + DMFT = 0 and dmft + DMFT > 0 was the basis of the statistical analyses.

The explanatory variables used in the statistical analyses were: socio-demographic variables during pregnancy (including occupations [17], child's dietary factors at 3 years, toothbrushing practices at 3 years, infections, and allergies at 7 years) as well as parents' child-rearing attitudes individually during the mother's pregnancy, parents' previous dental health behaviors and caries histories (dental status assessed by self-report in the questionnaire of the child at 18 years), and other family factors (consistency in child-rearing at 5 years, providing health education with/without explaining at 5 years, child's bedtime at 7 years, father's outdoor activities with child at 7 years) (see Appendix). Family competence (knowledge, attitudes, skills) was measured as illustrated in the Introduction.

Statistical analysis

Univariate analyses of associations were carried out between dental caries and the potential predictor variables by applying Pearson's chi-square test and the Mann-Whitney U-test. The variables used were divided into separate subgroups for multivariate analysis. Multivariate modeling of the associations that were statistically significant in the univariate analyses was first continued with multivariate stepwise logistic regression analyses separately in each subgroup. These analyses were then conducted with the variables that were significant in the subgroups. The number of observations fell substantially at this point because of the cumulative number of missing data in several non-significant variables. In order to have a larger number of observations, dietary factors, toothbrushing behaviors, and other variables were confirmed by fitting a multivariate model in which diet, toothbrushing, and all significant variables were included in the last stepwise analysis. The significant associations were quantified with odds ratios (OR) and 95% confidence intervals (95% CI) [18]. Computations were performed using the BMDP Statistical software [19]. A p-value of less than 0.05 was considered statistically significant.

Results

A total of 631/1070 seven-year-old children (59%) had no caries experience (dmft = 0, DMFT = 0). In the permanent teeth or on tooth surfaces, 995/1070 children (93%) had no caries (DMFT = 0, DMFS = 0).

The mean of carious teeth (dmft + DMFT) was 1.37 (SD 0.07). There were no statistically significant differences in the dmft + DMFT values between the genders or between healthy children and children with several previous infections, allergies, or long-term diseases. Fairly good dental health (dmft + DMFT index 1–4) was found among 322 children (30%), with the proportions of d and D being 34.3% and 5.6%. Poor dental health (dmft + DMFT index 5–9) was found among 105 children (10%) with the proportions of d and D being 31.4% and 3.3%. Very poor dental health (dmft + DMFT index $\geqslant$ 10) was found among 10 children (1%), with the proportions of d and D being 34% and 7.7%.

Socio-demographic factors

Mother's basic education was associated with the occurrence of child's caries: 9 years or less education was statistically significantly associated with caries. Similarly, living in a family with parents whose mutual relationship was other than marriage was associated with child's caries (Table II). The socio-demographic factors did not remain statistically significant in the final logistic regression analysis, however.

Family factors

According to mothers, poor success in consistent child-rearing at 5 years of age was associated with dental caries at 7 years of age. Increasingly more caries was present at 7 years of age when the mother perceived mere explaining of a healthy lifestyle (with no example) as a method of health education. Issues pertaining to the father's outdoor activities together with his child were associated with that child's increased caries experience (Table II). A child's late bedtime (after 2100 h) was associated with the child's caries experience. These family factors became statistically significant in the multivariate stepwise logistic regression analysis.

Child's early dietary factors and toothbrushing behaviors

A child's caries at 7 years of age was associated with frequent consumption of sweets and only occasional toothbrushing at 3 years (Tables III and IV).

Opinions of parents re: child-rearing during mother's pregnancy

The child had caries more often when the mother did not appreciate logical and consistent action in educating her child-to-be (Tables III and IV) at the time of her own pregnancy. Child caries was more frequent when the father considered, during the pregnancy, that just talking and explaining without giving examples would be adequate education of the child-to-be (Tables III and IV). Protective factors of caries included the appreciation of early teaching about a healthy lifestyle and the mother's intention to get outside help when needed (Tables III and IV).

