ORIGINAL ARTICLE

Caries Prevalence in 6-Year-Old Children and Inequalities in Oral Health in the Province of Trento - North Italy

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ABSTRACT

Introduction: The prevalence of dental caries in childhood has seen a significant decrease in the past few decades even if it remains one of the most common chronic childhood diseases. The availability of monitoring systems allows us to know the trend of the disease over time and the aspects to improve. The study analyzes, on the birth cohort of 2011 and assessed in 2017, by family pediatricians, the association of dental caries on deciduous teeth with socio-demographic factors. **Materials and Methods:** The sources of the data are the annual database of general and oral health surveillance carried out on the basis of the forms filled by the family pediatricians on the occasion of the 6-year health assessment. The factors associated with the risk of decay of deciduous teeth were analyzed with a multiple analysis according to the logistic model. Mother-related and perinatal variables were retrieved using the birth assistance certificate archive. Prevalence estimates and adjusted odds ratios are provided with 95% confidence intervals (CIs). **Results:** 3505 subjects (1787 males and 1718 females), belonging to the birth cohort of the year 2011, have been evaluated by family pediatricians at the health check del 6th anno. The caries prevalence on deciduous teeth in 6-year-old children is 23% (CI 95% 21.6–24.4), 23.5% in males (CI 21.5–25.5) and 22.5% in females (20.5–24.5). In children with a foreign mother, the prevalence of caries is higher than in children with an Italian mother, equal to 31% (CI 95% 27–35%) and 21.7% (CI 95% 20.3–23.1), respectively. The multiple analysis, carried out on 2783 subjects with valid data, indicates that the presence of a mother of foreign nationality, a mother aged 24 or younger and the practice of non-optimal oral hygiene constitute independent risk factors for decay of deciduous teeth in children of 6 years of age. **Discussion:** A revisit of the provincial program for the oral health promotion in childhood would seem necessary, improving the relations with schools and the interventions to the most vulnerable groups such as foreigners Women of childbearing age and during pregnancy should also receive special care, considering that the mother's lifestyle can have significant impact on the health and behavior of the child. Family pediatrician can play an important role, considering that he comes into contact with the child and his family from birth to puberty. It is necessary however integrate this professional into the network of local health services. **Conclusion:** The health surveillance data provided by family pediatricians combined with birth data allow to evaluate the persistent inequalities in the oral health promotion program in childhood in Trento province.

Key words: Childhood, dental caries, oral health, oral health promotion, social inequalities

INTRODUCTION

Promoting oral health in childhood means laying the foundations for maintaining oral health in adulthood[1,2] with the benefit of reducing the costs of dental care by families and by health services and improving quality of life too.[3] The prevalence of dental caries in childhood has seen a significant decrease in the past few decades.[4,5] This decrease has been possible by health promotion initiatives in schools and in the general population and by the application of evidence based preventive protocols.[6-8] The widespread use of fluoridated toothpastes has also provided a significant

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contribution, so much so that the presence of sufficient exposure to fluoride would make diet a lower risk factor for developing caries.[9,10] Despite this decrease, dental caries remains one of the most common chronic childhood diseases. Worldwide, 60–90% of school children have dental cavities and in the light of changing living conditions and dietary habits, the incidence of dental caries will also increase in many of the developing countries.[11] Most developed countries have prevalence of dental caries, particularly at the age of 6, well beyond the WHO target for this age and to be reached in 2020.[12] Tooth decay is a multifactorial pathological process, where personal behaviors relating to oral hygiene and nutrition play an important, although modifiable, role.[9,13] However, this condition tends to occur more frequently in individuals belonging to weaker socio-economic groups in which adherence to correct lifestyles of access to dental services is difficult.[9,13,14] This aspect is detectable, although with different orders of magnitude, in all developed countries.[15-17] In the province of Trento (540,000 inhabitants as of January 1, 2019, Northeast Italy), a global promotion program for oral health in children has been activated since 1998,[18] anticipating the release of the Italian national guidelines that saw the light in 2010 and had a first update in 2013.[19] The program of the province of Trento, although progressively adjusted over time, has provided for a range of actions to be developed from pregnancy up to the age of 14. The subjects involved, as well as the children and their families, were, with an action of awareness and training, the schools and family pediatricians and with organizational interventions, the public dentistry services. In the context of the program, the activation of periodic monitoring of the oral health state, focused on 6 and 12 year old subjects, was envisaged. The methods of monitoring and the actors involved in the evaluation of children and in the data collection have changed over time even if the detection criteria have remained substantially constant and refer to the WHO basic methods.[20] Since the birth cohort of 2008, the oral health assessment in the province of Trento has been carried out on the basis of the surveillance provided by the family pediatricians. This study analyzes, on the birth cohort of 2011 and assessed in 2017, at the age of 6, by family pediatricians, the current prevalence of dental caries on deciduous teeth and the associated socio-demographic factors. The data reported by our study may be also useful in evaluating the results of the provincial program for the promotion of oral health in the age of 0–14, after 20 years from its activation.

