Cristiane Baccin Bendo

TRAUMATISMO DENTÁRIO E IMPACTO NA QUALIDADE DE VIDA DE ADOLESCENTES BRASILEIROS E SUAS FAMÍLIAS

BELO HORIZONTE

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

Área de concentração: Odontopediatria

Linha de pesquisa: Epidemiologia e controle das doenças bucais

Orientadora: Profa. Dra. Miriam Pimenta Parreira do Vale

Coorientador: Prof. Dr. Saul Martins de Paiva

Belo Horizonte

Faculdade de Odontologia da Universidade Federal de Minas Gerais

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UNIVERSIDADE FEDERAL DE MINAS GERAIS

PROGRAMA DE PÓS-GRADUAÇÃO EM ODONTOLOGIA

FOLHA DE APROVAÇÃO

Traumatismo dentário e impacto na qualidade de vida de adolescentes brasileiros e suas famílias

CRISTIANE BACCIN BENDO

Tese submetida à Banca Examinadora designada pelo Colegiado do Programa de Pós-Graduação em ODONTOLOGIA, como requisito para obtenção do grau de Doutor em ODONTOLOGIA, área de concentração ODONTOPEDIATRIA.

Aprovada em 12 de julho de 2013, pela banca constituída pelos membros:

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Confere com o original
12 / 07 / 2013
Elizabeth Soares Teles
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de Pós-Graduação em Odontologia-FO/UFMG
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Belo Horizonte, 12 de julho de 2013.

UNIVERSIDADE FEDERAL DE MINAS GERAIS

PROGRAMA DE PÓS-GRADUAÇÃO EM ODONTOLOGIA

ATA DA DEFESA DE TESE DA ALUNA
CRISTIANE BACCIN BENDO

Realizou-se, no dia 12 de julho de 2013, às 14:00 horas, Sala 3403, Faculdade de Odontologia, da Universidade Federal de Minas Gerais, a defesa de tese, intitulada *Traumatismo dentário e impacto na qualidade de vida de adolescentes brasileiros e suas famílias*, apresentada por CRISTIANE BACCIN BENDO, graduada no curso de ODONTOLOGIA, como requisito parcial para a obtenção do grau de Doutor em ODONTOLOGIA, à seguinte Comissão Examinadora: Prof(a). Miriam Pimenta Parreira do Vale - Orientador (UFMG), Prof(a). Saul Martins de Paiva (UFMG), Prof(a). Leandro Silva Marques (UFVJM), Prof(a). Maria Letícia Ramos Jorge (UFVJM), Prof(a). Isabela Almeida Pordeus (UFMG), Prof(a). Ana Cristina Borges de Oliveira (UFMG).

A Comissão considerou a tese:

(X) Aprovada
( ) Aprovada condicionalmente, sujeita a alterações, conforme folha de modificações, anexa
( ) Reprovada

Finalizados os trabalhos, lavrei a presente ata que, lida e aprovada, vai assinada por mim e pelos membros da Comissão.
Belo Horizonte, 12 de julho de 2013.

Prof(a). Miriam Pimenta Parreira do Vale
Doutora - USP SP

Prof(a). Saul Martins de Paiva
Doutor - USP SP

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Confere com o original
12/07/2013
Elizabeth Soares Teles
Secretária do Colegiado do Programa
de Pós-Graduação em Odontologia-FO/UFMG
SIAPE 0321131

Dedico este trabalho à minha família, que sempre me apoiou, estimulou e entendeu minhas ausências. Meus pais, meu noivo, minha irmã, meus sobrinhos e afilhados, amo vocês!

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"A alegria não chega apenas no encontro do achado, mas faz parte do processo da busca. E ensinar e aprender não pode dar-se fora da procura, fora da boniteza e da alegria."

Paulo Freire

RESUMO

Traumatismo dentário e impacto na qualidade de vida de adolescentes brasileiros e suas famílias

O objetivo do estudo foi avaliar o impacto dos traumatismos dentários na qualidade de vida relacionada à saúde bucal (QVRSB) de adolescentes brasileiros e suas famílias. Foi realizado um estudo de base populacional com adolescentes de 11-14 anos de idade e suas famílias, no município de Belo Horizonte, Brasil. Este estudo será apresentado em formato de dois artigos científicos. O primeiro artigo descreve um estudo caso-controle, aninhado a um estudo transversal, com uma amostra de 1.215 adolescentes. A QVRSB foi mensurada por meio da versão brasileira do *Child Perceptions Questionnaire* (CPQ_{11-14}) – *Impact Short Form* (ISF:16), autoaplicada aos adolescentes. Foi conduzida a análise *Two Step Cluster* para definir os casos e controles baseado nos escores do CPQ_{11-14}-ISF:16. O grupo caso incluiu adolescentes que apresentavam alto impacto negativo na QVRSB (n=405), e o grupo controle incluiu aqueles com baixo impacto negativo (n=810). Foram selecionados dois controles para cada caso, e pareados individualmente por escola e gênero. O segundo artigo teve um desenho de estudo transversal, e envolveu uma amostra de 1.122 famílias. Para mensurar o impacto na QVRSB da família, os pais/responsáveis responderam a versão brasileira do *Family Impact Scale* (B-FIS), que consiste de 14 itens. Para ambos os artigos, a principal variável independente foi o traumatismo dentário, diagnosticado através da Classificação de Andreasen por três examinadores previamente calibrados. Cárie dentária, maloclusão e idade foram consideradas variáveis de confundimento. Foram realizadas regressão logística condicional (para o estudo caso-controle) e regressão de Poisson com variância robusta (para o estudo transversal), com nível de significância de 5%. O modelo de regressão logística condicional demonstrou que adolescentes diagnosticados com fraturas envolvendo dentina e/ou polpa tiveram 2,40 vezes mais chance de apresentar alto impacto negativo na QVRSB (95% intervalo de confiança [IC] = 1,26-4,58; p= 0,008) do que aqueles sem evidência de fraturas. Fraturas de esmalte (p = 0,065) e fraturas restauradas (p = 0,072) não foram estatisticamente associadas com QVRSB. O modelo de regressão de Poisson multivariada demonstrou que famílias de adolescentes diagnosticados com fraturas envolvendo

dentina e/ou polpa tiveram maior probabilidade de reportar impacto negativo considerando-se o escore total do B-FIS (RR = 1,44; 95% IC = 1,10-1,88), bem como nos domínios “Atividade dos pais/família” (RR = 1,45; 95% IC = 1,09-1,94), “Emoções dos pais” (RR = 1,45; 95% IC = 1,03-2,04) e “Conflito familiar” (RR = 1,46; 95% IC = 1,01-2,11). Conclui-se que adolescentes com traumatismos dentários mais graves e não tratados como fraturas envolvendo dentina e/ou polpa tem mais chance de autorrelatar alto impacto negativo na sua QVRSB e maior probabilidade de apresentar impacto negativo na QVRSB das suas famílias do que aqueles sem evidência de traumatismo.

Palavras-chave: qualidade de vida, traumatismos dentários, adolescente, família, epidemiologia

ABSTRACT

Traumatic dental injury and impact on quality of life among Brazilian adolescents and families

The objective of the study was to evaluate the impact of traumatic dental injuries (TDI) on oral health-related quality of life (OHRQoL) among Brazilian adolescents and their families. A population-based study was carried out with adolescents aged 11-14 years and their families from Belo Horizonte, Brazil. The study is presented into two manuscripts. The first manuscript describes a case-control study, nested to a cross-sectional study with a sample of 1,215 adolescents. OHRQoL was measured by the Brazilian version of the Child Perceptions Questionnaire (CPQ_{11-14}) - Impact Short Form (ISF:16), self-reported by adolescents. Two Step Cluster analysis was performed to define cases and controls based on CPQ_{11-14}-ISF:16 scores. The case group included adolescents who presented higher negative impact on OHRQoL (n=405), and the control group included those with lower negative impact (n=810). Two controls for each case were individually matched from the same school and gender. The second manuscript has a cross-sectional design, and involved a sample of 1,122 families. To assess the impact on family's OHRQoL, parents/caregivers answered the Brazilian version of the Family Impact Scale (B-FIS), which consists of 14 items. For both manuscripts, the main independent variable was TDI, diagnosed by the Andreasen classification, by three calibrated examiners. Dental caries, malocclusion and age were confounding variables. Conditional logistic regression analysis (for case-control study) and Poisson regression model with robust variance (for cross-sectional study) were performed with the significance level set at 5%. Multiple conditional logistic regression model demonstrated that adolescents diagnosed with fractures involving dentin and/or pulp had 2.40 more chances to present high negative impact on QHRQoL (95% confidence interval [CI] = 1.26-4.58; p = 0.008) than those without evidence of fractures. Enamel fracture only (p=0.065) and restored fractures (p = 0.072) were not statistically associated with OHRQoL. The multivariate Poisson regression analysis demonstrated that families of adolescents diagnosed with fracture involving the dentine and/or pulp were more likely to report a negative impact on the overall B-FIS (rate ratio [RR] = 1.44; 95% confidence interval [CI] = 1.10-1.88) as

well on the Parental/Family Activity (RR = 1.45; 95% CI = 1.09-1.94), Parental Emotions (RR = 1.45; 95% CI = 1.03-2.04) and Family Conflict (RR = 1.46; 95% CI = 1.01-2.11) subscales. In summary, adolescents with more severe untreated TDI such as fractures involving dentin and/or pulp were more likely to self-report a higher negative impact on their OHRQoL and more likely to present negative impact on families' OHRQoL than those without TDI.

Keywords: Quality of life, tooth injuries, adolescent, family, epidemiology

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LISTA DE ABREVIATURAS E SIGLAS

ANOVA	*Analysis of Variance*
B-FIS	*Brazilian version of the Family Impact Scale*
CAPES	Coordenação de Aperfeiçoamento de Pessoal de Nível Superior
CI	*Confidence Interval*
Child-OIDP	*Child Oral Impact on Daily Performances*
CNPq	*National Council for Scientific and Technological Development*
COEP/UFMG	Comitê de Ética em Pesquisa da Universidade Federal de Minas Gerais
COHQoL	*Child Oral Health Quality of Life*
CPOD	Cariados, Perdidos e Obturados/Dente
CPQ	*Child Perceptions Questionnaire*
DAI	*Dental Aesthetic Index*
DMFT	*Decayed Missing Filled Teeth Index*
ECOHIS	*Early Childhood Oral Health Impact Scale*
EUA	Estados Unidos da América
EW 1	*Felt irritable/frustrated*
EW 2	*Felt shy*
EW 3	*Upset*
EW 4	*Concerned what people think about your teeth/mouth*
FAPEMIG	*State of Minas Gerais Research Foundation*
FB	*Financial Burden*
FC	*Family Conflict*
FIS	*Family Impact Scale*
FL 1	*Taken longer to eat a meal*
FL 2	*Difficulty chewing firm foods*
FL 3	*Difficulty saying words*
FL 4	*Difficulty eating/drinking hot/cold foods*
HRQOL	*Health-Related Quality of Life*
IED	Índice de Estética Dental

ISF	*Impact Short Form*
OHRQoL	*Oral Health-Related Quality of Life*
OIDP	*Oral Impact on Daily Performances*
OR	*Odds Ratio*
OS 1	*Pain in teeth/mouth*
OS 2	*Mouth sores*
OS 3	*Bad breath*
OS 4	*Food caught between teeth*
PA	*Parental/Family Activity*
PE	*Parental Emotions*
QVRS	Qualidade de vida relacionada à saúde
QVRSB	Qualidade de vida relacionada à saúde bucal
RR	Rate ratio
SD	*Standard deviations*
SPSS	*Statistical Package for Social Sciences*
SVI	*Social Vulnerability Index*
SW 1	*Avoided smiling/laughing*
SW 2	*Argued with children/family*
SW 3	*Teased/called names*
SW 4	*Asked questions*
TDI	*Traumatic dental injury*
USA	*United States of America*
WHO	*World Health Organization*

SUMÁRIO

CONSIDERAÇÕES INICIAIS

1 CONSIDERAÇÕES INICIAIS

A qualidade de vida foi conceituada como “a percepção do indivíduo de sua posição na vida, no contexto da cultura e sistemas de valores nos quais ele vive e em relação aos seus objetivos, expectativas, padrões e preocupações” (Group, 1994). Qualidade de vida relacionada à saúde bucal (QVRSB), ou em inglês O*ral Health-Related Quality of Life* (OHRQoL), foi definida como “o impacto das doenças bucais sobre aspectos da vida cotidiana que são importantes para os pacientes e pessoas, com os impactos sendo de magnitude suficiente, quer em termos de frequência, gravidade ou duração, para afetar a percepção do indivíduo sobre sua vida em geral” (Locker,Allen, 2007).

Quando objetiva-se estudar qualidade de vida na adolescência, deve-se considerar todas as peculiaridades que esta fase da vida apresenta. Na adolescência ocorre o estabelecimento de vínculos sociais, caracterizado pela aceitação dos indivíduos pelo grupo, preocupados em desenvolver um estilo que agrade a si próprios e aos outros (Bee, 1998; Jokovic *et al.*, 2005; Marques *et al.*, 2006). Com sua autoimagem prejudicada, o adolescente pode ter sua autoestima afetada, repercutindo em seus relacionamentos pessoais (Elias *et al.*, 2001). Assim sendo, diante do aparecimento de alterações bucais, é necessário considerar aspectos subjetivos e psicossociais que podem afetar os adolescentes (Leao,Sheiham, 1996).

Estudos demosntraram que o relato das próprias crianças e adolescentes sobre sua saúde e qualidade de vida relacionada à saúde (QVRS) (em inglês *Health-Related Quality of Life* - HRQOL) é válido e confiável. Desta forma, os instrumentos que mensuram QVRS e QVRSB devem levar em consideração a idade dos indivíduos como resultado de seu contínuo desenvolvimento cognitivo, emocional, social e de linguagem (Jokovic *et al.*, 2002; Bevans *et al.*, 2010).

Como o traumatismo dentário é uma alteração que atinge principalmente os dentes anteriores, fraturas ou perda desses dentes podem ocasionar impacto estético, social e emocional nos indivíduos e, desta forma, repercutir negativamente na qualidade de vida (Marcenes *et al*., 2000; Cortes *et al*., 2002; Traebert *et al.*, 2003; Bendo *et al*., 2010). A prevalência de traumatismo dentários em adolescentes no Brasil é bastante variável entre os estudos (Marcenes

et al., 2000; Cortes *et al.*, 2001; Nicolau *et al.*, 2001; Traebert *et al.*, 2003; Traebert *et al.*, 2004; Moyses *et al.*, 2006; Soriano *et al.*, 2007; Bendo *et al.*, 2010; Traebert *et al.*, 2010; Ramos-Jorge *et al.*, 2013), podendo atingir 58,6% (Marcenes *et al.*, 2001) (Quadro 1). Em outros países também há um grande variação nas prevalências de traumatismo dentário (4,1% a 29,6%) (Garcia-Godoy *et al.*, 1986; Hargreaves *et al.*, 1995; Petti,Tarsitani, 1996; Nik-Hussein, 2001; Sgan-Cohen *et al.*, 2005; Fakhruddin *et al.*, 2008). Diante das altas prevalências encontradas na maioria dos estudos e do seu potencial em afetar as atividades diárias e qualidade de vida dos indivíduos, o traumatismo dentário pode ser considerado um problema de saúde pública (Ramos-Jorge *et al.*, 2008; Traebert *et al.*, 2010).

