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TRAUMATISMO DENTÁRIO E QUALIDADE DE VIDA EM PRÉ-ESCOLARES

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TRAUMATISMO DENTÁRIO E QUALIDADE DE VIDA EM PRÉ-ESCOLARES

Tese apresentada ao Programa de Pós-Graduação em Odontologia - Área de concentração em Odontopediatria, da Faculdade de Odontologia da Universidade Federal de Minas Gerais como requisito parcial à obtenção do título de Doutor em Odontologia.

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Faculdade de Odontologia
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UNIVERSIDADE FEDERAL DE MINAS GERAIS
FACULDADE DE DONTOLOGIA
Programa de Pós-Graduação em Odontologia

Tese intitulada "*Traumatismo dentário e qualidade de vida em pré-escolares*", área de concentração em **Odontopediatria**, apresentada por **Cláudia Marina de Sousa Viegas**, para obtenção do grau de **Doutor em Odontologia**, **APROVADA** pela Comissão Examinadora constituída pelos seguintes professores:

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Belo Horizonte, 31 de agosto de 2012.

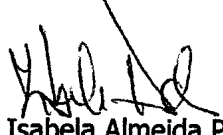


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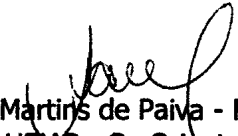
Ata da Comissão Examinadora para julgamento da Tese de Doutorado em Odontologia, área de concentração em **Odontopediatria**, da candidata **Cláudia Marina de Sousa Viegas**.

Aos 31 de agosto de 2012, às 14:00 h, na sala de Pós-Graduação (3403) da Faculdade de Odontologia, reuniu-se a Comissão Examinadora, composta pelos professores Dra. Isabela Almeida Pordeus, Dr. Saul Martins de Paiva - FO-UFMG, Dra. Carolina de Castro Martins, Dra. Júnia Maria Cheib Serra-Negra, Dra. Laura Salignac de Souza Guimarães Primo e Dra. Ana Flávia Granville-Garcia. A Professora Dra. Isabela Almeida Pordeus, Orientadora da Tese, na qualidade de Presidente da sessão, apresentou a Comissão Examinadora e declarou abertos os trabalhos. À candidata foi dado o tempo de até 50 (cinquenta) minutos para fazer a exposição oral sobre o seu trabalho "**Traumatismo dentário e qualidade de vida em pré-escolares**". Encerrada a exposição, foi iniciada a arguição, dentro do limite de tempo de 30 (trinta) minutos, pelos Professores Dra. Carolina de Castro Martins, Dra. Júnia Maria Cheib Serra-Negra, Dra. Laura Salignac de Souza Guimarães Primo e Dra. Ana Flávia Granville-Garcia, com limite de 30 (trinta) minutos para a resposta. Terminadas as arguições, a Presidente suspendeu os trabalhos por 10 minutos para que os examinadores pudessem decidir pelo resultado a ser dado à candidata. A Comissão Examinadora opta pela ~~aprovação~~..... da candidata. Para constar, lavrou-se a presente ata, que vai assinada por mim, Dra. Isabela Almeida Pordeus, Presidente e pelos demais membros desta comissão examinadora. Belo Horizonte, 31 de agosto de 2012.

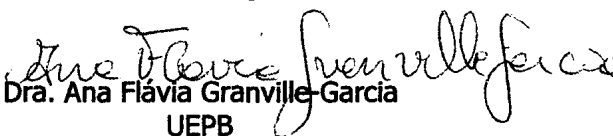

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*Dedico este trabalho ao meu esposo, Virgílio,
aos meus pais, João Bosco e Bete e a minha irmã, Miriam
que vivenciaram comigo esse sonho e muitas vezes me deram força e
incentivo para seguir em frente.*

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“Para realizar grandes conquistas, devemos não apenas agir, mas também sonhar; não apenas planejar, mas também acreditar.”

Anatole France

RESUMO

Traumatismo dentário e qualidade de vida em pré-escolares

RESUMO

Este estudo teve o objetivo de avaliar o impacto do Traumatismo Dentário (TD) sobre a qualidade de vida (QV) de pré-escolares de Belo Horizonte. Foram realizados um estudo transversal representativo e um estudo caso-controle pareado de base populacional. As amostras dos dois estudos foram compostas por pré-escolares de ambos os gêneros e com idades variando de 60 a 71 meses. A amostra do estudo transversal foi composta por 1632 crianças. A amostra do estudo caso-controle foi composta por 58 crianças com impacto na QV no grupo caso e por 232 crianças que não tiveram impacto na QV no grupo controle. Previamente aos estudos principais, estudos pilotos foram realizados para testar a metodologia. Os dados da *Oral Health-Related Quality of Life* (OHRQoL) foram coletados por meio da versão brasileira do *Early Childhood Oral Health Impact Scale* (B-ECOHIS). Este instrumento foi aplicado aos pais/responsáveis para obter sua percepção sobre a saúde bucal de seus filhos. O B-ECOHIS é um formulário com dados demográficos e história do TD foram enviados aos pais/responsáveis. Status socioeconômico foi determinado utilizando-se o Índice de Vulnerabilidade Social (IVS), a renda familiar, o número de pessoas que moram no domicílio e a escolaridade dos pais/responsáveis. Os exames clínicos das crianças foram realizados por um único dentista previamente calibrado utilizando-se o critério diagnóstico de

TD da classificação de Andreasen et al. (2007). Foram realizadas análise descritiva, análises bivariadas e regressão de Poisson múltipla ajustada no estudo transversal. No estudo caso-controle foram realizadas análises descritivas e regressão logística condicional. O nível de significância foi 5%. A prevalência do impacto negativo sobre a QV das crianças foi 36,8% e da família 31,4%. No estudo transversal não houve uma associação estatisticamente significativa entre o TD e o impacto na QV das crianças e da família ($p > 0,05$). Mas a presença de avulsão dentária manteve-se no modelo múltiplo de Poisson das crianças e da família [RP=1,37; 95% IC =1,02-1,85; RP=1,55; 95% IC=1,12-2,14 respectivamente]. No estudo caso-controle a regressão logística condicional revelou não haver uma diferença estatisticamente significativa na prevalência de TD entre casos e controle ($p > 0,05$). A presença de TD em pré-escolares de Belo Horizonte não causou impacto na qualidade de vida das crianças e das famílias. No entanto a presença de avulsão dentária está associada com uma maior prevalência de impacto negativo na QV das crianças e de suas famílias.

Descritores: traumatismos dentários, qualidade de vida, prevalência, dentição decídua, pré-escolar.

ABSTRACT

Traumatic dental injury and quality of life in preschool children

ABSTRACT

The aim of the present study was to assess the impact of traumatic dental injury (TDI) on oral health-related quality of life (OHRQoL) among preschool children in the city of Belo Horizonte, Brazil. A representative cross-sectional study and a population-based matched case-control study were carried out. The samples were composed of male and female preschool children aged 60 to 71 months. The sample in the cross-sectional study was composed of 1632 preschool children. The sample in the case-control study was composed of 58 children with an impact on OHRQoL in the case group and 232 children without impact in the control group. Pilot studies were conducted prior to the main studies to test the methodologies. Data on OHRQoL were collected using the Brazilian version of the Early Childhood Oral Health Impact Scale (B-ECOHIS), which was administered to parents/caregivers to obtain their perceptions regarding the oral health of their children. The B-ECOHIS and a form addressing demographic data and history of TDI were sent to the parents/caregivers. Socioeconomic status was determined based on the Social Vulnerability Index, family income, number of residents in the household and parents'/caregivers' schooling. Oral examinations were performed on the children by a single calibrated dentist using the classification proposed by Andreasen et al. (2007). Descriptive, bivariate and multiple Poisson regression analyses were carried out in the cross-sectional

study. Descriptive statistics and conditional logistic regression analysis were employed in the case-control study. The level of significance was set at 5%. The prevalence of OHRQoL among the children and families was 36.8% and 31.4%, respectively. In the cross-sectional study, no statistically significant associations were found between TDI and the OHRQoL of the children or families ($p > 0.05$). However, the presence of tooth avulsion remained in the final multiple models of OHRQoL of the children and families [PR=1.37, 95% CI=1.02-1.85; PR=1.55, 95% CI=1.12-2.14, respectively]. In the case-control study, the conditional logistic regression revealed no statistically significant difference in the prevalence of TDI between the cases and controls ($p > 0.05$). The presence of TDI had no impact on the OHRQoL of preschool children and their families in Belo Horizonte. However, the presence of dental avulsion was associated with a higher prevalence rate of negative impact on OHRQoL of both the children and families.

Key Words: tooth injuries, quality of life, prevalence, primary teeth, preschool child.

LISTA DE ABREVIATURAS

B-ECOHIS - Brazilian version of the Early Childhood Oral Health Impact Scale

CAPES - Coordenação de Aperfeiçoamento de Pessoal de Nível Superior -
Coordination for Improvement of Higher Education Personnel

CCF - Coronary complicated fracture

CI – Confidence Interval

CNPq - Conselho Nacional de Desenvolvimento Científico e Tecnológico -
National Council for Scientific and Technological Development

Com. – Comércio

CPQ₁₁₋₁₄ - Child Perceptions Questionnaire for 11-14-year-old children

dmft - Decayed , Missing and Filled Teeth

ECOHIS - Early Childhood Oral Health Impact Scale

EDF - Enamel-Dentin Fracture

EF - Enamel Fracture

FAPEMIG - Fundação de Amparo à Pesquisa do Estado de Minas Gerais -
State of Minas Gerais Research Foundation

FDI – FDI World Dental Federation

IL - Ilinóis

Inc - Incorporation

Ind. - Indústria

IVS – Índice de Vulnerabilidade Social

Ltda - Limitada

MG – Minas Gerais

n – Number

OHRQoL - Oral Health-Related Quality of Life

OR - Odds Ratio

p - p-value

PR - Prevalence Ratio

QoL - Quality of Life

SD - Standard Deviation

SP – São Paulo

SPSS - Statistical Package for the Social Sciences

SVI - Social Vulnerability Index

TD - Tooth Discolouration

TDI - Traumatic Dental Injury

TN - Tennessee

USA - United States of America

US\$ - American dollar

WHO - World Health Organization

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CONSIDERAÇÕES INICIAIS

CONSIDERAÇÕES INICIAIS

O conceito do *Oral Health-Related Quality of Life* (OHRQoL) é o impacto que alteração bucais exerce na Qualidade de Vida (*Quality of Life* - QoL) dos indivíduos (Geels et al., 2008). O conceito de QoL é multidimensional e envolve parâmetros físicos, psicológicos e funções sociais assim como a percepção subjetiva de bem estar (The WHOQOL Group, 1995; de Oliveira e Sheiham, 2003). Para se avaliar a saúde bucal de uma forma integral torna-se importante o uso de medidas subjetivas e da avaliação do indivíduo sobre sua própria condição (Kieffer e Hoogstraten, 2008).

Tradicionalmente, os profissionais da Odontologia realizam os diagnósticos utilizando métodos e indicadores clínicos que determinam a ausência ou presença de doenças (Allen, 2003, Gherunpong et al., 2004). Usualmente, a avaliação do impacto do processo da doença sobre o bem estar funcional e/ou psicológico do indivíduo não é contemplada, sendo retratado apenas o ponto final da doença (Allen, 2003). Com a mudança do paradigma meramente biologicista para o paradigma de promoção da saúde, tornou-se necessária a avaliação do impacto das alterações bucais no dia a dia das pessoas, uma vez que esse tipo de avaliação descreve a satisfação, os sintomas e as habilidades dos pacientes odontológicos para realizar suas atividades diárias (Castro et al., 2007; Montero-Martín et al., 2009). Avaliações subjetivas da saúde bucal tornaram-se um grande foco das pesquisas na área da Odontologia e atualmente já existe um número substancial de pesquisas que tiveram o objetivo de avaliar a percepção dos indivíduos em relação a sua

saúde bucal (Kolawole et al., 2011; de Andrade et al., 2012; Krisdapong, et al., 2012; Viegas et al., 2012; Zhou et al., 2012).

Vale destacar que para a saúde pública as doenças bucais são importantes devido a sua prevalência e pelo impacto que causa nos indivíduos e na sociedade além do alto custo dos tratamentos odontológicos (Sheiham, 2005). Apesar disso o tratamento e prevenção das alterações bucais, muitas vezes, não compõe as políticas publicas prioritárias, pois raramente representam risco à vida dos indivíduos (Chen e Hunter, 1996; Feitosa et al., 2005). As informações da extensão e da intensidade do OHRQoL fornecem aos gestores de políticas públicas informações essenciais para que a atenção à saúde bucal seja priorizada. Além de serem úteis nas avaliações de programas de saúde bucal (Bernabé et al., 2007; Tsakos et al., 2012b).

Para as crianças as alterações bucais podem produzir sintomas que ocasionam efeitos físicos, sociais e psicológicos que influenciam o seu dia a dia e sua QoL (McGrath et al., 2004). As crianças são sujeitas a numerosas alterações bucais e orofaciais que têm potencial significativo de ter impacto na QoL (Locker et al., 2002). Dentre essas alterações bucais está o traumatismo dentário que é uma lesão causada por um impacto externo nos dentes e seus tecidos circundantes (Lam et al., 2008; Ferreira et al., 2009). É considerado um sério problema de saúde, principalmente em crianças. Atualmente vem recebendo maior atenção dos profissionais, uma vez que os dentes mais acometidos são os superiores anteriores, podendo causar problemas físicos, estéticos e psicológicos na criança e em seus pais (Cardoso e de Carvalho Rocha, 2002; Saroğlu e Sönmez, 2002; Sgan-Cohen et al., 2005; Aldrigui et al.,

2011). Além disso, de acordo com estudos epidemiológicos encontrados na literatura a prevalência do traumatismo dentário na dentição decídua variou de 9,4% a 71,4% (Carvalho et al., 1998; Al-Majed et al., 2001; Cardoso e de Carvalho Rocha, 2002; Şaroğlu e Sönmez, 2002; Sgan-Cohen et al., 2005; Skaare e Jacobsen, 2005; Oliveira et al., 2007; Lam et al., 2008; Ferreira et al., 2009; Jorge et al., 2009; Robson et al., 2009; Viegas et al., 2010).

Os questionários específicos que mensuram a OHRQoL em crianças e adolescentes foram desenvolvidos e testados recentemente (Goettems et al., 2011). Os efeitos sociais, físicos e psicológicos da saúde bucal são ainda pouco abordados em pré-escolares (crianças menores de 6 anos de idade) (Abanto et al., 2011; Aldrigui et al., 2011; Goettems et al., 2011; Wong et al., 2011; Viegas et al., 2012; Goettems et al., 2012). Sendo assim, faz-se necessário um maior investimento em pesquisas associando as alterações bucais e a qualidade de vida em crianças, já que na literatura há uma carência desses estudos principalmente com amostras de base populacional e com desenho longitudinal (Slade e Reisine, 2007).

Portanto, este trabalho, desenvolvido junto ao Programa de Pós-Graduação em Odontologia da Faculdade de Odontologia da Universidade Federal de Minas Gerais, teve o objetivo de avaliar a repercussão do traumatismo dentário na qualidade de vida de pré-escolares e de suas famílias em Belo Horizonte. Optou-se pela apresentação da tese em forma de dois artigos científicos, posto que artigos científicos publicados constituem uma forma clara e objetiva de divulgação dos resultados das pesquisas junto à comunidade.

ARTIGO 1

INFLUENCE OF TRAUMATIC DENTAL INJURY ON QUALITY OF LIFE OF BRAZILIAN PRESCHOOL CHILDREN AND THEIR FAMILIES

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Keywords: tooth injuries, oral health, quality of life, primary teeth

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Article formatted following the norms stipulated by Dental Traumatology (Appendix F)

ABSTRACT

Aim: The aim of the present study was to evaluate the impact of traumatic dental injury (TDI) on the oral health-related quality of life (OHRQoL) of Brazilian pre-schoolers and their families. *Material and Methods:* A cross-sectional study was carried out with 1632 children of both genders aged 60 to 71 months in the city of Belo Horizonte, Brazil. Data on OHRQoL were collected using the Brazilian version of the Early Childhood Oral Health Impact Scale (B-ECOHIS), which was self-administered by parents/caregivers to record their perceptions regarding the oral health of their children. A questionnaire addressing demographic and socioeconomic data was also sent to parents/caregivers. Oral examinations of the children were performed by a single, previously calibrated dentist (intra-examiner and inter-examiner agreement: kappa ≥ 0.83) for the assessment of the prevalence and type of TDI using the diagnostic criteria proposed by Andreasen et al. [2007]. Bivariate and multiple Poisson regression analyses were performed, with the level of significance set at 5% ($p < 0.05$). *Results:* The prevalence of negative impact from oral conditions on quality of life was 36.8% and 31.4% for children and families, respectively. TDI was not significantly associated with OHRQoL. Tooth avulsion remained in final multiple models of child and family OHRQoL [PR=1.37, 95%CI=1.02-1.85; PR=1.55, 95%CI=1.12-2.14]. *Conclusions:* The presence of the TDI in Brazilian preschool children had no impact on quality of life in the present sample. However, tooth avulsion was associated with a negative impact on the OHRQoL of the pre-schoolers and their families.

