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AVÓS COMO CUIDADORAS É FATOR DE RISCO PARA OCORRÊNCIA DE CÁRIE NA PRIMEIRA INFÂNCIA? ESTUDO RETROSPECTIVO

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Orientadora: Tathiane Larissa Lenzi.

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RESUMO

O objetivo deste estudo retrospectivo foi investigar a influência do cuidador habitual da criança no risco de cárie na primeira infância. Para isso, foram selecionados todos os prontuários de pacientes com idade entre 0 e 3 anos atendidos na Bebê Clínica da Faculdade de Odontologia da Universidade Federal do Rio Grande do Sul entre 2014 e 2018 que continham informações sobre o cuidador habitual da criança e experiência de cárie do bebê. Prontuários com dados incompletos, de pacientes com necessidades especiais e crianças com condição de saúde geral comprometida foram excluídos. Dois examinadores previamente treinados coletaram dos prontuários odontológicos os fatores potencialmente associados com cárie na primeira infância, incluindo características individuais e clínicas: gênero (feminino ou masculino), idade da criança, nível de escolaridade materna (até oito anos ou mais de oito anos), cuidador diurno da criança (mãe, avó ou outros), experiência de cárie (dentes cariados, com extração indicada, obturados (ceo-d): ≤ 2 ou > 2), dieta cariogênica – frequência de ingestão de açúcar (até quatro vezes ao dia ou mais de quatro vezes), aleitamento materno exclusivo até seis meses (sim ou não), aleitamento noturno (sim ou não), aleitamento atual (mamadeira, aleitamento materno ou ambos), açúcar entre as refeições principais (sim ou não), leite com açúcar (sim ou não), frequência de escovação (uma vez ao dia ou duas vezes ou mais) e uso do fio dental (sim ou não). Os dados obtidos foram submetidos à análises bivariadas (teste qui-quadrado) e regressão logística para avaliar a associação das variáveis independentes com experiência de cárie (α = 0,05). De um total de 310 crianças, 19% eram cuidadas pelas avós. Não houve associação entre o tipo de cuidador habitual da criança e experiência de cárie na primeira infância (teste qui-quadrado, p=0,32). Baixa escolaridade materna (OR: 5,76 95% IC 1,18-28,18; p=0,02) e a idade da criança (OR: 1,14 95% IC 1,09-1,19; p=0,00) foram fatores de risco, enquanto que tempo de aleitamento materno superior a 9 meses (OR 0,38 95% CI 0,21-0,68; p=0,00), ausência de aleitamento noturno (OR: 0,50 95% IC 0,27-0,91; p=0,02) e ausência de consumo de açúcar entre as refeições principais (OR: 0,50 95% IC 0,28-0,89; p=0,02) foram fatores de proteção para cárie na primeira infância. Em conclusão, uma maior experiência de cárie na primeira infância não é associada com o cuidador habitual da criança.

Palavras-chave:Cárie Dentária. Criança. Dente Decíduo. Cuidadores.

ABSTRACT

The aim of this retrospective study was to investigate the influence of the child's daytime caregiver on the risk of early childhood caries (ECC). For this, all dental records of patients aged 0 to 3 years attended at the Baby Clinic of the School of Dentistry of Federal University of Rio Grande do Sul between 2014 and 2018 that contained information about the child's daytime caregiver and caries experience of the baby were selected. Records with incomplete data, patients with special needs and children with compromised general health condition were excluded. Two previously trained examiners collected from dental records the factors potentially associated with ECC, including individual and clinical characteristics: child's sex (male/female), age of child, mother's schooling ($\leq$ 8 years or > 8 years of formal education), child's daytime caring person (mother, grandmother or others), caries experience (decayed teeth, with extraction indicated, filled (dmft): $\leq$ 2 or > 2, cariogenic dietary - frequency of sugar intake (until 4 times a day or more than 4 times a day), exclusive breastfeeding for 6 months (yes/no), breastfeeding duration ($\leq$ 9 months or > 9 months), nocturnal feeding (yes or no), actual feeding (bottle, breastfeeding or both), sugar between main meals (yes or no), sugared milk (yes or no), toothbrushing frequency (once a day or twice or more times), and flossing use (yes or no). Data were submitted to bivariate analyses (chi-square test) and logistic regression to evaluate the association of independent variables with caries experience (α = 0.05). Of a total of 310 children, 19% had the grandmother as daytime caring person. There was no association between the child's daytime caregiver and caries experience in early childhood. Low maternal education (OR: 5.76 95% IC 1.18-28.18; p=0.02) and the child's age (OR: 1.14 95% CI 1.09-1.19; p = 0.00) were risk factors, while breastfeeding time higher than 9 months (OR 0.38 95% CI 0.21-0.68; p = 0.00), absence of nocturnal feeding (OR: 0.50 95% CI 0.27-0.91; p = 0.02) and absence of sugar consumption between main meals (OR: 0.50 95% CI 0.28-0.89; p = 0.02) were protective factors for ECC. In conclusion, a higher caries experience in early childhood caries is not associated with the child's daytime caregiver.

Keywords:Dental Caries. Child. Tooth, Deciduous.Caregivers.

SUMÁRIO

1 INTRODUÇÃO

A cárie na primeira infância é definida como a presença de uma ou mais lesões cariadas (não cavitadas ou cavitadas), dentes ausentes (devido à cárie) ou superfícies restauradas em qualquer dente decíduo em uma criança com menos de seis anos de idade (AAPD, 2016). Tal condição é um problema de saúde bucal que afeta crianças no mundo todo, com uma prevalência entre 22% a 90% (CHEN *et al*. 2019). No Brasil, aproximadamente 48% das crianças com 5 anos de idade apresentam pelo menos um dente decíduo com lesão de cárie não tratada (ARDENGHI *et al.,* 2014).

A presença de cárie dentária na infância é causa frequente de dor, desconforto e dificuldades para dormir e comer, comprometendo o desenvolvimento biopsicossocial infantil (MCGRATH *et al*., 2004). Além disso, as lesões de cárie não tratadas estão associadas a um impacto negativo na qualidade de vida relacionada à saúde bucal de crianças pré-escolares e suas famílias (ORTIZ *et al*., 2014; CORRÊA-FARIA *et al.,* 2018).