MATERIALS AND METHODS

Family pediatricians represent a typical figure of the national health system in Italy. They are professionals that work in the community, with a reference population of about 1000 children aged between 0 and 14 years, providing care, and prevention services on an outpatient and home basis. About 70 family pediatricians currently operate in the province of Trento. These professionals must ensure, in accordance with Italian law, also a surveillance over time of the overall health of the children, also with reference to the provisions of the personal pediatric booklet that is delivered to the family at birth or at a later age, in the case of example in which a child moves to the province of Trento after birth from outside the province. For the monitoring the state of health, health check at filter age is provided from 0 to 14 years, the chronology of which is shown in Table 1. On the occasion of the health check of the 12th month, the 6th year, and the 13th year, the family pediatrician must also fill in a paper form and send it to the competent health district which will record the data in a specific database. The recorded data are then made available to the Clinical and Evaluative Epidemiology Service for the analysis and the dissemination of the results. At the age of 6 and 13, the evaluation forms provide, starting from the birth cohort of 2006, also the collection of a series of variables aimed at assessing the state of oral health. The variables to be collected are represented in Table 2 and refer, although a concise way, to the WHO basic oral health assessment sheet.[20] The prevalence of caries and oral hygiene procedures followed by 6-year-old children is reported at the time of starting of the provincial program on oral health in 1998 and after 20 years

Table 1: Province of Trento. chronology of health checks provided by family pediatricians for the periodic assessment of child health status

Age	Health check	Filling in the form
1th month		
3th month		
6th month		
12th month		x
24th month		
3th year		
6th year		x
9th year		
13th year		x

Table 2: Province of Trento. variables on oral health collected by family pediatricians at the 6 year health check

Oral health
Dental visit before the age of 6 (yes) (no) for prevention () for treatment
Malocclusions (yes) (no) Orthodontic treatment (yes) (no)
Deciduous caries (yes) (no) Teeth brushing twice a day (yes) (no)
Permanent caries (yes) (no) Permanent teeth sealing's (yes) (no)
Fluoride prophylaxis (yes) (no) Fluoride prophylaxis for years

in 2017. The significance of the temporal trends has been evaluated according to the Cochrane-Armitage criterion. The significance of the differences between the subpopulations compared was analyzed using the Chi-squared test. The factors associated with the presence of deciduous caries have been analyzed by multiple analysis using the logistic regression model in which the explanatory variables were, as for children: gestational age, breastfeeding at birth, gender, weight status at the 6-year visit, usual level of oral hygiene, and as for the mothers: Age at birth, nationality (Italian vs. other), education level, smoking in pregnancy, and residence (urban vs. rural). The variables relating to the mother have been retrieved through a record-linkage with the database of the Birth Assistance Certificate (BAC) related to 2011 birth cohort. The following variables were used as connecting keys between the two archives, the 6-year pediatric form database, and the BAC database: Date of birth, gender, surname of the child, municipality of residence, and number of the pediatric booklet. The latter is reported both in the BAC and in the corresponding personal pediatric booklet. Cases not linked directly were retrieved through a manual link. In Italy, the BAC is a mandatory document that every maternity unit must use to register the birth and monitor pregnancy, and birth and newborn health.[21] The prevalence estimates and adjusted odds ratios are provided with 95% confidence intervals (CIs).