INTRODUCTION

Children are subject to numerous orofacial conditions, such as dental caries, malocclusion, traumatic dental injury (TDI), cleft lip/palate and craniofacial anomalies (1). These conditions produce signs and symptoms that can have physical, psychological and social impacts on quality of life (1,2).

TDI can cause pain as well as negative aesthetic, emotional and functional impact (3,4). This oral condition is common among preschool children, who are likely to fall with frequency as they learn to crawl, stand, walk and run during the development of motor skills (4).

Oral health assessments have traditionally been performed using clinical indicators that are only sensitive to physical aspects (5). These indicators represent the evaluation of dentists, but do not address the social dimension of oral health (5). Measuring the impact of oral conditions on quality of life should be part of the assessment of treatment needs, as clinical oral health indicators alone do not address patient satisfaction, symptoms or the ability to perform activities of daily living (6). Assessment tools addressing oral health-related quality of life (OHRQoL) measure the functional and psychological results of oral conditions and, together with clinical indicators, can provide a more comprehensive assessment of oral health (7). Moreover, studies have shown that a child's orofacial conditions have an effect on his/her parents and family activities (1, 8, 9, 10). Recently, major emphasis has been given to determining the prevalence of OHRQoL and the oral conditions involved, providing important information to health planners with regard to prioritising oral health care (10, 11, 12, 13, 14, 15).

The aim of the present study was to determine whether TDI has an impact on the quality of life of preschool children and their families.

MATERIALS AND METHODS

A cross-sectional survey was carried out in Belo Horizonte, which is the capital of the state of Minas Gerais, Brazil. This city has more than two million inhabitants, with more than forty-five thousand children enrolled in preschools.

Sample

The sample consisted of 1632 male and female preschool children between 60 and 71 months of age. The five-year-old age group was chosen, as this group of children has the greatest likelihood of the occurrence of TDI in primary teeth (3, 16, 17). The replacement of primary teeth with permanent teeth begins after five years of age and the permanent dentition was not the focus of this study. Furthermore, five years is the age index for oral health indicators recommended by the World Health Organization (18).

Sample size was calculated to give a standard error of 2.9%. A 95.0% confidence level and the prevalence of impact on child and family OHRQoL determined in a pilot study (29.0%) were used for the calculation. The minimal sample size was estimated to be 941 preschool children. Since a multi-stage sampling method was used, a correction factor of 1.5 was applied to increase the precision, totalling 1412 preschool children (19). The sample was then increased by 20% to compensate for possible losses totalling 1695 preschool children.

The participants were randomly selected using two-stage sampling. The first stage was the randomisation of preschools and the second was the

randomisation of the children. The sample was representative of the nine administrative districts into which the city of Belo Horizonte is geographically divided.

The following were the inclusion criteria: age 60 to 71 months, enrolment in preschool. The exclusion criterion was having four missing maxillary incisors due to caries or physiological exfoliation, which could compromise the clinical diagnosis of TDI.

Pilot study and calibration

Prior to data collection, a pilot study involving 87 preschool children was carried out to test the methods and the comprehension of the socioeconomic questionnaire and perform the calibration of the examiner. The children in the pilot study were not included in the main sample. The results of this pilot study indicated the need to add two questions to the socioeconomic questionnaire (one on household income and one on place of residence).

The calibration exercise consisted of two steps. The theoretical step involved a discussion of the criteria for the diagnosis of the clinical variables and an analysis of photographs. A specialist in paediatric dentistry (gold standard in this theoretical framework) coordinated this step, instructing two general dentists on how to perform the examination. The second step was the clinical evaluation, in which the dentists examined twenty eight previously selected children between 60 and 71 months of age. The dentist with the better level of intra-examiner and inter-examiner agreement in the theoretical step was considered the gold standard in the clinical step. Inter-examiner agreement was tested by comparing each examiner with the gold standard. The interval

between evaluations of the photos and children for the determination of intra-examiner agreement was 7 to 14 days. Cohen's kappa statistic was calculated on a tooth-by-tooth basis. Kappa coefficients for intra-examiner and inter-examiner agreement were respectively 0.91 and 0.92 for TDI, 0.96 and 0.96 for dental caries, 0.96 and 0.83 for developmental defects of enamel and 0.97 and 0.87 for malocclusion. The dentist with the better level of intra-examiner and inter-examiner agreement performed all clinical exams during the data collection of the main study.

Main study

Data collection involved the Early Childhood Oral Health Impact Scale (ECOHIS), a socioeconomic questionnaire answered by parents/caregivers and a clinical examination. The ECOHIS and socioeconomic questionnaire were sent to the parents/caregivers after their agreement to participate and allow the participation of their children by signing a statement of informed consent. The clinical examination was performed following the return of these instruments.

The ECOHIS assesses parents'/caregivers' perceptions regarding the negative impact of oral health problems on the quality of life of preschool children and their families. This scale is divided into two sections (Child Impact and Family Impact), with six domains and thirteen items. The domains for the child are symptoms (one item), function (four items), psychological (two items) and self-image/social interaction (two items). The domains for the family are distress (two items) and family function (two items). Each item has six response options: 0 = never, 1 = hardly ever, 2 = occasionally, 3 = often, 4 = very often, 5 = don't know. Item scores are summed for each section ("don't know"

responses are not counted). The total score ranges from 0 to 36 in the child section and 0 to 16 in the family section. Higher scores indicate greater impact and/or more problems (20). The Brazilian version of the ECOHIS (B-ECOHIS) was used, which has been validated in Brazilian Portuguese and is semantically equivalent to the original version in English (21, 22).

The socioeconomic questionnaire addressed demographic data (child's birth date, child's gender, place of residence), socioeconomic status, parent's/caregiver's assessment of child's oral and general health and child's history of toothache and dental care. The socioeconomic indicators used were monthly household income (categorised based on the minimum wage in Brazil – equal to US\$258.33); number of residents in the household; parents'/caregivers' schooling (categorised in years of study) and Social Vulnerability Index (SVI). The SVI was developed for the city of Belo Horizonte. This index measures the vulnerability of the population through the determination of neighborhood infrastructure, access to work, income, sanitation services, healthcare services, education, legal assistance and public transportation (23). Each region of the city has a social exclusion value, which is divided into five classes. For statistical purposes, this variable was dichotomised as more vulnerable (Classes I and II) and less vulnerable (Classes III, IV and V). The residential address was used to classify the social vulnerability of the families.

The clinical examinations of the children were performed at the preschool in the knee-to-knee position by a single dentist. The dentist used individual cross-infection protection equipment and a portable head lamp (Tikka XP, Peltz, Crolles, France). Packaged and sterilised mouth mirrors (PRISMA®, São Paulo,

SP, Brazil), WHO probes (Golgran Ind. e Com. Ltda., São Paulo, SP, Brazil) and dental gauze were used for the examination. The classification proposed by Andreasen et al. (24) was used for the clinical diagnosis of TDI: enamel fracture, enamel-dentine fracture, complicated crown fracture, extrusive luxation, lateral luxation, intrusive luxation and avulsion. A visual assessment of tooth discolouration was also performed.

Dental caries, developmental defects of enamel and malocclusion were identified and analysed as possible confounding variables, as the clinical evaluation of these variables is recommended in the manual of the World Health Organization's Oral Health Survey (18). The assessment of dental caries was performed using the criteria of the World Health Organization for the diagnosis of decayed, missing and filled teeth (dmft index) (18). Developmental defects of enamel were determined using the criteria established by the Dental Commission on Oral Health, Research & Epidemiology Report of an FDI Working Group (25). Malocclusion was determined based on the presence of overbite (26), accentuated overjet (26, 27) and posterior crossbite (28); individuals with at least one of these conditions were recorded as having malocclusion.

Data analysis

Simple descriptive statistics were generated to characterise the sample and show the distribution of ECOHIS items. The impact on OHRQoL was classified as 'no' for responses of "never" and "hardly ever" or 'yes' for responses of "often" and "very often" (20). Bivariate analysis was performed using the chi-square test to determine associations between TDI and negative

impacts of the ECOHIS items. The level of significance was set at 5% ($p < 0.05$). Bivariate Poisson regression analysis with robust variance was employed to test associations between the outcome (negative impact on quality of life on the children and their families) and independent variables. Multivariate Poisson regression models were constructed after controlling for the confounding effect of dental caries. Variables with a p -value < 0.20 in bivariate analysis were incorporated into the multiple models step-by-step (backward stepwise method). Variables with a p -value > 0.05 remained in the final models. Data analyses were performed using the Statistical Package for Social Sciences (SPSS for Windows, version 17.0, SPSS Inc, Chicago, IL, USA).

Ethical considerations

This study received approval from the Human Research Ethics Committee of the *Universidade Federal de Minas Gerais*, Brazil. Parents/guardians who agreed to participate in the study signed a statement of informed consent.

RESULTS

One thousand six hundred thirty-two children [837 males (51.3%) and 795 females (48.7%)] participated in the present study. The sample size was larger than the minimum due to the excellent response rate (96.28%). Losses (3.72%) were due to children having changed preschools (2.01%), refusal to be examined (1.06%) and absence on the days scheduled for the exam (0.65%). Table 1 displays the distribution of the children according to demographic, socioeconomic and clinical data.

The prevalence of negative impact from oral health conditions on the quality of life on the children and their families was 36.8% and 31.4%, respectively. The items with the greatest prevalence of impact in the Child Section of the ECOHIS were “reported to pain” (22.0%) and “had difficulty eating some foods” (14.4%). The items with the greatest prevalence of impact in the Family Section were “felt guilty” (21.7) and “been upset” (19.3%) (Table 2).

The prevalence of TDI was 49.4%. The most common type of TDI was enamel fracture (50.6%), followed by tooth discolouration (25.8%), enamel-dentine fracture (14.4%), luxation (5.7%), avulsion (2.6%) and complicated crown fracture (0.9%). The primary maxillary central incisors were the most affected teeth (68.8%), followed by the primary maxillary lateral incisors (27.3%), primary mandibular lateral incisors (1.8%), primary mandibular central incisors (1.3%), primary maxillary canines (0.3%), primary mandibular canines (0.3%), primary maxillary molars (0.1%) and primary mandibular molars (0.1%).

The quality of life of the children and their families was not significantly associated with TDI based on the total score and items of the ECOHIS (Table 3). In the bivariate analyses, the prevalence of the impact on the child’s quality of life was higher among children with worse socioeconomic indicators (monthly household income, number of resident in the household, parents’/caregivers’ schooling and Social Vulnerability Index), worse parent’s/caregiver’s assessment of child’s oral and general health, history of toothache and dental care and the presence of avulsion and discolouration determined during the clinical examination (Table 4). In the multiple Poisson regression controlled for dental caries, the variables that remained in the final model were monthly

household income, number of residents in the household, parent's/caregiver's assessment of child's oral health, history of toothache and type of TDI (Table 4).

The prevalence of impact on the family's quality of life was also higher in families with worse socioeconomic indicators (monthly household income, number of residents in the household, parents'/caregivers' schooling and Social Vulnerability Index), worse parent's/caregiver's assessment of child's oral and general health, history of toothache and dental care in the child and the presence of avulsion and discolouration determined during the clinical examination of the child. In the multiple Poisson regression controlled for dental caries, the following variables remained in the final model: parent's/caregiver's assessment of child's oral health, history of toothache and dental care and type of TDI (Table 5).

Among the three possible confounding variables analysed (dental caries, developmental defects of enamel and malocclusion), only dental caries were significantly associated with OHRQoL ($p < 0.05$) and was include in the final multiple models.

DISCUSSION

The prevalence of negative impact on children's OHRQoL reported by parents/caregivers in the present study (36.8%) was lower than that reported in other cross-sectional studies carried out in Brazil (69.3%) (4, 29). The difference in prevalence rates may be explained by the fact that the samples in the studies cited were selected from parents who sought dental care at a dental school and, consequently, the children had different oral health experiences than those of the present representative study, which was conducted in randomly selected

preschools. Another Brazilian cross-sectional study conducted with preschool children also found a higher prevalence rate of impact on children (49.0%) (10). In the study cited, however, "hardly ever" responses on the items were recorded as "presence of impact", whereas such responses were recorded as "absence of impact" in the present study, as recommended by the authors of the ECOHIS (10, 20). The items "related to pain" (22.0%) and "had difficulty eating some foods" (14.4%) were the most frequently reported in the Child Section of the ECOHIS, which corroborates the findings of previous cross-sectional studies conducted with preschool children in Hong Kong and Brazil (8,10). In other Brazilian studies, however, the most frequent items were "related to pain" and "been irritable or frustrated", which may be justified by the different methods employed (4, 29). Viegas et al. (10) points out that the comparison of studies employing different methodologies is a complicated task. It is therefore important to be aware of the differences and similarities between studies in order to draw more reliable conclusions.

In the Family Section, the prevalence of the negative impact on quality of life was 31.4% and the most prevalent items were "felt guilty" (21.7%) and "been upset" (19.3%). Two previous Brazilian cross-sectional studies report a 30.7% prevalence rate of family impact, with the same items found to be the most prevalent ("been upset" and "felt guilty") (4, 29). Another cross-sectional study involving families of children aged five and six years found that the prevalence of impact was 87.3% on the Family Section and the most prevalent items were parents' concern about the child having fewer opportunities in life and the feeling of guilt regarding the child's dental health (9). As stated above,

the fact that the parents sought care at a dental school likely led to a different dental profile of these children in comparison to the present sample, which was randomly selected from a preschool population. Another cross-sectional study conducted with preschool children in Brazil also found a higher prevalence rate of family impact (35.1%) and the most prevalent items also were “felt guilty” (23.5%) and “been upset” (22.2%). However, it is worth repeating that the form of categorisation of impact on the quality of life of families was also different from that employed in the present study, which may explain the difference in prevalence rates (10). A cross-sectional study involving preschool children in Hong Kong also found “been upset” (22.9%) and “felt guilty” (20.0%) to be the most prevalent items in the Family Section of the ECOHIS (8).

The negative impact on the OHRQoL of the children and their families (considering the total score of the two ECOHIS sections as well as the item scores) was not influenced by the presence of TDI detected during the clinical examination, despite the high prevalence of this condition (49.4%). Another Brazilian study also found no statistically significant association between TDI and negative impact on the overall ECOHIS score or the score of each of its domains (29). The lack of a significant association in the present study may be explained by the fact that the most prevalent type of the TDI was enamel fracture (50.6%), which is a mild condition that most laypersons (parents/caregivers) have difficulty in determining (10). The bivariate and multivariate analysis confirmed this finding, as the only conditions significantly associated with the quality of life of the children and their families were avulsion and tooth discolouration. A cross-sectional study involving children aged two to

five years reports a greater negative impact of complicated injuries (pulp exposure and/or dislocation of the tooth) on children's quality of life (considering overall ECOHIS score) in comparison to uncomplicated TDI and the absence of TDI in the multivariate model (4).

It should be stressed that the parents'/caregivers' perceptions may have been subject to recall bias, as they may have forgotten the occasion of the TDI and the impact it caused at the time (4), which can be considered a limitation of the present study. Indeed, one study reports that a respondent's inaccurate memory is a source of recall bias (30). Another limitation of this study regards the fact that these results represent only preschools and cannot be extrapolated to the general population of Belo Horizonte, as 144.868 children aged five to nine years resided in the city in 2010 and only 46235 were enrolled preschools (31, 32). Moreover, since the socioeconomic questionnaire and B-ECOHIS were based on the parents/caregivers' reports, some information bias may be present in the results.

Based on the findings of the present study, parents'/caregivers' assessments of the oral health of their children can be considered a predictor of negative impact on the OHRQoL of children and their families, as those with poorer assessments of oral health had a greater prevalence rate of impact on OHRQoL. A study involving 12-year-olds and the use of the Child Perceptions Questionnaire (CPQ₁₁₋₁₄) also found an association between parent's perceptions regarding their child's oral health and children's perceptions regarding OHRQoL, demonstrating the influence of family values on the perceptions of children OHRQoL (33). In another study, dental status and

treatment needs were associated with the perceptions of parents regarding the oral health of their children, which demonstrates the importance of exploring this issue (34).