Sabe-se que a ocorrência da cárie dentária está relacionada a vários fatores sócio-culturais e comportamentais, entre eles, má higiene bucal e hábitos alimentares inadequados (QIU *et al.,* 2014). A relação entre dieta alimentar e cárie dentária assume uma posição ainda mais relevante na primeira infância, uma vez que hábitos alimentares adquiridos nesta fase da vida perpetuam-se ao longo da vida do indivíduo. Além disso, as crianças colocam o aprendizado em prática se este for relacionado com pessoas que têm um significado para elas. Tem sido demonstrado que o baixo status socioeconômico dos pais está associado à maior prevalência ou severidade de cárie dentária em crianças (HOOLEY *et al.,* 2012; KATO *et al.,* 2017; KIRTHIGA *et al.,* 2019; CHEN *et al.,* 2019). Além disso, o baixo nível de educação dos pais (KATO *et al.*, 2017; HOOLEY *et al.,* 2012; KIRTHIGA *et al.*, 2019) e o consumo de açúcar entre as refeições (HOOLEY *et al,.* 2012; NAKAYAMA; MORI, 2015) têm sido associados a um maior risco de cárie. Sendo assim, pais altamente instruídos relatam atitudes mais positivas e intenções mais fortes em controlar a ingestão de sacarose das crianças do que pais com baixa escolaridade.

Embora as decisões do dia a dia relativas à nutrição, escolaridade e saúde da criança sejam responsabilidade dos pais, muitas vezes, a criança passa o dia na creche ou sob responsabilidade de babás, avós ou outro parente, e obviamente seus hábitos são

influenciados pelo comportamento, conhecimento e hábitos do cuidador (QIU *et al.,* 2014). A baixa escolaridade do cuidador e o fato da criança frequentar um ambiente escolar têm sido associados com experiência de cárie em crianças em idade pré-escolar (MELO *et al.,* 2011). A figura das avós vem recebendo considerável atenção nas esferas sócioeconômica e familiar, sendo cada vez mais prevalente a criação de netos por eles (HAYSLIP JÚNIOR; KAMINSKI; 2005). Tal fato justifica-se não só pela maior expectativa de vida do ser humano, mas também pelo exercício do papel desempenhado em diversas situações, como na maternidade adolescente, divórcio dos filhos ou atividades profissionais dos filhos (HAYSLIP JÚNIOR; KAMINSKI; 2005). Aspectos culturais das avós, como suas crenças, podem influenciar decisivamente, com maior ou menor peso, a saúde bucal das crianças. As avós tendem a oferecer alimentos contendo açúcar às crianças como forma de transferência de amor e carinho.

Se por um lado tem sido reportado que viver com avós não é fator de risco para o desenvolvimento de cárie (MIZOGUCHI *et al.,* 2003), por outro, tem sido demonstrado que o cuidado da criança pelas avós está relacionado a ocorrência de cárie em crianças na primeira infância (WATANABE *et al.,* 1999; MITOH, 2006). Além disso, tem sido evidenciado que a incidência de cárie em crianças na primeira infância tendeu a ser maior quando as crianças eram cuidadas pelas avós durante o dia em comparação com aquelas cuidadas pelas mães ou pela equipe da escola (OHSUKA *et al.,* 2008). É importante ressaltar que todos os estudos foram realizados no Japão, dificultante a generalização dos resultados.

Fica evidente que existe uma lacuna na literatura a respeito da influência dos cuidadores sobre o perfil de cárie em crianças na primeira infância. Sendo assim, é relevante investigar, através de um estudo retrospectivo, a associação entre o perfil do cuidador diário da criança e o risco de cárie na primeira infância.

2 ARTIGO CIENTÍFICO - Can be grandmother as child's daytime caring person a risk factor for early childhood caries? A retrospective study

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Abstract

Purpose: This retrospective study aimed to investigate the association between child's daytime caring person and risk for early childhood caries (ECC). *Methods:* The sample consisted of all clinical records (census) of children (0-3 years old) attended in a public dental clinic, which contained information about caries experience and child's daytime caring person (mother, grandmother or others). Individual and clinical-related factors potentially associated with ECC were collected from records. Caries experience was dichotomized as dmft≤ 2 or dmft>2. Data were analyzed by the chi-square ($\alpha = 0.05$). Binary logistic regression models were built. *Results:* From a total of 310 children, 19% of children had the grandmother as daytime caring person. There was no association between child's daytime caring person and caries experience (chi-square Test, p=0.32). Logistic regression analysis showed that low maternal schooling (OR: 5.76 95%CI 1.18-28.18; p=0.02) and child's age (OR: 1.14 95% CI 1.09-1.19; p=0.00) were risk factors, and breastfeeding duration (> 9 months – OR: 0.38 95% CI 0.21-0.68; p=0.00), no nocturnal feeding (OR: 0.50 95% CI 0.27-0.91; p=0.02), and absence of sugar consumption between main meals (OR: 0.50 95% CI 0.28-0.89; p=0.02) were protection factors for ECC. *Conclusion:* A higher caries experience in early childhood is not associated to child's daytime caring person.

Keywords: dental caries, infants, child-care environment

Introduction

Early childhood caries (ECC) is defined as the presence of one or more decayed (non cavitated or cavitated lesions), missing or filled (due to caries) surfaces, in any primary tooth of a child under six years of age[1,2]. ECC still affects more than 600 million children worldwide and remains largely untreated[2], negatively impacting on oral health-related quality of life of children and their families [3,4].

Dental caries is determined by biological, behavioural, and psychosocial factors linked to an individual's environment. ECC, like other forms of caries, is considered to be a biofilm-mediated, sugar-driven, multifactorial, dynamic disease that results in the imbalance of demineralization and remineralization of dental hard tissues[5]. Baby bottle and breastfeeding in the first year of age, especially if frequent and/or nocturnal, are related with ECC[6]. Furthermore, early childhood is a crucial time for the development of eating behaviors and food preference. It has been evidenced that the introduction of highly sweetened foods and drinks beyond 12 months is strongly associated with the incidence of caries in subsequent years[7].

Although daily decisions about child nutrition, education, and health are responsibility of parents, often, children spend most of their day in day care or under care of baby-sitters, grandparents, or other relatives. Thus, children's oral health practices are influenced by knowledge and habits of their caregivers[8]. It has been shown that the caregiver's low education level and attendance in preschool were associated with caries experience of children[9].

An increasingly prevalent family constellation is a home headed by a grandmother who is raising grandchildren[10]. It may related not only to higher life expectancy, but also to role exercised by grandparents in many situations, such as adolescent motherhood, divorce or professional activities of their offspring[10].

Grandparents' cultural aspects, such as their beliefs may influence on children's oral health. Grandmothers may utilize the food as a reward, to regulate children's emotions and as a tool to express their love[11]. In this sense, children with a grandmother as daytime caring person might have a higher risk for ECC that those daytime cared by mother or school staff[12]. However, scientific literature is limited and controversal[12–14] regarding the association between childcare by a grandmother and risk for ECC.