RESULTS

The number of the 2011 birth cohort evaluated by family pediatricians in 2017 consists of 3505 subjects (1787 males and 1718 females) representing approximately 65% of the total resident population of the same age in the province of Trento. About 29% of children have been evaluated before their 6th year birthday, on average 32 days before, and 1% has been evaluated exactly on their 6th year birthday, 70% after their 6th year birthday, on average 40 days later. About 7.3% were born preterm and/or of low weight, 23.7% are overweight (20.7% male and 26.8% female), and 7.4% obese (7.3% male and 7.5% female). Caries prevalence on deciduous teeth in 6-year-old children assessed by family pediatricians at the 6th year check is 23% (CI 95% 21.6–24.4). The prevalence is 23.5% in males (CI 21.5–25.5) and 22.5% in females (CI 20.5–24.5). A significant decrease trend ($P = 0.001$) emerges when comparing 2017 with 1998 [Figure 1]. Considering various aspects that make up the oral hygiene profile, we obtain for the two extreme years of the study period the values, as shown in Table 3. The proportion of children who underwent fluoride prophylaxis within the age of 6 has been statistically significantly reduced ($P < 0.001$), also due to the discontinuation by schools and local health services of the active supply of fluorine. The proportion of children with optimal oral hygiene practice (brush their teeth at least twice a day) increased statistically significantly ($P < 0.001$). The proportion of children with at least one access to the dentist within the age of 6 registered a small increase. This increase was countered by the economic-financial crisis of 2009–2010 which has made access to dental care more difficult for families. The accesses for sealing the first molars have also increased over time with a statistically significant trend ($P < 0.0001$). The oral health status and the oral health hygiene procedures ascertained in the 2011 birth cohort, according to the citizenship of the mother, are represented in Table 4. The prevalence of caries is statistically significantly higher in foreigners than in Italians. While there are no differences in the practice of oral hygiene between Italians and foreigners, the latter show much less access to care and preventive dental practices than Italians. The multiple analysis aimed to verify the level of association of a series of variables with the risk of caries in deciduous teeth was performed on 2783 subjects with valid data. Compared to the initial number of 3.505 cases, for 352 subjects there were no data relating to the birth and/or the mother since they were born outside the province of Trento for which a BAC was not available, a further 370 subjects were excluded from the dataset due to data missing. The presence of a mother of foreign nationality, a mother aged 24 or younger and not practicing optimal oral hygiene constitute independent risk

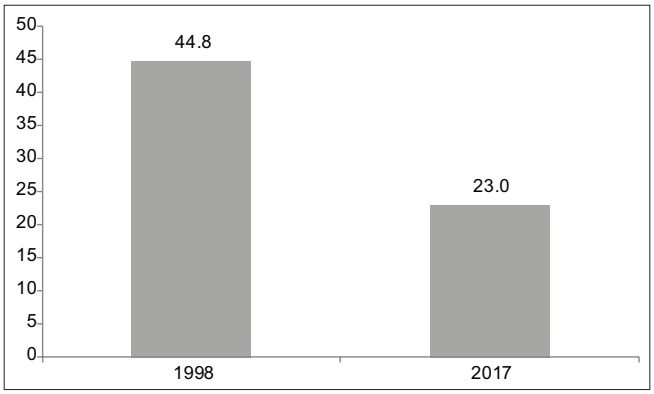

Figure 1: Trento Province. Proportion of 6-year-old children with decay of deciduous teeth. Comparison 1998 versus 2017

Table 3: Province of Trento. Oral health procedures in 6-year-old children. Comparison 1998 versus 2017

Calendar year	% children who underwent systemic fluoride prophylaxis within 6 years	% children with optimal level of oral hygiene (brushing teeth twice/day)	% children with at least one dental visit before the age of 6	% children with sealing of the first molars
1998	63.0	36.4	48.0	10.0
2017	27.0	77.5	53.2	55.0

factors for the risk of decay of deciduous teeth at the age of 6. We do not find differences in relation to the gender of the children, the state of birth at term or preterm and the weight status or with breastfeeding at birth. Smoking in pregnancy may play an effect even if it is not statistically significant. There is no clear association with the mother's educational qualification or urban/rural place of residence [Table 5].