In the multiple Poisson regression adjusted for dental caries, a history of toothache remained a predictor of negative impact on the OHRQoL of the children and their families. Likewise, “related to pain” was the most prevalent item of impact on the Child Section of the ECOHIS. In a previous study, toothache was also reported to be one of the most prevalent causes of negative impact on OHRQoL in 12-year-olds (35). Another study reports an 85% prevalence rate of impact on the daily activities of 12-year-olds due to dental pain (36).

In the present study, the negative impact on the OHRQoL of the children was influenced by the number of residents in the household and household income in the multivariate model. These findings are in agreement with those described in two previous studies involving preschool children in Brazil and another involving adolescents in Canada, which found that children and adolescents with a low socioeconomic status had a greater prevalence of impact on OHRQoL (10, 29, 37).

Parents'/caregivers' perceptions of poor oral health status in their children constitute an indicator of a child's visits to the dentist. A cross-sectional study assessing the influence of children's OHRQoL on the use of dental care services found that children visited the dentist with greater frequency when their parents perceived impact on the child's quality of life (38). In the present study, the quality of life of the families was affected by a history of dental visits, as

families with children who went to the dentist had a greater prevalence rate of negative impact.

Based on the findings of the present study, the presence of TDI in Brazilian preschool children had no impact on the quality of life of the children and their families. However, tooth avulsion and discolouration were associated to a negative impact on the OHRQoL of both groups. Moreover, parent's/caregiver's assessments of their child's oral health and a history of toothache were predictors of negative impact on the OHRQoL of the children and their families. The OHRQoL of the children was also influenced by socioeconomic status (household income and number of residents in the household) and the OHRQoL of the family was influenced by a history of visits to the dentist.

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Table 1: Frequency distribution of preschool children according to independent variables; Belo Horizonte, Brazil, 2009

Variables	Frequency	
	n	%
Gender of child		
Female	795	48.7
Male	837	51.3
Number of residents in household		
≤ to 4 residents	1060	65.0
5 or more residents	572	35.0
Household income		
> 3 times the minimum wage	399	24.4
≤ 3 times the minimum wage	1233	75.6
Social Vulnerability Index (residence)		
Less vulnerable	893	54.7
More vulnerable	739	45.3
Parents'/caregivers' schooling		
> 8 years of study	1060	65.0
≤ 8 years of study	572	35.0
Parent's/caregiver's assessment of child's oral health		
Good	1147	70.3
Poor	485	29.5
Parent's/caregiver's assessment of child's general health		
Good	1524	93.4
Poor	108	6.6
TDI		
No	826	50.6
Yes	806	49.4
Type of TDI		
None and EF	1234	75.6
EDF and CCF	123	7.5
TD	208	12.7
Luxation	46	2.8
Avulsion	21	1.3
Number of teeth affected by TDI		
None	826	50.6
1 tooth	399	24.4
2 or more teeth	407	24.9
History of toothache		
No	1239	75.9
Yes	393	24.1
History of dental visits		
No	644	39.5
Yes	988	60.5
Occurrence of dental caries		
DMFT = 0	878	53.8
DMFT ≥ 1	754	46.2

EF: enamel fracture; EDF: enamel-dentine fracture; CCF: complicated crown fracture; TD: tooth discolouration

Table 2: Prevalence of impact of oral health on quality of life and ECOHIS scores among preschool children; Belo Horizonte, Brazil, 2009

ECOHIS	Total sample (n=388)			Prevalence of impact (%)
	SCORES			
Domains, Items	mean $\pm$ SD	minimum- maximum	Don't know	
Child Impact	2.60 $\pm$ 4.37	0-34	-	36.8
Related to pain	0.59 $\pm$ 0.94	0- 4	58	22.0
Had difficulty drinking hot or cold beverages	0.37 $\pm$ 0.80	0- 4	44	14.4
Had difficulty eating some foods	0.43 $\pm$ 0.90	0- 4	37	16.4
Had difficulty pronouncing words	0.23 $\pm$ 0.72	0- 4	65	8.3
Missing preschool, day care or school	0.22 $\pm$ 0.64	0- 4	5	8.2
Had trouble sleeping	0.24 $\pm$ 0.71	0- 4	7	9.5
Been irritable or frustrated	0.34 $\pm$ 0.79	0- 4	17	13.0
Avoided smiling or laughing	0.14 $\pm$ 0.57	0- 4	16	5.1
Avoided talking	0.10 $\pm$ 0.46	0- 3	17	3.7
Family Impact	1.55 $\pm$ 2.72	0-16	-	31.4
Been upset	0.51 $\pm$ 1.04	0- 4	6	19.3
Felt guilty	0.56 $\pm$ 1.09	0- 4	10	21.7
Taken time off work	0.25 $\pm$ 0.69	0- 4	4	10.2
Financial impact	0.23 $\pm$ 0.70	0- 4	13	8.2

Table 3: Frequency distribution of preschool children with or without TDI according to each ECOHIS item; Belo Horizonte, Brazil, 2009

ECOHIS	TDI No n (%)	Yes n (%)	Total n (%)	p-value*
Domains, Items				
Child Impact				
No impact	526 (51.0)	505 (49.0)	1031 (63.2)	0.668
Impact	300 (49.9)	301 (50.1)	601 (36.8)	
Symptom Domain				
Related to pain				
No impact	618 (50.3)	610 (49.7)	1228 (78.0)	0.348
Impact	184 (53.2)	162 (46.8)	346 (22.0)	
Function Domain				
Had difficulty drinking hot or cold beverages				
No impact	689 (50.7)	670 (49.3)	1359 (85.6)	0.797
Impact	114 (49.8)	115 (50.2)	229 (14.4)	
Had difficulty eating some foods				
No impact	676 (50.7)	658 (49.3)	1334 (83.6)	0.844
Impact	134 (51.3)	127 (48.7)	261 (16.4)	
Had difficulty pronouncing words				
No impact	735 (51.1)	702 (48.9)	1436 (91.7)	0.111
Impact	57 (43.8)	73 (56.2)	130 (8.3)	
Missing preschool, day care or school				
No impact	749 (50.2)	744 (49.8)	1493 (91.8)	0.262
Impact	74 (55.2)	60 (44.8)	134 (8.2)	
Psychological Domain				
Had trouble sleeping				
No impact	734 (49.9)	736 (50.1)	1470 (90.5)	0.105
Impact	88 (56.8)	67 (43.2)	155 (9.5)	
Been irritability or frustration				
No impact	700 (49.8)	705 (50.2)	1405 (87.0)	0.182
Impact	115 (54.8)	95 (45.2)	210 (13.0)	
Self-Image/Social Interaction Domain				
Avoided smiling or laughing				
No impact	775 (50.6)	758 (49.4)	1533 (94.9)	0.837
Impact	41 (49.4)	42 (50.6)	83 (5.1)	
Avoided talking				
No impact	788 (50.6)	768 (49.4)	1556 (96.3)	0.822
Impact	29 (49.2)	30 (50.8)	59 (3.7)	
Family Impact				
No impact	562 (50.2)	557 (49.8)	1119 (68.6)	0.642
Impact	264 (51.5)	249 (48.5)	513 (31.4)	
Distress Domain				
Been upset				
No impact	655 (49.9)	657 (50.1)	1312 (80.7)	0.254
Impact	168 (53.5)	146 (46.5)	314 (19.3)	
Felt guilty				
No impact	645 (50.8)	625 (49.2)	1270 (78.3)	0.653
Impact	174 (49.4)	178 (50.6)	352 (21.7)	
Family Function Domain				
Taken time off work				
No impact	736 (50.3)	726 (49.7)	1462 (89.8)	0.424
Impact	89 (53.6)	77 (46.4)	166 (10.2)	
Financial impact				
No impact	748 (50.3)	739 (49.7)	1487 (91.8)	0.271
Impact	73 (55.3)	59 (44.7)	132 (8.2)	

No impact = "never", "hardly ever"; Impact =, "occasionally", "often" and "very often" *chi-square test

Table 4: Frequency distribution and Poisson regression analyses of preschool children according to independent variables and impact on quality of life of children; Belo Horizonte, Brazil, 2009

Variables	Impact on child's QoL		Bivariate analysis		Multivariate analysis	
	No	Yes	Non-adjusted PR		Adjusted PR*	
	n (%)	n (%)	p-value	[95% CI]	p-value	[95% CI]
Gender of child						
Female	492 (61.9)	303 (38.1)	0.293	1	-	-
Male	539 (64.4)	298 (35.6)		0.93[0.82,1.06]		
Number of residents in household						
≤ 4 residents	723 (68.2)	337 (31.8)	0.000	1	0.008	1
5 or more residents	308 (53.8)	264 (46.2)		1.45[1.28,1.65]		1.15[1.04,1.28]
Household income						
> 3 times the minimum wage	321 (80.5)	78 (19.5)	0.000	1	0.003	1
≤ 3 times the minimum wage	710 (57.6)	523 (42.4)		2.17 [1.76,2.68]		1.36[1.11,1.67]
Social Vulnerability Index (residence)						
Less vulnerable	592 (66.3)	301 (33.7)	0.004	1	-	-
More vulnerable	439 (59.4)	300 (40.6)		1.20[1.06,1.37]		
Parents'/caregivers' schooling						
> 8 years of study	730 (68.9)	330 (31.1)	0.000	1	-	-
≤ 8 years of study	301 (52.6)	271 (47.4)		1.52[1.34,1.72]		
Parent's/caregiver's assessment of child's oral health						
Good	869 (75.8)	278 (24.2)	0.000	1	0.000	1
Poor	162 (33.4)	323 (66.6)		2.75[2.44,3.10]		1.54[1.35,1.75]
Parent's/caregiver's assessment of child's general health						
Good	983 (64.5)	541 (35.5)	0.000	1	-	-
Poor	48 (44.4)	60 (55.6)		1.57[1.31,1.88]		
TDI						
No	526 (63.7)	300 (36.3)	0.668	1	-	-
Yes	505 (62.7)	301 (37.3)		1.03[0.91,1.17]		
Type of TDI						
None and EF	800 (64.8)	434 (35.2)	-	1	-	1
EDF and CCF	80 (65.0)	43 (35.0)	0.963	0.99[0.77,1.28]	0.224	0.89[0.73,1.08]
TD	118 (56.7)	90 (43.3)	0.019	1.23[1.04,1.46]	0.113	1.13[0.97,1.32]
Luxation	25 (54.3)	21 (45.7)	0.115	1.30[0.94,1.80]	0.127	1.27[0.94,1.71]
Avulsion	8 (38.1)	13 (61.9)	0.001	1.76[1.25,2.48]	0.039	1.37[1.02,1.85]
Number of teeth affected by TDI						
None	526 (63.7)	300 (36.3)	-	1	-	-
1 tooth	257 (64.4)	142 (35.6)	0.803	0.98[0.84,1.15]		
2 or more teeth	248 (60.9)	159 (39.1)	0.345	1.08[0.93,1.25]		
History of toothache						
No	960 (77.5)	279 (22.5)	0.000	1	0.000	1
Yes	71 (18.1)	322 (81.9)		3.64[3.25,4.08]		2.49[2.18,2.85]
History of dental visits						
No	430 (66.8)	214 (33.2)	0.016	1	-	-
Yes	601 (60.8)	387 (39.2)		1.18[1.03,1.35]		

EF: enamel fracture; EDF: enamel-dentine fracture; CCF: complicated crown fracture; TD: tooth discolouration; No impact = "never", "hardly ever"; Impact = "occasionally", "often" and "very often"

* Poisson regression adjusted for dental caries

Results in bold type significant at 5% level

Table 5: Frequency distribution and Poisson regression analyses of preschool children according to independent variables and impact on quality of life of family; Belo Horizonte, Brazil, 2009

Variables	Impact on family's QoL		Bivariate analysis		Multivariate analysis	
	No	Yes	Non-adjusted PR		Adjusted PR*	
	n (%)	n (%)	P-value	[95% CI]	P-value	[95% CI]
Gender of child						
Female	541 (68.1)	254 (31.9)	0.662	1	-	-
Male	578 (69.1)	259 (30.9)		0.97[0.84,1.12]		
Number of residents in household						
≤ to 4 residents	751 (70.8)	309 (29.2)	0.006	1	-	-
5 or more residents	368 (64.3)	204 (35.7)		1.22[1.06,1.41]		
Household income						
> 3 times the minimum wage	326 (81.7)	73 (18.3)	0.000	1	-	-
≤ 3 times the minimum wage	793 (64.3)	440 (35.7)		1.95 [1.57,2.43]		
Social Vulnerability Index (residence)						
Less vulnerable	634 (71.0)	259 (29.0)	0.020	1	-	-
More vulnerable	485 (65.6)	254 (34.4)		1.19[1.03,1.37]		
Parents'/caregivers' schooling						
> 8 years of study	777 (73.3)	283 (26.7)	0.000	1	-	-
≤ 8 years of study	342 (59.8)	230 (40.2)		1.51[1.31,1.73]		
Parent's/caregiver's assessment of child's oral health						
Good	941 (82.0)	206 (18.0)	0.000	1	0.000	1
Poor	178 (36.7)	307 (63.3)		3.52[3.06,4.06]		
Parent's/caregiver's assessment of child's general health						
Good	1055 (69.2)	469 (30.8)	0.022	1	-	-
Poor	64 (59.3)	44 (40.7)		1.32[1.04,1.68]		
TDI						
No	562 (68.0)	264 (32.0)	0.642	1	-	-
Yes	557 (69.1)	249 (30.9)		0.97[0.84,1.12]		
Type of TDI						
None and EF	875 (70.9)	359 (29.1)	-	1	-	1
EDF and CCF	81 (65.9)	42 (34.1)	0.228	1.17[0.91,1.52]	0.414	1.09[0.88,1.35]
TD	124 (59.6)	84 (40.4)	0.001	1.39[1.15,1.67]	0.011	1.23[1.05,1.44]
Luxation	31 (67.4)	15 (32.6)	0.598	1.12[0.73,1.71]	0.419	1.18[0.79,1.75]
Avulsion	8 (38.1)	13 (61.9)	0.000	2.13[1.51,3.01]	0.008	1.55[1.12,2.14]
Number of teeth affected by TDI						
None	562 (68.0)	264 (32.0)	-	1	-	-
1 tooth	280 (70.2)	119 (29.8)	0.452	0.93[0.78,1.12]		
2 or more teeth	277 (68.1)	130 (31.9)	0.994	1.00[0.84,1.19]		
History of toothache						
No	999 (80.6)	240 (19.4)	0.000	1	0.000	1
Yes	120 (30.5)	273 (69.5)		3.59[3.15,4.09]		
History of dental visits						
No	497 (77.2)	147 (22.8)	0.000	1	0.001	1
Yes	622 (63.0)	366 (37.0)		1.62[1.38,1.91]		

EF: enamel fracture; EDF: enamel-dentine fracture; CCF: complicated crown fracture; TD: tooth discolouration;
 No impact = "never", "hardly ever"; Impact = "occasionally", "often" and "very often"

* Poisson regression adjusted for dental caries

Results in bold type significant at 5% level

ARTIGO 2

CASE-CONTROL STUDY ON IMPACT OF TRAUMATIC DENTAL INJURY ON QUALITY OF LIFE OF BRAZILIAN PRESCHOOL CHILDREN

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SUMMARY

Background. Children are subject to traumatic dental injury (TDI), which can have an impact on quality of life. **Aim.** The aim of the present study was to evaluate the impact of TDI on the oral health-related quality of life (OHRQoL) of preschool children. **Design.** A population-based case-control study was carried out with male and female children from 60 to 71 months of age. The case group was composed of 58 children with impact on OHRQoL and the control group was made up of 232 children without impact. The groups were matched for gender, type of preschool, age of parents/caregivers and monthly household income. Evaluations involved the administration of the Early Childhood Oral Health Impact Scale and oral examinations. Data analysis involved descriptive statistics and conditional logistic regression analysis. **Results.** The unadjusted conditional logistic regression analysis revealed no significant differences between groups regarding the prevalence of TDI [OR=1.11, 95%CI=0.62-1.98]. In the final multivariate model, parent's/caregiver's assessment of child's oral and general health, history of toothache and number of children in the family remained associated with OHRQoL [OR=5.06; 95%CI=1.76-14.59, OR=3.19, 95%CI=1.49-6.85, OR=13.70; 95%CI=5.79-32.41 and OR=2.60, 95%CI=1.09-6.22, respectively]. **Conclusions.** TDI had no impact on the quality of life of the preschool children analyzed in the present study.