Quadro 1: Estudos de base populacional sobre a prevalência de traumatismo na dentição permanente no Brasil

Autores/ano	**Local**	**Faixa etária**	**Amostra (n)**	**Classificação de traumatismo**	**Prevalência (%)**
Marcenes *et al.* (2000)	Jaraguá do Sul/SC	12 anos	476	*Children's Dental Health Survey in the United Kingdom*	15,3
Marcenes *et al.* (2001)	Blumenau/SC	12 anos	652	*Children's Dental Health Survey in the United Kingdom*	58,6
Nicolau *et al.* (2001)	Cianorte/PR	13 anos	652	*Children's Dental Health Survey in the United Kingdom*	20,4
Cortes *et al.* (2001)	Belo Horizonte/MG	9 a 14 anos	3702	*Children's Dental Health Survey in the United Kingdom*	16,1
Traebert *et al.* (2003)	Florianopolis/SC	12 anos	350	*Children's Dental Health Survey in the United Kingdom*	18,9
Traebert *et al.* (2004)	Biguaçu/SC	11 a 13 anos	2260	*Children's Dental Health Survey in the United Kingdom*	10,7
Grimm *et al.* (2004)	SP	5 a 12 anos	73243	Organização Mundial da Saúde	2,7
Traebert *et al.* (2006)	Herval D'Oeste/SC	12 anos	260	*Children's Dental Health Survey in the United Kingdom*	17,3
Moysés *et al.* (2006)	Curitiba/PR	12 anos	2126	Baseada na *BASCD(British Association for the Study of Community Dentistry)*	14,4
Soriano *et al.* (2007)	Recife/PE	12 anos	1046	Andreasen	10,5
Traebert *et al.* (2010)	Palhoça/SC	12 anos	405	*Children's Dental Health Survey in the United Kingdom*	22,5
Bendo *et al.* (2010)	Belo Horizonte/MG	11 a 14 anos	1612	Andreasen	17,1
SBBrasil (2010)	Brasil	12 anos	7208	Não especificado	20,5

Há pouco mais de uma década têm sido realizados estudos que avaliaram o impacto dos traumatismos dentários na QVRSB de adolescentes (Cortes *et al.*, 2002; Locker,Allen, 2007; Ramos-Jorge *et al.*, 2007; Fakhruddin *et al.*, 2008; Bendo *et al.*, 2010; Piovesan *et al.*, 2010; Piovesan *et al.*, 2011; Porritt *et al.*, 2011; Thelen *et al.*, 2011; Antunes *et al.*, 2012; Dame-Teixeira *et al.*, 2012; Paula *et al.*, 2012; Traebert *et al.*, 2012; Ramos-Jorge *et al.*, 2013). Entretanto, estes estudos apresentam resultados controversos. A maioria não encontrou associação entre traumatismos dentários e QVRSB mensurado pelo escore total do *Child Perceptions Questionnaire* (CPQ_{11-14}) (Fakhruddin *et al.*, 2008; Bendo *et al.*, 2010; Piovesan *et al.*, 2010; Piovesan *et al.*, 2011; Porritt *et al.*, 2011; Dame-Teixeira *et al.*, 2012; Paula *et al.*, 2012). Entretanto, um estudo canadense e dois brasileiros encontraram associação do traumatismo dentário com o escore total do CPQ_{11-14} (Locker, 2007; Antunes *et al.*, 2012; Traebert *et al.*, 2012). Outros três estudos que utilizaram o *Oral Impact on Daily Performances* (OIDP) encontraram associação entre traumatismos dentários e QVRSB, apesar do OIDP não ser um instrumento especificamente construído para ser utilizado com adolescentes (Cortes *et al.*, 2002; Ramos-Jorge *et al.*, 2007; Thelen *et al.*, 2011). Apenas um estudo utilizou o *Child Oral Impact on Daily Performances* (*Child*-OIDP) e encontrou associação entre traumatismo dentário não tratado e o escore total do instrumento (Ramos-Jorge *et al.*, 2013). O quadro 2 apresenta os instrumentos desenvolvidos para mensurar a QVRSB em crianças e adolescentes.

Quadro 2: Instrumentos para mensurar QVRSB em crianças e adolescentes

Instrumento	**Autores/ano**	**Idioma/local do instrumento original**	**Faixa etária**	**Validado para o Brasil**	**Autores/ano da versão brasileira**
Child Perceptions Questionnaire – CPQ 11-14	Jokovic *et al.*, 2002; Jokovic et al., 2006	Inglês / Canadá	11 a 14 anos	Sim	Goursand *et al*., 2008; Torres *et al*., 2009
Child Perceptions Questionnaire – CPQ 8-10	Jokovic et al., 2004	Inglês / Canadá	8 a 10 anos	Sim	Martins *et al*., 2009
Parental-Caregivers Perceptions Questionnaire – P-CPQ	Jokovic et al., 2003	Inglês / Canadá	6 a 14 anos	Sim	Goursand *et al*., 2009
Child Oral Impact on Daily Performances (Child- OIDP)	Gherunpong *et al.*, 2004	Inglês / Tailândia	12 anos	Sim	Castro *et al.*, 2008
Child Oral Health Impact Profile (COHIP)	Broder,Wilson-Genderson, 2007	Inglês ou espanhol / EUA Inglês ou francês / Canadá	8 a 15 anos	Não	
Early Childhood Oral Health Impact Scale (ECOHIS)	Pahel *et al.*, 2007	Inglês / EUA	3 a 5 anos	Sim	Tesch *et al.*, 2008; Scarpelli *et al.*, 2011
Scale of Oral Health Outcomes (SOHO-5)	Tsakos *et al.*, 2012	Inglês / Reino Unido	5 anos	Sim	Abanto et al., 2013
Pediatric Quality of Life Inventory^{TM} (*PedsQL™) Oral Health Scale*	Steele *et al.*, 2009	Inglês / EUA	2 a 18 anos	Sim	Bendo *et al*., 2012

Dentre os estudos que aplicaram instrumentos específicos para mensurar QVRSB, a maioria utilizou desenho transversal (Locker,Allen, 2007; Bendo *et al.*, 2010; Piovesan *et al.*, 2010; Piovesan *et al.*, 2011; Dame-Teixeira *et al.*, 2012; Paula *et al.*, 2012; Traebert *et al.*, 2012; Ramos-Jorge *et al.*, 2013); além disso, não houve um ponto de corte padrão para classificação dos indivíduos com baixo e alto impacto na QVRSB. Alguns estudos dicotomizaram a QVRSB em presença e ausência de impacto (Fakhruddin *et al.*, 2008; Bendo *et al.*, 2010; Ramos-Jorge *et al.*, 2013). Outro estudo classificou a QVRSB de acordo com a presença de ao menos um item com impacto negativo ocorrendo frequentemente ou muito frequentemente (Traebert *et al.*, 2012). Entretanto, outros estudos utilizaram o escore total do instrumento como variável dependente de forma quantitativa, sem categorização (Piovesan *et al.*, 2010; Piovesan *et al.*, 2011; Dame-Teixeira *et al.*, 2012).

Foram encontrados também alguns estudos com desenho caso-controle testando tal associação (Cortes *et al.*, 2002; Ramos-Jorge *et al.*, 2007; Fakhruddin *et al.*, 2008; Thelen *et al.*, 2011; Antunes *et al.*, 2012). Dois destes estudos utilizaram o OIDP, instrumento não validado para a faixa etária dos estudos (Cortes *et al.*, 2002; Ramos-Jorge *et al.*, 2007). Entretanto, estudo realizado na Albânia utilizou o OIDP validado para a faixa etária de 16 a 19 anos (Thelen *et al.*, 2011). Este estudo demonstrou associação do traumatismo dentário com o escore total do instrumento, assim como impacto negativo em atividades como sorrir e ter contato com outras pessoas (Thelen *et al.*, 2011). Um estudo recente demonstrou que adolescentes que apresentavam traumatismo dentário tiveram maiores escores do CPQ_{11-14}, portanto maior impacto na QVRSB. Entretanto, este estudo foi realizado com uma amostra de conveniência (17 casos e 33 controles), apresentando validade externa reduzida, o que limita que os resultados sejam extrapolados para a população (Antunes *et al.*, 2012). Todos esses estudos caso-controle consideraram o traumatismo dentário para a definição de casos e controles, sendo que o grupo caso era composto por indivíduos com presença de traumatismo dentário e o grupo controle por indivíduos sem traumatismo dentário (Cortes *et al.*, 2002; Ramos-Jorge *et al.*, 2007; Fakhruddin *et al.*, 2008; Thelen *et al.*, 2011; Antunes *et al.*, 2012). Entretanto, quando se pretende considerar o traumatismo dentário como variável de exposição para o desenvolvimento de impacto na QVRSB, a seleção de casos e controles não pode ser realizada levando em consideração a presença ou ausência de traumatismo. Como é bem estabelecido na literatura, casos e controles

devem ser divididos de acordo com o desfecho (Gordis, 2009), e no presente estudo o desfecho é a QVRSB.

Além disso, a maioria dos estudos caso-controles já realizados não consideraram os diversos tipos de traumatismos dentários e sua gravidade em relação ao impacto na QVRSB (Cortes *et al.*, 2002; Ramos-Jorge *et al.*, 2007; Antunes *et al.*, 2012). Um recente estudo transversal com adolescentes brasileiros de 12 anos de idade demonstrou a importância da gravidade do traumatismo dentário no impacto na QVRSB (Dame-Teixeira *et al.*, 2012). Este estudo comprovou que aqueles adolescentes que apresentavam necessidade de tratamento devido ao traumatismo dentário relataram maiores limitações funcionais do que aqueles que tinham lesões traumáticas sem necessidade de tratamento ou que não apresentavam evidência de traumatismo (Dame-Teixeira *et al.*, 2012).

Os traumatismos dentários, assim como outras alterações da saúde geral e bucal que acometem crianças e adolescentes, podem repercutir negativamente nas famílias (Locker *et al.*, 2002; Tesch *et al.*, 2007; Scarpelli *et al.*, 2008; Aldrigui *et al.*, 2011; Scarpelli *et al.*, 2011). A ocorrência de alterações bucais em crianças e adolescentes provocam conflitos familiares, dificuldades financeiras, faltas ao trabalho e quadro de ansiedade nos pais (Locker *et al.*, 2002; Tesch *et al.*, 2007; Aldrigui *et al.*, 2011). A natureza do impacto familiar varia de acordo com o tipo de alteração bucal que a criança ou o adolescente apresenta (Locker *et al.*, 2002). A maioria dos estudos que avaliaram impacto das condições bucais na QVRSB da família foram desenvolvidos com crianças pré-escolares utilizando o *Early Childhood Oral Health Impact Scale* (ECOHIS) (Aldrigui *et al.*, 2011). Um estudo longitudinal demonstrou que houve uma persistência do impacto negativo na QVRSB da família de crianças e adolescentes que sofreram traumatismos dentários, mesmo um ano após o acidente (Berger *et al.*, 2009).

Diante do exposto, o objetivo desta tese foi avaliar a associação entre traumatismo dentário e o impacto negativo na QVRSB de adolescentes e suas famílias, por meio de dois estudos. As hipóteses testadas foram: a) que adolescentes de 11 a 14 anos de idade diagnosticados com lesões mais graves de traumatismo dentário apresentam maior chance de ter impacto negativo na QVRSB do que aqueles sem sinal de traumatismo dentário; b) e que a ocorrência de traumatismos dentários nos adolescentes tem impacto negativo na QVRSB das suas famílias.

ARTIGO 1

2 ARTIGO 1

Oral health-related quality of life and traumatic dental injuries in Brazilian adolescents

Running head: Tooth injuries and adolescents' quality of life

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Abstract

Objectives: To evaluate the impact of traumatic dental injuries (TDI) on oral health-related quality of life (OHRQoL) among Brazilian adolescents.

Methods: A population-based case-control study was carried out nested to a cross-sectional study with a sample of 1215 adolescents aged 11–14 years from Belo Horizonte, Brazil. OHRQoL was measured using the Brazilian version of the Child Perceptions Questionnaire (CPQ_{11-14}) - Impact Short Form (ISF:16). Two Step Cluster analysis was performed to define cases and controls based on CPQ_{11-14}-ISF:16 scores. This method considers the pattern of responses for each item separately, and how important each item is to the formation of clusters. The case group included those adolescents who presented higher negative impact on OHRQoL (n=405), while the control group included those with lower negative impact (n=810). Two controls for each case were individually matched from the same school and gender. The main independent variable was TDI, diagnosed by the Andreasen classification. Untreated dental caries, malocclusion and age were confounding variables. Conditional logistic regression analysis was performed with the significance level set at 5%.

Results: A multiple conditional logistic regression model demonstrates that adolescents diagnosed with fracture involving dentin and/or pulp had a 2.40-fold greater chance of presenting high negative impact on QHRQoL [95% CI=1.26–4.58; p=0.008] than those without evidence of fractures. Enamel fracture only [p=0.065] and restored fractures [p=0.072] were not statistically associated with OHRQoL.

Conclusions: Adolescents with more severe untreated TDI, such as fractures involving dentin and/or pulp, were more likely to self-report a higher negative impact on their OHRQoL than those without TDI.

Introduction

During the last several decades, patient quality of life has been increasingly discussed in the extant literature as an important health outcome, particularly health-related quality of life (HRQOL). HRQOL is a dynamic and complex phenomenon, including multidimensional indicators of health and wellbeing (1-3).

Oral health is essential to the individual's overall health, contributing significantly to their HRQOL (4). During adolescence, social relations are established, characterized by the acceptance of individuals by the group. They are concerned with developing a style that appeals to themselves and their group of friends (5-7). The involvement of anterior teeth by oral problems such as traumatic dental injuries (TDI) may exert a major influence on adolescents' perceived oral health-related quality of life (OHRQoL). This fact is due to physical discomfort, caused primarily by pain, and psychological problems such as difficulty smiling, which may directly affect their social life (8-10). During the past several years, studies have been inconsistent in demonstrating an association between TDI and adolescents' OHRQoL (11-16). The majority of studies that administered validated OHRQoL instruments had a cross-sectional design, and there has been no pattern in the cut-off points for clustering OHRQoL scores (12-15). Case-control studies were carried out with Brazilian and Canadian samples of adolescents (11, 16). These studies used the presence or absence of TDI to separate cases and controls rather than OHRQoL (11, 16).

Given the findings in extant literature, the aim of the present study is to test the likelihood of an impact on OHRQoL among adolescents diagnosed with diverse levels of TDI severity, through a population-based case-control study.

Materials and Methods

The Human Research Ethics Committee of the *Universidade Federal de Minas Gerais* approved the study and terms of informed consent were signed by the parents and adolescents.

A population-based case-control study was carried out among adolescents aged 11 to 14 years, enrolled in public and private elementary schools in the city of Belo Horizonte, capital of the state of Minas Gerais (Brazil). To ensure representativity, the sample was stratified according to administrative district and type of school. Twenty-one schools were randomly selected from all nine administrative districts of Belo Horizonte to participate in this case-control study. This case-control study was nested to a cross-sectional study (12), and 1612 adolescents representing schoolchildren from Belo Horizonte were eligible for allocation in the case and control groups.

OHRQoL Measure

The dependent variable was the OHRQoL, measured with the Brazilian version of the Child Perceptions Questionnaire (CPQ_{11-14}) - Impact Short Form (ISF:16) (17). The CPQ_{11-14} is part of the Child Oral Health Quality of Life (COHQoL), which is a set of questionnaires that aim to measure the impact of oral health abnormalities on health- related quality of life in children. The CPQ_{11-14}-ISF:16 is composed of 16 items distributed among four subscales: Oral Symptoms, Functional Limitations, Emotional Wellbeing and Social Wellbeing. Each item addresses the frequency of events in the previous three months; a five-point response scale is used with the following options: “Never” = 0; “Once/ twice” = 1; “Sometimes” = 2; “Often” = 3; and “Every day/almost every day” = 4 (18-20).

Cluster Analysis

In order to define cases and controls based on CPQ_{11-14}-ISF:16 scores, a Two Step Cluster using log-likelihood distance measure was performed. Two Step Cluster analysis considers the pattern of responses for each item separately, and how important each item is to the formation of clusters (21). Given the correlation among the answers to the instrument, cluster analysis may be valid since there is no cut-off pattern for the CPQ_{11-14} (11, 12, 14, 22). The 16 items in the Brazilian version of the CPQ_{11-14}-ISF:16 were considered as continuous variables, and the *Student's t-test* was performed to compare the mean of the item within each cluster to the overall mean of the item in the total sample. According to two-step cluster analysis, two subgroups were identified as the optimal number of groups, on the basis of Schwarz's Bayesian criterion change (23). Figures 1 and 2 demonstrate how far the mean of each item within a particular cluster (horizontal bars) is from the overall mean (critical line). Greater values generated by the statistics and farther from the critical line indicate items which are more important in distinguishing clusters (21). The item "Avoided smiling/laughing" on the Social Wellbeing subscale was the most important item in the CPQ_{11-14}-ISF:16 for the configuration of the control group, followed by three Emotional Wellbeing items (Fig. 1). "Concerned what people think about your teeth/mouth" was the most important item for allocating adolescents in the case group, followed by the other three Emotional Wellbeing items (Fig. 2).

The case group included those adolescents allocated into Group 2 of the cluster analysis, who presented higher negative impact on OHRQoL. The controls were from Group 1 of the cluster analysis, with lower negative impact on OHRQoL. Two controls from the same school as the case and the same gender were designated and individually matched. Table 1 supports the equal distribution of these two matched variables (gender and type of school) among cases and controls [p=1.000]. Analysis of Variance (ANOVA) demonstrated that the variability of the

means between the case and control groups was statistically higher than the variability within groups [$p<0.001$].