DISCUSSION

The implementation of monitoring systems of the oral health in childhood is important as it represents a necessary tool, on the one hand, to monitor the progress of the disease over time and, on the other hand, to evaluate the effectiveness of prevention programs which, if well planned and conducted, should help to reduce the impact of social inequalities on health and in particular on oral health.[7,8] The health surveillance activity in childhood supported by family pediatricians fulfills an important task, even though it is not very developed in Italy considering that the data collected at the 12th month, 6th and 13th years health checks are valued, as well as the province of Trento, only in the Emilia Romagna Region. This makes difficult to compare our results with those of other Italian regions or other European countries. Another limitation of the study is represented by the fact that access to the planned health assessment in childhood is not mandatory but associated with the availability and awareness of the family. This can lead to differentiated access, linked to the social stratification of families. In the 2011 birth cohort, for example, the proportion of foreigners evaluated was 10%, a much lower value than the proportion of those born with a foreign mother. This proportion, which can be calculated through the BAC database for the year 2011, corresponds to 22%. This selection bias can cause a possible information bias with a potentially negative impact on prevalence estimates. It should also be keep in mind that health surveillance carried out through family pediatricians, while important in itself, does not lend itself directly to carrying out evaluative or planned studies. With these limitations in mind, we believe that the study still provides information that may be deemed useful. A reduction in the prevalence of dental caries in childhood, in particular in 6-year-old subjects,

Table 4: Province of Trento. Oral health procedures and oral health in the 2011 birth cohort assessed at the 6th year health check. Proportion by citizenship of mothers and 95% CI

Oral health procedures	Italians	Foreigners
% children with at least one dental visit before the age of 6	60.0 (59.1–60.9)	48.4 (43.0–53.0)
% children who underwent systemic fluoride prophylaxis within 6 years	28.7 (27.7–29.7)	21.0 (16.2–26.4)
% children with optimal level of oral hygiene (brushing teeth twice/day)	77.0 (76.2–77.8)	78.0 (73.5–81.6)
% children with sealing of the first molars	60.2 (59.1–61.1)	43.1 (38.1–48.3)
Proportion of caries free to deciduous teeth at the age of 6–7	78.3 (77.5–79.1)	69.0 (64.4–73.6)

CI: Confidence interval

Table 5: Factors associated with deciduous teeth caries in 6-year-old children. Adjusted odds ratios (95% CI)

Parameter	Odds ratio	95% C.I.		*P*-value
Females versus males	1.03	0.86	1.23	0.68
Preterm births versus term born	0.87	0.61	1.24	0.45
Exclusive breastfeeding versus mixed/artificial breastfeeding	1.09	0.86	1.37	0.44
Overweight/obese versus normal weight at 6th year	0.97	0.80	1.18	0.80
Fluoride versus non-fluoride prophylaxis	1.16	0.94	1.44	0.15
Oral hygiene <2 times/day versus at least 2 times/day	1.81	1.46	2.25	0.00
Maternal age ≤24 year versus 30–34 years	1.39	1.00	1.92	0.04
Maternal age 25–29 year versus 30–34 years	1.08	0.84	1.39	0.51
Maternal age 35+ year versus 30–34 years	1.02	0.82	1.26	0.82
Foreign mothers versus Italian mothers	1.36	1.03	1.80	0.02
Smoking in pregnancy versus non-smoking in pregnancy	1.17	0.80	1.70	0.41
Rural versus urban residence	1.16	0.95	1.42	0.33
High school towards graduation	1.03	0.75	1.21	0.28
Middle school or lower versus graduation	1.00	0.65	1.18	0.18