INTRODUCTION

Traumatic dental injury (TDI) is an injury to the teeth and oral cavity that often requires urgent care, since it is an unexpected, accidental event or may occur in victims of physical abuse (1, 2). The prevalence of TDI in the primary dentition ranges from 9.4% to 62.1% in epidemiological studies involving different populations in different countries (3,4,5,6,7,8). The prevalence of TDI in the primary dentition varies among studies in the literature due to differences in methodology (7). The most affected teeth are the upper anterior teeth, which causes physical, aesthetic and psychological problems for children and their parents (9,10). It is therefore of vital importance to consider other ways of assessing oral health beyond traditional methods involving indices focused on the clinical evaluation of the absence/presence of health conditions (11).

Oral health-related quality of life (OHRQoL) is the impact that oral health or oral disease exerts on the wellbeing and daily functioning of an individual (12). Children are subject to numerous orofacial disorders that potentially have a significant impact on quality of life, since the symptoms can have physical, psychological and social consequences (13, 14). As oral disorders are rarely life-threatening, treatment and prevention are often not a priority in public health policies (15). It is necessary for dentists and researchers to draw connections between oral disorders and OHRQoL and stress the importance of oral health in the establishment of adequate public policies (15).

The social, physical and psychological effects of oral health are rarely addressed in preschool children (16). Moreover, specific questionnaires for children and adolescents have only recently been developed and tested (17)

and few studies refer specifically to preschool children (under 5 years of age) (12, 17, 18, 19, 20, 21).

The aims of the present case-control study were to investigate the negative impact of TDI on oral health related quality of life in preschool children and examine the perceptions of parents/caregivers regarding their child's health as well as the child's history of toothache.

MATERIAL AND METHODS

This study received approval from the Human Research Ethics Committee of the *Universidade Federal de Minas Gerais*, Brazil. Parents/caregivers agreed to participate and a signed statement of informed consent allowing the participation of their children.

Study design and sample

This population-based matched case-control study was carried out in Belo Horizonte, the capital of the state of Minas Gerais, Brazil. The city has more than two million inhabitants and is geographically divided into nine administrative districts, with more than forty-five thousand children enrolled in preschools. For the selection of children for the case and control groups, a representative cross-sectional survey was carried out with 1632 male and female preschool children between 60 and 71 months of age. Losses (3.72%) were due to children having changed preschools (2.01%), refusal to be examined (1.06%) and absence on the days scheduled for the exam (0.65%).

The five-year-old age group was chosen due to the fact that this group of children has the greatest likelihood of the occurrence of TDI in primary teeth (3, 22, 23). The replacement of primary teeth with permanent teeth begins after five

years of age and the permanent dentition was not the focus of this study. Furthermore, five years is the age index for oral health indicators recommended by the World Health Organization (24).

The sample size calculation was performed using the Power and Sample Size Calculation program, version 3.0.14 (Dupont WD, Plummer WD, Nashville, TN, USA). The following values were determined in a pilot study and were considered for the sample calculation: probability of exposure to TDI among controls (0.5), correlation coefficient for exposure between matched cases and controls (-0.476) and odds ratio for OHRQoL in exposed subjects relative to non-exposed subjects (2.871). An 80% power and 5% level of significance regarding differences between groups were also considered. The minimal sample size required was 58 children in the case group and 232 children in the control group, considering a ratio of four controls to each case.

Pilot Study

A pilot study was carried out involving 32 preschool children (16 cases and 16 controls) selected from the pilot study of a population-based cross-sectional survey that had the participation of 87 children. The pilot study was carried out to test the methodology and generate values for the sample size calculation. The children in the pilot study were not included in the main sample. The pilot study was carried out at a preschool to test the participants' comprehension of the questionnaire addressing the history of TDI and toothache, the perception of parents/caregivers regarding their child's health and demographic data. There were no misunderstandings regarding the questionnaire.

Calibration of examiner

The calibration exercise consisted of two steps. The theoretical step involved a discussion of the criteria for the diagnosis of the clinical variables and an analysis of photographs. A specialist in paediatric dentistry (gold standard in this theoretical framework) coordinated this step, instructing two general dentists on how to perform the examination. In the clinical step, the dentists examined twenty-eight previously selected children between 60 and 71 months of age. The dentist with the better level of intra-examiner and inter-examiner agreement in the theoretical step was considered the gold standard in the clinical step. Inter-examiner agreement was tested by comparing each examiner with the gold standard. The interval between evaluations of the photographs and the children for the determination of intra-examiner agreement was seven to 14 days. Data analysis involved Cohen's Kappa coefficient on a tooth-by-tooth basis. The dentist with the better level of intra-examiner and inter-examiner agreement performed all clinical exams during the data collection process.

Data collection

Data collection involved a questionnaire addressing the history of TDI and toothache, the perception of parents/caregivers regarding their child's health and demographic data (child's birth date, child's gender, parent's/caregiver's age, monthly household income) and the Brazilian version of the Early Childhood Oral Health Impact Scale (B-ECOHIS) (25, 26). A clinical examination of the children was also performed.

The parents'/caregivers' answers to the questionnaire allowed recording the following data: the occurrence of TDI and subsequent dental treatment; whether the child had ever experienced a toothache; whether the child had ever been to the dentist; parent's/caregiver's relationship to the child; parents/caregivers' level of schooling; and the number children in the family. There were also two questions related to the perception of the parents/caregivers regarding their child's general and oral health ("In general, how would you rate your child's overall health?" and "In general, how would you rate your child's oral health?"), the response options of which were 1 = Very Good, 2 = Good, 3 = Fair, 4 = Poor and 5 = Very Poor. For statistical purposes, this variable was dichotomised as "very good/good" and "fair/poor/very poor".

The B-ECOHIS assesses the impact of oral health conditions on the quality of life of preschool children and their families and has been validated in Brazilian Portuguese (26, 27). This questionnaire has two sections – the child impact section and the family impact section. Since the aim was to evaluate the impact of TDI on children's OHRQoL, the family section was not used in the present study. The child impact section has four domains and nine items. The domains are symptoms (one item), function (four items), psychology (two items) and self-image/social interaction (two items). Each item has six response options: 0 = never, 1 = hardly ever, 2 = occasionally, 3 = often, 4 = very often, 5 = don't know. The item scores are totalled for each section ("don't know" responses are not counted). The total score ranges from 0 to 36 in the child section, with higher scores indicating greater impact and/or more problems (25).

The clinical examination was performed after the return of the questionnaires. The exams were performed by a single dentist at the preschool in the knee-to-knee position with the aid of a portable lamp attached to the examiner's head (Tikka XP, Peltz, Crolles, France). The dentist used individual cross-infection protection equipment. Packaged and sterilised mouth mirrors (PRISMA[®], São Paulo, SP, Brazil), WHO probes (Golgran Ind. e Com. Ltda., São Paulo, SP, Brazil) and dental gauze were used for the examination.

The criteria for the clinical diagnosis of TDI were those contained in the classification proposed by Andreasen et al. (28): enamel fracture, enamel-dentine fracture, complicated crown fracture, extrusive luxation, lateral luxation, intrusive luxation and avulsion. A visual assessment of tooth discolouration was also performed.

As possible confounding dental caries, developmental defects of enamel and malocclusion were identified and analysed, as the clinical evaluation of these variables is recommended in the manual of the World Health Organization's Oral Health Survey (24). The assessment of dental caries was carried out using the World Health Organisation criteria for the diagnosis of decayed, missing and filled teeth in the primary dentition (dmft) (24). Developmental defects of enamel were assessed using the criteria established by the Dental Commission on Oral Health, Research & Epidemiology Report of an FDI Work Group (29). Malocclusion was classified as overbite (30), overjet (30, 31) and posterior crossbite (32) (participants with at least one of these conditions was classified as having malocclusion) (31).

Selection of cases and controls

The selection of children to make up the case and control groups was performed by one researcher (CMV). Children in the case group were selected among the 601 children who had impact on OHRQoL and the controls were selected from the 1031 children who had no impact on OHRQoL. Impact on OHRQoL was determined by the score on the child impact section. B-ECOHIS items for which responses were "never" or "hardly ever" were categorised as having a non-negative impact on OHRQoL and items for which responses were "occasionally," "often", "very often" were categorised as having a negative impact on OHRQoL.

To preserve the representativeness of the data, the selection of children for the case and control groups was performed maintaining the proportion of children in each administrative district of the city of Belo Horizonte. For each child in the case group, four children were selected for the control group, with matching for gender, type of preschool (private or public), age of parents/caregivers and monthly household income. A difference of up to seven years between the case and control groups was tolerated for the matching of the age of the parents/caregivers. Children with the loss of all primary upper incisors by dental caries or physiological exfoliation were excluded from the sample due to the fact that these aspects could compromise the diagnosis of TDI. If more cases and controls were selected than the number determined for each administrative district, a random selection by lots was carried out.

Statistical analysis

Data analysis involved descriptive statistics. Unadjusted conditional logistic regression analysis was performed for the independent variables and the case and control groups. The level of significance was set to 5% ($p < 0.05$). Multiple conditional logistic regression was performed using the backward stepwise method with the independent variables that achieved a significance level of 20%. The final multiple conditional logistic regression model was adjusted for dental caries. Data organisation and statistical analysis were performed using the Statistical Package for Social Sciences (SPSS for Windows, version 17.0, SPSS Inc, Chicago, IL, USA).

RESULTS

Cohen's Kappa values for intra-examiner and inter-examiner agreement were respectively 0.91 and 0.92 for TDI, 0.96 and 0.96 for dental caries, 0.96 and 0.83 for developmental defects of enamel and 0.97 and 0.87 for malocclusion.

Table 1 displays the variables used for matching the groups. No statistically significant differences were found in the frequency distribution of these variables between the case and control groups. Two hundred ninety preschool children were selected; 53.4% (155) were boys and 46.6% (135) were girls. The frequency distribution according to household income was 48.3% with one minimum wage, 41.4% with two times the minimum wage, 5.2% with three times the minimum wage, 1.7% with eleven times the minimum wage, 1.7% with twelve times the minimum wage and 1.7% with fourteen times the minimum wage. Median parent's/caregiver's age was 31.3 years. Most of the

children were enrolled in public preschools (88.0%). Table 2 displays the frequency distribution of the preschool children according to the independent variables. The prevalence of the TDI was 53.1% and the most common type of the TDI was enamel fracture (27.9%)

In the case group, the B-ECOHIS child impact domains with the greatest prevalence of impact on children's quality of life were function (77.6%) and psychology (43.1%). The items with the greatest prevalence of impact were related to pain (46.2%), difficulty eating some foods (44.4%) and difficulty pronouncing words (44.2%) (Table 3).

No significant differences were found between groups regarding prevalence values for TDI and correlated variables (sign of TDI, number of teeth affected by TDI, TDI reported by parents/caregivers and dental care for TDI). The unadjusted conditional logistic regression analysis revealed that children with a poor parent's/caregiver's assessment of the child's oral and general health had a greater chance of experiencing a negative impact on OHRQoL than those with a good assessment (odds ratio [OR] = 5.99; 95% confidence interval [CI] = 3.24-11.09 and OR = 4.78; 95%CI = 2.02-11.31, respectively). Children with a history of toothache had a greater chance of experiencing a negative impact on OHRQoL than children without toothache experience (OR = 12.60; 95%CI = 6.11-25.97). Three clinical conditions (dental caries, developmental defects of enamel and malocclusion) were analysed as possible confounding variables. No statistically significant differences were found between the case and control groups regarding developmental defects of

enamel or malocclusion ($p > 0.05$), but a statistically significant difference between groups was found regarding caries experience ($p < 0.001$) (Table 4).

In the final conditional logistic regression model adjusted for caries experience, the following variables remained associated with OHRQoL: parent's/caregiver's assessment of the child's oral and general health, history of toothache and number of children in the family (Table 5).

DISCUSSION

The findings of the present study indicate that the quality of life of the children and their families was not influenced by the presence or signs of TDI. Three cross-sectional studies carried out in Brazil involving children aged two to five years assessed the impact of TDI on OHRQoL (12, 17, 18). One of these studies selected children during a national immunisation campaign and found that TDI had no effect on OHRQoL in the adjusted multivariate model (17). Another study selected its sample through the screening program of a Brazilian dental school and found no impact of TDI on the overall OHRQoL score or each of the ECOHIS domains (18). The third study also selected its sample through the screening program of a dental school and found that children having suffered a complicated TDI experienced a negative impact on OHRQoL, as determined by the overall ECOHIS score (12). A cross-sectional study conducted in the city of Belo Horizonte, Brazil, with five-year-old preschool children also found no statistically significant association between OHRQoL and the presence of TDI (20).

Despite the difficulty in comparing studies conducted with different methodologies, it can generally be concluded from the results of the present

investigation and the aforementioned studies that the presence of TDI is not associated with an impact on the OHRQoL of preschool children. This may be explained by the fact that the ECOHIS assesses the perception of parents/caregivers regarding OHRQoL and parents generally perceive oral impact when a clinical abnormality is obvious and has a psychological or social impact on the child (20). The present investigation is a population-based study and most cases of TDI were enamel fractures, which is in agreement with findings reported in previous cross-sectional studies carried out in Belo Horizonte (6, 7, 8). Thus, the determination of enamel fractures, which is a mild condition, may be difficult for laypersons (20). This hypothesis is supported by the fact the only aforementioned study to find an association between TDI and OHRQoL found the association with complicated TDI involving exposure of the pulp tissue and/or tooth dislocation (12). The ECOHIS domain with the greatest prevalence of impact on children's quality of life in the case group was the function domain and the items were related to pain, difficulty eating some foods and difficulty pronouncing words. These results are consistent with a cross-sectional study carried out with five-year-old children in Brazil (20) as well as a study carried out in Hong Kong with three-to-five-year-old preschool children (19). As enamel fractures are not likely to cause functional problems, such as difficulty eating and pronouncing words, the chance of an association between OHRQoL and the presence of TDI was lower in the present study. According to Aldrigui et al. (12), symptoms of irritation, pain, difficulty eating, difficulty sleeping and difficulty drinking hot and cold drinks are most often related to complicated TDIs.

Any evaluation of the primary dentition should consider the temporary nature of these teeth. The loss of tooth structure or the entire tooth in the primary dentition does not have the same impact as loss in the permanent dentition, since the aesthetic and functional harm to primary teeth is temporary (17). A study carried out in the United States of America involving populations with different ethnic backgrounds found that most caregivers believed that primary teeth would fall out and were therefore not concerned with the long-term importance of these teeth; moreover, the caregivers had difficulty listing functions for primary teeth other than eating (33). In the present study, the children in the case group had a greater chance of having a poor assessment of oral and general health than those in the control group. This was an expected result, since the ECOHIS assesses the impression of parents/guardians regarding the OHRQoL of children and this impression may be affected by the respondent's characteristics (17). Thus, one may conclude that parents/caregivers' assessments regarding the oral and general health of their children can be considered a predictor of OHRQoL. A study with two-to-five-year-old children found an association between dental status/treatment need and the perceptions of parents regarding the oral health of their children (34). A study with Brazilian 12-year-old children found association between parent's perceptions regarding their child's oral health and OHRQoL perceived by the children using the Child Perceptions Questionnaire₁₁₋₁₄ (35). It should be stressed that this result demonstrates the influence of family values on children's perceptions regarding OHRQoL (35). It is therefore important to explore the perceptions of parents/caregivers regarding the oral health of their

child, as these individuals play an essential role in ensuring their child's welfare (34).

Pain is an important public health problem in children, since it is a common experience that can result in restrictions with regard to daily living (36). In the final conditional logistic regression model, a history of toothache remained a predictor of OHRQoL. This may be explained by the high prevalence of the item related to pain, as reported previously. In a study carried out with Sudanese 12-year-old schoolchildren, the most common oral conditions perceived as causing of impact were erupting teeth followed by toothache (37). In a study involving Indian 12-year-old schoolchildren, the prevalence of impact due to dental pain was 85% (36).

The multiple conditional logistic regression analysis also demonstrated that children in the case group had a greater chance of being in a family with more than one child. Contradictorily, no statistically significant association was found between the number of siblings and impact on OHRQoL in a previous study involving Brazilian children aged two to years (18).

There is a need to understand the complex web of socioeconomic and clinical factors related to OHRQoL in children. Such an understanding could help establish public health programs grounded on a more detailed assessment regarding the outcomes of dental treatment and the definition of groups with different levels of need (38). Preschool children in particular cannot verbalise their emotions and distress and are therefore dependent on adults, whose beliefs and characteristics should be considered when addressing the oral health of these children (34).