Traumatic Dental Injury classification

The main independent variable was TDI, diagnosed according to the Andreasen classification (24). For diagnosing TDI, only the upper and lower incisors were examined, and teeth were classified as: without evidence of TDI, enamel fracture only, fracture involving dentin, fracture involving dentin and pulp, and restored fracture. For statistical purposes, fracture involving dentin and fracture involving dentin and pulp were merged to generate a single category considered as severe TDI. Enamel fracture alone was considered as mild TDI.

Dental Examination

Adolescents were examined at schools, during daytime hours, in a private room. The examiners were seated in front of the adolescent, who remained standing. A head lamp (Petzl Zoom head lamp, Petzl America, Clearfield, UT, USA), disposable mouth mirror (PRISMA®, São Paulo, SP, Brazil) and periodontal probe (WHO-621, Trinity, Campo Mourão, PA, Brazil) were used for visual dental examination, without x-rays. The examiners used appropriate equipment to protect against individual cross-infection, with all necessary instruments and materials packed and sterilized in sufficient quantities for each workday.

Malocclusion and/or untreated dental caries were identified as possible confounding variables, and recoded using the Dental Aesthetic Index (DAI) (25) and World Health Organization (26) recommendations, respectively. The clinical examination was conducted by three calibrated dentists, trained for these three oral conditions in a pilot study conducted with 44 adolescents who did not participate in the main study. Cohen's Kappa values ranged from 0.68 to 1.00 for inter-examiner agreement and from 0.70 to 1.00 for intra-examiner agreement, thereby demonstrating satisfactory to excellent agreement on all clinical conditions.

Sample Size Calculation

The minimum sample size desired for this study was calculated given a power of 80.0% (Type II error) and a standard error of 5.0% (Type I error), and matching sets of cases and controls with a 1:2 ratio. The Odds Ratio (OR) between adolescents with TDI and those without TDI was set at 1.5, and the probability of TDI among controls was set at 50.0%. Considering two controls for each case, the minimum sample size for the main study to satisfy the requirements was 227 cases and 454 controls. However, it was decided to utilize the maximum number of cases and controls it was possible to match using the existing database.

Statistical Analysis

Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS for Windows, version 19.0, SPSS Inc., Chicago, IL, USA). Data analysis involved descriptive statistics, such as frequency distribution, mean, standard deviations (SD) and cross tabulation. Bivariate conditional logistic regression analysis was conducted to measure the association of TDI and confounding variables such as malocclusion and dental caries among cases and controls. TDI was classified as either without injuries, restored fracture, enamel fracture only or fracture involving dentin and/or pulp. Malocclusion was dichotomized as absent/mild (DAI$\leq$ 25) or present (DAI > 25). Dental caries was dichotomized as without untreated lesion or with untreated lesion. Multiple conditional logistic regression to matched case-control studies was used in the multivariate analysis. Age, malocclusion and dental caries were included in the logistic model with TDI in order to control for potential confounding variables. The significance level was set at 5%.

Results

This population-based case-control study involved 1215 adolescents, 405 cases with high negative impact on OHRQoL and 810 controls with low negative impact individually matched for gender and school with cases using a 2:1 ratio. Table 1 demonstrates the equal distribution of the possible confounding variables used to match cases and controls. There were no statistically significant differences between the two groups regarding gender or type of school [p=1.000]. The sample size was considerably larger than the estimated minimal size to satisfy the requirements (n = 681).

The unadjusted bivariate conditional logistic regression is displayed in Table 1. Age was not associated with impact on adolescents' OHRQoL. However, adolescents diagnosed with fractures involving dentin and/or pulp, untreated dental caries and malocclusion had a greater chance of presenting high negative impact on OHRQoL.

Table 2 displays the multiple conditional logistic regression model. Age, dental caries and malocclusion were included in the model to control for potential confounding variables. The results demonstrate that adolescents diagnosed with fractures involving dentin and/or pulp had a 2.40-fold [95% CI=1.26–4.58; p=0.008] greater chance of presenting high negative impact on QHRQoL than those without evidence of TDI. The presence of enamel fracture [OR=0.63; 95% CI=0.39–1.03; p=0.065] or restored fracture [OR=1.75; 95% CI=0.95–3.21; p=0.072] was not statistically associated with OHRQoL. The chance of presenting malocclusion was 1.68-fold [95% CI=1.30–2.18; p<0.001] greater in the case group than in the control group.

Discussion

The findings of the present study demonstrate that adolescents diagnosed with more severe untreated TDI such as fractures involving dentin and/or pulp are more likely to present

negative impact on OHRQoL than those without TDI. This study makes an important contribution to the extant literature, since it is a population-based case-control study that set out to test the impact on OHRQoL among adolescents diagnosed with diverse levels of TDI severity. For this study the Brazilian short version of the CPQ_{11-14} was used (17). Recent studies applying CPQ_{11-14} also showed that TDI appears to affect an adolescent's OHRQoL (11, 12, 14, 16). The majority of studies with adolescents did not demonstrate an association between overall score on the CPQ_{11-14} and TDI (11, 12, 22), even though it presented a negative impact on some specific items (11, 12).

Enamel fractures were the most common type of TDI found in previous studies (12, 14, 16, 22). The high prevalence of crown enamel fractures only could explain the lack of association between TDI and OHRQoL (22). The adjusted model in the present study demonstrated a strong association between more severe TDI (fractures involving dentin and/or pulp) and poorer OHRQoL among adolescents. However, mild TDI (enamel fractures only) and restored fractures were not associated with negative impact on OHRQoL at the 5% probability level. Although not statistically significant, the control group was composed of more adolescents diagnosed with enamel fracture than the case group, and with a lower frequency of restored fracture. These borderline significant findings could be due to the reduced prevalence of TDI in this population (12, 22). Enamel fractures do not seem to be a problem for adolescents. A previous study affirmed that fractures involving only enamel are not perceived as problematic for individuals (27). Mild TDI, such as fractures involving enamel only, probably do not cause pain or any other psychosocial discomfort for individuals (22). Studies carried out with preschool children reported that the severity of a TDI affected the perceptions of parents/caregivers and their reports of its occurrence (27, 28). One study demonstrated that among those with a clinical diagnosis of TDI and without any parental reported history of TDI, 70.1% had enamel fracture

only, against 1.5% who had a fracture involving dentin (27). Parents/caregivers may have difficult in detecting TDI in their children, especially when the condition is not causing pain or discomfort (29).

In this study, a validated instrument to measure OHRQoL among adolescents was applied. Oral health-related quality of life (OHRQoL) should be measured by valid and reliable instruments that consider the multidimensional nature of ORHQoL (30-32). Furthermore, the choice of an adequate instrument to measure OHRQoL in children and adolescents is an important step in any study, since instruments should be specific for each age group, considering their continuous cognitive, emotional, social and language development (18, 33). Moreover, the case-control design of the present study considered OHRQoL as a dependent variable and TDI as an independent variable. Therefore, the case group was composed of adolescents with higher negative impact on OHRQoL, and the control group of adolescents who reported lower negative impact on OHRQoL. Previous case-control studies have tested this association (9, 11, 34). However, two of them applied the Brazilian version of the Oral Impact on Daily Performances (OIDP) to measure such an association (9, 34), which was developed for adults. Moreover, other authors have designed their studies in the opposite way, in which the case group was composed of adolescents with TDI and the control group of individuals without TDI (9, 11, 34). Since the objective of the present study, as well as of those previous studies, was to test the impact of TDI on adolescents' OHRQoL, it is fundamental to consider OHRQoL as an outcome variable and use this variable to determine the case and control groups. A previous study used a similar case-control design to investigate the impact of malocclusion on OHRQoL, in which the case group was composed of adolescents who reported a negative impact on OHRQoL and the control group of those who did not report such impact (35).

There is no pattern in the cutoff points used in other studies to classify the impact on OHRQoL as present or absent, or even low or high. Two studies applied the CPQ_{11-14} and dichotomized the scores based on the presence or not of at least one adverse impact (11, 12). Another study used the median overall score of the CPQ_{11-14} to separate groups (36). However, the first way of classifying the impact considered sporadic impact on OHRQoL as the outcome (14); both ways could also generate groups with very close scores because of the narrow gap between them (37). A recent cross-sectional study used the presence of at least one adverse impact occurring often or very often (14), which may be an improvement in clustering different levels of impact (37). ANOVA was conducted to demonstrate that the variability between clusters was larger than within clusters. In order to create truly diverse clusters of OHRQoL, two-step cluster analysis was performed. Cluster analysis was used to define and evaluate the best grouping of adolescents on the basis of their similarities in responding to the 16 items on the CPQ_{11-14}. A similar method to determine groups based on HRQOL instruments' scores has been adopted in medical studies (23, 38).

The number of cases and controls available for this study was greater than required as determined by the sample size calculation. The final sample included 405 cases and 810 controls. It was decided to use the largest possible number of cases that could be individually matched with two controls, since the main way to increase accuracy, reduce random errors and increase the statistical power in epidemiological studies is by increasing the sample size (39, 40).

Not employing X-rays to perform the clinical examinations could be considered a limitation of this study. Visual dental examination alone may have led to underestimation of TDI due to the inability to detect root fractures. However, this diagnostic procedure allowed a large population-based sample size with an epidemiological nature representative of the adolescents of Belo Horizonte (Brazil) to be obtained.

In summary, this population-based case-control study supports the hypothesis that adolescents diagnosed with severe untreated TDI have a greater chance of presenting greater negative impact on OHRQoL than those without evidence of TDI. These findings suggest that the public health system should place special emphasis on adolescents affected by severe TDI, since this condition affects their wellbeing. Targeting factors associated with the occurrence of TDI may be an effective way in which the public oral health care system can prevent its repercussion on OHRQoL (41). Individuals with TDI usually are those who present increased overjet and inadequate lip coverage (41, 42). Moreover, education seems to be another good strategy to prevent and manage TDI (42). Children, parents and teachers should be educated to promote empowerment to prevent and manage TDI (42, 43). Encouraging the use of mouthguards for contact sports in schools and awareness programs for coaches and players for this problem may be a good strategy for prevention. Additionally, the adoption of safe and well designed physical environments for children, including at home, school, and daycare can contribute to preventing injuries, as well as other diseases or disabilities that commonly affect children (44).

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Table 1: Frequency distribution of independent variables for matched case and control groups (n=1215).

Variables	Case group (n=405) n (%)	Control group (n=810) n (%)	Unadjusted OR (95% CI)	P-value *
Gender				
Male	173 (42.7)	346 (42.7)		1.000
Female	232 (57.3)	464 (57.3)		
Type of school				
Private	77 (19.0)	154 (19.0)		1.000
Public	328 (81.0)	656 (81.0)		
Age (mean and SD)	12.44 (1.12)	12.35 (1.09)	1.08 (0.97-1.20)	0.183
Traumatic dental injuries				
Without injuries	340 (84.0)	694 (85.7)	1.00	
Restored fracture	20 (4.9)	25 (3.1)	1.63 (0.89-2.98)	0.110
Enamel fracture only	23 (5.7)	73 (9.0)	0.64 (0.40-1.05)	0.075
Fracture involving dentin and/or pulp	22 (5.4)	18 (2.2)	2.50 (1.32-4.71)	0.005
Dental caries				
Without untreated lesion	282 (69.6)	608 (75.1)	1.00	0.044
With untreated lesion	123 (30.4)	202 (24.9)	1.31 (1.01-1.71)	
Malocclusion				
Absent/mild	251 (62.0)	588 (72.6)	1.00	<0.001
Present	154 (38.0)	222 (27.4)	1.63 (1.26-2.10)	

* Bivariate conditional logistic regression.

Values in parentheses refer to the percentages in columns.

Table 2: Multiple conditional logistic regression model explaining the influence of TDI on adolescents' OHRQoL in a matched case-control analysis (n=1215).

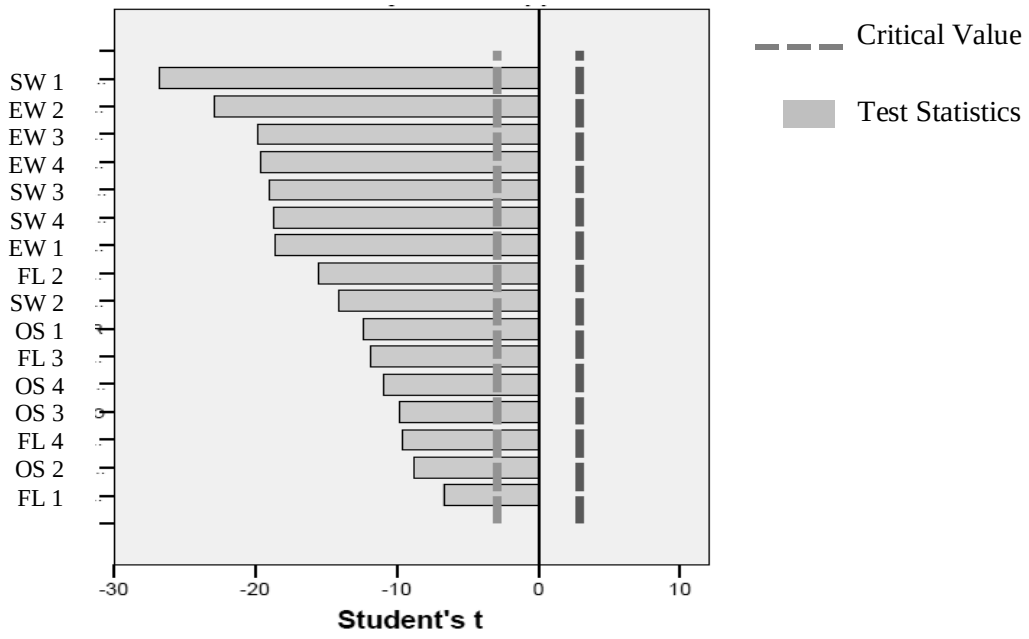
Variables	Adjusted OR (95% CI)	P-value*
Traumatic dental injuries		
Without injuries	1.00	
Restored fracture	1.75 (0.95-3.21)	0.072
Enamel fracture only	0.63 (0.39-1.03)	0.065
Fracture involving dentin and/or pulp	2.40 (1.26-4.58)	0.008
Dental caries		
Without untreated lesion	1.00	0.060
With untreated lesion	1.30 (0.99-1.70)	
Malocclusion		
Absent/mild	1.00	<0.001
Present	1.68 (1.30-2.18)	
Age	1.07 (0.96-1.19)	0.237

* Multiple conditional logistic regression.

Fig. 1: Cluster analysis demonstrating the pattern of responses for each item of the CPQ_{11-14}-ISF:16 separately and how important they were in forming the control group.

Fig. 2: Cluster analysis demonstrating the pattern of responses for each item of the CPQ_{11-14}-ISF:16 separately and how important they were in forming the case group.

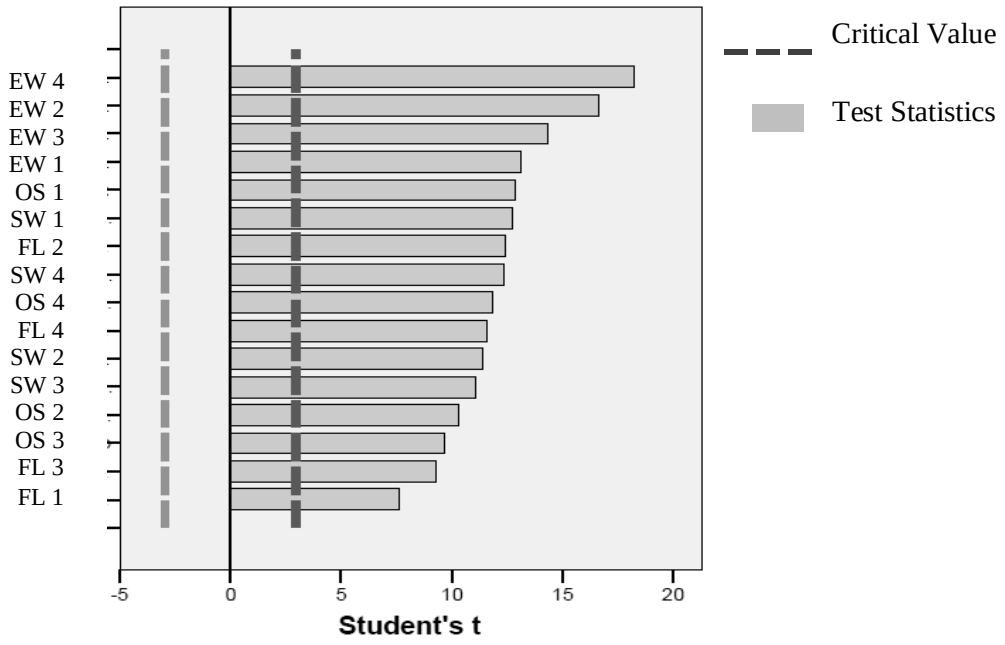
Fig. 1: Cluster analysis demonstrating the pattern of responses for each item of the CPQ_{11-14}-ISF:16 separately and how important they were in forming the control group.