CI: Confidence interval

is confirmed also in the province of Trento, as in other national and international realities. The caries prevalence of deciduous teeth in the province of Trento, relating to 2017, substantially coincides with what is reported by local or multicenter Italian surveys in recent years, although relating to children evaluated at different years, especially at 4 years of age, a reference considered today more suitable, together with that relating to 12 years.[22-26] Overall, we are still far from the caries free target indicated by the WHO for the age of 6 by 2020 which is 90%.[12] Over time, there has been an increase in the proportion of children who perform optimal oral hygiene, without significant differences in relation to gender or citizenship. This is contrasted by a reduction in the practice of fluoride prophylaxis, whose efficacy in promoting oral health is well documented whether it is delivered in a systemic or not.[27,28] This reduction can be explained by the absence, from 2011, of the active offer by schools and local health services of fluoride tablets and which has not been replaced by family practice. The practice of systemic fluoride prophylaxis up to the age of 6 would also be justified by the lack of fluoride in the drinking water of the province of Trento. The average concentration of fluoride in drinking water is, on the whole of the province of Trento, <0.03 ppm/l. The maintenance of systemic fluoride prophylaxis could be useful to reduce possible inequalities, linked, for example, to citizenship. In fact, the practice of fluoride prophylaxis in the 2011 cohort was reduced more in foreigners than in Italians. Access to dental services, despite having been negatively affected by the economic and financial crisis of 2009–2010, presents satisfactory aspect overall, even if it confirms the differences between Italian and foreign citizen. The diversity of access to prevention and treatment services in relation to the different ethnic group is widely reported in the literature.[14-16,29,30] Multiple analyses highlight the importance, as a risk factor, of being a foreign citizen, as well as the role of poor oral hygiene.[8,9,13] An effect linked to the mother emerges, not so much associated to the education level, even if the risk increases as the education level of the mother decreases, but above all to the age. In fact, being a young mother is associated with a greater risk of decay in the deciduous teeth of their children at the age of 6. It could be argued that this can be ensured to a deficiency in parenting skills in younger women. Alternatively, this could be associated with a drop in interest about the oral health issue which has occurred in schools and in the general population of the Trento province in the last decade. This has affected the entire territory of our province, considering that there are no differences in relation to the various territorial areas. There is a small effect linked to smoking in pregnancy even if it does not appear statistically significant. This aspect could be better evaluated considering the exposure to environmental smoke in the 1st years of the child's life.[31,32] Our data do not confirm the associations with the gestational age or birth weight of the child or breastfeeding at birth, nor with the body mass index calculated at the 6-year assessment.[33-37] Possible selection biases related to the 6-year series may be involved. A revisit of the provincial program for the oral health promotion in childhood would seem necessary, improving the relations with schools, reviewing the practice of fluoride prophylaxis, and the interventions to the most vulnerable groups such as foreigners.[38,39] Women of childbearing age and during pregnancy should receive special care, considering that the mother's lifestyle can have significant impact on the health and behavior of the child. On the other hand, dental care during pregnancy is safe and recommended and can reduce maternal *Streptococcus mutans* levels.[40-42] Family pediatricians can play, in the context of an oral health promotion program, an important role, considering that they comes into contact with the child and his family from birth to puberty.[43] These professionals can act as an informative and educational multiplier, can identify in advance the subjects at greatest risk of caries, also facilitate taking charge by community dental service.[44] It is necessary however integrate this professional into the network of local health services improving, his knowledge and skills with respect to oral health. All of this can help to mitigate the impact of social inequalities on health and in particular on oral heath in childhood.[45]