Therefore, this retrospective study aimed to investigate the association between child's daytime caring person and risk for ECC.

Material and Methods

Ethical aspects

The local Research Ethics Committee approved the research protocol. For the collection of data, the parents or guardians signed written informed consent. The personal information of the patients was kept confidential.

Sample collection

This retrospective university-based study was conducted at the Baby Clinic of the School of Dentistry, Federal University of Rio Grande do Sul, Brazil. The convenience sample comprised of children (0-3 years old) treated during the period 2014-2018 by fourth and fifth year undergraduate dental students, supervised by professors (pediatric dentistry specialists). To be eligible for the study, clinical records should have registered the child's daytime caring person and caries data based on clinical examination. Records with incomplete data, patients with special needs and children with compromised systemic health were excluded from the study.

In total of 454 clinical records, 417 of them reported the child's daytime caring person. Ninety and four records presented incomplete data about caries experience and

other 13 were of the children with health problems, hence, were excluded from the study. Thus, 310 children were included in the study.

Data collection

Two trained reviewers collected the information from clinical records. The factors potentially associated with ECC were investigated, including individual and clinical characteristics: child's sex (male/female), mother's schooling (≤ 8 years/> 8 years of formal education), child's daytime caring person (mother/grandmother/others), cariogenic dietary - frequency of cariogenic dietary carbohydrate, mainly sugar intake, more than four times a day (yes/no), exclusive breastfeeding for 6 months (yes/no), breastfeeding duration (≤ 9 months or > 9 months), nocturnal feeding (yes/no), actual feeding (bottle, breastfeeding or both), sugar between main meals (yes/no), sugared milk (yes/no), toothbrushing frequency (once a day or twice or more times), and flossing use (yes/no). Caries experience (dmft index) of the patients at the first appointment was categorized using the median as the cutoff point. The child's age was a continuous variable (expressed in months).

Data analysis

The compilation, organization, and codification of the data were performed using Microsoft Excel (Microsoft Corp., Seattle, USA). The statistical analyses were performed using SPSS software (SPSS Inc., version 22, Chicago, IL, USA). The response variable (caries experience) was dichotomized as dmft≤2 or dmft>2.

Initially, bivariate analyses (chi-square test) were performed to investigate the associated factors with caries experience. A multiple regression model was created with crude and adjusted odds ratio (OR) estimates for caries experience according to the

categories of the independent variables. Covariables with a *p* value < 0.25 in the univariate logistic regression analysis were incorporated into the multiple model, and Wald's backward method was used for the selection of variables for the model. Only covariables with a *p* value < 0.05 remained in the final model. The Hosmer and Lemeshow test was used to determine the goodness of fit of the final model. The level of significance was set at 5%.

Results

The sample was comprised of 310 children (146 boys and 154 girls) with average age of 25.4 months (± 8.4 months), presenting a dmft index mean of 3.2 (± 3.8). Additionally, 60.3% them were active-caries, with an average of 5.2 (± 7.5) active carious lesions.

Bivariate analyses results are shown in Table 1. There was no association between child's daytime caring person and caries experience (chi-square test, p=0.32). On the other hand, infants that had exclusive breastfeeding for 6 months (p<0.01) and were breastfeed for more than 9 months (p<0.01) presented lower caries experience (dmft≤ 2). Toddlers that did not have a cariogenic dietary (p<0.01) and did not consume sugar between main meals (p<0.01) also presented a minor caries experience. Moreover, lowmother's schooling impacted on higher caries experience in early childhood (p<0.01).

Logistic regression results for association between independent variables and caries experience are summarized in Table 2. The adjusted model showed that children with mothers presenting low education level had 5.76 times more chance of have higher caries experience in childhood (p=0.02). Breastfed infants for more than 9 months had less chance of have higher caries experience (OR: 0.38 95%CI 0.21-0.68; p=0.00). The

consumption of sugar between main meals increased the risk for caries (p=0.02). Children that did not receive nocturnal feeding had less chance of experience more caries in childhood (OR: 0.50, 95% CI: 0.27–0.91; p=0.02). Moreover, higher caries experience was associated with older children (p=0.00).

Discussion

This retrospective university-based study provides information if child's daytime caring person is a risk factor for ECC. In our study, the variable "caregiver" was categorized as follow: mother, grandmother or others (e.g. others family members, babysitter or school staff). There was no association between child's daytime caring person and caries experience in early childhood.

Food treats play an important role in the grandparent-grandchild relationship and are used by grandparents to differentiate their identity and relationship from parents and other family members[15]. It has been speculated that grandparents indulge grandchildren with foods and drinks, generally in the form of discretionary choices (e.g. those high in sugar, fat and/or sodium)[16], which may lead a higher caries risk. Negative reports about grandparental feeding practices; however, are mainly from parental perceptions. On the other hand, a recent study[17] showed that grandparents favored core-food over discretionary-food treats. They considered the risks (e.g. dental caries) and rewards (e.g. pleasure) of food treats and balanced their wishes with those of their grandchildren and parents[17].

A previous study[18] showed that the percentage of caries experience was higher among children living with grandparents than children living without grandparents. However, the association between grandparent co-residence and dental caries was confounded by socioeconomics factors. The low maternal education and low household income contributed to the reduced prevalence of parental control over toothbrushing

frequency and daily sugar-sweetened beverage intake, increasing the caries risk.

Since the bivariate analysis showed that the child's daytime caring person did not influence on caries experience, we performed the multiple regression analysis to investigate the risk factors associated with ECC. Low maternal education was associated with higher caries experience in childhood. Mothers well educated may have high dental knowledge levels, which might explain the better oral health of their children.

Breastfed infants for more than 9 months and that did not receive nocturnal feeding had less chance of experience more caries in childhood. It has been evidenced that breastfeeding is more effective at preventing dental caries in early childhood than bottle feeding[19]. Children who were breastfed for longer than 12 months have fewer dental caries than those exposed to breastfeeding for a shorter time[20]. Additionally, nocturnal breastfeeding longer than 12 months is associated to increase in prevalence of dental caries in children[20].

There are many dietary factors associated with ECC. Most of these factors are related either to the frequency, amount, or timing of sugar consumption[21].The frequency sugar intake 3 times per day was found as an increased risk for ECC[22]. In our study, frequency of sugar intake more than four times a day was considered as cariogenic dietary. In the bivariate analysis, dietary cariogenic was associated with higher caries experience. However, its association lost significance in the regression analysis. Conversely, the consumption of sugar between main meals increased the caries risk. Caries risk also increased with age, in line with previous studies[9,23,24]. It may be related to the accumulation of socio-biological risks that continuously act with advancing age.