Note: Critical value (light gray line): overall mean in the total sample

OS 1: Pain in teeth/mouth, OS 2: Mouth sores, OS 3: Bad breath, OS 4: Food caught between teeth; FL 1: Taken longer to eat a meal, FL 2: Difficulty chewing firm foods, FL 3: Difficulty saying words, FL 4: Difficulty eating/drinking hot/cold foods, EW 1: Felt irritable/frustrated, EW 2: Felt shy, EW 3: Upset, EW 4: Concerned what people think about your teeth/mouth, SW 1: Avoided smiling/laughing, SW 2: Argued with children/family, SW 3: Teased/called names, SW 4: Asked questions

Fig. 2: Cluster analysis demonstrating the pattern of responses for each item of the CPQ_{11-14}-ISF:16 separately and how important they were in forming the case group.



Note: Critical value (dark gray line): overall mean in the total sample

OS 1: Pain in teeth/mouth, OS 2: Mouth sores, OS 3: Bad breath, OS 4: Food caught between teeth; FL 1: Taken longer to eat a meal, FL 2: Difficulty chewing firm foods, FL 3: Difficulty saying words, FL 4: Difficulty eating/drinking hot/cold foods, EW 1: Felt irritable/frustrated, EW 2: Felt shy, EW 3: Upset, EW 4: Concerned what people think about your teeth/mouth, SW 1: Avoided smiling/laughing, SW 2: Argued with children/family, SW 3: Teased/called names, SW 4: Asked questions

ARTIGO 2

3 ARTIGO 2

Impact of traumatic dental injuries among adolescents on family's quality of life: A population-based study

Running title: Dental injuries among adolescents and family's quality of life

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Impact of traumatic dental injuries among adolescents on family's quality of life: A population-based study

Summary

Aim: The aim of the present study was to evaluate the impact of traumatic dental injury (TDI) among Brazilian adolescents on the oral health-related quality of life (OHRQoL) of the family. ***Design:*** A cross-sectional study was carried out with a population-based randomized sample of 1122 schoolchildren aged 11 to 14 years. Parents/caregivers answered the Brazilian version of the 14-item Family Impact Scale (B-FIS) to assess the impact on family's OHRQoL. The main independent variable was TDI, which was diagnosed using the Andreasen classification. Malocclusion, dental caries, adolescent's gender and socioeconomic classification were the other independent variables. Descriptive, bivariate and multivariate Poisson regression analyses were carried out, with the significance level set to 5% ($p < 0.05$). ***Results:*** The prevalence of TDI was 14.8%. Negative impact on family's OHRQoL was greater among families who were diagnosed with fracture involving the dentine or dentine/pulp in comparison to those who had no signs of TDI or only had enamel fracture ($p = 0.007$). The multivariate model demonstrated that families of adolescents diagnosed with fracture involving the dentine or dentine/pulp were more likely to report a negative impact on the overall B-FIS score (rate ratio [RR] = 1.44; 95% confidence interval [CI]: 1.10-1.88) as well on the Parental/Family Activity (RR = 1.45; 95% CI: 1.09-1.94), Parental Emotions (RR = 1.45; 95% CI: 1.03-2.04) and Family Conflict (RR = 1.46; 95% CI: 1.01-2.11) subscales. ***Conclusions:*** Families of adolescents with more severe TDI were more likely to report a negative impact on OHRQoL, affecting family activities and emotions, which can result in family conflicts.

Introduction

Adverse oral conditions have traditionally been measured using normative indices. However, such indices do not address the physical and psychological discomfort caused by these conditions [1,2]. The measurement of oral health-related quality of life (OHRQoL) is fundamental to understanding the subjective perceptions of individuals regarding their health [3] and the extent to which a problem such as traumatic dental injury (TDI) can affect activities of daily living.

When children or adolescents are affected by any adverse oral condition, they turn to their families for support. Thus, the family is also affected by the oral condition [4,5] in the form of negative impact on activities of daily living as well as anxiety and financial difficulties, which can result in family conflict [6-8]. Indeed, studies using validated assessment measures have demonstrated that a child's oral condition can have a negative impact on his/her family's OHRQoL [6,8].

To best of our knowledge, there are no population-based studies in the literature investigating whether TDI among adolescents is associated with an impact on the family's OHRQoL. However, some studies used convenience samples [6,9-13]. Severe TDI was found to result in a negative impact mainly on family/parental activities in university institution and hospital-based samples [9,10]. Families of children with malocclusion tend to manifest higher scores on the Family Impact Scale (FIS), which indicates worse OHRQoL, than families of children with dental caries [6,11,12]. Differences in scores on the overall FIS and Parent Emotions subscale have been reported for different severity categories of malocclusion [13].

The aim of the present study was to evaluate the effect of TDI among adolescents on the OHRQoL of their families. The hypothesis is that more severe TDI has a greater impact on the family's OHRQoL.

Material and methods

This study received authorization from the Human Research Ethics Committee of the Federal University of Minas Gerais (Brazil). A letter of invitation and informed consent was sent to the adolescents and their parents, explaining the aims, characteristics, importance and methods of the study and asking for their participation.

Study area and design

A population-based cross-sectional study was carried out in the city of Belo Horizonte, which is capital of the state of Minas Gerais (southeast Brazil). The city has 2,238,526 inhabitants, with 182,891 children and adolescents enrolled in the elementary school system [14]. Belo Horizonte is geographically divided into nine administrative districts and has considerable social, economic and cultural disparities.

Sample characteristics

A total of 1122 adolescents aged 11 to 14 years and their families participated in the study from September 2008 to May 2009. The participants were selected from adolescents attending 311 public and 145 private elementary schools in Belo Horizonte [14]. The sample size was calculated to give a power of 90% and a standard error of 5%. The difference to be detected was set at 1.2 and the standard deviation was set at 7.81 [11]. A correction factor of 1.5 was used to increase precision due to the fact that multi-stage sampling was adopted rather than random sampling [15]. Thus, the minimum sample size to satisfy the requirements was estimated at 1083 individuals, to which 20.0% was added (n = 1300) to compensate for possible losses due to refusals to participate.

To increase the representativeness, the Minas Gerais Board of Education was contacted to provide information on the percentage distribution of 11-to-14-year-old schoolchildren pertaining to each administrative district and type of school. The sample of

schoolchildren was selected in three stages: 1) a sample was randomly selected proportionally to the distribution of the number of schoolchildren in each administrative district of Belo Horizonte; 2) the number of schoolchildren in public and private schools within each administrative district was then used for the calculation of a representative sample (Table 1); and 3) classes were randomly chosen at each selected school. All schoolchildren aged 11 to 14 years old in the selected classes were invited to participate. Sampling was completed when the target number was reached.

To be included in the study, the adolescents had to be 11 to 14 years of age, regularly enrolled in the selected schools and whose parents/caregivers spoke Brazilian Portuguese language. Adolescents who had undergone treatment due to TDI in permanent incisors were excluded from the study.

Pilot study

The study methods, the dental examination, the administration of the questionnaires and the preparation of the examiners were tested in a pilot study with a convenience sample of 76 adolescents who did not participate in the main study. The results of the pilot study indicated no need to change the proposed methods.

Measures

The outcome variable was impact on families' OHRQoL measured by the Brazilian version of the Family Impact Scale (B-FIS). The overall B-FIS score was the primary outcome and the subscale scores were the secondary outcomes. TDI was the main independent variable. Gender, socioeconomic classification and other common adverse oral conditions among adolescents, such as malocclusion and dental caries, were used as confounding variables.

Oral health-related quality of life

The parents/caregivers were asked to self-administer the B-FIS to measure the impact of their adolescent's TDI on the family's OHRQoL. The B-FIS is part of the Child Oral Health Quality of Life Questionnaire, which is designed to measure the impact of oral health conditions on the OHRQoL of children and adolescents. The B-FIS consists of 14 items divided among four subscales: Parental/Family Activity (PA), Parental Emotions (PE), Family Conflict (FC) and Financial Burden (FB). The questions refer only to the frequency of events in the previous three months. Each item has a five-point response rating scale: 'never' = 0, 'once or twice' = 1, 'sometimes' = 2, 'often' = 3 and 'every day or almost every day' = 4. 'Don't know' responses were permitted and scored as 0. Higher scores denote worse OHRQoL. This measure was developed in Canada [6] and has been cross-culturally adapted and validated for use on Brazilian families [11].

Clinical oral examination

The research team was made up of three dentists who had participated in a training and calibration exercise for each clinical condition. The calibration exercise consisted of theoretical and clinical steps. The theoretical step involved a discussion on the criteria for the diagnosis of TDI, dental caries and malocclusion as well as an analysis of photographs and models. A paediatric dentist coordinated this step and served as the gold standard for the theoretical framework. The diagnosis of TDI was performed using the Andreasen classification[16], with an examination of the permanent maxillary and mandibular incisors. Teeth were classified as follows: absence of TDI; enamel fracture only; and fracture involving dentine or dentine/pulp. Dental caries were identified using the Decayed, Missing and Filled Teeth (DMFT) index based on the World Health Organization criteria (WHO) [17]. Teeth were dichotomised for statistical purposes as absence of tooth decay (component D of DMFT index = 0) and presence of tooth

decay (component D ≥ 1). Malocclusion was diagnosed using the Dental Aesthetic Index (DAI) [18] and classified as absent/mild (DAI ≤ 25) or present (DAI > 25). Forty-four adolescents (not part of the study population) were randomly selected and included in the clinical step of the calibration process. Examinations were performed by each of the three dentists separately for the calculation of inter-examiner agreement and 10 adolescents were re-examined after a one-month interval for the calculation of intra-examiner agreement. Cohen's Kappa values ranged from 0.68 to 1.00 for inter-examiner agreement and 0.70 to 1.00 for intra-examiner agreement, thereby demonstrating a good to excellent agreement on all clinical conditions.

Dental clinical examinations were performed at school during daytime hours. A head lamp (Petzl Zoom head lamp, Petzl America, Clearfield, UT, USA), disposable mouth mirror (PRISMA®, São Paulo, SP, Brazil) and periodontal probe (WHO-621, Trinity, Campo Mourão, PA, Brazil) were used for the dental examination. Each adolescent was examined individually in the sitting position. The examiners used individual protection equipment.

Socioeconomic classification

The Social Vulnerability Index (SVI) was used for the socioeconomic classification. This index was developed for the city of Belo Horizonte to measure social exclusion and encompasses over 20 variables that quantify access to housing, schooling, income, jobs, legal assistance, health and nutrition. Thus, the SVI measures the extent to which the population of each region of the city is vulnerable to social exclusion [1,19]. The scores for each district were calculated in a previous study carried out by the city of Belo Horizonte [19]. The SVI categorises families into five different classes. Families with the highest degree of social vulnerability are categorised as Class I and those with the lowest degree of social vulnerability are categorised as Class V. In the present study, the SVI was grouped into two categories for statistical purposes:

Classes I and II were grouped in the category “high social vulnerability” and Classes III to V were grouped in the category “low social vulnerability” [1].

Statistics analysis

Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS for Windows, version 19.0, SPSS Inc., Chicago, IL, USA). The outcome variables were the overall B-FIS and specific subscale (PA, PE, FC and FB) scores and applied as count outcomes. The Kolmogorov-Smirnov test demonstrated that the B-FIS scores exhibited non-normal distribution.

Data analysis included descriptive statistics (frequency distribution, mean and standard deviation [SD]). The Kruskal-Wallis and Mann-Whitney tests were used to compare B-FIS scores regarding TDI, dental caries, malocclusion, adolescent’s gender and social vulnerability. As the TDI variable was composed of three categories (absence, enamel fracture only and fracture involving dentine or dentine/pulp), it was necessary to perform multiple comparisons with Bonferroni corrections to determine the exact location of the differences. The partition generated three multiple comparisons. Thus, the p-value of 0.05 was divided by 3 (0.05/3), resulting in 0.017.

Poisson regression with robust variance was used for the multivariate analysis, as performed in previous studies [9,20,21]. Overall B-FIS and specific subscale scores were compared in terms of the robust rate ratio and respective 95% confidence intervals with the TDI categories. TDI was incorporated into the model and adjusted for confounding variables (malocclusion, dental caries, adolescent’s gender and social vulnerability). The confounding variables were incorporated into the model based on statistical significance ($p < 0.20$) and/or clinical epidemiological importance. The significance level was set to 5% ($p < 0.05$).

Results

A total of 1122 families of adolescents aged 11 to 14 years from the city of Belo Horizonte (Brazil) participated in the present study. Due to the excellent response rate (96.5%), the sample size was larger than the estimated minimum size needed to satisfy the requirements (n = 1083). Mean age of the adolescents (455 males [40.6%] and 667 females [59.4%]) was 12.35 years (SD = 1.11). Regarding the respondent's relationship to the adolescents, 82.7% were mothers, 9.5% were fathers and 6.9% were others (grandparents, uncles and aunts) (missing data rate: 0.9%). The prevalence of untreated TDI was 14.8% (n = 166). One hundred twenty-seven adolescents (11.3%) exhibited enamel fracture alone and 39 (3.5%) exhibited fracture involving the dentine or dentine/pulp.

Table 2 displays the frequency distribution of responses according each item of the B-FIS. There were no missing responses. Items related to "been upset" (36.5%), "required more attention" (32.7%), "had less time for the family" (29.7%) and "interrupted sleep" (27.2%) were the most frequently reported by the parents/caregivers. A total of 759 (67.6%) parents/caregivers reported some impact (overall B-FIS ≥ 1) on the family's OHRQoL. The highest score for overall B-FIS was 43 points (data not shown).

Table 3 displays the mean (SD) overall B-FIS and subscale scores according to TDI and confounding variables. Parents/caregivers of adolescents who had suffered fracture involving the dentine or dentine/pulp had higher scores on overall B-FIS and PA subscale than those whose adolescents were diagnosed with an absence of TDI or enamel fracture alone ($p = 0.007$). Decayed tooth and greater social vulnerability had a negative impact on families' OHRQoL regarding the overall B-FIS and PA, PE and FC subscales.

Table 4 displays the results of the multivariate Poisson regression analysis with robust variance. Malocclusion, dental caries, adolescent's gender and social vulnerability were

incorporated into the model as potential confounding variables. The final model revealed that adolescents with fractures involving the dentine or dentine/pulp had a 44% greater probability of a one-point increase in the overall B-FIS score (RR=1.44; 95% CI; 1.10 to 1.88) than those without TDI. Negative impacts on the PA, PE and FC subscales were significantly associated with TDI severity.

Discussion

In the present investigation, fracture involving the dentine or dentine/pulp was associated with a greater likelihood of a negative impact on the family's OHRQoL. This study makes a unique contribution to the literature by demonstrating such an association in a representative population-based sample of adolescents and their families. To best of our knowledge, this is the first population-based study involving adolescents to use a validated assessment tool for the measurement of OHRQoL (B-FIS) and provide such evidence. Two previous studies measured the impact of TDI on the OHRQoL of families using the B-FIS, but both investigations were conducted with individuals who sought treatment at a dental clinic [9,10], who are more likely to have higher B-FIS scores than those who do not seek treatment, possibly leading to an overestimation of the results [9]. Thus, studies involving representative samples are necessary to allow the extrapolation of the findings to the general population [9]. Furthermore, these two previous studies used different age ranges – one was composed by individuals aged eight to 20 years [10] and one involved children aged five to six years [9]. Other studies have also employed the FIS on adolescent samples. However, the aim of these studies was to validate the FIS in different languages and cultures using convenience samples; moreover, other types of oral conditions, such as malocclusion and dental caries, were measured to test associations with the OHRQoL of families [6,11,12].