Table II. Socio-demographic* factors and family factors† significantly associated with dental caries dmft + DMFT > 0 at 7 years of age in stepwise multivariate logistic regression analyses

	n	*p*	OR	95% CI
Socio-demographic factors	621			
Mother's basic education		0.001		
> 9 years	322		1.0	
9 years	225		2.0	1.4–2.8
< 9 years	74		1.6	0.9–2.7
Parents' marital status when the child was 5 years of age		0.027		
– marriage	505		1.0	
– cohabitation	51		1.8	1.0–3.3
– other	65		1.7	1.0–2.9
Family factors	591			
Consistency in child-rearing at 5 years of age		0.005		
– had succeeded well	156		1.0	
– had succeeded quite well but sometimes had to yield	419		1.6	1.1–2.4
– had not succeeded at all	16		5.1	1.6–16.1
The best way to provide health education at 5 years of age is to:		0.019		
– provide a child with an example, but also explain, or provide a child with an example in practical life	515		1.0	
– talk and explain	76		1.8	1.1–3.0
Child's bedtime at 7 years of age		0.011		
– before 2100 h	393		1.0	
– after 2100 h	198		1.6	1.1–2.3
Father's outdoor activities with 7 year-old child per week		0.026		
– less than three times	159		1.0	
– three times or more often	432		1.6	1.0–2.3

For socio-demographic * factors and family factors †, stepwise multivariate analyses were carried out separately.

Earlier dental health behaviors of parents

A child's caries increased when the mother and father brushed their own teeth at irregular intervals. The less often toothbrushing took place, the more frequently there was caries (Table III).

A familial trend in caries occurrence was indicated to be evident or present as early as at 18 months of age. The more often the father had carious teeth during those 18 months, the more often his child had dmft + DMFT > 0 at the age of 7 years (Tables III and IV).

Significant explanatory variables for children's dmft + DMFT > 0 were carried out in the final stepwise logistic regression analysis (Table IV). All significant variables (in Tables II and III) were included in the analyses.

Discussion

Six explanatory variables (inconsistency in child-rearing, under-evaluation of consistent behavior, emphasis on the mere explaining of causes and consequences without an example, father's previous caries history, child's frequent consumption of sweets and only occasional toothbrushing) were independently associated with child's caries occurrence.

The study population was representative of the families expecting their first child in southwestern Finland in 1986. During the 7-year follow-up period of these 7-year-old children, the participation rate was still at an acceptable level. Two kinds of data collection were combined: *questionnaire data* collected at public maternity and well-baby clinics and *dental health indicators* collected at public dental health clinics during clinical examinations. Questionnaires also contained different questions at the different ages. In accord with Locker's criteria, the dropout rate was at an acceptable level [20]. The fact that questionnaires were not forwarded to researchers after a child showed evidence of caries during the preceding examination may in part fit the picture of a family in the study. The ability to take care of everyday routines, including child's toothbrushing, is inadequate and illustrates insufficient means.

The homogeneity of the Finnish-speaking people was high, such that generalizations may be made from the unselected population of this area to cover the whole country for the period of the survey.

Carefully selected explanatory variables were used in the analyses of associations but only a few dental health variables remained statistically significant in the final logistic regression analysis. Selected variables described these children and their families in circumstances in which dental health care should take place. Parental engagement to maintain consistent action in everyday family life-related circumstances appeared to be the essential central theme.