REFERENCES

1. Moyer VA, US Preventive Services Task Force. Prevention of dental caries in children from birth through age 5 years: US Preventive Services Task Force recommendation statement. Pediatrics 2014;133:1102-11.
2. Lu HX, Wong MC, Lo EC, McGrath C. Trends in oral health from childhood to early adulthood: A life course approach. Community Dent Oral Epidemiol 2011;39:352-60.
3. Kanellis MJ, Damiano PC, Momany ET. Medicaid costs associated with the hospitalization of young children for restorative dental treatment under general anesthesia. J Public Health Dent 2000;60:28-32.
4. Caries status in Europe and predictions of future trends. Caries Res 1990;24:381-96.
5. Petersen PE. The World Oral Health Report 2003: Continuous improvement of oral health in the 21st century-the approach of the WHO Global Oral Health Programme. Community Dent Oral Epidemiol 2003;31:3-23.
6. Elderton RJ. The effect of changes in caries prevalence on dental education. Int Dent J 1994;44:445-50.
7. Watt RG. Strategies and approaches in oral disease prevention and health promotion. Bull World Health Organ 2005;83:711-8.
8. Chou R, Cantor A, Zakher B, Mitchell JP, Pappas M. Preventing dental caries in children <5 years: Systematic review updating USPSTF recommendation. Pediatrics 2013;132:332-50.
9. Harris R, Nicoll AD, Adair PM, Pine CM. Risk factors for dental caries in young children: A systematic review of the literature. Community Dent Health 2004;21:71-85.
10. Van Loveren C, Duggal MS. The role of diet in caries prevention. Int Dent J 2001;51:399-406.
11. Petersen PE, Bourgeois D, Ogawa H, Estupinan-Day S, Ndiaye C. The global burden of oral diseases and risks to oral health. Bull World Health Organ 2005;83:661-9.