Most parents reported some impact of their adolescent's oral condition on the family's OHRQoL in the previous three months, which is in agreement with findings described in the literature [6,11,9]. The likelihood of an impact on the Parental/Family Activity scale was greater among adolescents with fracture involving the dentine or dentine/pulp in comparison to those who had no signs of TDI. Similar results were found for the Parental Emotions and Family Conflict subscales. In a previous Brazilian study involving children in the same age group but with other oral conditions, informants of children diagnosed with malocclusion more frequently reported impacts on the Parental/Family Activity, Family Conflict and Financial Burden subscales, whereas informants of children who had dental caries reported more impact on the Parental Emotions subscale [11]. In a study with Canadian children, differences were found in the reports of parents/caregivers among the three groups of different oral conditions. Those with dental caries had the highest scores on items related to sleep disturbance and the interruption of family activities, possibly because they were more likely to be affected by pain. Children diagnosed with malocclusion had the highest scores on the item addressing financial difficulties, and those with oro-facial abnormalities had the highest scores on six items of the FIS subscales as a repercussion of the relative severity of these abnormalities [6]. A more comprehensive study is needed to measure the impact of all the main oral conditions on a family's OHRQoL and determine the magnitude of impact.

In the present study, TDI severity was directly associated with an impact on the family's OHRQoL, especially regarding parental/family activities. An interesting aspect of this study is that parents/caregivers of adolescents with fractures involving the dentine or dentine/pulp reported more negative impact on parental/family activities than those with less severe TDI, such as enamel fracture. Severe types of TDI more often affect the daily life of parents/caregivers and, consequently, their reports of its occurrence [22]. As TDI is an unexpected event, more severe cases

nearly always require urgent care and multiple searches for dental treatment, resulting in parents missing work and spending extra time taking care of their children [10,23]. The severity of dental caries and malocclusion were also associated with an impact on family's OHRQoL in previous studies [6,13]. These findings underscore the importance of the prevention and treatment of oral conditions, such as severe malocclusion, dental caries and extensive tooth fractures with dentine or pulp involvement, which could cause pain and discomfort to the child/adolescent and consequently affect family activities and emotions. The present findings also demonstrate the importance of treating more severe kinds of TDI due to the potential to improve the OHRQoL of families.

The absence of impact on the Financial Burden subscale could reflect the fact that TDI is not considered a disease by most parents [24,25]. Thus, parents do not worry about this condition and consequently do not seek treatment. Previous studies also report the failure to seek restorative treatment for TDI [24-26]. In a developing country, such as Brazil, it is difficult to gain access to dental care [27]. Most individuals with a low socioeconomic status cannot afford private dental care and public services are unable to offer complex treatment [24]. In the present study, socioeconomic status (as represented by social vulnerability) was significantly associated with the impact on family's OHRQoL, which is similar to findings in previous reports [28,29].

The present findings are also in agreement with data reported in previous studies demonstrating that mothers tend to be the main caregivers of children as well as the main informants regarding child/adolescent patients [6,8,11,9,23]. Parents are generally the individuals responsible for making decisions regarding the health of their children/adolescents. A child's OHRQoL is influenced by the family's capacity to cope with the stress and issues related to the adverse oral condition. In turn, the family's quality of life is also affected by the child's

condition[5]. It is therefore essential to assess the impact on the family's OHRQoL when changes occur in a child's oral health.

This study has the limitations inherent to a cross-sectional design, such as the timeline between the occurrence of the traumatic dental injury and the administration of the B-FIS. Moreover, the clinical examinations were held at schools, which did not permit the use of X-rays. Thus, TDI was determined through visual examinations alone, which did not permit the diagnosis of root fractures. However, this procedure allowed obtaining a large population-based, epidemiological sample representative of the city of Belo Horizonte (Brazil), which permits extrapolating the findings to the general population.

In summary, the present findings support the hypothesis that families of adolescents with TDI involving the dentine or dentine/pulp are more likely to report a negative impact on OHRQoL than families of adolescents who had no signs of TDI. The results demonstrate that severe untreated TDI in adolescents could be an important source of family distress, which should be taken into account when measuring the oral health of such patients.

Bullet points

Why this study is important to paediatric dentists:

- This study may help paediatric dentists understand how traumatic dental injuries in adolescents affect their families, allowing dentists to offer support aimed at minimising the impact of tooth injuries on the quality of life of families.
- Familial distress is associated with the severity of the traumatic dental injury. Fractures involving the enamel alone seem to not generate an impact on the daily activities of families.
- Paediatric dentists should offer an adequate and efficient treatment for fractures involving the dentine or dentine/pulp in order to help minimise the impact on family activities.

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Table 1: Frequency distribution of sample recruited (n = 1122) by administrative district and type of school.

	First stage (distribution by district)		*Second stage (distribution by type of school)*		
Administrative district	**Total of schoolchildren n(%)**	**Sample n(%)**	**Type of school**	**Total of schoolchildren n(%)**	**Sample n(%)**
Barreiro	22129 (13.0)	146 (13.0)	Public	20349 (92.0)	134 (91.9)
			Private	1780 (8.0)	12 (8.1)
South Central	22946 (13.4)	150 (13.4)	Public	13054 (57.0)	86 (57.4)
			Private	9892 (43.0)	64 (42.6)
East	19972 (11.7)	131 (11.7)	Public	16243 (81.0)	106 (80.9)
			Private	3729 (19.0)	25 (19.1)
Northeast	20991 (12.3)	138 (12.3)	Public	18410 (88.0)	121 (87.4)
			Private	2581 (12.0)	17 (12.6)
Northwest	18988 (11.1)	125 (11.1)	Public	14184 (75.0)	94 (74.9)
			Private	4804 (25.0)	31 (25.1)
North	13692 (8.1)	91 (8.1)	Public	12635 (92.0)	83 (91.5)
			Private	1057 (8.0)	8 (8.5)
West	16330 (9.6)	108 (9.6)	Public	13140 (80.0)	86 (79.9)
			Private	3190 (20.0)	22 (20.1)
Pampulha	13441 (7.9)	88 (7.9)	Public	9608 (71.0)	62 (70.9)
			Private	3833 (29.0)	26 (29.1)
Venda Nova	21899 (12.9)	145 (12.9)	Public	20472 (93.0)	135 (92.8)
			Private	1427 (7.0)	10 (7.2)
Total	170388 (100.0)	1122 (100.0)		170388 (100.0)	1122 (100.0)

Table 2: Percentage distribution of parents' responses on B-FIS (n = 1122)

Items on B-FIS	Never n (%)	Once/twice n (%)	Sometimes n (%)	Often n (%)	Everyday / almost everyday n (%)
Parental/family activity (PA)					
FIS 1- Have you or the other parent taken time off work?	820 (73.1)	147 (13.1)	142 (12.7)	12 (1.1)	1 (0.1)
FIS 2 - Has your child required more attention from you or the other parent?	755 (67.3)	117 (10.4)	188 (16.8)	48 (4.3)	14 (1.2)
FIS 3 - Have you or the other parent had less time for yourselves or other family members?	789 (70.3)	82 (7.3)	183 (16.3)	45 (4.0)	23 (2.0)
FIS 4 - Has your sleep or that of the other parent been disrupted?	817 (72.8)	103 (9.2)	172 (15.3)	21 (1.9)	9 (0.8)
FIS 5 - Have family activities been interrupted?	939 (83.7)	105 (9.4)	65 (5.8)	10 (0.9)	3 (0.3)
Parental emotions (PE)					
FIS 6- Have you or the other parent been upset?	712 (63.5)	139 (12.4)	182 (16.2)	68 (6.1)	21 (1.9)
FIS 7 - Have you or the other parent felt guilty?	871 (77.6)	70 (6.2)	151 (13.5)	22 (2.0)	8 (0.7)
FIS 8 - Have you or the other parent worried that your child will have fewer life opportunities?	849 (75.7)	56 (5.0)	145 (12.9)	45 (4.0)	27 (2.4)
FIS 9 -Have you felt uncomfortable in public places?	966 (86.1)	55 (4.9)	74 (6.6)	14 (1.2)	13 (1.2)
Family conflict (FC)					
FIS 10- Has your child argued with you or the other parent?	847 (75.5)	123 (11.0)	124 (11.1)	19 (1.7)	9 (0.8)
FIS 11 - Has your child been jealous of you or other family members?	886 (79.0)	74 (6.6)	112 (10.0)	32 (2.9)	18 (1.6)
FIS 12 - Has your child's condition caused disagreement or conflict in the family?	941 (83.9)	85 (7.6)	86 (7.7)	6 (0.5)	4 (0.4)
FIS 13 - Has your child blamed you or the other parent?	971 (86.5)	70 (6.2)	68 (6.1)	6 (0.5)	7 (0.6)
Financial burden (FB)					
FIS 14 - Has your child's condition caused financial difficulties for your family?	872 (77.7)	95 (8.5)	110 (9.8)	40 (3.6)	5 (0.4)

Table 3: Mean overall B-FIS and subscale scores according to independent variables (n = 1122)

	Overall B-FIS	***Parental/family activity***	***Parental emotions***	***Family conflict***	***Financial burden***
Variables	*Mean (SD)*	*Mean (SD)*	*Mean (SD)*	*Mean (SD)*	*Mean (SD)*
TDI					
Absent	5.90 (7.31) [a]	2.30 (2.98) [a]	1.90 (2.71)	1.28 (2.25)	0.41 (0.86)
Enamel fracture alone	5.89 (6.92) [a]	2.52 (3.31) [a]	1.72 (2.42)	1.31 (2.02)	0.33 (0.72)
Fracture involving dentine or dentine/pulp	9.03 (7.60) [b]	3.56 (3.19) [b]	2.92 (3.04)	2.00 (2.42)	0.54 (0.79)
p-value †	0.007	0.007	0.056	0.052	0.149
Malocclusion					
Absent	5.75 (7.20)	2.28 (3.01)	1.84 (2.67)	1.26 (2.21)	0.38 (0.80)
Present	6.56 (7.48)	2.58 (3.08)	2.08 (2.74)	1.43 (2.29)	0.46 (0.92)
p-value **§**	0.055	0.077	0.142	0.194	0.245
Dental caries					
Absent	5.44 (7.01)	2.14 (2.90)	1.74 (2.64)	1.17 (2.09)	0.38 (0.81)
Present	7.46 (7.81)	2.96 (3.29)	2.36 (2.79)	1.66 (2.54)	0.48 (0.90)
p-value **§**	<0.001	<0.001	<0.001	0.001	0.114
Adolescent's gender					
Female	6.01 (7.43)	2.35 (3.04)	1.96 (2.80)	1.30 (2.20)	0.40 (0.85)
Male	6.00 (7.10)	2.40 (3.02)	1.84 (2.53)	1.33 (2.28)	0.42 (0.83)
p-value **§**	0.472	0.652	0.836	0.464	0.335
Social vulnerability					
Low	5.35 (6.76)	2.08 (2.81)	1.72 (2.56)	1.19 (2.14)	0.37 (0.80)
High	6.98 (7.94)	2.82 (3.29)	2.20 (2.87)	1.50 (2.36)	0.46 (0.90)
p-value **§**	0.001	<0.001	0.004	0.008	0.115

†Kruskal-Wallis test; **§** Mann-Whitney test.

Values in columns with different superscript letters indicate significant differences at $p < 0.017$ based on Bonferroni post hoc comparison test.

Table 4: Multivariate Poisson regression model for association between TDI and overall B-FIS and specific subscales (n = 1122)

Variables	***Overall B-FIS*** *Robust RR (95% CI)*	***Parental/family activity*** *Robust RR (95% CI)*	***Parental emotions*** *Robust RR (95% CI)*	***Family conflict*** *Robust RR (95% CI)*	***Financial burden*** *Robust RR (95% CI)*
TDI					
Absent	1.00	1.00	1.00	1.00	1.00
Enamel fracture alone	0.96 (0.77-1.18)	1.04 (0.82-1.32)	0.87 (0.67-1.12)	0.98 (0.73-1.30)	0.78 (0.52-1.16)
Fracture involving dentine or dentine/pulp	**1.44 (1.10-1.88)****	**1.45 (1.09-1.94)***	**1.45 (1.03-2.04)***	**1.46 (1.01-2.11)***	1.26 (0.79-2.00)

TDI: traumatic dental injuries; Robust RR: robust rate ratio; 95% CI: confidence interval

Calculated by Poisson regression analysis with robust variance; Results in bold type are statistically significant: *p < 0.05; **p < 0.01;

Model adjusted for control variables (malocclusion, dental caries, adolescent's gender and social vulnerability)

CONSIDERAÇÕES FINAIS

4 CONSIDERAÇÕES FINAIS

Os estudos apresentados nesta tese trazem evidências sobre o impacto dos traumatismos dentários na qualidade de vida relacionada à saúde bucal (QVRSB) de adolescentes e suas famílias. O primeiro estudo, com desenho caso-controle de base populacional, abordou a seleção de casos e controles de forma diferente do que é encontrado na literatura. Uma vez que a variável dependente é a QVRSB, pareceu-nos apropriado separar casos e controles considerando esta variável. Desta forma, o grupo caso foi composto por adolescentes com alto impacto na QVRSB, e o grupo controle por aqueles com baixo impacto na QVRSB. Outro importante aspecto levado em consideração para este estudo caso-controle foi o ponto de corte dos escores do *Child Perceptions Questionnaire* (CPQ_{11-14}) para a separação dos grupos. A análise de cluster foi utilizada com o objetivo de evitar que escores muito próximos pudessem ser alocados em grupos diferentes. Por exemplo, caso a mediana fosse utilizada para separar os grupos, um adolescente que atingisse escore 11 estaria no grupo controle, e um que tivesse escore 12 já estaria no grupo caso. Esta mesma lógica foi utilizada no segundo artigo apresentado nesta tese, um estudo transversal representativo. Para evitar qualquer perda de informação devido à categorização de uma variável quantitativa, o escore total do *Family Impact Scale* (FIS) foi utilizado como variável dependente sem nenhum tipo de dicotomização.

Diante dos resultados obtidos, observa-se que as fraturas de esmalte não estão associadas com o impacto negativo na QVRSB de adolescentes e suas famílias. Em contrapartida, houve uma redução na QVRSB em adolescentes que apresentaram fraturas envolvendo dentina ou dentina/polpa, e este fato também repercutiu negativamente nas suas famílias.

Extrapolando os resultados deste estudo para a população de aproximadamente 170 mil de escolares de 11 a 14 anos de Belo Horizonte, conclui-se que cerca de 25 mil apresentam traumatismo dentário não tratado, sendo que quase 6 mil possuem fratura envolvendo dentina ou dentina/polpa. Pouco mais de 115 mil famílias destes escolares possuem algum impacto na sua vida diária decorrente desta alteração dentária.

Estes dados fornecem subsídios para orientação dos cirurgiões-dentistas das redes pública e privada, uma vez que é importante priorizar a restauração de anatomia e função dos dentes que sofreram fraturas envolvendo dentina ou dentina/polpa, pois provocam alterações na QVRSB dos indivíduos. Associado a isso, as alterações mais graves geram uma necessidade normativa de tratamento, pela exposição dos túbulos dentinários e algumas vezes da própria câmara pulpar, ocasionando sensibilidade e dor.

Apesar das fraturas de esmalte não estarem associadas a alterações na QVRSB dos indivíduos e suas famílias, este tipo de alteração também não deve ser negligenciada. O acompanhamento clínico e radiográfico dessas fraturas é fundamental, uma vez que esses dentes podem apresentar complicações pulpares tardias, decorrentes de concussões e subluxações, muitas vezes não diagnosticadas no momento da ocorrência do traumatismo dentário.

Visto que lesões traumáticas mais graves podem ter impacto negativo na QVRSB dos adolescentes e suas famílias, torna-se importante o estabelecimento de programas preventivos e de promoção da saúde. No âmbito individual e clínico, a correta identificação e tratamento de condições reconhecidamente associadas à ocorrência de traumatismos dentários, como a proteção labial inadequada e o trespasse horizontal acentuado, podem contribuir na redução de lesões traumáticas em dentes anteriores. No âmbito escolar, a orientação dos professores para lidar com traumatismos dentários decorrentes de esbarrões, quedas e durante a prática esportiva, atuando nos primeiros socorros, pode melhorar o prognóstico de um dente traumatizado. Além disso, o incentivo ao uso de protetores bucais durante a pratica de esportes de contato pode ajudar na prevenção. Finalmente, deve-se pensar no estabelecimento de ambientes saudáveis e seguros, tanto nas escolas como nas residências, clubes, e em toda a comunidade, com o objetivo de evitar acidentes.