According to our findings, parents' own behaviors and beliefs within the family will affect child's dental health and well-being; Jessee [21] obtained similar results. The parents' own dental practices and opinions as early as during the pregnancy appeared significant in influencing the outcomes of child's dental health at

Table III. Child-rearing issues *, caries history †, dental health habits ‡, and dietary factors significantly associated with dental caries dmft + DMFT > 0 at 7 years of age in stepwise logistic multivariate regression analyses

	n	*p*	OR	95% CI
Parents' opinions about child-rearing during the pregnancy	805			
Healthy lifestyle habits should be taught right from birth (OR correspond for increase of one year)	805	0.001	1.2	1.1–1.3
When educating the child, father ranked explanation without an example to be:		0.025		
– the fourth best way	75		1.0	
– the third best way	137		2.3	1.2–4.2
– the second best way	289		2.2	1.2–3.9
– the best way	304		1.7	1.0–3.0
Mother considered consistent action to be:		0.033		
– the best principle	409		1.0	
– the second best principle	154		1.0	0.7–1.4
– the third best principle	154		1.6	1.1–2.4
– the fourth best principle to educate the child	88		1.5	1.0–2.5
Mother's intention to rely on outside help when needed		0.015		
– no	293		1.0	
– yes	512		0.7	0.5–0.9
Parents' own earlier dental habits and caries history	683			
Father's earlier caries		0.006		
– no carious teeth during the last 5 years	68		1.0	
– 1–2 carious teeth during the last 5 years	258		1.8	1.0–3.2
– 1–2 carious teeth per one year	298		1.5	0.8–2.6
– several carious teeth a year	59		3.6	1.7–7.7
Mother brushed her teeth		0.002		
– more often than once a day	456		1.0	
– once a day	212		1.3	0.9–1.9
– irregularly	15		9.2	2.0–42.9
Father brushed his teeth		0.040		
– more often than once a day	295		1.0	
– once a day	298		1.2	0.8–1.7
– every second day	63		2.1	1.1–4.0
– once a week or less	27		2.6	1.0–6.3
Children's dietary factors	740			
Consumption of sweets		0.001		
– hardly ever	93		1.0	
– once a week during a designated sweets day	194		1.5	0.8–2.5
– several times a week	453		2.2	1.3–3.7
Children's dental health habits	741			
Children's toothbrushing habit		0.001		
– daily	154		1.0	
– occasionally	587		1.9	1.3–2.7

For child-rearing issues *, caries history †, dental health habits ‡, and dietary factors, stepwise multivariate analyses were carried out separately.

7 years of age; a similar finding exists elsewhere [22]. Maturity of the parents in raising children can be demonstrated at least through four issues: maintenance of consistent behaviors, being living examples to their children, observation of rules, and early guidance of children towards a healthy lifestyle. Caries is a disease in which the above characteristics appeared to serve as protective factors or buffers at 7 years of age. The family forms the smallest primary unit of education for children. For the first 7 years, parents are in charge of the consistency of behaviors on the part of the child, and such action will later help to guide him/her towards proper dental health practices. Consequently it is important to support families in the child-rearing tasks.

Children whose parents did not understand the importance of the above-stated consistency and meaning of the early age during which healthy lifestyle behaviors should be taught had caries at 7 years of age more frequently than the rest. Frequent consumption of sweets and irregular toothbrushing behaviors at 3 years of age may reflect a lack of family competence. Consistent action should be used without hesitation. Parents should not give in on the guidelines, although they may end up quarreling with the child [23].

A mere explanation as the best method to educate a child (rather than illustrating an issue with an example) may occur because the parents misunderstand the concepts. A child will be unable to understand abstract thoughts until much older than 3, 5, or 7 years of age. A young child will learn appropriate (or inappropriate) behaviors through modeling. The old saying of "don't do as I do, but do as I say" appears to steer parents in