12. Hobdell M, Petersen PE, Clarkson J, Johnson N. Global goals for oral health 2020. Int Dent J 2003;53:285-8.
13. Petersen PE. Sociobehavioural risk factors in dental caries-international perspectives. Community Dent Oral Epidemiol 2005;33:274-9.
14. Pine CM, Adair PM, Nicoll AD, Burnside G, Petersen PE, Beighton D, *et al*. International comparisons of health inequalities in childhood dental caries. Community Dental Health 2004;21:121-30.
15. Locker D. Deprivation and oral health: A review. Community Dent Oral Epidemiol 2000;28:161-9.
16. Hosseinpoor AR, Itani L, Petersen PE. Socio-economic inequality in oral healthcare coverage: Results from the World Health Survey. J Dent Res 2012;91:275-81.
17. Peres MA, Macpherson LM, Weyant RJ, Daly B, Venturelli R, Mathur MR, *et al*. Oral diseases: A global public health challenge. Lancet 2019;394:249-60.
18. Piffer S, Nava N. L'esperienza ed i risultati del progetto di promozione della salute orale in Trentino. Anni 1997-2003. Prev Stomatol 2004;1:7-18.
19. Ministero Della Salute. Linee Guida Nazionali per la Promozione Della Salute Orale e la Prevenzione Delle Patologie Orali in età Evolutiva; 2013. Available from: http://www.salute.gov.it/imgs/C_17_pubblicazioni_867_allegato.pdf. [Last accessed on 2020 Nov 12].
20. World Health Organization. Oral Health Surveys: Basic Methods. 5th ed. Geneva: World Health Organization; 2013.
21. Ministry of Health. Birth Attendance Certificate. Ministerial Decree No. 349 of 16 July. New Delhi: Ministry of Health; 2001. Available from: http://www.salute.gov.it/portale/documentazione/p6_2_2_1. [Last accessed on 2020 Oct 07].
22. Ferro R, Besostri A, Meneghetti B, Stellini E. Il declino della carie dentale nella popolazione infantile della Regione Veneto nelle ultime due decadi. Prev Stomatol 2004;1:71-9.
23. Ferro R, Besostri A, Olivieri A. Survey of caries experience in 3- to 5-year-old children in Northeast Italy in 2011 and its trend 1984-2011. Oral Health Prev Dent 2017;15:475-81.
24. Colombo S, Gallus S, Beretta M, Lugo A, Scaglioni S, Colombo P, *et al*. Prevalence and determinants of early childhood caries in Italy. Eur J Pediatr Dent 2019;20:267-73.
25. Ugolini A, Salamone S. Agostino P, Sardi E, Silvestrini-Biavati A. Trends in early childhood caries: An Italian perspective. Oral Health Prev Dent 2018;16:87-92.
26. Strohmenger L. Indagine Epidemiologica Nazionale Sulle Condizioni di Salute Orale nei Bambini di 4 e 12 Anni in Italia; 2017. Available from: https://www.doctoros.it/articoli-scientifici/indagine-epidemiologica nazionale-salute-orale-nei-bambini. [Last accessed on 2020 Dec 03].
27. Featherstone JD. Prevention and reversal of dental caries: Role of low level fluoride. Community Dent Oral Epidemiol 1999;27:31-40.
28. Jones S, Burt BA, Petersen PK, Lennon MA. The effective use of fluorides in public health. Bull World Health Organ 2005;83:670-6.
29. Riggs E, Van Gemert C, Gussy M, Waters E, Kilpatrick N. Reflections on cultural diversity in oral health promotion and prevention. Glob Health Promot 2012;19:60-3.
30. Riggs E, Gussy M, Gibbs L, Van Gemert C, Waters E, Kilpatrick N. Hard to reach communities or hard to access services? Migrant mothers' experiences of dental services. Aust Dent J 2014;59:201-7.
31. Shekin JD, Broffit B, Levy SM, Warren JJ. The association between environmental tobacco smoke and primary tooth caries. J Public Health Dent 2004;64:184-6.
32. Hanioka T, Nakamura E, Ojima M, Tanaka K, Aoyama H. Dental caries in 3-year-old children and smoking status of parents. Pediatr Perinat Epidemiol 2008;22:546-50.
33. Fearne JM, Bryan EM, Elliman AM, Brook AH, Wlliams DM. Enamel defects in the primary dentition of children born weighing less than 2000 g. Br Dent J 1990;168:433-7.
34. Lai PY, Seow WK, Tudehope DI, Rogers Y. Enamel hypoplasia and dental caries in very-low birthweight children: A case-controlled, longitudinal study. Pediatr Dent 1997;19:42-9.
35. Costa LR, Daher A, Queiroz MG. Early childhood caries and body mass index in young children from low income families. Int J Environ Res Public Health 2013;10:867-78.
36. Norberg C, Hallström Stalin U, Matsson L, Thorngren-Jerneck K, Klingberg G. Body mass index (BMI) and dental caries in 5-year-old children from southern Sweden. Community Dent Oral Epidemiol 2012;40:315-22.
37. Kantovitz KR, Pascon FM, Rontani RM, Gavião MB. Obesity and dental caries-a systematic review. Oral Health Prev Dent 2006;4:137-44.
38. Reinhardt CH, Löpker N, Noack MJ, Rosen E, Klein K. Peer teaching pilot programme for caries prevention in underprivileged and migrant populations. Int J Paediatr Dent 2009;19:354-9.
39. Lukes SM. Oral health knowledge attitudes and behaviors of migrant preschooler parents. J Dent Hyg 2010;84:87-93.
40. Brambilla E, Felloni A, Gagliani M, Malerba A, García-Godoy F, Strohmenger L. Caries prevention during pregnancy: Results of a 30-month study. J Am Dent Assoc 1998;129:871-7.
41. Finlayson TL, Gupta A, Ramos-Gomez FJ. Prenatal maternal factors, intergenerational transmission of disease, and child oral health outcomes. Dent Clin North Am 2017;61:483-518.
42. George A, Sousa MS, Kong AC, Blinkhorn A, Norrie TP, Foster J, *et al*. Effectiveness of preventive dental programs offered to mothers by non-dental professionals to control early childhood dental caries: A review. BMC Oral Health 2019;19:172-6.
43. Section on Pediatric Dentistry and Oral Health. Preventive oral health intervention for pediatricians. Pediatrics 2008;122:1387-95.
44. Dela Cruz G, Rozier G, Slade G. Dental screening and referral of young children by pediatric primary care providers. Pediatrics 2004;114:e642-52.
45. Cooper D, Kim JS, Duderstadt K, Stewart R, Lin B, Alkon A. Interprofessional oral health education improves knowledge, confidence, and practice for pediatric healthcare providers. Front Public Health 2017;5:209-12.

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