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APÊNDICES

APÊNDICE A

FLUOXOGRAMA EXPLICATIVO DA METODOLOGIA

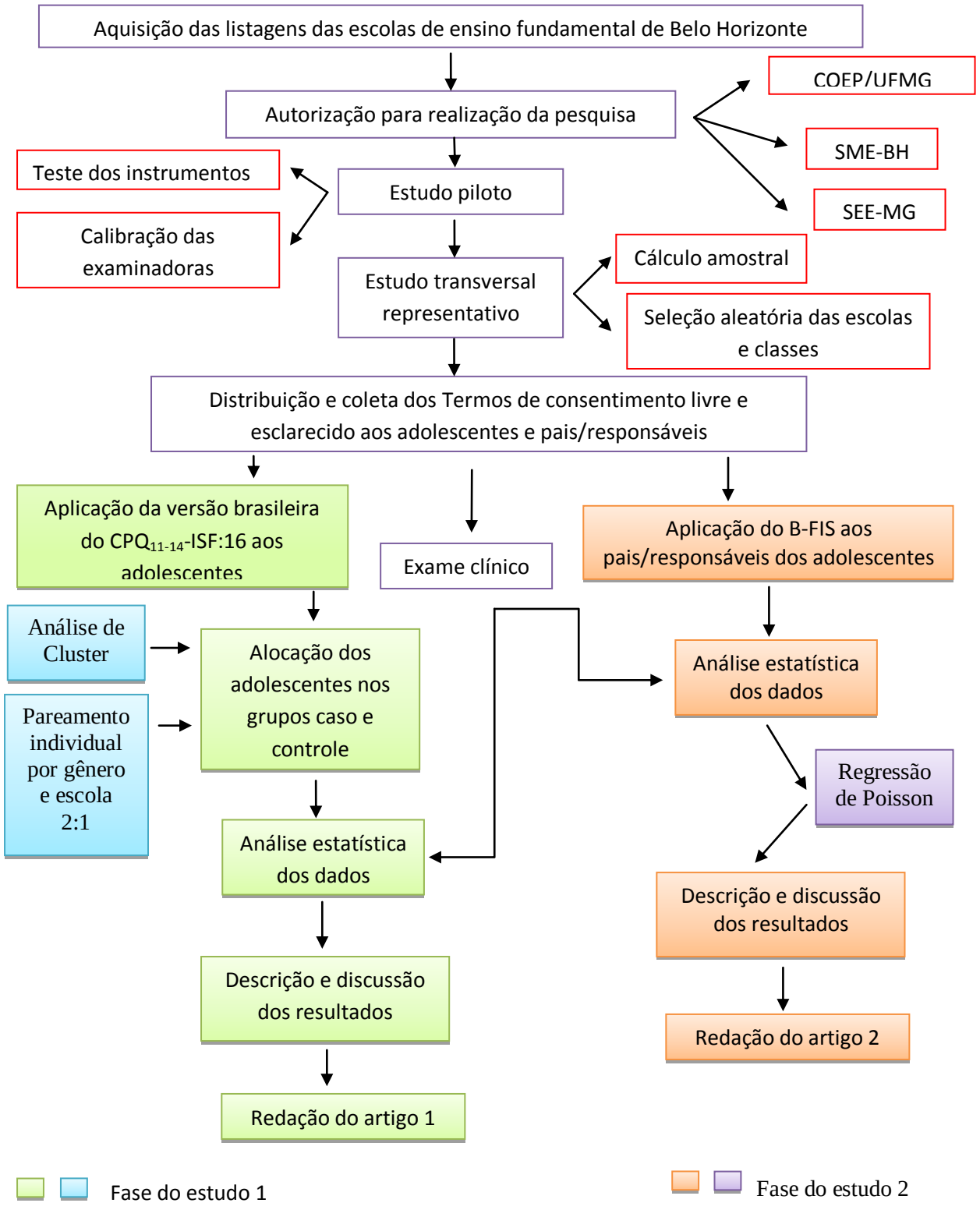


Figura 3: Fluxograma explicativo da metodologia.

APÊNDICE B

ESCOLAS PARTICIPANTES DO ESTUDO

Quadro 3: Escolas públicas e particulares do município de Belo Horizonte que participaram do estudo.

Regional	**Rede**	**Escola**
Barreiro	Pública	EE Margarida Brochado
	Pública	EE Desembargador Rodrigues Campos
	Particular	SESI Escola Hamleto Magnavacca
Centro-Sul	Pública	EE Prof. José Mesquita de Carvalho
	Particular	Colégio Pitágoras
	Particular	Instituto Metodista Izabela Hendrix
Leste	Pública	EM Prof. Lourenço de Oliveira
	Particular	Colégio Abgar Renault Unid. Boa Vista
Nordeste	Pública	EM Prof. Milton Lage
	Pública	EM Hugo Pinheiro Soares
	Particular	Colégio São Miguel Arcanjo
Noroeste	Pública	EE Melo Viana
	Particular	Colégio Pedro II
Norte	Pública	EE Pres. Tancredo Neves
	Particular	Instituto Educação Batista
Oeste	Pública	EM Mestre Ataíde
	Pública	EE Cândido Portinari
	Particular	Colégio Salesiano de Belo Horizonte
Pampulha	Pública	EM Carmelita Carvalho Garcia
	Particular	C. de Ens. Pedag. O Vagalume Unid. I
Venda Nova	Pública	EM Armando Ziller
	Particular	Instituto Pe. Angelico Lipani

APÊNDICE C

CARTA À SECRETARIA MUNICIPAL DE EDUCAÇÃO

UFMG

Faculdade de Odontologia

Ao Exmo.

Sr. Hugo Vocurca Teixeira

Secretário Municipal de Educação de Belo Horizonte

Somos Cristiane Baccin Bendo, Daniela Goursand de Oliveira e Cíntia Silva Torres, cirurgiãs-dentista formadas pela Faculdade de Odontologia da Universidade Federal de Minas Gerais. Atualmente somos alunas do programa de pós-graduação da mesma faculdade, curso de Mestrado e Doutorado em Odontologia, área Odontopediatria. Dentro das atividades do curso estamos desenvolvendo uma pesquisa intitulada provisoriamente "Influencia da maloclusão, cárie e traumatismo dentário na qualidade de vida auto-relatada por adolescentes: estudo representativo do município de Belo Horizonte/MG", cujo objetivo é mostrar através do exame clínico dos adolescentes e questionário direcionado a eles e seus pais/responsáveis a correlação entre o estado de saúde bucal dos adolescentes de 11-14 anos de Belo Horizonte e seu impacto na família. O estudo terá desenho transversal e será representativo da cidade.

Esta pesquisa poderá ajudar na melhoria do atendimento odontológico de nossa cidade e providenciar novo subsídio para o modelo de Promoção de Saúde.

Gostaria de sua autorização para realizar a pesquisa em escolas públicas da rede municipal de educação de Belo Horizonte, com os adolescentes na idade supracitada. A participação dos adolescentes e de seus pais/responsáveis será voluntária. Ressalto que o estudo não acarretará ônus algum para o município ou para as instituições.

Gratas pela atenção,

Cristiane Baccin Bendo, Daniela Goursand de Oliveira e Cíntia Silva Torres.

Orientadores: Prof. Dr. Saul Martins de Paiva, Profa. Dra. Miriam Pimenta Parreira do Vale e Profa. Dra. Isabela Almeida Pordeus.

APÊNDICE D

CARTA À SECRETARIA ESTADUAL DE EDUCAÇÃO

Faculdade de Odontologia

À Exma.

Sra. Vanessa Guimarães Pinto

Secretária de Estado de Educação

Somos Cristiane Baccin Bendo, Daniela Goursand de Oliveira e Cíntia Silva Torres, cirurgiãs-dentista formadas pela Faculdade de Odontologia da Universidade Federal de Minas Gerais. Atualmente somos alunas do programa de pós-graduação da mesma faculdade, curso de Mestrado e Doutorado em Odontologia, área Odontopediatria. Dentro das atividades do curso estamos desenvolvendo uma pesquisa intitulada provisoriamente "Influencia da maloclusão, cárie e traumatismo dentário na qualidade de vida auto-relatada por adolescentes: estudo representativo do município de Belo Horizonte/MG", cujo objetivo é mostrar através do exame clínico dos adolescentes e questionário direcionado a eles e seus pais/responsáveis a correlação entre o estado de saúde bucal dos adolescentes de 11-14 anos de Belo Horizonte e seu impacto na família. O estudo terá desenho transversal e será representativo da cidade.

Esta pesquisa poderá ajudar na melhoria do atendimento odontológico de nossa cidade e providenciar novo subsídio para o modelo de Promoção de Saúde.

Gostaria de sua autorização para realizar a pesquisa em escolas públicas da rede estadual de educação de Belo Horizonte, com os adolescentes na idade supracitada. Ressalto que o estudo não acarretará ônus algum para o Estado ou para as instituições.

Gratas pela atenção,

Cristiane Baccin Bendo, Daniela Goursand de Oliveira e Cíntia Silva Torres.

Orientadores: Prof. Dr. Saul Martins de Paiva, Profa. Dra. Miriam Pimenta Parreira do Vale e Profa. Dra. Isabela Almeida Pordeus.

APÊNDICE E

CARTA DE APRESENTAÇÃO DO ESTUDO E
TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO
PARA PAIS/RESPONSÁVEIS DE ADOLESCENTES DE 13-14 ANOS

Prezados Senhores Pais/Responsáveis,

Somos Cristiane Baccin Bendo (aluna de mestrado), Daniela Goursand de Oliveira (aluna de doutorado) e Cíntia Torres (aluna de doutorado) do Programa de Pós-graduação da Faculdade de Odontologia, área de Odontopediatria, da Universidade Federal de Minas Gerais (UFMG). Estamos desenvolvendo um trabalho sobre a repercussão que alguns problemas bucais causam na qualidade de vida dos adolescentes residentes em Belo Horizonte.

O nosso trabalho será realizado na escola que seu filho (a) está matriculado e constará de entrega de um questionário a ser respondido por ele e um que será enviado para os pais. Após 15 dias, um outro questionário será enviado aos alunos e aos pais. Além disso, será feita uma avaliação da condição bucal que seu filho (a) apresenta, sendo essa avaliação feita uma única vez. Esse exame é indolor, não há desconforto nem custo para ser realizado. No momento do exame, estaremos usando luvas descartáveis e todo o material de proteção individual como avental, gorro, óculos e máscara descartável.

Caso seu(a) filho(a) apresente necessidade de tratamento, ele será encaminhado à Faculdade de Odontologia da UFMG para atendimento odontológico.

Gostaríamos de esclarecer que os senhores têm o direito de participar ou não, podendo desistir a qualquer momento. Não haverá nenhum custo financeiro para os participantes da pesquisa. Garantimos ainda a não identificação dos participantes.

Caso você esteja de acordo com a participação de seu(a) filho(a) na pesquisa, gostaria da sua autorização.

Colocamo-nos à disposição para maiores esclarecimentos pelos telefones 9196-5486 (Cristiane), 9406-3630 (Daniela), 8634-5031 (Cíntia), 93310080 (Miriam), 99673382 (Saul), e ainda pelos e-mails crysbendo@yahoo.com.br , goursand@yahoo.com.br ou cintiasilt@hotmail.com

Esta pesquisa foi aprovada pelo Comitê de Ética em Pesquisa da UFMG (Av. Presidente Antônio Carlos, 6627 – Unidade Administrativa II – 2ºandar – Sala 2005 – Cep31270-901 – Belo Horizonte – MG - telefone 31-34094592 – e-mail: coep@prpq.ufmg.br).

Eu,_____, responsável por _____, de _____ anos de idade, declaro ter sido devidamente esclarecido(a) e autorizo a participação de meu filho(a) na pesquisa "Influência da maloclusão, cárie e traumatismo dentário na qualidade de vida auto-relatada por adolescentes: estudo representativo do município de Belo Horizonte/MG".

Belo Horizonte, _____ de _____ de _____.

_____

Assinatura do responsável

CARTA DE APRESENTAÇÃO DO ESTUDO E
TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO
PARA ADOLESCENTES DE 13-14 ANOS

Prezados Alunos,

Somos Cristiane Baccin Bendo (aluna de mestrado), Daniela Goursand de Oliveira (aluna de doutorado) e Cíntia Torres (aluna de doutorado) do Programa de Pós-graduação da Faculdade de Odontologia, área de Odontopediatria, da Universidade Federal de Minas Gerais (UFMG). Estamos desenvolvendo um trabalho sobre a repercussão que alguns problemas bucais causam na qualidade de vida dos adolescentes residentes em Belo Horizonte.

Para realizar esta pesquisa, visitaremos a sua escola, e após sua autorização e de seus pais/responsáveis, realizaremos a pesquisa com você. O nosso trabalho constará de entrega de um questionário a ser respondido por você e um que será enviado para seus pais. Após 15 dias, um outro questionário será enviado a você e aos pais. Além disso, será feita uma avaliação da condição bucal que você apresenta, sendo essa avaliação feita uma única vez. Esse exame é indolor, não há desconforto nem custo para ser realizado. No momento do exame, estaremos usando luvas descartáveis e todo o material de proteção individual como avental, gorro, óculos e máscara descartável.

Caso você apresente necessidade de tratamento, você será encaminhado à Faculdade de Odontologia da UFMG para atendimento odontológico.

Gostaríamos de esclarecer que você tem o direito de participar ou não, podendo desistir a qualquer momento. Não haverá nenhum custo financeiro para os participantes da pesquisa. Garantimos ainda que você não será identificado.

Caso você esteja de acordo com a sua participação na pesquisa, gostaria da sua autorização.

Colocamo-nos à disposição para maiores esclarecimentos pelos telefones 9196-5486 (Cristiane), 9406-3630 (Daniela), 8634-5031 (Cíntia), 93310080 (Miriam), 99673382 (Saul), e ainda pelos e-mails crysbendo@yahoo.com.br , goursand@yahoo.com.br ou cintiasilt@hotmail.com

Esta pesquisa foi aprovada pelo Comitê de Ética em Pesquisa da UFMG (Av. Presidente Antônio Carlos, 6627 – Unidade Administrativa II – 2ºandar – Sala 2005 – Cep31270-901 – Belo Horizonte – MG - telefone 31-34094592 – e-mail: coep@prpq.ufmg.br).

Eu,_____, de _____ anos de idade, declaro ter sido devidamente esclarecido(a) e autorizo a minha participação na pesquisa “Influência da maloclusão, cárie e traumatismo dentário na qualidade de vida auto-relatada por adolescentes: estudo representativo do município de Belo Horizonte/MG”.

Belo Horizonte, _____ de _____ de _____.

_____

Assinatura do adolescente

CARTA DE APRESENTAÇÃO DO ESTUDO E
TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO
PARA PAIS/RESPONSÁVEIS E ADOLESCENTES DE 11-12 ANOS

Prezados Senhores Pais/Responsáveis e Alunos,

Somos Cristiane Baccin Bendo (aluna de mestrado), Daniela Goursand de Oliveira (aluna de doutorado) e Cíntia Torres (aluna de doutorado) do Programa de Pós-graduação da Faculdade de Odontologia, área de Odontopediatria, da Universidade Federal de Minas Gerais (UFMG). Estamos desenvolvendo um trabalho sobre a repercussão que alguns problemas bucais causam na qualidade de vida dos adolescentes residentes em Belo Horizonte.

O nosso trabalho será realizado na escola que seu filho (a) está matriculado e constará de entrega de um questionário a ser respondido por ele e um que será enviado para os pais. Após 15 dias, um outro questionário será enviado aos alunos e aos pais. Além disso, será feita uma avaliação da condição bucal que seu filho (a) apresenta, sendo essa avaliação feita uma única vez. Esse exame é indolor, não há desconforto nem custo para ser realizado. No momento do exame, estaremos usando luvas descartáveis e todo o material de proteção individual como avental, gorro, óculos e máscara descartável.

Caso seu(a) filho(a) apresente necessidade de tratamento, ele será encaminhado à Faculdade de Odontologia da UFMG para atendimento odontológico.

Gostaríamos de esclarecer que os senhores têm o direito de participar ou não, podendo desistir a qualquer momento. Não haverá nenhum custo financeiro para os participantes da pesquisa. Garantimos ainda a não identificação dos participantes.

Caso você esteja de acordo com a participação de seu(a) filho(a) na pesquisa, gostaria da sua autorização.