Table IV. Significant explanatory variables for children's dmft + DMFT > 0 in the final stepwise logistic regression analysis. All significant variables in Tables II and III were included in the analyses

	n	*p*	OR	95% CI
Parents' opinions about child-rearing during the pregnancy	533			
Healthy lifestyle habits should be taught right from birth (OR correspond for increase of one year)	533	0.012	1.2	1.0–1.3
When educating the child, father ranked explanation without an example to be:		0.001		
– the fourth best way	49		1.0	
– the third best way	95		5.4	2.2–13.1
– the second best way	196		4.4	1.9–10.3
– the best way	193		3.2	1.4–7.5
Mother considered consistent action to be:		0.027		
– the best principle	287		1.0	
– the second best principle	104		0.7	0.4–1.1
– the third best principle	94		1.7	1.0–2.8
– the fourth best principle to educate the child	48		1.2	0.6–2.3
Parents' own earlier dental habits and caries history	683			
Father's earlier caries		0.002		
– no carious teeth during the last 5 years	48		1.0	
– 1–2 carious teeth during the last 5 years	205		1.8	0.8–3.6
– 1–2 carious teeth per one year	233		1.5	0.8–3.2
– several carious teeth a year	47		5.1	2.0–12.7
Children's dietary factors				
Consumption of sweets		0.008		
– hardly ever	65		1.0	
– once a week during a designated sweets' day	134		2.2	1.0–4.5
several times a week	334		2.7	1.4–5.4
Children's dental health habits				
Children's toothbrushing habit		0.014		
– daily	118		1.0	
– occasionally	415		1.8	1.1–2.8

their child-rearing. In this instance, the saying will not lead to a desired end. As an alternative, model learning that has been comprehended and understood from the 20th century on may continue to be a strong background factor for learning prior to school age, whereas the new paradigm of constructivist learning uses emotions and motivations in educating children [24] and may be utilized in the present situation. Parents function as the social models of their children, as suggested by Åström & Jakobsen [22]. Most parents understand their importance as the role models but may not realize their true meaning for everyday life. In the present study, father's poor dental health behaviors and under-evaluation of illustrating the issues with examples were significant factors in child's caries experience.

What can dental professionals then do in an effort to support parents in their work? The shared decision-making process could function as a way of communicating between staff and patients in health care [8]. A genuine effort to listen [25], a dialogue with members of the family, an assessment of family resources, and support of the family as a unit could be means by which to help and gain the respect of the individual members in each and every contact between the dental staff and family unit [26]. Hearing what family members say, and being ready to act in addition to listening carefully to a member of the family, will make it possible to support child-rearing and education. Securing safety, being prepared to act, having continuity, remembering repetition, and truly hearing the messages are basic elements of forming interaction [27]. Those who work in preventive or prophylactic work (including but not limited to obstetricians and dental health care personnel, public health nurses in maternity health care and well-baby clinics, pediatricians, and health educators) have to understand that family-related issues during a pregnancy can steer the behaviors of parents-to-be for many years to come or lead to later inequality both in pediatric health and pediatric dental health. For the benefit of pediatric dental care, the practice of health education, and issues of health and dental status among the children involved, the professionals should initiate discussion [28] during the initial contact about the parents' own dental health behaviors and attitudes.

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Appendix

Mother's and father's questions (part of questionnaires of the Finnish Family Competence Study during the pregnancy and when the child was at the age of 18 months, 3, 5, 7 years were used).

Socio-demographic variables

Residential environment

1. Do you live in
   - an apartment building 1
   - a terrace house 2
   - a one-family house 3
2. Do you live in
   - a city or town 1
   - a rural population center 2
   - the countryside 3

Occupation and career

3. Your basic education
   - less than primary school 1
   - primary school 2
   - primary school + senior primary school (2 years) 3
   - incomplete lower secondary school 4
   - completed secondary school 5
   - comprehensive school 6
   - upper secondary school without matriculation examination 7
   - matriculation examination 8
   - 9
4. Your vocational education
   - no vocational education 1
   - currently receiving vocational education 2
   - vocational training course on the job training 3
   - vocational school 4
   - vocational college 5
   - vocational educational institution of university level 6
5. Your occupation is: (field and duties) _____
6. How do you define your social position? Are you:
   - an employer 1
   - an entrepreneur 2
   - a senior white-collar worker 3
   - a junior white-collar worker 4
   - a blue-collar worker 5
   - a pension recipient 6
   - a student 7
   - a school pupil 8
   - something else, what _____ 9