This retrospective study's results should be viewed with caution for their methodological limitations. It is important to highlight that only 19% of children had

the grandmother as daytime caring person and most them (48.7%) were cared by mothers. The description of a risk factor clearly indicates that the exposure has occurred prior to the outcome. Hence, prospective longitudinal studies are needed to elucidate risk factors for ECC such as the child's daytime caring person.

Conclusion

A higher caries experience in early childhood is not associated to child's daytime caring person.

Conflict of interest

The authors declare no conflict of interest.

References

1. American Academy on Pediatric Dentistry, American Academy of Pediatrics. Policy on early childhood caries (ECC): classifications, consequences, and preventive strategies. Pediatr Dent 2016;30:40–43.

2. Tinanoff N, Baez RJ, Diaz Guillory C, Donly KJ, Feldens CA, McGrath C, et al. Early childhood caries epidemiology, aetiology, risk assessment, societal burden, management, education, and policy: Global perspective. Int J Paediatr Dent 2019;29:238–248.

3. Ortiz FR, Tomazoni F, Oliveira MDM, Piovesan C, Mendes FM, Ardenghi TM. Toothache, Associated Factors, and Its Impact on Oral Health-Related Quality of Life (OHRQoL) in Preschool Children. Braz Dent J 2014;25:546–553.

4. Corrêa-Faria P, Daher A, Freire M do CM, de Abreu MHNG, Bönecker M, Costa

LR. Impact of untreated dental caries severity on the quality of life of preschool children and their families: a cross-sectional study. Qual Life Res 2018;27:3191–198.

5.   Fejerskov O. Changing Paradigms in Concepts on Dental Caries: Consequences for Oral Health Care. Caries Res. 2004;38:182–191.

6.   Peres KG, Chaffee BW, Feldens CA, Flores-Mir C, Moynihan P, Rugg-Gunn A. Breastfeeding and Oral Health: Evidence and Methodological Challenges. J Dent Res 2018;97(3):251–258.

7.   Chaffee BW, Feldens CA, Rodrigues PH, Vítolo MR. Feeding practices in infancy associated with caries incidence in early childhood. Community Dent Oral Epidemiol 2015;43:338–348.

8.   Qiu RM, Lo EC, Zhi QH, Zhou Y, Tao Y, Lin HC. Factors related to children's caries: A structural equation modeling approach. BMC Public Health 2014;14:1–7.

9.   Melo MMDC, Souza W V, Lima MLC, Braga C. Factors associated with dental caries in preschoolers in Recife , Pernambuco State , Brazil. Cad Saude Publica 2011;27:471–485.

10.   Hayslip B Jr, Kaminski PL.Grandparents raising their grandchildren: A review of the literature and suggestions for practice. Gerontologist. 2005;45:262–269.

11.   Farrow C. A comparison between the feeding practices of parents and grandparents. Eat Behav 2014;15:339–42.

12.   Ohsuka K, Chino N, Nakagaki H, Kataoka I, Oshida Y, Ohsawa I, et al. Analysis

of risk factors for dental caries in infants: A comparison between urban and ruralareas. Environ Health Prev Med 2009;14:103–10.

13. Mizoguchi K, Kurumado K, Tango T, Minowa M. Study on factors for caries and infant feeding characteristics in children aged 1.5-3 years in a Kanto urban area. Nihon Koshu Eisei Zasshi 2003;50:867-878.

14. Mitoh S. Lifestyle Factors Affecting Prevalence of Dental Caries in Infants in Onomichi-city.J Dent Health 2006;56:688–708.

15. Smorti M, Tschiesner R, Farneti A. Grandparents-grandchildren relationship. Procedia-Social Behav Sci. 2012;46:895–898.

16. Eli K, Howell K, Fisher PA, Nowicka P. A question of balance: Explaining differences between parental and grandparental perspectives on preschoolers' feeding and physical activity. Soc Sci Med 2016;154:28–35.

17. Pankhurst M, Mehta K, Matwiejczyk L, Moores CJ, Prichard I, Mortimer S, et al. Treats are a tool of the trade: an exploration of food treats among grandparents who provide informal childcare. Public Health Nutr 2019;22:2643–2652.

18. Morita A, Matsuyama Y, Isumi A, Doi S, Ochi M, Fujiwara T. Association between grandparent co-residence, socioeconomic status and dental caries among early school-aged children in Japan: A population-based prospective study. Sci Rep 2019;9:11345.

19. Avila WM, Pordeus IA, Paiva SM, Martins CC. Breast and Bottle Feeding as Risk Factors for Dental Caries: A Systematic Review and Meta-Analysis. Clifford T, editor. PLoS One 2015;10(11):e0142922.

20. Tham R, Bowatte G, Dharmage S, Tan D, Lau M, Dai X, et al. Breastfeeding and the risk of dental caries: a systematic review and meta-analysis. Acta Paediatr 2015;104:62–84.

21. Kirthiga M, Murugan M, Saikia A, Kirubakaran R. Risk Factors for Early Childhood Caries: A Systematic Review and Meta-Analysis of Case Control and Cohort Studies. Pediatr Dent 2019;41:95–112.

22. Watanabe M, Wang D-H, Ijichi A, Shirai C, Zou Y, Kubo M, et al. The Influence of Lifestyle on the Incidence of Dental Caries among 3-Year-Old Japanese Children. Int J Environ Res Public Heal 2014;11:11.

23. Dini EL, Holt RD, Bedi R. Caries and its association with infant feeding and oral health-related behaviours in 3-4-year-old Brazilian children. Community Dent Oral Epidemiol 2000;28:241–8.

24. Oliveira LB, Sheiham A, Bönecker M. Exploring the association of dental caries with social factors and nutritional status in Brazilian preschool children. Eur J Oral Sci 2008;116:37–43.

Table 1. Bivariate analyses results (n=310).