Colocamo-nos à disposição para maiores esclarecimentos pelos telefones 9196-5486 (Cristiane), 9406-3630 (Daniela), 8634-5031 (Cíntia), 93310080 (Miriam), 99673382 (Saul), e ainda pelos e-mails crysbendo@yahoo.com.br , goursand@yahoo.com.br ou cintiasilt@hotmail.com

Esta pesquisa foi aprovada pelo Comitê de Ética em Pesquisa da UFMG (Av. Presidente Antônio Carlos, 6627 – Unidade Administrativa II – 2ºandar – Sala 2005 – Cep31270-901 – Belo Horizonte – MG - telefone 31-34094592 – e-mail: coep@prpq.ufmg.br).

Eu,_____, responsável por _____, de _____ anos de idade, declaro ter sido devidamente esclarecido(a) e autorizo a participação de meu filho(a) na pesquisa "Influência da maloclusão, cárie e traumatismo dentário na qualidade de vida auto-relatada por adolescentes: estudo representativo do município de Belo Horizonte/MG".

Belo Horizonte, _____ de _____ de _____.

_____

Assinatura do responsável

_____

Assinatura do adolescente

APÊNDICE F

PRONTUÁRIO PARA EXAME CLÍNICO DOS ADOLESCENTES

Nome do adolescente:_____
Data de nascimento:___/___/___ Sexo: 1-Masculino ( ) 2-Feminino ( )
Escola:_____
Data do exame:_____/_____/_____

Traumatismo Dentário

1-Fratura de esmalte (fratura coronária não complicada) 2-Fratura de esmalte e dentina (fratura coronária não complicada) 3-Fratura coronária complicada 4-Luxação extrusiva 5-Luxação lateral 6-Luxação intrusiva 7-Avulsão (Andreasen et al., 2007) 8-Mudança de cor da coroa devido ao traumatismo 9-Tratamento reabilitador devido ao traumatismo	**12**	**11**	**21**	**22**
	42	**41**	**31**	**32**

Cariados, Perdidos e Obturados/Dente (CPOD)

17	**16**	**15/55**	**14/54**	**13/53**	**12**	**11**	**21**	**22**	**23/63**	**24/64**	**25/65**	**26**	**27**
47	**46**	**45/85**	**44/84**	**43/83**	**42**	**41**	**31**	**32**	**33/73**	**34/74**	**35/75**	**36**	**37**

(0) hígido (1) lesão de cárie cavitada em esmalte (2) lesão de cárie cavitada em dentina (3) lesão de cárie cavitada em polpa (4) dente restaurado com cárie (5) dente restaurado sem cárie (6) dente perdido devido à cárie (7) dente não-erupcionado

Índice Estético Dental (IED)

Número de dentes ausentes na arcada superior e inferior	
Apinhamento anterior: (0-sem apinhamento, 1-um segmento apinhado, 2-dois segmentos apinhados)	
Espaçamento anterior: (0-sem espaçamento, 1-um segmento espaçado, 2-dois segmentos espaçados)	
Diastema em mm:	
Maior irregularidade anterior superior em mm:	
Maior irregularidade anterior inferior em mm:	
Sobressaliência superior anterior em mm:	
Sobressaliência inferior anterior em mm:	
Mordida aberta anterior vertical em mm:	
Relação molar ântero-posterior: (0-normal, 1-meia cúspide, 2-uma cúspide)	
Mordida cruzada posterior: (0-sem mordida cruzada, 1-com mordida cruzada)	

ANEXOS

ANEXO A

VERSÃO BRASILEIRA DO CPQ_{11-14} - ISF:16

QUESTIONÁRIO DE SAÚDE BUCAL

Oi. Obrigado (a) por nos ajudar em nosso estudo.

Este estudo está sendo realizado para compreender melhor os problemas infantis causados por seus dentes, boca, lábios e maxilares. Respondendo à estas questões, você nos ajudará a aprender mais sobre as experiências de pessoas jovens.

POR FAVOR, LEMBRE-SE:

- Não escreva seu nome no questionário;
- Isto não é uma prova e não existem respostas certas ou erradas;
- Responda sinceramente o que você puder. Não fale com ninguém sobre as perguntas enquanto você estiver respondendo-as. Suas respostas são sigilosas, ninguém irá vê-las;
- Leia cada questão cuidadosamente e pense em suas experiências nos últimos 3 meses quando você for respondê-las.
- Antes de você responder, pergunte a si mesmo: “Isto acontece comigo devido a problemas com meus dentes, lábios, boca ou maxilares?”
- Coloque um (X) no espaço da resposta que corresponde melhor à sua experiência.

Data: _____/_____/_____.

INICIALMENTE, ALGUMAS PERGUNTAS SOBRE VOCÊ

Sexo:

( ) Masculino ( ) Feminino

Data de nascimento: _____/_____/_____

Você diria que a saúde de seus dentes, lábios, maxilares e boca é:

( ) Excelente

( ) Muito boa

( ) Boa

( ) Regular

( ) Ruim

Até que ponto a condição dos seus dentes, lábios, maxilares e boca afetam sua vida em geral?

( ) De jeito nenhum

( ) Um pouco

( ) Moderadamente

( ) Bastante

( ) Muitíssimo

PERGUNTAS SOBRE PROBLEMAS BUCAIS

Nos últimos 3 meses, com que frequência você teve?

1. Dor nos seus dentes, lábios, maxilares ou boca?

( ) Nunca

( ) Uma ou duas vezes

( ) Algumas vezes

( ) Frequentemente

( ) Todos os dias ou quase todos os dias

2. Feridas na boca?

( ) Nunca

( ) Uma ou duas vezes

( ) Algumas vezes

( ) Frequentemente

( ) Todos os dias ou quase todos os dias

3. Mau hálito?

( ) Nunca

( ) Uma ou duas vezes

( ) Algumas vezes

( ) Frequentemente

( ) Todos os dias ou quase todos os dias

4. Restos de alimentos presos dentre ou entre os seus dentes?

( ) Nunca

( ) Uma ou duas vezes

( ) Algumas vezes

( ) Frequentemente

( ) Todos os dias ou quase todos os dias

Para as perguntas seguintes...

Isso aconteceu por causa de seus dentes, lábios, maxilares e boca?

Nos últimos 3 meses, com que freqüência você:

5. Demorou mais que os outros para terminar sua refeição?

( ) Nunca

( ) Uma ou duas vezes

( ) Algumas vezes

( ) Frequentemente

( ) Todos os dias ou quase todos os dias

Nos últimos 3 meses, por causa dos seus dentes, lábios, boca e maxilares, com que frequência você teve:

6. Dificuldade para morder ou mastigar alimentos como maçãs, espiga de milho ou carne?

( ) Nunca

( ) Uma ou duas vezes

( ) Algumas vezes

( ) Frequentemente

( ) Todos os dias ou quase todos os dias

7. Dificuldades para dizer algumas palavras?

( ) Nunca

( ) Uma ou duas vezes

( ) Algumas vezes

( ) Frequentemente

( ) Todos os dias ou quase todos os dias

8. Dificuldades para beber ou comer alimentos quentes ou frios?

( ) Nunca

( ) Uma ou duas vezes

( ) Algumas vezes

( ) Frequentemente

( ) Todos os dias ou quase todos os dias

PERGUNTAS SOBRE SENTIMENTOS E/OU SENSAÇÕES

Você já experimentou esse sentimento por causa de seus dentes, lábios, maxilares ou boca? Se você se sentiu desta maneira por outro motivo, responda "nunca".

9. Ficou irritado (a) ou frustrado (a)?

( ) Nunca

( ) Uma ou duas vezes

( ) Algumas vezes

( ) Frequentemente

( ) Todos os dias ou quase todos os dias

10. Ficou tímido, constrangido ou com vergonha?

( ) Nunca

( ) Uma ou duas vezes

( ) Algumas vezes

( ) Frequentemente

( ) Todos os dias ou quase todos os dias

11. Ficou chateado?

( ) Nunca

( ) Uma ou duas vezes

( ) Algumas vezes

( ) Frequentemente

( ) Todos os dias ou quase todos os dias

12. Ficou preocupado com o que as outras pessoas pensam sobre seus dentes, lábios, boca ou maxilares?

( ) Nunca

( ) Uma ou duas vezes

( ) Algumas vezes

( ) Frequentemente

( ) Todos os dias ou quase todos os dias

PERGUNTAS SOBRE SUAS ATIVIDADES EM SEU TEMPO LIVRE E NA COMPANHIA DE OUTRAS PESSOAS

Você já teve estas experiências por causa dos seus dentes, lábios, maxilares ou boca? Se for por outro motivo, responda "nunca".

Nos últimos 3 meses, com que frequência você:

13. Evitou sorrir ou dar risadas quando está com outras crianças?

( ) Nunca

( ) Uma ou duas vezes

( ) Algumas vezes

( ) Frequentemente

( ) Todos os dias ou quase todos os dias

14. Discutiu com outras crianças ou pessoas de sua família?

( ) Nunca

( ) Uma ou duas vezes

( ) Algumas vezes

( ) Frequentemente

( ) Todos os dias ou quase todos os dias

Nos últimos 3 meses, por causa de seus dentes, lábios, boca ou maxilares, com que frequência:

15. Outras crianças lhe aborreceram ou lhe chamaram por apelidos?

( ) Nunca

( ) Uma ou duas vezes

( ) Algumas vezes

( ) Frequentemente

( ) Todos os dias ou quase todos os dias

16. Outras crianças lhe fizeram perguntas sobre seus dentes, lábios, maxilares e boca?

( ) Nunca

( ) Uma ou duas vezes

( ) Algumas vezes

( ) Frequentemente

( ) Todos os dias ou quase todos os dias

OBRIGADO POR NOS AJUDAR

ANEXO B

VERSÃO BRASILEIRA DO FAMILY IMPACT SCALE (B-FIS)

QUESTIONÁRIO DE SAÚDE BUCAL:

RELATO DOS PAIS OU DO RESPONSÁVEL

INSTRUÇÕES

1. Este questionário trata dos efeitos das condições orais no bem-estar e no dia-a-dia das crianças e dos efeitos sobre suas famílias. Estamos interessados em qualquer condição que envolva dentes, lábios, boca e maxilares. Por favor, responda a todas as perguntas.
2. Para responder à pergunta, por favor, coloque um (X) no espaço ao lado da resposta.
3. Por favor, marque a resposta que melhor descreva a experiência de sua criança. Se a pergunta não se aplicar a sua criança, por favor, responda "nunca".

Exemplo: Com que freqüência sua criança teve dificuldades para prestar atenção na sala de aula? Se sua criança teve dificuldades para prestar atenção à aula, na escola devido a problemas com seus dentes, lábios, boca ou maxilares, escolha a resposta apropriada. Se isto aconteceu por outro motivo, escolha "nunca".

( ) Nunca

( ) Uma ou duas vezes

( ) Algumas vezes

( ) Freqüentemente

( ) Todos os dias ou quase todos os dias

( ) Não sei

4. Por favor, não converse sobre as perguntas com sua criança, pois neste questionário nós nos interessamos apenas pela opinião dos responsáveis

Data: _____/_____/_____

AS PERGUNTAS SEGUINTES TRATAM DOS EFEITOS QUE A CONDIÇÃO BUCAL DE SUA CRIANÇA PODE TER NOS SEUS PAIS OU OUTROS MEMBROS DA FAMÍLIA

Nos últimos 3 meses, por causa dos dentes, lábios, boca ou maxilares, com que freqüência você ou outro membro da família:

1. Ficou chateada (o)?

( ) Nunca ( ) Uma ou duas vezes ( ) Algumas vezes

( ) Freqüentemente ( ) Todos os dias ou quase todos os dias

( ) Não sei

2. Teve seu sono interrompido?

( ) Nunca ( ) Uma ou duas vezes ( ) Algumas vezes

( ) Freqüentemente ( ) Todos os dias ou quase todos os dias

( ) Não sei

3. Sentiu-se culpada (o)?

( ) Nunca ( ) Uma ou duas vezes ( ) Algumas vezes

( ) Freqüentemente ( ) Todos os dias ou quase todos os dias

( ) Não sei

4. Teve que se ausentar do trabalho (por ex.: dor, consulta com o dentista, cirurgia)?

( ) Nunca ( ) Uma ou duas vezes ( ) Algumas vezes

( ) Freqüentemente ( ) Todos os dias ou quase todos os dias

( ) Não sei

5. Teve menos tempo para você ou para sua família?

( ) Nunca ( ) Uma ou duas vezes ( ) Algumas vezes

( ) Freqüentemente ( ) Todos os dias ou quase todos os dias

( ) Não sei

6. Ficou preocupada (o) com a possibilidade de sua criança ter menos oportunidades na vida (por ex.: para namorar, casar, ter filhos, conseguir um emprego de que ela goste)?

( ) Nunca ( ) Uma ou duas vezes ( ) Algumas vezes

( ) Freqüentemente ( ) Todos os dias ou quase todos os dias

( ) Não sei

7. Ficou pouco a vontade em lugares públicos (por ex.: lojas, restaurantes) na companhia de sua criança?

( ) Nunca ( ) Uma ou duas vezes ( ) Algumas vezes

( ) Freqüentemente ( ) Todos os dias ou quase todos os dias

( ) Não sei

Nos últimos 3 meses, por causa dos dentes, lábios, boca ou maxilares, com que freqüência sua criança:

8. Teve ciúmes de você ou de outros membros da família?

( ) Nunca ( ) Uma ou duas vezes ( ) Algumas vezes

( ) Freqüentemente ( ) Todos os dias ou quase todos os dias

( ) Não sei

9. Culpou você ou outro membro da família?

( ) Nunca ( ) Uma ou duas vezes ( ) Algumas vezes

( ) Freqüentemente ( ) Todos os dias ou quase todos os dias

( ) Não sei

10. Discutiu com você ou outros membros da família?

( ) Nunca ( ) Uma ou duas vezes ( ) Algumas vezes

( ) Freqüentemente ( ) Todos os dias ou quase todos os dias

( ) Não sei

11. Exigiu mais atenção de você ou de outros membros da família?

( ) Nunca ( ) Uma ou duas vezes ( ) Algumas vezes

( ) Freqüentemente ( ) Todos os dias ou quase todos os dias

( ) Não sei

Nos últimos 3 meses, com que freqüência a condição dos dentes, lábios, boca ou maxilares de sua criança:

12.Interferiu nas atividades da família em casa ou em outro lugar?

( ) Nunca ( ) Uma ou duas vezes ( ) Algumas vezes

( ) Freqüentemente ( ) Todos os dias ou quase todos os dias

( ) Não sei

13. Causou discordância ou conflito em sua família?

( ) Nunca ( ) Uma ou duas vezes ( ) Algumas vezes

( ) Freqüentemente ( ) Todos os dias ou quase todos os dias

( ) Não sei

14. Causou dificuldades financeiras para sua família?

( ) Nunca ( ) Uma ou duas vezes ( ) Algumas vezes

( ) Freqüentemente ( ) Todos os dias ou quase todos os dias

( ) Não sei

IDADE E GÊNERO DA CRIANÇA

Sua criança é do sexo

( ) Masculino ( ) Feminino

A idade do seu filho (a) é: _____ anos

O questionário foi preenchido por:

( ) Mãe ( ) Pai ( ) outro:_____

OBRIGADO (A) POR SUA PARTICIPAÇÃO.

ANEXO C

AUTORIZAÇÃO DA SECRETARIA MUNICIPAL DE EDUCAÇÃO DE BELO HORIZONTE

PREFEITURA MUNICIPAL
DE BELO HORIZONTE

SMED/EXTER/0360-2008.

Belo Horizonte, 19 de março de 2008.

Prezadas Senhoras,

Em atenção à solicitação de V. Sªs, autorizamos a realização de pesquisa nas escolas da Rede Municipal de Educação, intitulada "Aplicação da versão curta do Child Perceptions Questionnaire 11-14: estudo representativo com adolescentes com cárie dentária, maloclusão e traumatismo dentário do município de Belo Horizonte/MG", por meio de exame clínico dos adolescentes e questionário direcionado a eles e seus pais/responsáveis.

Entretanto, ressaltamos a necessidade de garantia dos seguintes itens:

1. fazer contatos prévios com as escolas, alunos e responsáveis que se mostrem interessados e disponíveis para colaborarem;
2. respeitar aqueles que optarem por não participar;
3. respeitar a confidencialidade dos dados, de modo a não expor nenhuma das escolas, profissionais, alunos e responsáveis.