One limitation of the present study regards recall bias. The memory of the time and situation in which the TDI event took place may have influenced the parents' perceptions, as they may have forgotten the moment in which the TDI occurred and the impact it caused at the time (12). Another limitation of this study regards the fact that these results represent only preschools and cannot be extrapolated to the general population of Belo Horizonte, as 144.868 children aged five to nine years resided in the city in 2010 and only 46235 were enrolled preschools (39, 40). Moreover, since the socioeconomic questionnaire and B-ECOHIS were based on the parents/caregivers' reports, some information bias may be present in the results.

The results of the present study demonstrate that the quality of life of the children and their families was not influenced by TDI. The assessment of oral and general health by parents/caregivers, a history of toothache and the number of the children in the family were predictors of OHRQoL. However, more in-depth studies are needed, giving priority to the investigation of samples from reference centres for the treatment of TDI, as the evidence suggests that only severe TDIs are associated with a negative impact on OHRQoL and such cases are infrequent in the general population.

BULLET POINTS

- This article provides a subjective assessment of the impact of signs and symptoms of traumatic dental injuries on the daily life of preschool children. This information can contribute to the planning of strategies aimed at oral health care in children.

- The matched case-control study design constitutes a major strength of the present investigation.

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Table 1: Conditional logistic regression analysis of variables used to match groups; Belo Horizonte, Brazil, 2009

Variable	Study group				p-value*	Unadjusted OR [95% CI]	lowerupper	
	Case (n = 58)		Control (n = 232)					
	n	(%)	n	(%)				
Gender								
Male	31	(53.4)	124	(53.4)	1.000	1	-	-
Female	27	(46.6)	108	(46.6)		1.00	0.56	1.78
Household income	-	-	-	-	1.000	1.00	0.89	1.12
Parent's/caregiver's age	-	-	-	-	0.848	1.01	0.95	1.06
Type of preschool								
Public	51	(87.9)	204	(87.9)	1.000	1	-	-
Private	7	(12.1)	28	(12.1)		1.00	0.41	2.42

*Conditional logistic regression

Table 2: Frequency distribution of preschool children according to independent variables; Belo Horizonte, Brazil, 2009

Variables	Frequency n	%
TDI		
No	136	46.9
Yes	154	53.1
TDI		
No	136	46.9
Enamel fracture	81	27.9
Enamel-dentine fracture	21	7.2
Tooth discolouration	44	15.2
Luxation	6	2.1
Avulsion	2	0.7
Number of teeth affected by TDI		
None	136	46.9
1 tooth	76	26.2
2 or more teeth	78	26.9
TDI reported by parent/caregiver		
No	216	74.5
Yes	74	25.5
Dental care for TDI		
No	51	68.9
Yes	23	31.3
Malocclusion		
No	155	53.4
Yes	135	46.6
Dental caries		
dmft = 0	160	55.2
dmft ≥ 1	130	44.8
Developmental defects of enamel		
No	167	57.6
Yes	123	42.4
Parent's/caregiver's assessment of child's general health		
Good	266	91.7
Poor	24	8.3
Parent's/caregiver's assessment of child's oral health		
Good	208	71.3
Poor	82	28.3
Relationship to child		
Mother	258	89.0
Other	32	11.0
Number of children in family		
Only child	86	29.7
Others	204	70.3
Parent's/caregiver's schooling		
> 8 years of study	171	59.0
≤ 8 years of study	119	41.0
History of dental visits		
No	158	54.5
Yes	132	45.5
History of toothache		
No	246	84.8
Yes	44	15.2

TDI: Traumatic Dental Injury; dmft: decayed, missing and filled teeth

Table 3: Prevalence of impact of oral health on quality of life among preschool children in case group; Belo Horizonte, Brazil, 2009

B-ECOHIS	Case group (n = 58)		
	Prevalence of Impact		
Domains, Items	n	(%)	Don't know
Symptoms domain	24	41.4	-
<i>Related to pain</i>	24	46.2	6
Function domain	45	77.6	-
<i>Had difficulty drinking hot or cold beverages</i>	22	41.5	5
<i>Had difficulty eating some foods</i>	24	44.4	4
<i>Had difficulty pronouncing words</i>	23	44.2	6
<i>Missed preschool, day care or school</i>	11	19.3	1
Psychology domain	27	43.1	-
<i>Had trouble sleeping</i>	16	27.6	0
<i>Been irritable or frustrated</i>	18	33.3	4
Self-image/social interaction domain	16	27.6	-
<i>Avoided smiling or laughing</i>	12	21.1	1
<i>Avoided talking</i>	10	17.5	1

Table 4: Conditional logistic regression analysis of independent variables by study group; Belo Horizonte, Brazil, 2009

Variable	Study group				p-value*	Unadjusted OR [95% CI]
	Case (n = 58)		Control (n = 232)			
	n	(%)	n	(%)		
TDI						
No	26	(44.8)	110	(47.4)	0.724	1
Yes	32	(55.2)	122	(52.6)		1.11[0.62,1.98]
Type of TDI						
None	26	(44.8)	110	(47.4)	-	1
Enamel fracture	21	(36.2)	60	(25.9)	0.466	0.75[0.35,1.62]
EDF, Luxation, Avulsion or Discolouration	11	(19.0)	62	(26.7)	0.101	0.51[0.23,1.14]
Number of teeth affected by TDI						
None	26	(44.8)	110	(47.4)	-	1
1 tooth	20	(34.5)	56	(24.1)	0.492	0.77[0.36,1.63]
2 or more teeth	12	(20.7)	66	(28.4)	0.098	0.51[0.23,1.13]
TDI reported by parents/caregivers						
No	40	(69.0)	176	(75.9)	0.283	1
Yes	18	(31.0)	56	(24.1)		1.41[0.75,2.66]
Dental care for TDI						
No	10	(55.6)	41	(73.2)	0.164	1
Yes	8	(44.4)	15	(26.8)		2.19[0.73,6.58]
Malocclusion						
No	28	(44.3)	127	(54.7)	0.378	1
Yes	30	(51.7)	105	(45.3)		1.30[0.73,2.31]
Dental caries						
dmft = 0	18	(31.0)	142	(61.2)	< 0.001	1
dmft ≥ 1	40	(69.9)	90	(38.8)		3.51[1.89,6.49]
Developmental defects of enamel						
No	35	(60.3)	132	(56.9)	0.635	1
Yes	23	(39.7)	100	(43.1)		0.87[0.48,1.56]
Parent's/caregiver's assessment of child's oral health						
Good	23	(39.7)	185	(79.7)	< 0.001	1
Poor	35	(60.3)	47	(20.3)		5.99[3.24,11.09]
Parent's/caregiver's assessment of child's general health						
Good	46	(79.3)	220	(94.8)	< 0.001	1
Poor	12	(20.7)	12	(5.2)		4.78[2.02,11.31]
Relationship to child						
Mother	53	(91.4)	205	(88.4)	0.513	1
Other	5	(8.6)	27	(11.6)		0.72[0.26,1.95]
Number of children in family						
Only child	13	(22.4)	73	(31.5)	0.180	1
Others	45	(77.6)	159	(68.5)		1.59[0.81,3.13]
Parent's/caregiver's schooling						
> 8 years of study	28	(48.3)	143	(61.6)	0.066	1
≤ 8 years of study	30	(51.7)	89	(38.4)		1.72[0.97,3.07]
History of dental visits						
No	25	(43.1)	133	(57.3)	0.053	1
Yes	33	(56.9)	99	(42.7)		1.77[0.99,3.17]
History of toothache						
No	30	(51.7)	216	(93.1)	< 0.001	1
Yes	28	(48.3)	16	(6.9)		12.60[6.11,25.97]

*Conditional logistic regression

TDI: Traumatic Dental Injury; EDF: Enamel-dentine fracture; dmft: decayed, missing and filled teeth

Results in bold type significant at 5% level

Table 5: Multiple conditional logistic regression model explaining independent variables; Belo Horizonte, Brazil, 2009

Variables	Study group	
	Case (n = 58)	Control (n=232)
	p-value	Adjusted OR* [95% CI]
Parent's/caregiver's assessment of child's oral health		
Good		1
Poor	0.003	5.06[1.76,14.59]
Parent's/caregiver's assessment of child's general health		
Good		1
Poor	0.003	3.19[1.49,6.85]
Number of children in family		
Only child		1
Others	0.031	2.60[1.09,6.22]
History of toothache		
No		1
Yes	< 0.001	13.70[5.79,32.41]

*Conditional logistic regression adjusted for caries experience
Results in bold type significant at 5% level

CONSIDERAÇÕES FINAIS

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A partir de uma avaliação crítica dos estudos encontrados foi possível constatar que inicialmente as pesquisas se preocuparam em avaliar o impacto da saúde geral sobre a qualidade de vida das pessoas. Posteriormente, o tema foi ampliado para as questões de saúde bucal, tendo como foco o público idoso, depois os adultos e adolescentes. Quando nos restringimos aos pré-escolares ainda são limitados os estudos que tiveram o objetivo de avaliar o impacto que as alterações bucais exerce na QoL dessas crianças e de seus familiares (Abanto et al., 2011; Aldrigui et al., 2011; Goettems et al., 2011; Wong et al., 2011; Viegas et al., 2012; Goettems et al., 2012). Um dos focos das pesquisas em Odontologia tem sido a avaliação das dimensões subjetivas da saúde bucal, sendo que as primeiras publicações nessa área estavam preocupadas com a mudança do conceito e dos modelos de saúde e doença e suas consequências (Tsakos et al., 2012a).

Vale destacar que para a realização de bons planejamentos objetivando uma intervenção social e uma distribuição de recursos eficientes de saúde bucal existe a necessidade da realização de estudos epidemiológicos. Esses estudos devem ter como foco a avaliação do impacto das alterações bucais na qualidade de vida das crianças com idade pré-escolar. Referindo-se especificamente ao traumatismo dentário é necessário que se avaliem quais os tipos dessa alteração podem causar repercussão na qualidade de vida dos pré-escolares. Além de avaliar se esse impacto é temporário ou pode repercutir por mais tempo na vida das pessoas, principalmente considerando a natureza

temporária da dentição decídua. De acordo com os resultados dos estudos apresentados nessa tese e com os estudos encontrados na literatura ainda não é possível estabelecer com precisão esses pontos. É importante que se avance nos desenhos e delineamentos dos estudos para que o conhecimento evolua de tal maneira que seus resultados possam contribuir com os gestores de políticas públicas, promovendo mudanças favoráveis na qualidade de vida da população.

Com esse objetivo em pauta torna-se muito importante tornar público os resultados desses trabalhos através de publicações em periódicos científicos, além de divulgá-los entre as instituições públicas de saúde e educação. É importante que o conhecimento científico subsidie o planejamento e as ações públicas e privadas no sentido de melhorar a saúde da população. Sabemos que a divulgação e aplicação dos resultados dos estudos científicos são uma responsabilidade da comunidade científica.

A partir dos estudos realizados em Belo Horizonte, Minas Gerais, e apresentados nesse documento as prevalências do impacto na QoL das crianças e das famílias foram consideráveis, no entanto a gravidade foi pequena. O traumatismo dentário detectado no exame clínico não se mostrou associado a esse impacto. Entretanto, quando os tipos de traumatismo dentário foram trabalhados separadamente a avulsão foi um fator causador de maior prevalência de impacto na QoL de famílias e crianças. Mas, felizmente apenas 21 das 1632 crianças apresentaram avulsão no exame clínico o que não descarta a importância de medidas que diminuam esse dano para essas crianças especificamente.

Outro importante fator relacionado com o impacto das alterações bucais na QoL de famílias e crianças foi o relato de dor de dente, demonstrando que apesar de toda evolução tecnológica da Odontologia a dor de dente ainda continua a acometer o público infantil e a interferir no seu dia a dia. A prevalência de pais/responsáveis que relataram que a criança já havia sentido dor de dente foi 24,1% (393 pais/responsáveis). Esse resultado é inaceitável nos dias de hoje para a capital de um estado brasileiro com tantos recursos terapêuticos e preventivos disponíveis apesar de nem sempre acessíveis a uma grande parcela da população.

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CONSIDERAÇÕES INICIAIS E FINAIS

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APÊNDICES

APÊNDICE A

Belo Horizonte, 07 de abril de 2008

Ao Comitê de Ética em Pesquisa da Universidade Federal de Minas Gerais,

Estamos encaminhando o projeto de pesquisa intitulado **Impacto das alterações bucais na qualidade de vida de pré-escolares de Belo Horizonte** para ser submetido à análise.

Atenciosamente,

Profa. Dra. Isabela Almeida Pordeus

Prof. Dr. Saul Martins de Paiva

Ana Carolina Scarpelli Rodrigues Botelho

Cláudia Marina de Sousa Viegas

Fernanda de Moraes Ferreira

APÊNDICE B

Termo de Consentimento Livre e Esclarecido

Prezados Pais/Responsáveis,

Somos dentistas e estamos realizando, em conjunto com a Faculdade de Odontologia da Universidade Federal de Minas Gerais, um estudo chamado **“Impacto das alterações bucais na qualidade de vida de pré-escolares de Belo Horizonte”** para avaliar as consequências dos problemas bucais na qualidade de vida das crianças e das suas famílias. Por isto precisamos de sua colaboração.

Estamos visitando algumas escolas na cidade de Belo Horizonte e realizando o trabalho com vocês e as suas crianças. Gostaríamos de convidá-los a participar e, para isso, é preciso que vocês assinem este termo indicando a sua autorização. Então será preciso que vocês respondam algumas perguntas através de um questionário. Após devolverem este termo de autorização assinado e o questionário preenchido, será realizado um exame simples para olhar os dentes da sua criança. Neste exame usaremos espelho clínico, gaze e algodão, todos esterilizados. Nós dentistas, estaremos usando avental, óculos, gorro, máscara e luvas descartáveis. Este exame é rápido, pois iremos apenas olhar os dentes das crianças, e não oferece riscos para as crianças e será realizado na própria escola. Quando a criança precisar de tratamento odontológico, vocês serão informados pela nossa equipe. Caso seja de interesse, vocês receberão um encaminhamento para que a criança seja atendida no posto de saúde mais próximo ou na Faculdade de Odontologia da UFMG, lembrando que o atendimento acontecerá segundo a disponibilidade de vaga.

A direção desta escola permitiu a realização do estudo e, sendo assim, pedimos a sua autorização para a participação de sua criança. Gostaríamos de esclarecer que vocês têm o direito de participar ou não do estudo e podem desistir em qualquer momento. Os seus nomes, os nomes das crianças e todas as informações serão mantidos em segredo, não sendo possível saber a identidade da pessoa.

A realização deste estudo foi autorizada pelo Comitê de Ética em Pesquisa da Universidade Federal de Minas Gerais (Av. Presidente Antônio Carlos, 6627 – Unidade Administrativa II – 2º andar – Sala 2005 – CEP 31270-901 – Belo Horizonte – MG - telefone 31 3409-4592 – e-mail: coep@prpq.ufmg.br), pela Secretaria de Estado de Educação de Minas Gerais e pela Secretaria Municipal de Educação de Belo Horizonte.

A nossa equipe está à disposição para esclarecer qualquer dúvida que vocês apresentarem.

Atenciosamente,

Ana Carolina Scarpelli (Doutoranda - xxxxxx), Cláudia Marina Viegas (Mestranda - xxxxxx),
Fernanda de Moraes Ferreira (Pós-doutoranda - xxxxxx), Profa. Dra. Isabela Almeida Pordeus (xxxxxx)

SUA ASSINATURA INDICA QUE VOCÊ LEU E ENTENDEU TODAS AS INFORMAÇÕES EXPLICADAS ANTERIORMENTE E DECIDIU PERMITIR A PARTICIPAÇÃO DO SEU FILHO NO ESTUDO.

Nome do responsável: _____

Documento (CI): _____ Nome da Criança: _____

Belo Horizonte, _____ de _____ de _____.

Assinatura do Responsável

1ª. Via Pesquisadores

APÊNDICE C

FORMULÁRIO

Bom dia! Precisamos da sua ajuda para o preenchimento deste formulário. As informações são muito importantes para o nosso trabalho. Após preencher pedimos que entregue este formulário para o(a) professor(a) de seu filho até ____/____/____. Muito obrigada pela sua participação.