Variables	dmft≤ 2	dmft> 2	p value
Mother's schooling			
Up to eight years of formal education	66 (44.9%)	81 (55.1%)	<0.01
More than eight years	99 (60.7%)	64 (39.3%)	
Child's daytime caring person			
Mother	85 (56.3%)	66 (43.7%)	0.32
Grandmother	33 (55.9%)	26 (44.1%)	
Others	47 (47.0%)	53 (53.0%)	
Cariogenic dietary			
Yes	100 (47.3%)	119 (52.7%)	<0.01
No	58 (69.0%)	26 (31.0%)	
Exclusive breastfeeding			
Yes	92 (45.5%)	110 (54.5%)	<0.01
No	73 (67.6%)	35 (32.4%)	
Actual feeding			
Breastfeeding	37 (52.9%)	33 (47.1%)	0.18
Bottle feeding	88 (57.9%)	64 (42.1%)	
Both	40 (45.5%)	48 (54.5%)	
Breastfeeding duration			
≤ 9 months	66 (41.5%)	93 (58.3%)	<0.01
> 9 months	99 (65.6%)	52 (34.4%)	
Nocturnal feeding			
Yes	97 (49.5%)	99 (50.5%)	0.08
No	68 (59.6%)	46 (40.4%)	
Sugar between main meals			
Yes	94 (45.2%)	114 (54.8%)	<0.01
No	71 (69.6%)	31 (30.4%)	
Sugared milk			
Yes	112 (51.6%)	105 (48.4%)	0.37
No	53 (57.0%)	40 (43.0%)	
Toothbrushing frequency			
Once a day	105 (58.0%)	76 (42.0%)	0.05
Two times a day or more	60 (46.5%)	69 (53.5%)	
Flossing use			
Yes	12 (48.0%)	13 (52.0%)	0.58
No	153 (53.7%)	132 (46.3%)	

Table 2. Logistic regression for association between independent variables and caries experience in early childhood.

Variables	Crude OR (95% CI)	p value	Adjusted OR (95% CI)	p value
Mother's schooling				
More than eight years	1	0.03	1	0.02
Up to eight years of formal education	5.91 (1.16-30.10)		5.76 (1.18-28.18)	
Cariogenic dietary				
No	1	0.39		
Yes	1.35 (0.68-2.70)			
Exclusive breastfeeding				
No	1	0.37		
Yes	0.74 (0.38-1.43)			
Feeding				
Breastfeeding	1			
Bottle feeding	0.89 (0.41-1.97)	0.78		
Both	1.38 (0.50-3.75)	0.53		
Breastfeeding duration				
≤ 9 months	1	0.02	1	0.00
> 9 months	0.33 (0.13-0.83)		0.38 (0.21-0.68)	
Nocturnal feeding				
Yes	1	0.04	1	0.02
No	0.51 (0.27-0.96)		0.50 (0.27-0.91)	
Sugar between main meals				
Yes	1	0.07	1	0.02
No	0.56 (0.30-1.04)		0.50 (0.28-0.89)	
Toothbrushing frequency				
Once a day	1	0.49		
Two times a day or more	0.82 (0.47-1.44)			
Child's age	1.13 (1.08-1.18)	0.00	1.14 (1.09-1.19)	0.00

3 CONCLUSÃO

A maior experiência de cárie na primeira infância não é associada com o cuidador habitual da criança. Portanto, avós como cuidadoras não parece ser fator de risco para ocorrência de cárie na primeira infância.

REFERÊNCIAS

AMERICAN ACADEMY OF PEDIATRIC DENTISTRY (AAPD). Policy on Early Childhood Caries (ECC): classifications, consequences, and preventive strategies. **Pediatric dentistry**, v. 30, p.40–43, 2016. Supl. 7.

ARDENGHI, T.M.;PIOVESAN, C.;ANTUNES, J.L.F. Inequalities in untreated dental caries prevalence in preschool children in Brazil. **Revista de Saude Publica**, v. 47, p.129–137, 2014. Supl. 3.

CHEN, K.J.*et al*. Prevalence of early childhood caries among 5-year-old children: A systematic review. **Journal of Investigative and Clinical Dentistry**, v. 10, n. 1, p.e12376, 2019.

CORRÊa-FARIA, P.*et al*. Impact of untreated dental caries severity on the quality of life of preschool children and their families: a cross-sectional study. **Quality of Life Research**, v. 27, n. 12, p.3191–3198, 2018.

HAYSLIP JÚNIOR, B.; KAMINSKI, P.L. Grandparents raising their grandchildren: a review of the literature and suggestions for practice. **The Gerontologist**, v. 45, N. 2, p. 262-269, 2005.

HOOLEY, M.*et al*.Parental influence and the development of dental caries in children aged 0-6 years: A systematic review of the literature. **Journal of Dentistry**, v. 40, n. 11, p.873–885, 2012.

KATO, H.*et al*. Parental occupations, educational levels, and income and prevalence of dental caries in 3-year-old Japanese children. **Environmental Health and Preventive Medicine**, v. 22, n. 1, p.1–7, 2017.

KIRTHIGA, M. *et al*. Risk Factors for Early Childhood Caries: A Systematic Review and Meta-Analysis of Case Control and Cohort Studies. **Pediatric Dentistry**, v. 41, n. 2, p.95–112, 2019.

MCGRATH, C.; BRODER, H; WILSON-GENDERSON, M. Assessing the impact of oral health on the life quality of children: Implications for research and practice. **Community Dentistry and Oral Epidemiology**,v. 32, n. 2, p. 81-85, 2004.

MELO, M.M.*et al*. Factors associated with dental caries in preschoolers in Recife, Pernambuco State, Brazil. **Cadernos de Saúde Pública**, v. 27, n. 3, p.471–485, 2011.

MITOH, S. Lifestyle factors affecting prevalence of dental caries in infants in Onomichi-city. **Journal of Dental Health**, v. 56, p. 688–708, 2006.

MIZOGUCHI, K. *et al*. Study on factors for caries and infant feeding characteristics in children aged 1.5–3 years in a Kanto urban area. **Japanese Journal of Public Health**, v. 50, n. 9, p. 867–878, 2003.

NAKAYAMA, Y.;MORI, M. Association Between Nocturnal Breastfeeding and Snacking Habits and the Risk of Early Childhood Caries in 18- to 23-Month-Old Japanese Children. **Journal of Epidemiology**, v. 25, n. 2, p.142–147, 2015.

OHSUKA, K.*et al*. Analysis of risk factors for dental caries in infants: A comparison between urban and rural areas. **Environmental Health and Preventive Medicine**, v. 14, n. 2, p.103–

110, 2009.

ORTIZ, F.R.*et al*. Toothache, Associated Factors, and Its Impact on Oral Health-Related Quality of Life (OHRQoL) in Preschool Children. **Brazilian Dental Journal**, v. 25, n. 6, p. 546-553, 2014.

QIU, R.M.*et al.*Factors related to children's caries: A structural equation modeling approach. **BMC Public Health**, v. 14, n. 1, p.1–7, 2014.

WATANABE, A. *et al*. Regional diagnosis of the high-risk factors that cause decid- uous tooth caries. **Journal of Dental Health**, v. 49, p. 558-559,1999.