7. Are you working?

mother	1	full-time	father	2	full-time
mother	3	part time	father	4	part time
mother	5	shift work	father	6	shift work
mother	7	unemployed	father	8	unemployed
mother	9	studying full-time or course work	father	10	studying full-time or course work
mother	11	maternity or parental leave	father	12	paternity or parental leave
mother	13	at home	father	14	at home

8. Are you working at home or in a location immediately adjoining home (e.g. farm where you live)

mother 1 yes 2 no father 1 yes 2 no

9. What is your occupation?
Mother's occupation:
Father's occupation:

10. How long was your education in years? (starting with comprehensive education)

mother	1	about 9 years	father	2	about 9 years
mother	3	about 12 years	father	4	about 12 years
mother	5	about 13–14 years	father	6	about 13–14 years
mother	7	about 15 years	father	8	about 15 years
mother	9	about 16 years	father	10	about 16 years
mother	11	over 16 years	father	12	over 16 years

11. Parents' ages ⩽25 years >25 years

12. Marital status
Living in families with parents whose relationship was other than marriage

13. Are the child's parents

	No	Yes
married to each other	1	2
cohabiting with each other	1	2
divorced	1	2
mother a widow	1	2
mother remarried	1	2
mother cohabiting again with someone else	1	2
mother unmarried	1	2
father a widower	1	2
father remarried	1	2
father cohabiting again with someone else	1	2
father unmarried	1	2

14. Who all do live within the family?

	No	Yes	
mother	1	2	
step mother/foster mother	1	2	
father	1	2	
stepfather/foster father	1	2	
siblings	1	2	total _____
step sisters/brothers	1	2	total _____
grandparents	1	2	total _____

15. Education and working life
Basic and vocational education, and occupations
Basic education (less than 9 years, 9 years, over 9 years)
Occupational education (none, occupational education on-going, a course or education at work, occupational institution, college, university), and occupation (using a Finnish classification as reported).

16. Are you now
a housewife
in one of the occupations that correspond with your professional education
in one of the occupations that does not correspond with your professional education
unemployed
a student

Family factors

17. The best way to teach health promoting behavior/health education is
1 just talking and explaining (not giving a child an example)
2 giving an example but in addition with an explanation
3 giving an example in practical life

18. Which activities do you perform with your child? How frequently do these activities take place?
A. Parents' participation in child's bedtime rituals
1 several times a day 2 once a day 3 three or five times a week 4 more seldom
B. Parent reading to the child
1 several times a day 2 once a day 3 three or five times a week 4 more seldom
C. Questions pertaining to the father's outdoor activities together with the child
1 several times daily 2 once a day 3 three or five times a week 4 more seldom
D. Parent discussing about life events with the child
E. Parent playing with the child
F. Parent solves the quarrels

19. What is the child's day care form
1 mother herself takes care of the child at home 2 a child care nurse comes to the home
3 family day care 4 three-family day care 5 day care centre
6 other, what _____ 7 father takes care at home

20. Is the child mostly in day care for
1 the whole day 2 part of the day 3 the whole day but part of the week

21. Child's living and living environment
A. How many hours does your child watch TV and video _____
B. When is the child's bedtime? (after ____ h)

Parents' opinions about their children's general health education

22. What is your opinion about health education for 5-year-olds
1 Consistency in child-rearing has practically succeeded
2 Consistency has succeeded quite well but sometimes we give in
3 Consistency has not succeeded in practical life

Child-rearing attitudes during pregnancy

23. Do you have any intention to have outside help when needed (mother's/father's intention to rely on outside help when needed yes/no) no 1 yes 2