PARTE I – Identificação: No. de identificação (NÃO PREENCHER ESTE CAMPO): _____

DADOS DA CRIANÇA:

1- Nome da criança : _____

2- Endereço: Rua / Avenida: _____

Apto/Bloco: _____ Bairro: _____ CEP: _____

3- Telefones: _____ 4- Sexo: () menino () menina

5- Dia, mês e ano em que a criança nasceu: ____/____/____

6- A criança é: (MARQUE COM UM X)

() filho(a) único(a) () filho(a) mais novo(a) () filho(a) mais velho(a) () filho (a) do meio

DADOS DO RESPONSÁVEL:

7- Idade do responsável: _____

8- Número de filhos: _____

9- O que você é da criança: (MARQUE COM UM X)

() Mãe () Pai () Irmão () Avós () Outros. Qual? _____

10- Quantas pessoas moram na sua casa? _____

11- Você estudou até quando? (MARQUE COM UM X)

() não estudou

() 1ª. a 4ª. série incompleta

() 1ª. a 4ª. série completa

() 5ª. a 8ª. série incompleta

() 5ª. a 8ª. série completa

() 1º. ao 3º. ano científico incompleto

() 1º. ao 3º. ano científico completo

() ensino superior incompleto

() ensino superior completo

12- Somando a sua renda com a renda das pessoas que moram com você, quanto é aproximadamente, a RENDA DA SUA FAMÍLIA? Valor R\$ _____ () Não tem renda

PARTE II – Informações clínicas:

13- A criança já foi ao dentista? () Sim () Não

14- A criança já sentiu dor de dente? () Sim () Não

15- O que você acha da saúde geral de sua criança? (MARQUE COM UM X)

() muito boa () boa () regular () ruim () muito ruim

16- O que você acha da saúde da boca de sua criança? (MARQUE COM UM X)

() muito boa () boa () regular () ruim () muito ruim

17- Sua criança bateu com o dente de leite em algum lugar e machucou esse dente?

() Sim () Não

Se SIM, responda as perguntas abaixo: (MARQUE COM UM X)

18- Quantos anos sua criança tinha quando machucou o dente de leite?

() Antes de completar 1 ano () 1 ano () 2 anos () 3 anos
() 4 anos () 5 anos () 6 anos () Não lembro

19- Onde ela machucou o dente de leite?

() Em casa () Na escola () Outro lugar. Qual? _____ () Não lembro

20- Como ela machucou o dente de leite?

() Queda () Agressão física (briga) () Esbarrão () Esporte
() Tombo de bicicleta, patins, patinete () Acidente de carro
() Outra forma. Qual? _____ () Não lembra

21- A criança foi atendida pelo dentista por causa do dente machucado? () Sim () Não () Não lembro

FAVOR RESPONDER E DEVOLVER À PROFESSORA DE SUA CRIANÇA.

OBRIGADA POR SUA COLABORAÇÃO. ELA FOI MUITO IMPORTANTE PARA O NOSSO TRABALHO!

Atenciosamente,

Ana Carolina Scarpelli, Anita Carvalho, Cláudia Viegas, Fernanda Ferreira

APÊNDICE D

FICHA DE IDENTIFICAÇÃO

Examinador: _____ Data: ____/____/____
 Nome da criança: _____
 Endereço: _____ IVS: _____
 Nome do responsável: _____
 Gênero: _____ Escola: _____ IVS: _____
 Idade: _____ anos e _____ meses. Data de nascimento: ____/____/____

CÁRIE DENTÁRIA

55	54	53	52	51	61	62	63	64	65
85	84	83	82	81	71	72	73	74	75

CEO (1,2,3,4,5,6,7,10,12,13,14,15,16): _____

Número de dentes cariados (1,2,3,4,13,14,16): _____

Acesso ao tratamento (4,5,6,7,9,10,15,16): _____

DEFEITO NO DESENVOLVIMENTO DO ESMALTE (DDE)

55	54	53	52	51	61	62	63	64	65
85	84	83	82	81	71	72	73	74	75

TRAUMATISMO DENTÁRIO

55	54	53	52	51	61	62	63	64	65
85	84	83	82	81	71	72	73	74	75

ORTODONTIA**1. Simetria facial**

- ☐ 0 - Presente
☐ 1 - Ausente

2. Tipo Facial

- ☐ 0 - Mesocefálico
☐ 1 - Braquicefálico
☐ 2 - Dolicocefálico

3. Selamento Labial

- ☐ 0 - Presente
☐ 1 - Ausente

4. Respiração

- ☐ 0 - Nasal
☐ 1 - Bucal

5. Fonação

- ☐ 0 - Normal
☐ 1 - Atípica

6. Deglutição

- ☐ 0 - Normal
☐ 1 - Atípica

7. Palato

- ☐ 0 - Normal
☐ 1 - Profundo

8. Desvio de linha média

- ☐ 0 - Ausente
☐ 1 - Presente

9.1. Apinhamento do segmento incisal superior

- ☐ 0 - Ausente
☐ 1 - Presente

9.2. Apinhamento do segmento incisal inferior

- ☐ 0 - Ausente
☐ 1 - Presente

10.1. Espaçamento no segmento incisal superior

- ☐ 0 - Presente
☐ 1 - Ausente

10.2. Espaçamento no segmento incisal inferior

- ☐ 0 - Presente
☐ 1 - Ausente

11.1. Espaço primata superior

- ☐ 0 - Presente
☐ 1 - Ausente

11.2. Espaço primata inferior

- ☐ 0 - Presente
☐ 1 - Ausente

12.1. Relação canino decíduo direito

- ☐ 0 - Classe I (normal)
☐ 1 - Classe III (mesioclusão)
☐ 2 - Classe II (distoclusão)

12.2. Relação canino decíduo esquerdo

- ☐ 0 - Classe I (normal)
☐ 1 - Classe III (mesioclusão)
☐ 2 - Classe II (distoclusão)

13.1. Relação molar decíduo direito

- ☐ 0 - Plano terminal reto
☐ 1 - Degrau mesial (Classe III)
☐ 2 - Degrau distal (Classe II)

13.2. Relação molar decíduo esquerdo

- ☐ 0 - Plano terminal reto
☐ 1 - Degrau mesial (Classe III)
☐ 2 - Degrau distal (Classe II)

14. Mordida cruzada posterior

- ☐ 0 - Ausente
☐ 1 - Mordida cruzada unilateral
☐ 2 - Mordida cruzada bilateral
☐ 3 - Mordida cruzada total

15. Sobressaliência (overjet)

- ☐ 0 - Sobressaliência positiva $\leq 2\text{mm}$
☐ 1 - Sobressaliência positiva $> 2\text{mm}$
☐ 2 - Mordida topo a topo

- ☐ 3 - Mordida cruzada anterior

16. Sobremordida (overbite)

- ☐ 0 - Normal
☐ 1 - Mordida profunda
☐ 2 - Mordida aberta

Encaminhamento: (0) não (1) cárie (2) trauma (3) orto (4) cárie + trauma
 (5) cárie + orto (6) trauma + orto (7) cárie + trauma + orto

CÓDIGO	CONDIÇÃO DO DENTE	Equivalente ceo-d
A (0)	Manchas brancas ou porosas Manchas com alteração de coloração ou rugosidade que não sejam amolecidas ao toque Fóssulas ou fissuras pigmentadas no esmalte Áreas escuras, brilhantes, duras, pontilhadas de esmalte apresentando sinais de fluorose moderada à severa Lesões que parecem ser devido à abrasão	-
B1(1) B2 (2) B3 (3)	Lesão envolvendo esmalte com cavidade Lesão envolvendo dentina Lesão envolvendo polpa dental	c
C (4)	Coroa restaurada, com cárie (material restaurador permanente ou provisório)	c
D1 (5) D2 (6)	Coroa restaurada, sem cárie (material permanente) Coroa restaurada, sem cárie (material provisório)	o
E (7) E1(8)	Dente ausente como resultado de cárie (dente perdido) * Dente ausente, por qualquer outra razão (dente ausente) *	e -
F (9)	Selante de fissura	-
G (10)	Dente suporte de prótese, coroa protética ou faceta	o
T (11)	Traumatismo (fratura)	-
RR (12) RR1(13) RR2 (14) RR3 (15) RR4 (16)	Resto radicular com extração indicada (alveólise, fratura radicular, etc) Resto radicular com polpa exposta Resto radicular sem polpa exposta e sem material restaurador Resto radicular com material restaurador permanente Resto radicular com material restaurador provisório	e c c o c

- Qdo tem o dente permanente não classifica.

QUADRO 1 Classificação para cárie dentária por dente (baseada nos critérios OMS 1997).

CÓDIGO	CONDIÇÃO DENTAL
0	Sem trauma
1	Fratura de esmalte
2	Fratura de esmalte-dentina
3	Fratura coronária complicada
4	Luxação extrusiva
5	Luxação lateral
6	Luxação intrusiva
7	Avulsão
8	Alteração de cor

QUADRO 2 Classificação para traumatismo dentário por dente (Andreasen et al., 2007).

CÓDIGO	CONDIÇÃO DA SUPERFÍCIE DENTAL
0	Normal
1	Opacidade demarcada
2	Opacidade difusa
3	Hipoplasia
4	Outros Defeitos
5	Opacidade demarcada e difusa
6	Opacidade demarcada e hipoplasia
7	Opacidade difusa e hipoplasia
8	Todas as três alterações

QUADRO 3 Classificação para defeitos de desenvolvimento de esmalte por dente (Índice Developmental Defects of Enamel (DDE) modificado, Commission on Oral Health, Research & Epidemiology Report of an FDI Working Group, 1992).

APÊNDICE E

Carta de Apresentação para as Instituições

Belo Horizonte, ____ de _____ de 2008.

À coordenação da instituição _____

Vimos, por meio desta, solicitar autorização para desenvolver um estudo em sua escola. Esse será realizado por dentistas inscritas no CRO-MG e vinculadas ao Colegiado de Pós-Graduação da Faculdade de Odontologia da Universidade Federal de Minas Gerais.

A pesquisa, intitulada **“Impacto das alterações bucais na qualidade de vida de pré-escolares de Belo Horizonte”**, tem como objetivo avaliar a repercussão da cárie, dos defeitos de desenvolvimento do esmalte, da máoclusão e do traumatismo dentário na qualidade de vida das crianças e das suas famílias. Para tanto, será necessário o preenchimento de um questionário e de um formulário pelos responsáveis, além do exame clínico das crianças na faixa etária de 60 a 71 meses. Esta escola está sendo convidada a participar por trabalhar com crianças nesta faixa etária.

O exame clínico das crianças será realizado na própria escola, sendo chamado um aluno de cada vez, com duração de 10 a 15 minutos, não atrapalhando o andamento escolar. Este exame não oferece risco para as crianças, é rápido e indolor. As crianças que necessitarem de atendimento odontológico serão encaminhadas a um centro de tratamento (Posto de Saúde ou à Faculdade de Odontologia da Universidade Federal de Minas Gerais). Os pais responderão em casa, a um questionário e a um formulário. Não haverá ônus algum para a instituição ou para os responsáveis pelas crianças.

A realização deste estudo foi autorizada pelo Comitê de Ética em Pesquisa da Universidade Federal de Minas Gerais (31 3409-4592), pela Secretaria de Estado de Educação de Minas Gerais e pela Secretaria Municipal de Educação de Belo Horizonte.

Atenciosamente,

Ana Carolina Scarpelli
Doutoranda em Odontologia

Cláudia Marina Viegas
Mestranda em Odontologia

Fernanda de Moraes Ferreira
Pós-Doutoranda em Odontologia

Prof. Dr. Saul Martins de Paiva
Coordenador da pesquisa

Profa. Dra. Isabela Almeida Pordeus
Coordenadora da pesquisa

1ª. Via Pesquisadores

APÊNDICE F

Distribuição das crianças e escolas que participaram do estudo transversal

Tabela 1 – Distribuição de escolas e crianças que participaram do estudo transversal divididas pelos nove regionais da cidade. Belo Horizonte, 2009

Regional	Escolas públicas n	Escolas privadas n	Crianças de escola públicas n (%)	Crianças de escola privada n (%)
Barreiro	2	1	122 (76,2)	38 (23,8)
Centro-sul	5	8	130 (53,5)	113 (46,5)
Leste	3	1	127 (55,2)	103 (44,8)
Nordeste	3	2	169 (75,4)	55 (24,6)
Noroeste	4	1	163 (72,8)	61 (27,2)
Norte	4	1	115 (76,2)	36 (23,8)
Oeste	4	1	153 (82,7)	32 (17,3)
Pampulha	2	2	52 (52,0)	48 (48,0)
Venda Nova	2	2	81 (70,4)	34 (29,6)
Amostra total	29	19	1112 (68,1)	520 (31,9)

ANEXOS

ANEXO A



**UNIVERSIDADE FEDERAL DE MINAS GERAIS
COMITÊ DE ÉTICA EM PESQUISA - COEP**

Parecer nº. ETIC 159/08

**Interessado(a): Profa. Isabela Almeida Pordeus
Departamento de Odontopediatria e Ortodontia
Faculdade de Odontologia - UFMG**

DECISÃO

O Comitê de Ética em Pesquisa da UFMG – COEP aprovou, no dia 16 de maio de 2008, após atendidas as solicitações de diligência, o projeto de pesquisa intitulado **"Impacto das alterações bucais na qualidade de vida pré-escolares de Belo Horizonte"** bem como o Termo de Consentimento Livre e Esclarecido.

O relatório final ou parcial deverá ser encaminhado ao COEP um ano após o início do projeto.

**Profa. Maria Teresa Marques Amaral
Coordenadora do COEP-UFMG**

ANEXO B



ESTADO DE MINAS GERAIS
GABINETE DO SECRETÁRIO DE ESTADO DE EDUCAÇÃO

TERMO DE AUTORIZAÇÃO

Eu, Vanessa Guimarães Pinto, Secretária de Estado de Educação de Minas Gerais, autorizo a realização do estudo "Impacto das alterações bucais na qualidade de vida de pré-escolares de Belo Horizonte" nas instituições públicas e particulares da rede de ensino do Município de Belo Horizonte.

Participação da pesquisa, após devido consentimento dos responsáveis, crianças na faixa etária de 36 a 68 meses, de ambos os sexos. Para tanto, será necessário o preenchimento de um questionário e de um formulário pelos responsáveis, além do exame clínico das crianças. Em casos de necessidade de tratamento odontológico, esses indivíduos serão encaminhados para o atendimento clínico no Curso de Aperfeiçoamento em Odontopediatria da Faculdade de Odontologia da UFMG. A participação na pesquisa será voluntária e a identidade dos indivíduos será mantida em sigilo. A instituição e os participantes não terão ônus com a pesquisa.

Belo Horizonte, 28 de fevereiro de 2008.

VANESSA GUIMARÃES PINTO

Vanessa Guimarães Pinto
Secretária de Estado da Educação
Masp 550583-3

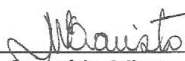
ANEXO C

Secretaria Municipal de Educação

TERMO DE AUTORIZAÇÃO

Na condição de Secretária Adjunta de Educação, autorizo a realização do estudo **"Impacto das alterações bucais na qualidade de vida de pré-escolares de Belo Horizonte"** nas instituições públicas e particulares da rede de ensino do município de Belo Horizonte. Participarão da pesquisa, após devido consentimento dos responsáveis, crianças na faixa etária de 36 a 68 meses, de ambos os sexos. Para tanto será necessário o preenchimento de um questionário e de um formulário pelos responsáveis, além do exame clínico das crianças. Em casos de necessidade de tratamento odontológico esses indivíduos serão encaminhados para o atendimento clínico no Curso de Aperfeiçoamento em Odontopediatria da Faculdade de Odontologia da UFMG. A participação na pesquisa será voluntária e a identidade dos indivíduos será mantida em sigilo. A instituição e os participantes não terão ônus com a pesquisa.

Belo Horizonte, 20 de fevereiro de 2008



Secretária Adjunta de Educação

Maria Inês de Souza - BIA 71.000-0
Secretaria Municipal Adjunta de Educação

ANEXO D

Índice de Vulnerabilidade Social (IVS)

O IVS foi um índice construído a partir de uma junção entre a Secretaria de Planejamento da Prefeitura Municipal de Belo Horizonte e uma equipe multidisciplinar de pesquisadores da Pontifícia Universidade Católica de Minas Gerais (Nahas et al., 2000).

Seu primeiro cálculo foi executado em 1999, sendo utilizado em 2001 como critérios para definição das áreas prioritárias para programas de inclusão social da Prefeitura de Belo Horizonte.

O IVS avalia a população local das 81 Unidades de Planejamento (UP) de Belo Horizonte em cinco “Dimensões de Cidadania”: Ambiental (acesso à habitação e infra-estrutura básica), Cultural (acesso à escolaridade), Econômica (acesso à renda e trabalho), Jurídica (acesso à assistência jurídica) e Segurança de sobrevivência (acesso à saúde, segurança alimentar e previdência social). Veja no QUADRO 1 as composições do IVS e ponderações (Nahas et al., 2000).