ANEXO A – Aprovação do Comitê de Ética em Pesquisa

Sistema Pesquisa - Pesquisador: Tathiane Larissa Lenzi

Dados Gerais:

Projeto N°:	10133	**Título:**	ESTUDO DO PERFIL DOS PACIENTES ATENDIDOS PELA BEBE CLINICA DA FACULDADE DE ODONTOLOGIA DA UNIVERSIDADE FEDERAL DO RIO GRANDE DO SUL

Área de conhecimento: Odontopediatria   **Início:** 03/03/2003   **Previsão de conclusão:** 31/12/2022

Situação: Projeto em Andamento

Origem: Faculdade de Odontologia Departamento de Cirurgia e Ortopedia   **Projeto da linha de pesquisa:** Educação em Saúde

Local de Realização: Faculdade de Odontologia

Não apresenta relação com Patrimônio Genético ou Conhecimento Tradicional Associado.

Objetivo:

Este trabalho tem como objetivo avaliar o desempenho do tratamento realizado na Bebê Clínica da Faculdade de Odontologia da UFRGS a cada ano,a partir da coleta de dados do arquivo existente no serviço.

Palavras Chave:

BEBÊ CLÍNICA
PREVENÇÃO DA DOENÇA CÁRIE
SAÚDE BUCAL

Equipe UFRGS:

Nome: MARCIA CANÇADO FIGUEIREDO
Coordenador - Início: 03/03/2003 Previsão de término: 31/12/2022
Nome: BRUNA SOBRINHO DE CARVALHO
Técnico: Educador - Início: 03/03/2003 Previsão de término: 31/12/2022
Nome: CINTHYA ALINE DAS DORES GUARIENTI
Outra: Aluno de Mestrado - Início: 03/03/2003 Término: 31/12/2009
Nome: DANIEL DEMÉTRIO FAUSTINO DA SILVA
Pesquisador - Início: 03/03/2003 Término: 31/12/2006
Nome: Djessica Pedrotti
Técnico: Assistente de Pesquisa - Início: 03/03/2003 Previsão de término: 31/12/2022
Nome: JORGE ARTUR MICHEL
Técnico: Outra Função - Início: 03/03/2003 Término: 01/12/2017
Nome: MIRCELEI SALDANHA SAMPAIO
Outra: Colaborador - Início: 03/03/2003 Término: 01/12/2017

Nome: JULIANA SILVEIRA EMERIM
Pesquisador - Início: 01/11/2011 Término: 01/01/2014
Nome: LUANA VIEIRA ROQUE DA SILVA
Pesquisador - Início: 01/11/2011 Término: 01/01/2014
Nome: CÁSSIA MENDES DA SILVA
Técnico: Outra Função - Início: 03/03/2015 Previsão de término: 31/12/2022
Nome: ROBERTA ALMEIDA MENDES
Técnico: Outra Função - Início: 01/03/2016 Previsão de término: 31/12/2022
Nome: KARINA SANTOS MUNDSTOCK
Pesquisador - Início: 03/03/2016 Previsão de término: 31/12/2022
Nome: MATHEUS DA SILVEIRA NEU
Técnico: Outra Função - Início: 03/03/2016 Término: 03/07/2017
Nome: ANA RITA VIANNA POTRICH
Pesquisador - Início: 03/08/2018 Previsão de término: 31/12/2022
Nome: DAIANA BACK GOUVEA
Pesquisador - Início: 03/08/2018 Previsão de término: 31/12/2022
Nome: Tathiane Larissa Lenzi
Pesquisador - Início: 03/08/2018 Previsão de término: 31/12/2022

Equipe Externa:

Nome: CINTHYA A. DAS D.GUARIENTI
Instituição: Pontifícia Universidade Católica do Paraná
Colaborador de 03/03/2003 até 01/01/2006

Avaliações:

Comitê de Ética em Pesquisa da UFRGS - **Aprovado** em 25/01/2012 Clique aqui para visualizar o parecer

Comissão de Pesquisa de Odontologia - **Aprovado** em 12/12/2011 Clique aqui para visualizar o parecer

Anexos:

Folha de Rosto para Pesquisa Envolvendo Seres Humanos	**Data de Envio:** 18/11/2011
Instrumento de Coleta de Dados	**Data de Envio:** 18/11/2011
Termo de Consentimento Livre e Esclarecido	**Data de Envio:** 26/11/2011
Concordância de Instituição	**Data de Envio:** 26/11/2011
Concordância de Instituição	**Data de Envio:** 26/11/2011
Concordância de Instituição	**Data de Envio:** 26/11/2011
Concordância de Instituição	**Data de Envio:** 26/11/2011
Projeto Completo	**Data de Envio:** 26/11/2011
Formulário de Encaminhamento do Protocolo de Pesquisa com Animais	**Data de Envio:** 12/06/2012
Relatório de Andamento	**Data de Envio:** 14/10/2014
Período: 03/03/2003 a 14/10/2014	
Relatório de Andamento	**Data de Envio:** 09/12/2014
Período: 15/10/2014 a 09/12/2014	
Relatório de Andamento	**Data de Envio:** 01/12/2017
Período: 10/12/2014 a 01/12/2017	
Relatório de Andamento	**Data de Envio:** 24/04/2019
Período: 02/12/2017 a 19/04/2019	

Bolsas:

Projeto associado à bolsa Iniciação Científica Voluntária **No Período:** 06/06/2019 **a** 31/12/2019
Bolsista: CÁSSIA MENDES DA SILVA **no período de** 06/06/2019 **a** 31/12/2019

Ações de Extensão:

Projeto associado à ação de extensão BEBÊ CLÍNICA DA FACULDADE DE ODONTOLOGIA DA UFRGS - 24ª TURMA

ANEXO B – Normas do periódico Journal of Dentistry for Children

AAPD Instructions for Authors

Pediatric Dentistry

Pediatric Dentistry is the official publication of the American Academy of Pediatric Dentistry, the American Board of Pediatric Dentistry and the College of Diplomates of the American Board of Pediatric Dentistry. It is published bi-monthly and is internationally recognized as the leading journal in the area of pediatric dentistry. The journal promotes the practice, education and research specifically related to the specialty of pediatric dentistry. This peer-reviewed journal features scientific articles, case reports, and abstracts of current pediatric dental research.

Journal of Dentistry for Children

Acquired after the merger between the American Society of Dentistry for Children and the American Academy of Pediatric Dentistry in 2002, the *Journal of Dentistry for Children* (**JDC**) is an internationally renowned journal whose publishing dates back to 1934. Published three times a year, *JDC* promotes the practice, education and research specifically related to the specialty of pediatric dentistry. It covers a wide range of topics related to the clinical care of children, from clinical techniques of daily importance to the practitioner, to studies on child behavior and growth and development. *JDC* also provides information on the physical, psychological and emotional conditions of children as they relate to and affect their dental health.