24. Place the following four ideas in order of importance, that is, what you think is most important should be 1, the next 2, and so on. Put the number on the line. When educating the child, rank the following four ideas in order of importance in your opinion
    - Explanation of reasons and consequences of the issues are the most important for the child
    - Consistent action of the parents is the most important for the child
    - Learning the uniqueness of his/her own life is most important for the child
    - Learning to take others into consideration is the most important for the child

25. What do you think about your child upbringing mother/father
    inconsistent 1 2 3 4 5 consistent

26. When educating the child, mother/father ranked explanation of the causes and consequences to be:
    1 the fourth best way
    2 the third best way
    3 the second best way
    4 the best way

27. Parents' opinion about child-rearing during the pregnancy
    At what age should healthy lifestyle habits be taught _____ year

Parents' previous caries history and dental health habits

28. Parents' previous caries
    When visiting the dentist have you had
    1 several carious teeth per year
    2 1–2 carious teeth per year
    3 1–2 carious teeth during the last 5 years
    4 no carious teeth during the last 5 years

29. Parents' previous dental health habits
    How often do you brush your teeth
    1 once a week or less frequently 2 every other day 3 once a day 4 more often than once a day

30.

Do you use tooth paste?	0	no	1	sometimes	2	daily		
Do you use tooth picks?	0	no	1	from time to time	2	daily		
Do you use dental floss?	0	no	1	from time to time	2	daily		
Have you had gingivitis?	0	no	1	from time to time	2	continuously	3	do not know
Have you had calculus?	0	no	1	some	2	plenty of	3	do not know

Child's earlier dietary factors, consumption of sweets

31. Dietary factors: daily diet, special diets, child's sugar consumption, child's consumption of sweets
    A. Does the child drink when waking up at night
       0 no 1 usually water 2 usually juice 3 usually milk
    B. Does the child drink other than pure water when waking up at night
       0 no 1 sometimes 2 nearly always
    sugar consumption (also from dental health records)
    C. What foods are included in your child's diet

D. sugar 1 often 2 once a week 3 only tasted 4 not given/not liked
E. Frequency of use of sweets
F. How often does the child eat sweets?
1 daily 2 a couple of times a week 3 once a week on the sweets' day
4 1–2 times per month 5 hardly ever
G. Does the child have a special diet? 0 no 1 yes
H. Sweets and candy have been given to the child for comforting
1 not at all 2 sometimes 3 nearly always
I. Sweets and candy have been given to the child in temper tantrums
1 not at all 2 sometimes 3 nearly always
J. Has the child had a sweets' day
0 no 1 Yes in principle, but this has not succeeded 2 yes and this has succeeded
K. How often does the child chew gum?
1 daily 2 sometimes 3 never chews gum
L. Has the chewing gum used by the children been sweetened by 1 xylitol 2 sugar

Child's earlier toothbrushing habits

32. Is the child's toothbrushing taking place
1 twice a day or more often
2 once a day
3 less often than once a day
4 incidentally

33. Who mainly brushed the child's teeth?
1 child himself/herself
2 either parent
3 child and parent together

34. Does the child primarily use 1 a regular toothbrush 2 an electric toothbrush

35. Does your child use fluoride products? 1 no 2 yes

36. In case fluoride products are used, how often?
1 fluoride toothpaste, _____ times a day
2 fluoride tablets, _____ pieces a day
3 other fluoride products, and which?

37. Does your household water contain fluoride?
0 no 1 yes 3 I don't know

38. Dental health habits: child's frequency of toothbrushing:
A. How often has the child's toothbrushing taken place
0 not at all 1 occasionally 2 daily
B. Child's toothbrushing has been done by parental assistance or without it
1 the child him/herself 2 usually by mother 3 usually by father
4 by one of the parents 5 the child and one of the parents together

The child's illnesses

39. Has the child had diseases and physical symptoms (lasting over 6 months or several times a year? long-term diseases, allergies, headache?