O IVS estabelece os níveis de vulnerabilidade da população à exclusão social. Seu valor varia de 0 a 1, sendo que quanto maior o valor pior a situação da população da UP, ou seja, mais vulnerável à exclusão social é a população (Nahas et al., 2000).

DIMENSÕES DE CADADANIA	VARIÁVEIS	INDICADORES
Ambiental – 0,23	Acesso a moradia-0,6	Densidade domiciliar – 0,57 (Hab/domicílio)
		Qualidade domicílio – 0,43 (Taxa de domicílio por padrão de acabamento)
	Acesso aos serviços de infra-estrutura urbana-0,4	Acesso à infra-estrutura básica (taxa de domicílios com rede de esgoto e pavimentação)
Cultural – 0,18	Acesso à educação	Índice de escolaridade relativa (txa. Popul. por faixa etária, da 6ª série ao curso superior)
Econômica – 0,27	Acesso ao trabalho – 0,7	Acesso à ocupação – 0,44 (taxa de população ocupada, entre 25 e 50 anos)
		Ocupação formal/informal – 0,56 (relação entre a taxa de população em ocupação formal/informal)
	Acesso à renda – 0,3	Renda média nominal familiar “per capita”
Jurídica – 0,08	Acesso à assistência jurídica	Acesso à assistência jurídica (txa. de processos assistidos por assistência privada)
Segurança de sobrevivência – 0,24	Acesso aos serviços de saúde – 0,44	Mortalidade neo e pós-neonatal (mortalidade infantil entre 0 e 27 dias de idade e até 1 ano)
	Garantia de segurança alimentar – 0,36	Segurança alimentar (taxa de crianças abaixo de 5 anos, atendidas com desnutrição em centros de saúde)
	Acesso à previdência social – 0,2	Acesso à previdência (total de recursos da previdência pública oriundos de aposentadoria e pensão, auferidos pela população de terceira idade e idosa)

QUADRO 1 Composição do IVS e ponderações para cálculo.

CLASSES	NOME DA UP	COMPOSIÇÃO (bairros, vilas e/ou conjuntos)	IVS
I	Barragem	Agl. Barragem: Sta. Lúcia/Sta. Rita de Cássia/Vila Estrela (parte)	0,79
I	Jardim Felicidade	C. H. Jardim Felicidade	0,78
I	Taquaril	Alto Vera Cruz, Favela Taquaril, Alto Vera Cruz (parte), Vila da Área, C. H. Taquaril	0,77
I	Mariano de Abreu	C. H. Mariano de Abreu, Rock In Rio, Boa Vista	0,77
I	Capitão Eduardo	Zona Rural (Leste do Onça), Capitão Eduardo, C. H. Capitão Eduardo, C. H. Paulo VI (parte)	0,76
I	Cafezal	Cafezal, Agl. Serra: N. Sra. Fátima/N. Sra. Aparecida/ N. Sra. Conceição/Santana Cafezal/Vitório Marçola (parte)	0,76
I	Baleia	Baleia, C. H. Taquaril, C. H. João Pio de Souza (parte), Agl. Serra (parte)	0,75
I	Olhos D'água	Olhos D'água	0,72
I	Confisco	C. H. Confisco	0,71
I	Ribeiro de Abreu	Ribeiro de Abreu, Agl. B. Linha/D. Silverio/S. Gabriel/Triba (parte), Ribeiro de Abreu (parte), C. H. Paulo VI (parte)	0,70
I	Gorduras	Gorduras, Jardim Vitória, Borges, Vila Maria	0,70
I	Mantiqueira/Sesc	Maria Helena, Mantiqueira, Jardim dos Comerciantes, Mantiqueira, Nova América	0,67
I	Prado Lopes	Prado Lopes/Senhor dos Passos	0,67
I	Jardim Montanhês	Jardim Montanhês, São José A (parte), Antena, Alvorada	0,67
I	Morro das Pedras	Conjunto Santa Maria, Agl. Morro das Pedras: Antena/Chac. Leonina, Sta. Sofia/São Jorge I, II e III, Leonina	0,65
I	Jatobá	Jatobá, Vale do Jatobá, Independência, C. H. Jatobá I, C. H. Jatobá II (parte), C. H. Jatobá III, C. H. Jatobá IV, Antenas, Independência I, II, III e IV (parte)	0,64
I	Jaqueline	Canaã, Jaqueline, Juliana, Frei Leopoldo, Etelvina Carneiro, Marize, C. H. Zilah Souza Sposito, C. H. Mariquinhas, Clóris	0,64
II	Belmonte	São Gabriel, Dom Silvério, Nazaré, Belmonte, Agl. B. Linha/D. Silvério/S. Gabriel/Triba (parte), Esplanada (parte), Boa União (parte), Três Marias	0,62
II	Barreiro de Cima	Milionários, Barreiro de Cima, Flávio Marques Lisboa, Araguaia, Vila Cemig, Alta Tensão I e II (parte), C. H. Bom Sucesso, Vila Nova dos Milionários, Copasa, Cemig	0,60
II	Primeiro de Maio	Guarani, Aarão Reis, Minaslândia, Providência, Primeiro de Maio, Boa União, C. H. Providência	0,60

CLASSES	NOME DA UP	COMPOSIÇÃO (bairros, vilas e/ou conjuntos)	IVS
II	Garças/Braúnas	Nova Pampulha, Xangrilá, Braúnas, Trevo, Céu Azul (Sul da Av. Francisco Negrão de Lima, Garças, C. H. São Francisco de Assis	0,60
II	Isidoro Norte	Zona Rural (Norte do Isidoro), Monte Azul (Ind. Rodrigues da Cunha), Ant.º Rib. De Abreu (Oeste do Onça), C. H. Zilah Souza Sposito	0,59
II	São Bernardo	Planalto (Parque Aviação e Júlio Maria), São Tomás, São Bernardo, Antônio Diniz, Heliópolis, Baronesa de Sta. Lúcia, Agl. São Tomás/São Bernardo (parte), Parque da Aviação	0,59
II	Céu Azul	Céu Azul, Sta. Mônica (Mãe dos Pobres) , São José/Céu Azul (Vila dos Anjos)	0,59
II	Tupi/Floramar	Floramar, Jardim Felicidade, Tupi, Novo Aarão Reis, C. H. Floramar, Ribeiro de Abreu, C. H. Ribeiro de Abreu	0,59
II	Jardim Europa	Letícia (Norte da Av. Vilarinho), Europa, Minas Caixa, SESC (parte) Serra Verde (parte)	0,57
II	Copacabana	Leblon, Copacabana, Santa Mônica, Jardim Leblon, Universo/Copacabana II, Várzea das Palmas/Itamarati, N. S. Aparecida (parte), Copacabana I (parte)	0,57
II	São Paulo/Goiânia	São Paulo, Fernão Dias, Dom Joaquim, Eymard, Pirajá, Maria Goretti, Vila Brasília, Goiânia, Alvorada, Guanabara, São Benedito, Aarão Reis, Carioca, Vila de Sá	0,57
II	Lindéia	Durval de Barros, Lindéia, regina, Washington Pires, Tirol, Tirol I, II e III (parte), Piratininga, Marieta I e II	0,57
II	Piratininga	Lagoinha, Lagoa, São Paulo (Piratininga) , Letícia (Sul da Av. Vilarinho), Rio Branco, SESC (parte), Flamengo	0,56
II	Cabana	Glalijá (Sul da V.U.L.O.), Jardinópolis, Madre Gertrudes (Magnesita), Cabana, Vista Alegre, Nova Cintra, Patrocínio, Nova Gameleira, Gameleira, Sport Club I, II, III e IV (parte) , Oeste (Nova Gameleira), Nova Gameleira II, Cabana Pai Tomás, Embaúbas, São José I, II, III, IV, V e VI, Vista Alegre	0,56
II	São João Batista	São João Batista, N. S. Aparecida (parte)	0,54
II	Serra Verde	Serra Verde, Alvorada, Sera verde (parte)	0,54
II	Sarandi	Sarandi, Santa Terezinha, Serrano (Pampulha)	0,53
II	Cardoso	Santa Cruz, Cardoso, Getúlio Vargas, Urucuia, Ponguelupe, C. H. Jatobá II (parte)	0,52
II	Glória	São Salvador, Coqueiros, Pindorama, Filadélfia, Glória, Álvaro Camargos, C. H. Jardim Filadélfia, Coqueiral, Califórnia (parte)	0,52
II	Ouro Preto	Paquetá, Ouro Preto, Engenho Nogueira, Conjunto da Lagoa, Paquetá (parte), Novo Ouro Preto	0,52
II	Bairro das Indústrias	Mannesmann, Bairro das Indústrias, Alta Tansão I e II (parte)	0,52
III	Boa Vista	Nova Vista, Boa Vista, São Geraldo, Casa Branca, Caetano Furquim (parte), Agl. Camponesa I, II e III (parte), Grota	0,49

CLASSES	NOME DA UP	COMPOSIÇÃO (bairros, vilas e/ou conjuntos)	IVS
III	Barreiro de Baixo	Barreiro de Baixo, Olaria, Teixeira Dias, Santa Helena, Diamante, Tirol I, II e III (parte), Presidente Vargas, Átila de Paiva	0,49
III	Betânia	Betânia, Marajó, Palmeiras, Estrela Dalva, Betânia I, II, III, IV e V, Vila Novo Paraíso	0,49
III	Castelo	Castelo, Manacás, São José A (parte)	0,49
III	Abílio Machado	Serrano, Conjunto Celso Machado, Conjunto Itacolomi, Alípio de Melo, Inconfidência, São José, Santo Antônio, São José (parte), Califórnia (parte), 31 de Março	0,48
III	Santa Maria	Governador Benedito Valadares, Camargos, Vila Virgínia, Santa Maria, Glalijá (Norte da V.U.L.O.), Maravilha I, II e III, Sport Club I, II, III e IV (parte)	0,48
III	Estoril/Buritis	Estoril, Bairro das Mansões, Buritis, Área da Mata do Cercadinho	0,48
III	São Francisco	São Francisco, Santa Rosa, Inestan (parte)	0,47
III	Cachoeirinha	Santa Cruz, São João Batista, Cachoeirinha, Universitário (parte), Inestan (parte), Vila Coqueiros da Paz, Nova Cachoeirinha	0,47
III	Camargos	Califórnia, Área dos Camargos, Alto dos Pinheiros (Oeste do Anel)	0,46
III	Antônio Carlos	Sumaré, Aparecida, Aparecida 7ª Seção, Ermelinda, Nova Cachoeirinha, Bom Jesus, Nova Esperança, Sant André, São Cristóvão (esq. Antônio Carlos), Prado Lopes, Lagoinha, Bomfim, Santo André, Sumaré, Vila Real, Cachoeirinha I e II	0,46
III	Pompéia	Esplanada, Pompéia, Vera Cruz, Saudade, Agl. Camponesa I, II e III (parte), Nossa Senhora do Rosário, Sçao Rafael (parte), Belém, Alto Vera Cruz (parte)	0,45
III	Santa Efigênia	Santa Efigênia, Paraíso, Novo São Lucas, São Rafael (parte), Paraíso, Cônego Pinheiro A, Cônego Pinheiro, União, Agl. Serra (parte), C. H. João Pio de Souza	0,44
III	Jardim América	Calafate (Oeste da Av. Silva Lobo), Nova Suíça, Salgado Filho, Jardim América, Havaí, Nova Barroca, Nova Granada, Teresa Cristina I e II, Guaratã, Ventosa, Barão H. de Melo I, II, III, IV, V e VI	0,42
III	Venda Nova/Centro	Centro de Venda Nova, Candelária	0,41
IV	Jaraguá	Aeroporto, Jaraguá, Dona Clara, Liberdade, Santa Rosa, Universitário, Suzana, Aeroporto, Agl. São Tomás/S. Bernardo (parte), Vila Isabel, Suzana I e II	0,39
IV	Concórdia	São Cristóvão (direita da Av. Antônio Carlos), Lagoinha (direita da Av. Antônio Carlos), Concórdia, Vila do Pombal, Tiradentes	0,39
IV	Santa Inês	Santa Inês	0,38

CLASSES	NOME DA UP	COMPOSIÇÃO (bairros, vilas e/ou conjuntos)	IVS
IV	Planalto	Laranjeiras, Vila Clóris, Campo Alegre, Planalto (Oeste da Av. Gal. Carlos Guedes)	0,37
IV	Santa Amélia	Santa Amélia, Santa Branca, Itapoã, Jardim Atlântico (Norte da Portugal), Copacabana I (parte)	0,37
IV	PUC	Altos dos Pinheiros (Leste do Anel), João Pinheiro, Vila Oeste, Dom Cabral, Coração Eucarístico, 31 de Março, PUC, Delta, Oeste	0,36
IV	Instituto Agrônomo	Instituto Agrônomo, Sagrada Família, Horto (Norte da Av. Silviano Brandão), Agl. Camponesa I, II e III (parte)	0,36
IV	Cristiano Machado	Maria Virgínia, Palmares, Ipiranga, União, Cidade Nova, Renascença, Nova Floresta, Bairro das Graças, Silveira, Matadouro, Universitário (parte), Vila Ipiranga	0,35
IV	Padre Eustáquio	Carlos Prates, Padre Eustáquio, Minas Brasil, Lorena, Marmiteiros, Peru	0,34
IV	Caiçara	Caiçara, Alto do Caiçara, Caiçara Adelaide, Pedro II, Monsenhor Messias, Jardim Montanhês (Minas Gerais)	0,34
IV	Pampulha	Jardim Atlântico (Sul da Portugal), Bandeirantes, São Luiz, São José, Paquetá (parte)	0,30
IV	Floresta/Santa Tereza	Colégio Batista, Floresta, Horto (Sul da Av. Silviano Brandão), Santa Tereza, João Alfredo, São Vicente, Buraco Quente I e II	0,29
V	Barroca	Calafate (Leste da Av. Silva Lobo, Prado, Barroca, Alto Barroca, Gutierrez, Grajaú	0,21
V	Santo Antônio	Santo Antônio, São Pedro	0,20
V	São Bento/Santa Lúcia	São Bento, Santa Lúcia, Bandeirantes (parte) Agl. Barragem (parte)	0,20
V	Belvedere	Belvedere	0,19
V	Magabeiras	Magabeiras, Comiteco, Parque das Mangabeiras, Agl. Serra (parte), Acaba Mundo	0,18
V	Barro Preto	Barro Preto	0,18
V	Centro	Centro	0,18
V	Serra	Serra, São Lucas, Santa Isabel	0,17
V	Francisco Sales	Santa Efigênia (Área Hospitalar), Floresta (Área Interna da Av. Contorno)	0,16
V	Prudente de Moraes	Cidade Jardim, Luxemburgo, Coração de Jesus, Vila Paris, Morro do Querosene, Bandeirantes (parte)	0,16
V	Anchieta/Sion	Carmo, Cruzeiro, Anchieta, Sion, FUMEC, Pindura Saia, Mala e Cuia	

Quadro 2 - Composição das UP e classificação de acordo com o Índice de Vulnerabilidade Social (IVS).