Introduction

Manuscripts that are selected for publication promote the practice, education and research for the specialty of pediatric dentistry. Manuscripts are considered for publication only if the article, or any part of its essential substance, tables or figures have not been or will not be published in another journal or are not simultaneously submitted to another journal.

The statements, opinions, and advertisements are solely those of the individual authors, contributors, editors, or advertisers, as indicated. Published manuscripts do not necessarily represent the views of the editor, the AAPD Communications Department, or the American Academy of Pediatric Dentistry organization.

Types of Manuscripts

Type of manuscript must be one of the following: *Meta-Analyses/Systematic Reviews*, *Scientific Studies*, *Case Reports*, or *Literature Reviews* (*JDC* only), *Letters to the Editor*, *Editorials* and *Brief Communications*.

Meta-Analyses / Systematic Reviews

Authors of systematic reviews must adhere to Preferred Reporting Items for Systematic Reviews and Meta-Analyses, available at: 'http://www.prisma-statement.org/statement.htm'.

Structured *Abstracts* for systematic reviews are recommended. Headings should include: *Research Question*, *Research Protocol*, *Literature Search*, *Data Extraction*, *Quality Appraisal*, *Data Analysis* and *Results*, and *Intrepretations of Results*.

Scientific Studies

Full-length manuscript not to exceed 3,500 words (including structured *Abstract*, *Introduction*, *Methods*, *Results*, *Discussion*, *Conclusions*, and *Acknowledgments*; excluding *References* and *Figure Legends*). The structured abstract should be no longer than 200 words and contain the following sections: *Purpose*, *Methods*, *Results*, and *Conclusions*. The Introduction section should include only pertinent references. The Methods section should be sufficiently detailed to replicate the study. The Results section should include only results and not discussion of the data. The Discussion section should discuss the results, of the present study and compare them to the existing knowledge base. The Conclusions section should consist of succinct, numbered statements that are supported by the results of the study. They should not repeat the *Results* section.
Maximum Figures: 4 • Maximum Tables: 3

Case Reports

Full-length manuscript not to exceed 1,850 words (including unstructured *Abstract*, brief *Introduction*, *Description of Case*, *Discussion*, *Acknowledgments* (if any), and *References* (if any). The unstructured Abstract should be no longer than 150 words.
Maximum Figures: 4 • Maximum Tables: 3

Literature Reviews (JDC only)

Full-length manuscript not to exceed 2,500 words (including unstructured *Abstract*, *Introduction*, the *Review of the Literature* with appropriate subheading, *Discussion*, *Conclusions*, and *Acknowledgment*s; excluding *References*). The unstructured Abstract should be no longer than 150 words.
Maximum Tables: 4

Letters to the Editor

Full-length manuscript not to exceed 350 words; excluding References.

| Type of article	Abstract maximum length & type	Maximum text length	Maximum references	Maximum no. of figures	Maximum no. of tables	Notes
Meta-Analyses/ Systematic Reviews	200 words, structured	3,500 words	No limit	No limit	No limit	Inclusion of figures and tables will be at the Editor-in-Chief's discretion
Scientific Studies	200 words, structured	3,500 words	40	4	3	
Case Reports	150 words, unstructured	1,850 words	20	4	3	
Literature Reviews (JDC only)	150 words, unstructured	2,500 words	0	0	4	
Brief Communications	150 words, structured	2,000 words	20	2	2	
Letters to the Editor	none	350 words	8	0	0	
Editorials	none	1,000 words	40	2	2	Invited by the Editor-in-Chief

Editorials

Full-length manuscript not to exceed 1,000 words; excluding *References* and *Figure Legends*.
**Maximum Figures: 2 • Maximum Tables: 2**

Brief Communications

Full-length manuscript not to exceed 2,000 words (including structured *Abstract*; excluding *References* and *Figure legends*). The structured Abstract should be no longer than 150 words.
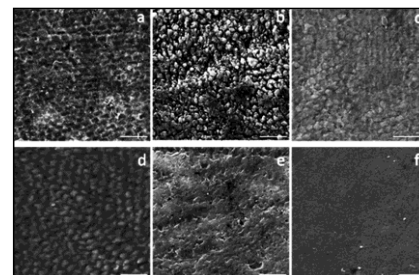
   Authors desiring to have more Figures or Tables MUST agree to electronic publication of their manuscript, and must select this preference. Each separate chart, graph or photograph will be counted as a separate figure. Figures grouped together will be counted as their individual parts. See samples below:
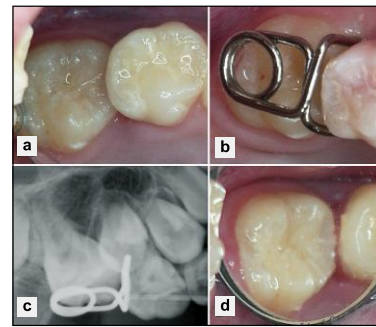
4 Figures
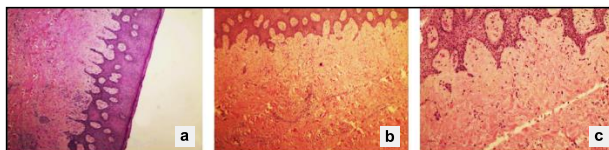
3 Figures

6 Figures

Manuscript Submission

All new manuscripts must be submitted to AAPD's online submission and review website, ScholarOne Manuscripts; *Pediatric Dentistry* at: "http://mc.manuscriptcentral.com/pediadent"; *JDC* at: "http://mc.manuscriptcentral.com/jdentchild". Authors who do not yet have an account on the website should click the 'Create Account' link on the upper right-hand corner of the welcome page and follow the step-by-step process to open an account. On the dashboard page, authors should select the Author Center. In the Author Center, they should click the 'Click here to submit a new manuscript' link.

If you already have an account, enter your user ID and password and log in.

Manuscript submission guidelines for *Pediatric Dentistry* follow the 'uniform requirements for manuscripts submitted to biomedical journals' which have been developed by the International Committee of Medical Journal Editors (**ICMJE**). Please visit the ICMJE website at: "http://www.icmje.org/manuscript_1prepare.html" for more information.

Author Information

The author must include each author's name, earned academic degrees, professional title (such as 'associate professor', 'chair'), work affiliations, complete address, telephone and fax numbers, and email address. In addition, each author should provide a statement of responsibility detailing what he or she contributed to the manuscript. These can be uploaded to the site as a Microsoft Word Document (it is recommended that statements from all authors be placed in a single document). No honorary designations such as 'FRCS', 'FICD', 'Diplomate', should be listed.

A submission with more than one author implies that each author contributed to the study or preparation of the manuscript. Only individuals who have made a significant contribution to the study or manuscript should be listed as authors. Contributors who do not meet the criteria for authorship, such as individuals who provided only technical help or writing assistance, should be listed in the *Acknowledgments* section at the end of the manuscript. The corresponding author should submit the following statement: "All authors have made substantive contribution to this study and/or manuscript, and all have reviewed the final paper prior to its submission."

Authors (including authors of letters to the editor) are responsible for disclosing all financial and personal relationships that might bias their work. If such conflicts exist, the authors must provide additional detail in the appropriate text box during online submission. Funding sources for the work being submitted must be disclosed in the *Acknowledgments* section of the manuscript.

Authors should express their own findings in the past tense and use the present tense where reference is made to existing knowledge, or where the author is stating what is known or concluded. Footnotes should be avoided and their content incorporated into the text. The editors reserve the right to revise the wording of papers in the interest of the journal's standards of clarity and conciseness.

The corresponding author will be asked to submit the names and email addresses of four preferred reviewers for their manuscript. Preferred reviewers should not be colleagues at the contributors' institution or present or former research partners.

Manuscripts will be published in English, using American spelling. Manuscripts must be submitted with proper English grammar, syntax, and spelling. Before submitting a manuscript for consideration authors may consider using a professional editing service such as: 'http://www.journalexperts.com'. AAPD does not endorse such service and use of such service has no relation with acceptance of a manuscript for publication.

Two versions of the manuscript must be uploaded, one version containing all the author information and one version without any information identifying the authors or their institutions. Tables should appear at the end of the main document, while photos, photomicrographs and graphs are to be submitted as separate files (.jpg or .tif format only). Do not embed tables, photos, figures or graphics in the text of the manuscript. Prior to submission, the corresponding author must guarantee that the article has not been published and is not being considered for publication elsewhere.

Manuscript Preparation

Authors are advised to review several recently published articles to familiarize themselves with proper format and requirements.

Title: Titles should be as brief as possible while clearly conveying the main point or purpose of the article. The manuscript title is limited to 20 words or less, and a short title limited to five words or less must also be submitted. All submissions, including titles and subheads, are subject to change during the editing process.

Short Title: Also refered as a 'Running Head', must be a brief but comprehensive phrase of what the paper is all about, or a brief version of the title of the paper. not to exceed 50 characters.

Keywords: A maximum of five keywords must be submitted. Authors should ensure that the keywords appear in the title and/or abstract and that they are PubMed searchable.

Abstract: All submissions must include an *Abstract*. An *Abstract* should be brief, providing the reader with a concise but complete summary of the paper. Generalizations such as 'methods were described' should not be used. Meta-analyses/Systematic Reviews and Scientific Studies should have a structured abstract of no more than 200 words with the following sections: *Purpose*, *Methods*, *Results* and *Conclusions*. Case Reports, Literature Reviews (*JDC* only) and Brief Communications should have an unstructured abstract of no more than 150 words.

Introduction: The introduction should provide the context for the article, the objective of the study, and should state the hypothesis or research question (purpose statement), how and why the hypothesis was developed, and why it is important. It should generally not exceed two or three paragraphs.

Methods: The *Methods* section should include as appropriate, a detailed description of the study design or type of analysis and dates and period of study; condition, factors, or disease studied; details of sample (eg study participants and the setting from which they were drawn); method of random sequence generation in detail (coin flip, random table, etc.); method of allocation concealment in detail (opaque envelopes, sequential numbered drug containers, etc); description of treatment providers; whether providers and participants were blinded; inclusion and exclusion criteria; intervention(s), if any; outcome measures; method of blinding of outcome assessors; method of standardization and calibration of outcome assessors, including kappa statistics; and statistical analysis.

Results: The results reported in the manuscript should be specific and relevant to the research hypothesis. Characteristics of the study participants should be followed by presentation of the results, from the broad to the specific. The *Results* section should not include implications or weaknesses of the study, but should include validation measures if conducted as part of the study. Results should not discuss the rationale for the statistical procedures used.

Discussion: The *Discussion* section should be a formal consideration and critical examination of the study. The research question or hypothesis should be addressed in this section, and the results should be compared to and contrasted with the findings of other studies. New results not previously reported in the *Results* cannot appear first in the Discussion. (Note: A lengthy reiteration of the results should be avoided.) The study's limitations and the generalizability of the results should be discussed, as well as mention of unexpected findings with suggested explanations. The type of future studies needed, if appropriate, should be mentioned.

Conclusion: The *Conclusion* should help the reader understand why the research should matter to them after they have finished reading the paper. Conclusions should be numbered, succinct statements that are supported by the results of the study. They should not repeat the Results section.

Acknowledgment: Funding and other sources of support must be disclosed in the *Acknowledgment* section. Personal acknowledgments should be limited to appropriate professionals who have contributed intellectually to the paper but whose contribution does not justify authorship.

References: *References* are a critical element of a manuscript and serve three primary purposes—documentation, acknowledgment, and directing or linking the reader to additional resources. Authors bear primary responsibility for all reference citations. *References* should be numbered consecutively with superscript Arabic numerals in the order in which they are cited in the text. A list of all references should appear at the end of the paper in numeric order as they are cited in the text. Journal abbreviations are those used by Index Medicus. The reference style to use is the recent edition of the American Medical Association Manual of Style.

The following are sample references:

Journal

For journals, list all authors when there are six or fewer; when there are seven or more, list the first three, then 'et al.' Page numbers should be included where possible. For example: 12-8, 191-5, 347-51.

> Bogert TR, García-Godoy F. Effect of prophylaxis agents on the shear bond strength of a fissure sealant. Pediatr Dent 1992;14(1):50-1.

Book

> Bixler D. Genetic aspects of dental anomalies. In: McDonald RE, Avery DR, eds. Dentistry for the Child and Adolescent. 5th ed. Philadelphia: CV Mosby Co; 1987:90-116.

Article, report, or monograph issued by a committee, institution, society, or government agency

> Medicine for the public: Women's health research Bethesda, Md.: U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health; 2001. DHHS publication 02-4971.

World Wide Web

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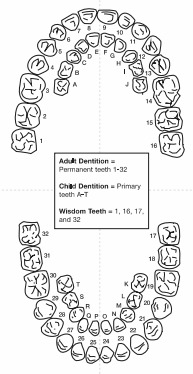contains material that was retracted or found to be in error subsequent to its publication.

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