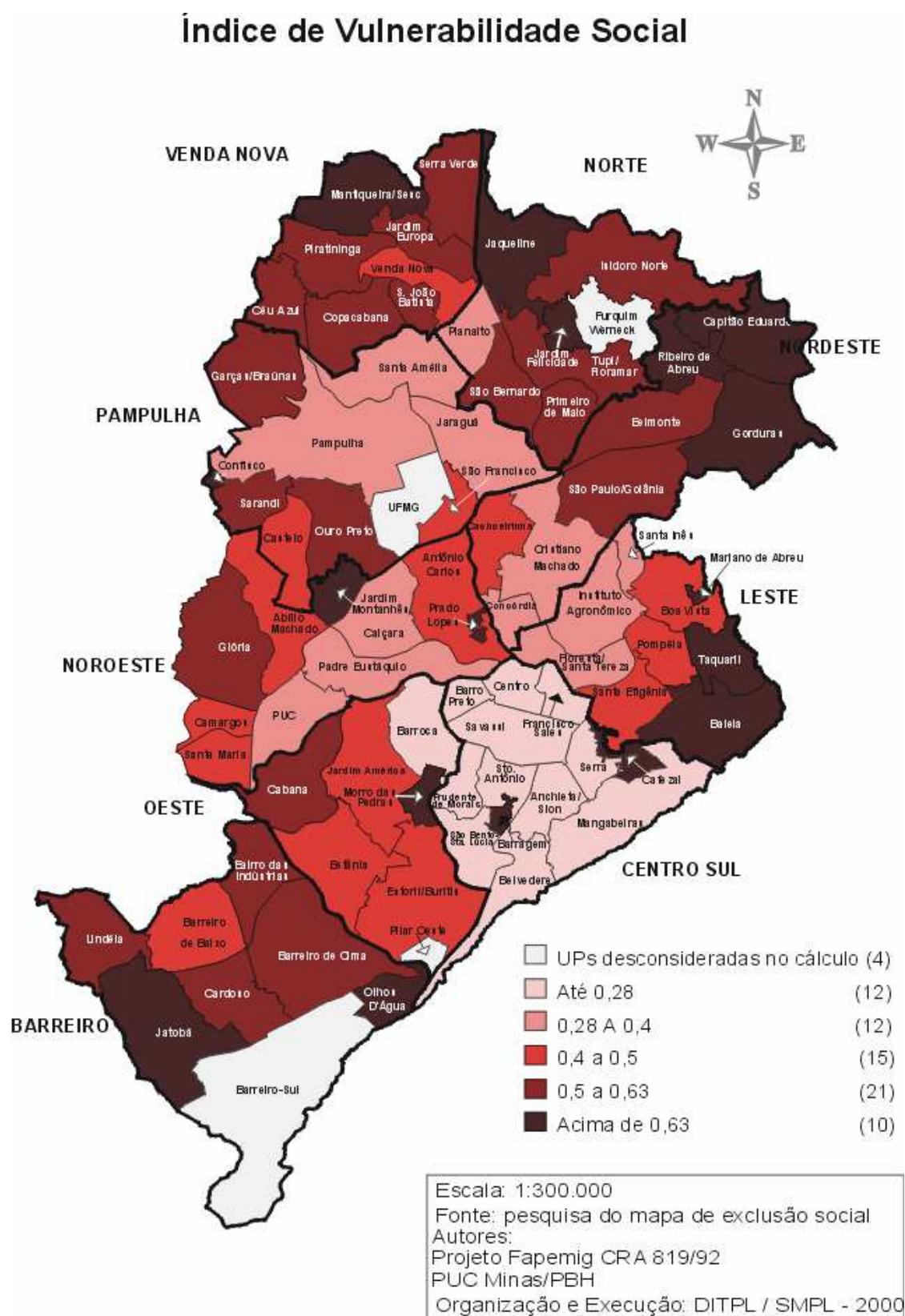


FIGURA 1 – Unidades de Planejamento de Belo Horizonte.

ANEXO E

Questionário sobre a Qualidade de Vida Relacionada à Saúde Bucal de Crianças na Idade Pré-escolar	
Problemas com dentes, boca, ou maxilares (ossos da boca) e seus tratamentos, podem afetar o bem-estar e a vida diária das crianças e suas famílias. Para cada uma das seguintes questões perguntadas pelo entrevistador, por favor, indique no quadro de opções de respostas a que melhor descreve as experiências da sua criança ou a sua própria. Considere toda a vida da sua criança, desde o nascimento até agora, quando responder cada pergunta.	
1	Sua criança já sentiu dores nos dentes, na boca ou nos maxilares (ossos da boca)?
2	Sua criança já teve dificuldade em beber bebidas quentes ou frias devido a problemas com os dentes ou tratamentos dentários?
3	Sua criança já teve dificuldade para comer certos alimentos devido a problemas com os dentes ou tratamentos dentários?
4	Sua criança já teve dificuldade de pronunciar qualquer palavra devido a problemas com os dentes ou tratamentos dentários?
5	Sua criança já faltou à creche, jardim de infância ou escola devido a problemas com os dentes ou tratamentos dentários?
6	Sua criança já teve dificuldade em dormir devido a problemas com os dentes ou tratamentos dentários?
7	Sua criança já ficou irritada devido a problemas com os dentes ou tratamentos dentários?
8	Sua criança já evitou sorrir ou rir devido a problemas com os dentes ou tratamentos dentários?
9	Sua criança já evitou falar devido a problemas com os dentes ou tratamentos dentários?
10	Você ou outra pessoa da família já ficou aborrecida devido a problemas com os dentes ou tratamentos dentários de sua criança?
11	Você ou outra pessoa da família já se sentiu culpada devido a problemas com os dentes ou tratamentos dentários de sua criança?
12	Você ou outra pessoa da família já faltou ao trabalho devido a problemas com os dentes ou tratamentos dentários de sua criança?
13	Sua criança já teve problemas com os dentes ou fez tratamentos dentários que causaram impacto financeiro na sua família?
Opções de resposta	0 Nunca 1 Quase nunca 2 Às vezes 3 Com frequência 4 Com muita frequência 5 Não sei

ANEXO F

Dental Traumatology

Dental Traumatology

Official Publication of the International Association for Dental Traumatology and the International Academy of Sports Dentistry

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Lars Andersson

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Epidemiology and Social Aspects
Tissue, Periodontal, and Endodontic Considerations
Pediatrics and Orthodontics
Oral and Maxillofacial Surgery / Transplants/ Implants
Esthetics / Restorations / Prosthetics
Prevention and Sports Dentistry

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3.2. Submitting Your Manuscript

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3.3. Manuscript Files Accepted

Manuscripts should be uploaded as Word (.doc) or Rich Text Format (.rtf) files (not write-protected) plus separate figure files. GIF, JPEG, PICT or Bitmap files are acceptable for submission, but only high-resolution TIF or EPS files are suitable for printing. The files uploaded as main manuscript documents will be automatically converted to HTML and PDF on upload and will be used for the review process. The files uploaded as title page will be blinded from review and not converted into HTML and PDF. The main manuscript document file must contain the entire manuscript including abstract, text, references, tables, and figure legends, but no embedded figures. In the text, please reference figures as for instance 'Figure 1', 'Figure 2' etc to match the tag name you choose for the individual figure files uploaded. Manuscripts should be formatted as described in the Author Guidelines below. Please note that any manuscripts uploaded as Word 2007 (.docx) will be automatically rejected. Please save any .docx file as .doc before uploading.

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All manuscripts submitted to *Dental Traumatology* will be reviewed by two experts in the field. *Dental Traumatology* uses double blinded review. The names of the reviewers will thus not be disclosed to the author submitting a paper and the name(s) of the author(s) will not be disclosed to the reviewers.

To allow double blinded review, please submit (upload) your main manuscript and title page as separate files.

Please upload:

- Your manuscript without title page under the file designation 'main document'
- Figure files under the file designation 'figures'
- The title page, Acknowledgements and Conflict of Interest Statement where applicable, should be uploaded under the file designation 'title page'

All documents uploaded under the file designation 'title page' will not be viewable in the html and pdf format you are asked to review in the end of the submission process. The files viewable in the html and pdf format are the files available to the reviewer in the review process.

3.5. Suggest a Reviewer

Dental Traumatology attempts to keep the review process as short as possible to enable rapid publication of new scientific data. In order to facilitate this process, please suggest the names and current email addresses of a potential international reviewer whom you consider capable of reviewing your manuscript. In addition to your choice the journal editor will choose one or two reviewers as well. When the review is done you will be notified under 'Manuscripts with decision' and through e-mail.

3.6. Suspension of Submission Mid-way in the Submission Process

You may suspend a submission at any phase before clicking the 'Submit' button and save it to submit later. The manuscript can then be located under 'Unsubmitted Manuscripts' and you can click on 'Continue Submission' to continue your submission when you choose to.

3.7. E-mail Confirmation of Submission

After submission you will receive an e-mail to confirm receipt of your manuscript. If you do not receive the confirmation e-mail after 24 hours, please check your e-mail address carefully in the system. If the e-mail address is correct please contact your IT department. The error may be caused by some sort of spam filtering on your e-mail server. Also, the e-mails should be received if the IT department adds our e-mail server (uranus.scholarone.com) to their whitelist.

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4. MANUSCRIPT TYPES ACCEPTED

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Review Papers: *Dental Traumatology* commissions review papers of comprehensive areas and mini reviews of small areas. The journal also welcomes uninvited reviews. Reviews should be submitted via the online submission site and are subject to peer-review.

Comprehensive Reviews should be a complete coverage of a subject discussed with the Editor in Chief prior to preparation and submission. Comprehensive review articles should include a description of search strategy of relevant literature, inclusion criteria, evaluation of papers and level of evidence.

Mini Reviews are covering a smaller area and may be written in a more free format.

Case Reports: *Dental Traumatology* accepts Case Reports but these will only be published online and will not be included in the printed version unless specifically requested by the Editor-in-Chief.

Case Reports illustrating unusual and clinically relevant observations are acceptable, but their merit needs to provide high priority for publication in the journal. They should be kept within 3-4 printed pages and need not follow the usual division into material and methods etc, but should have an abstract. The introduction should be kept short. Thereafter the case is described followed by a discussion.

Short Communications of 1-2 pages are accepted for quick publication. These papers need not follow the usual division into Material and Methods, etc., but should have an abstract. They should contain important new information to warrant publication and may reflect improvements in clinical practice such as introduction of new technology or practical approaches. They should conform to a high scientific and a high clinical practice standard.

Letters to the Editor, if of broad interest, are encouraged. They may deal with material in papers published in *Dental Traumatology* or they may raise new issues, but should have important implications.

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Abstract is limited to 250 words in length and should contain no abbreviations. The abstract should be included in the manuscript document uploaded for review as well as inserted separately where specified in the submission process. The abstract should convey the essential purpose and message of the paper in an abbreviated form. For original articles the abstract should be structured with the following headings: Background/Aim, Material and Methods, Results and Conclusions. For other article types, please choose headings appropriate for the article.

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Introduction should be focused, outlining the historical or logical origins of the study and not summarize the results; exhaustive literature reviews are inappropriate. Give only strict and pertinent references and do not include data or conclusions from the work being reported. The introduction should close with the explicit statement of the specific aims of the investigation or hypothesis tested.

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(i) Clinical trials should be reported using the CONSORT guidelines available at www.consort-statement.org. A **CONSORT checklist** should also be included in the submission material. All manuscripts reporting results from a clinical trial must indicate that the trial was fully registered at a readily accessible website, e.g., www.clinicaltrials.gov.

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As the Journal follows the Vancouver system for biomedical manuscripts, the author is referred to the publication of the International Committee of Medical Journal Editors: Uniform requirements for manuscripts submitted to biomedical journals. Ann Int Med 1997;126:36-47.

Number references consecutively in the order in which they are first mentioned in the text. Identify references in texts, tables, and legends by Arabic numerals (in parentheses). Use the style of the examples below, which are based on the format used by the US National Library of Medicine in Index Medicus. For abbreviations of journals, consult the 'List of the Journals Indexed' printed annually in the January issue of Index Medicus.

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ANEXO G



INTERNATIONAL JOURNAL OF PAEDIATRIC DENTISTRY

International Journal of Paediatric Dentistry

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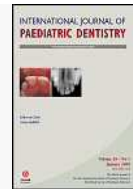
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Original Articles: Divided into: Summary, Introduction, Material and methods, Results, Discussion, Bullet points, Acknowledgements, References, Figure legends, Tables and Figures arranged in this order. The summary should be structured using the following subheadings: Background, Hypothesis or Aim, Design, Results, and Conclusions and should be less than 200 words. A brief description, in bullet form, should be included at the end of the paper and should describe Why this paper is important to paediatric dentists.

Review Articles: may be invited by the Editor.

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- a short **Introduction** (avoid lengthy reviews of literature);
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Letters to the Editor: Should be sent directly to the editor for consideration in the journal.

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Summary should be structured using the following subheadings: Background, Hypothesis or Aim, Design, Results, and Conclusions.

Introduction should be brief and end with a statement of the aim of the study or hypotheses tested. Describe and cite only the most relevant earlier studies. Avoid presentation of an extensive review of the field.

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(ii) Clinical trials should be reported using the CONSORT guidelines available at www.consort-statement.org. A [CONSORT checklist](#) should also be included in the submission material.

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Results should clearly and concisely report the findings, and division using subheadings is encouraged. Double documentation of data in text, tables or figures is not acceptable. Tables and figures should not include data that can be given in the text in one or two sentences.

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Bullet Points should include one heading:

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Twetman S, Axelsson S, Dahlgren H et al. Caries-preventive effect of fluoride toothpaste: a systematic review. *Acta Odontologica Scandinavica* 2003; 61: 347-355.

Paußon L, Bondemark L, Söderfeldt B. A systematic review of the consequences of premature birth on palatal morphology, dental occlusion, tooth-crown dimensions, and tooth maturity and eruption. *Angle Orthodontist* 2004; 74: 269-279.

Clinical Techniques: This type of publication is best suited to describe significant improvements in clinical practice such as introduction of new technology or practical approaches to recognised clinical challenges. They should conform to highest scientific and clinical practice standards.

Short Communications: Brief scientific articles or short case reports may be submitted, which should be no longer than three pages of double spaced text, and include a maximum of three illustrations. They should contain important, new, definitive information of sufficient significance to warrant publication. They should not be divided into different parts and summaries are not required.

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5.3. References

A maximum of 30 references should be numbered consecutively in the order in which they appear in the text (Vancouver System). They should be identified in the text by bracketed Arabic numbers and listed at the end of the paper in numerical order. Identify references in text, tables and legends. Check and ensure that all listed references are cited in the text. Non-refereed material and, if possible, non-English publications should be avoided. Congress abstracts, unaccepted papers, unpublished observations, and personal communications may not be placed in the reference list. References to unpublished findings and to personal communication (provided that explicit consent has been given by the sources) may be inserted in parenthesis in the text. Journal and book references should be set out as in the following examples:

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2. Ministry of Health, Department of Planning. Annual Statistical Report. Abu Dhabi: Ministry of Health, 2001.
3. Al-Mughery AS, Attwood D, Blinkhorn A. Dental health of 5-year-old children in Abu Dhabi, United Arab Emirates. *Community Dent Oral Epidemiol* 1991; 19: 308-309.
4. Al-Hosani E, Rugg-Gunn A. Combination of low parental educational attainment and high parental income related to high caries experience in preschool children in Abu Dhabi. *Community Dent Oral Epidemiol* 1998; 26: 31-36.

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PRODUÇÃO CIENTÍFICA

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Apresentação de trabalhos em eventos científicos

- Viegas CM, Carvalho AC, Scarpelli AC, Ferreira FM, Pordeus IA, Paiva SM. Traumatic dental injury and quality of life of preschool children. Disponível em: <<http://iadr.confex.com/iadr/2012rio/webprogram/Paper160655.html>>



Trabalho apresentado na IADR/LAR General Session & Exhibition realizada na cidade de Foz do Iguaçu, Brasil, no período de 20 a 23 de Junho de 2012.

- Viegas CM, Carvalho AC, Scarpelli AC, Ferreira FM, Pordeus IA, Paiva SM. Repercussão da maloclusão na qualidade de vida de pré-escolares e de suas famílias. Brazilian Oral Research 2010;24(Suppl):261.



Trabalho apresentado na 27^a Reunião Anual da Sociedade Brasileira de Pesquisa Odontológica realizada na cidade de Águas de Lindóia, SP, no período de 9 a 12 de Setembro de 2010.

- Viegas CM, Carvalho AC, Scarpelli AC, Ferreira FM, Pordeus IA. Paiva SM. Fatores etiológicos dos defeitos de desenvolvimento de esmalte na dentição decídua. Brazilian Oral Research 2009;23(Suppl):162.



Trabalho apresentado na 26^a Reunião Anual da Sociedade Brasileira de Pesquisa Odontológica realizada na cidade de Águas de Lindóia, SP, no período de 9 a 13 de Setembro de 2009.

Resumos de trabalhos publicados em anais de eventos científicos

- Scarpelli AC, Paiva SM, Viegas CM, Ferreira FM, Carvalho AC, Pordeus IA. Impact of untreated dental caries on quality of life. Disponível em:
<<http://iadr.confex.com/iadr/2012rio/webprogram/Paper160656.html>>



Trabalho apresentado na IADR/LAR General Session & Exhibition realizada na cidade de Foz do Iguaçu, Brasil, no período de 20 a 23 de Junho de 2012.

- Carvalho AC, Paiva SM, Viegas CM, Ferreira FM, Scarpelli AC, Pordeus IA. Impact of malocclusion on OHRQoL among children: a case-control study. Disponível em:
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Trabalho apresentado na IADR/LAR General Session & Exhibition realizada na cidade de Foz do Iguaçu, Brasil, no período de 20 a 23 de Junho de 2012.

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Trabalho apresentado na IADR/LAR General Session & Exhibition realizada na cidade de Foz do Iguaçu, Brasil, no período de 20 a 23 de Junho de 2012.

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prevalência e fatores predisponentes.



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Disponível em:

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