Atenciosamente,

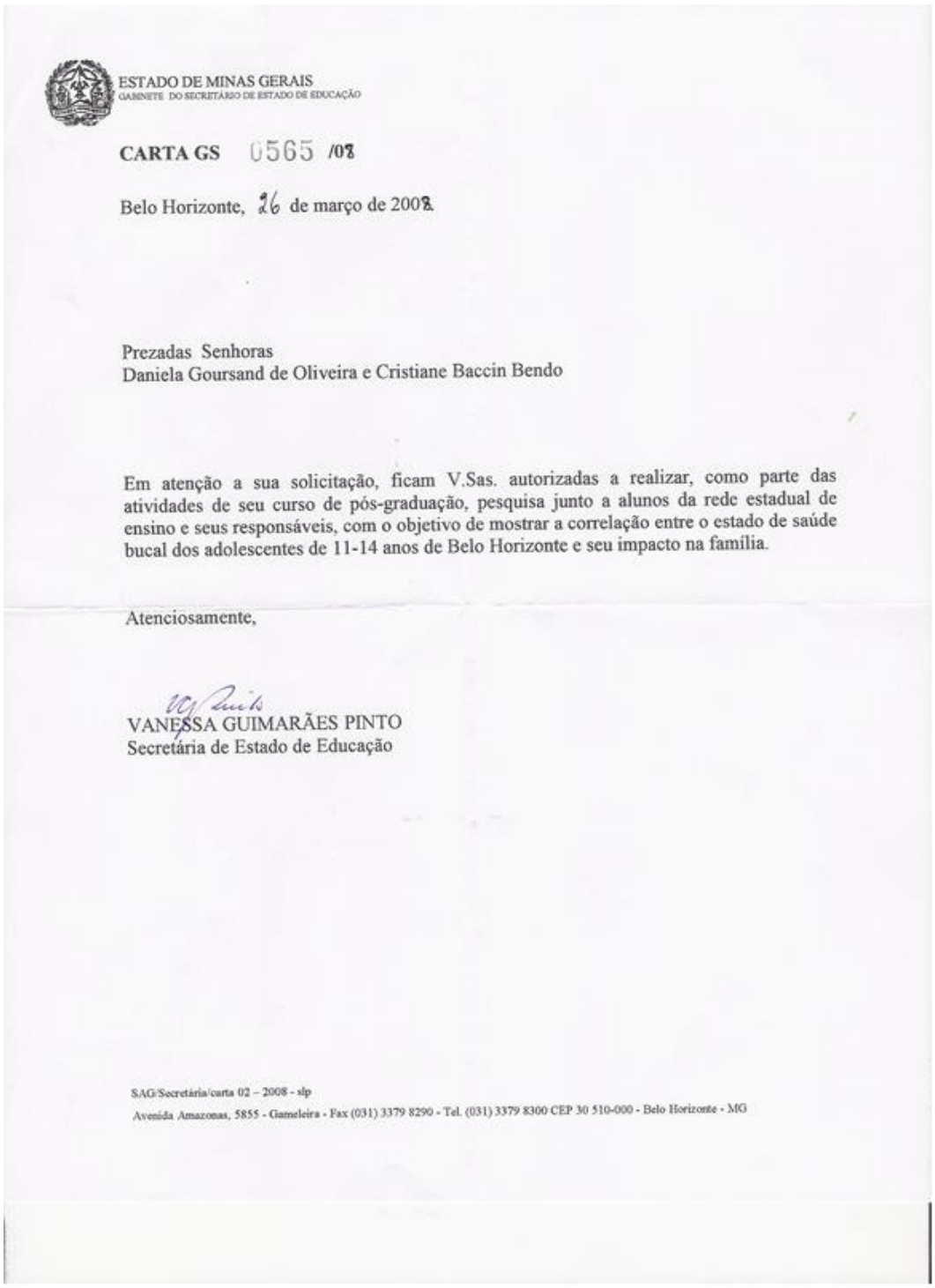
Luiz Henrique Borges de Oliveira
BM 39.239-5
Chefe de Gabinete da Secretaria
Municipal de Educação

HUGO VOCURCA TEIXEIRA
Secretário Municipal de Educação

Às Senhoras
Cristiane Baccin Bendo e
Daniela Goursand de Oliveira
Mestranda e Doutoranda, respectivamente,
em Odontopediatria pela Universidade Federal de Minas Gerais
CAPITAL

ANEXO D

AUTORIZAÇÃO DA SECRETARIA ESTADUAL DE EDUCAÇÃO DE MINAS GERAIS



ESTADO DE MINAS GERAIS
GABINETE DO SECRETÁRIO DE ESTADO DE EDUCAÇÃO

CARTA GS 0565 /08

Belo Horizonte, 26 de março de 2008.

Prezadas Senhoras
Daniela Goursand de Oliveira e Cristiane Baccin Bendo

Em atenção a sua solicitação, ficam V.Sas. autorizadas a realizar, como parte das atividades de seu curso de pós-graduação, pesquisa junto a alunos da rede estadual de ensino e seus responsáveis, com o objetivo de mostrar a correlação entre o estado de saúde bucal dos adolescentes de 11-14 anos de Belo Horizonte e seu impacto na família.

Atenciosamente,

VANESSA GUIMARÃES PINTO
Secretária de Estado de Educação

SAG/Secretária/carta 02 – 2008 - slp
Avenida Amazonas, 5855 - Gameleira - Fax (031) 3379 8290 - Tel. (031) 3379 8300 CEP 30 510-000 - Belo Horizonte - MG

ANEXO E

AUTORIZAÇÃO DO COEP/UFMG

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

Parecer nº. ETIC 110/08

Interessado(a): Prof. Miriam Pimenta Parreira do Vale
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 **"Influência da maloclusão, cárie e traumatismo dentário na qualidade de vida auto-relatada por adolescentes: estudo representativo do município de Belo Horizonte/MG"** 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

Av. Pres. Antonio Carlos, 6627 – Unidade Administrativa II - 2º andar – Sala 2005 – Cep:31270-901 – BH-MG
Telefax: (031) 3409-4592 - e-mail: coep@prpq.ufmg.br

ANEXO F

CLASSIFICAÇÃO DE TRAUMATISMO DENTÁRIO PARA EXAME CLÍNICO

Os critérios para avaliação do traumatismo dentário em dentes anteriores utilizados neste estudo estão descritos no Quadro 3.

Quadro 4: Códigos para a condição do elemento dentário em relação ao traumatismo dentário.

Codificação	**Condição/Estado**
1	Fratura de esmalte (fratura coronária não-complicada)
2	Fratura de esmalte-dentina (fratura coronária não complicada)
3	Fratura coronária complicada
4	Luxação extrusiva (deslocamento periférico, avulsão parcial)
5	Luxação lateral
6	Luxação intrusiva (deslocamento central)
7	Avulsão (exarticulação)
8	Alteração de cor da coroa devido ao traumatismo
9	Tratamento reabilitador devido ao traumatismo

Os critérios seguiram as normas preconizadas por Andreasen et al. (2007), com algumas modificações:

- **Fratura de esmalte (fratura coronária não-complicada):** Uma fratura com perda de substância dental restrita ao esmalte.
- **Fratura de esmalte-dentina (fratura coronária não complicada):** Uma fratura com perda de substância dental restrita ao esmalte e à dentina, mas sem envolver a polpa.

- **Fratura coronária complicada:** Uma fratura envolvendo esmalte e dentina, e expondo a polpa.
- **Luxação extrusiva (deslocamento periférico, avulsão parcial):** Deslocamento parcial do dente para fora do seu alvéolo.
- **Luxação lateral:** Deslocamento do dente em uma direção diferente da direção axial.
- **Luxação intrusiva (deslocamento central):** Deslocamento do dente para dentro do osso alveolar.
- **Avulsão (exarticulação):** Deslocamento completo do dente para fora do seu alvéolo.

Modificações na classificação de Andreasen:

- **Alteração de cor da coroa devido ao traumatismo:** Alteração de cor do dente pós-traumática pode variar de uma ausência de translucidez até uma descoloração rosa, azulada ou cinza.
- **Tratamento reabilitador devido ao traumatismo:** Restaurações dos dentes que sofreram traumatismo dentário com resina composta, próteses adesivas e próteses parciais na região anterior, com o objetivo de recuperação da anatomia e oclusão.

Estes itens não pertencem à classificação de Andreasen, entretanto foram inseridos na classificação de traumatismo deste estudo, uma vez que a alteração de cor da coroa pode ser um sinal de envolvimento pulpar causado pelo traumatismo dentário e o tratamento reabilitador pós-traumatismo é um sinal de um dente ou região que sofreu traumatismo e foi recuperado proteticamente.

ANEXO G

CLASSIFICAÇÃO DE CÁRIE DENTÁRIA PARA EXAME CLÍNICO

Os critérios para avaliação de cárie dentária dos elementos dentários utilizados neste estudo estão descritos no Quadro 4.

Quadro 5: Códigos para a condição do elemento dentário em relação à cárie dentária.

Codificação	**Condição/Estado**
0	Hígido
1	Lesão de cárie cavitada em esmalte
2	Lesão de cárie cavitada em dentina
3	Lesão de cárie cavitada em polpa
4	Dente restaurado com cárie
5	Dente restaurado sem cárie
6	Dente perdido por cárie
7	Dente não erupcionado

Os critérios seguiram as normas preconizadas pela Organização Mundial de Saúde para cárie dentária (WHO, 1997).

- **Hígido:** dente que não apresente evidências clínicas de lesões de cárie tratadas ou não. Os estágios da cárie que precedem a cavitação são excluídos, pois não podem ser confiavelmente diagnosticados.
- **Lesão de cárie cavitada em esmalte:** dente que apresente uma lesão de cárie em fóssula ou fissura, ou em uma superfície dentária lisa, que tenha uma cavidade inconfundível em esmalte.

- **Lesão de cárie cavitada em dentina:** dente que apresente uma lesão de cárie em fóssula ou fissura, ou em uma superfície dentária lisa, que tenha uma cavidade inconfundível em dentina.
- **Lesão de cárie cavitada em polpa:** dente que apresente uma lesão de cárie em fóssula ou fissura, ou em uma superfície dentária lisa, que tenha uma cavidade inconfundível em polpa.
- **Dente restaurado com cárie:** dente que apresente uma ou mais restaurações permanentes e uma ou mais áreas que estão com lesões de cárie.
- **Dente restaurado sem cárie:** dente que apresente uma ou mais restaurações permanentes e que não exista cárie em nenhum ponto da coroa do dente. Um dente que tenha recebido uma coroa protética devido à lesão de cárie prévia, é classificado nesta categoria.
- **Dente perdido por cárie:** dentes que tenham sido extraídos devido a carie. Em alguns grupos etários, pode ser difícil a distinção entre dentes não erupcionados e dentes ausentes. O conhecimento básico dos padrões de erupção dentária, a aparência do rebordo alveolar na área do espaço dentário em questão e as condições de cárie dos outros dentes na boca fornecem informações úteis para a realização de um diagnóstico diferencial entre os dentes não erupcionados e aqueles extraídos.
- **Dente não erupcionado:** espaço dentário com um dente permanente não erupcionado, mas sem um dente decíduo.

ANEXO H

CLASSIFICAÇÃO DE MALOCLUSÃO PARA EXAME CLÍNICO

Os critérios para avaliação das condições ortodônticas dos elementos dentários utilizados neste estudo seguiram as normas preconizadas pela Organização Mundial de Saúde (Cons et al., 1983), utilizando o Índice de Estética Dentária (IED):

- **Incisivos, caninos e pré-molares ausentes:** o número de incisivos, caninos e pré-molares permanentes ausentes nas arcadas superior e inferior deve ser contado. Isto deve ser feito contando-se os dentes atuais, iniciando-se no segundo pré-molar direito e movendo-se para a frente até o segundo pré-molar esquerdo. Deveria haver 10 dentes presentes em cada arcada. Caso existam menos de 10, a diferença é o número de dentes ausentes. Uma história clínica de todos os dentes anteriores ausentes deve ser obtida para determinarmos se foram realizadas exodontias por razões estéticas. Os dentes não devem ser considerados ausentes caso seus espaços estejam fechados. Caso um dente decíduo ainda esteja em posição, e seu sucessor ainda não tenha erupcionado, ou se um incisivo, canino ou pré-molar ausente tiver sido substituído por uma prótese fixa.
- **Apinhamento nos segmentos anteriores:** tanto os segmentos anteriores superiores quanto inferiores deveriam ser examinados para a detecção de apinhamento. O apinhamento no segmento anterior é a condição na qual o espaço disponível entre os caninos direito e esquerdo é insuficiente para acomodar todos os quatro incisivos em alinhamento normal. Os dentes podem estar girovertidos ou deslocados para fora do alinhamento da arcada. O apinhamento nos segmentos anteriores é registrado como se segue: 0 -sem apinhamento, 1 -um segmento com apinhamento e 2 -dois segmentos com apinhamento. Caso exista qualquer dúvida, o índice mais baixo deve ser registrado. O apinhamento não deve ser registrado caso os quatro incisivos estivessem em um alinhamento adequado, mas um ou ambos os caninos estiverem deslocados.
- **Espaçamento nos segmentos anteriores:** tanto os segmentos anteriores superiores como inferiores devem ser examinados para detecção de espaçamento entre os dentes. Quando mensurados no segmento anterior, o espaçamento é a condição na qual a quantidade de espaço disponível entre os caninos direito e esquerdo excede aquela necessária para acomodar todos os quatro incisivos em alinhamento normal. Caso um ou mais incisivos tenham suas faces proximais sem quaisquer contatos interdentários, o segmento é considerado como tendo espaçamento. O espaço oriundo

de um dente decíduo recentemente esfoliado não deve ser registrado caso pareça que o dente sucessor permanente irá erupcionar logo. O espaçamento nos segmentos anteriores é registrado como se segue: 0 -sem espaçamento, 1 -um segmento com espaçamento e 2 -dois segmentos com espaçamento. Caso exista qualquer dúvida, o valor mais inferior deveria ser considerado.

- **Diastema:** um diastema mediano é definido como um espaço, em milímetros, entre os dois incisivos centrais superiores permanentes na posição normal de pontos de contato. Esta mensuração pode ser feita em qualquer nível entre as superfícies mesiais dos incisivos centrais e deve ser registrada redondando-se os milímetros.
- **Maiores irregularidades superiores anteriores:** as irregularidades podem ser, ou rotações ou deslocamentos em relação ao alinhamento normal. Os quatro incisivos na arcada superior (maxilar) devem ser examinados a fim de localizarmos a maior irregularidade. O local da maior irregularidade entre os dentes adjacentes é mensurado utilizando-se as sondas IPC. A ponta da sonda é colocada em contato com a superfície vestibular do dente incisivo mais lingualmente deslocado ou girovertido enquanto a sonda é mantida paralela ao plano oclusal e em ângulo reto com a linha normal da arcada. A irregularidade, em milímetros, pode então ser estimada a partir das marcações milimetradas da sonda. O valor deveria ser registrado arredondando-se os milímetros. As irregularidades podem ocorrer com ou sem apinhamento. Caso exista espaço suficiente para todos os quatro incisivos em alinhamento normal, mas alguns deles estejam girovertidos ou deslocados, a maior irregularidade é registrada como descrito acima. O segmento não deve ser considerado apinhado. As irregularidades na superfície distal dos incisivos laterais também devem ser levados em consideração, caso estivessem presentes.
- **Maior irregularidade inferior anterior:** a mensuração é a mesma que foi realizada na arcada superior, exceto que ela é feita na arcada inferior (mandibular). A maior irregularidade entre os dentes adjacentes na arcada mandibular é localizada e mensurada como descrita acima.
- **Sobressaliência maxilar anterior:** a mensuração do relacionamento horizontal dos incisivos é feita com os dentes em oclusão cêntrica. A distância a partir do bordo incisal vestibular do incisivo superior mais proeminente até a superfície vestibular do incisivo inferior correspondente é mensurada com a sonda IPC paralela ao plano oclusal (Figura 2). A maior sobressaliência do maxilar é registrada arredondando-

se os milímetros. A sobressaliência maxilar não deveria ser registrada caso todos os incisivos superiores estivessem ausentes ou em mordida cruzada lingual. Caso os incisivos ocluam em topo-a-topo, o valor será zero.

- **Sobressaliência mandibular anterior:** a sobressaliência mandibular é registrada quando qualquer um dos incisivos inferiores estiver protruído anteriormente ou vestibularmente em relação ao incisivo superior antagonista, isto é, estiver em mordida cruzada. A maior sobressaliência mandibular (protrusão mandibular), ou mordida cruzada, é registrada arredondando-se os milímetros. A mensuração é a mesma que aquela realizada para a sobressaliência maxilar anterior. A sobressaliência mandibular não deve ser registrada caso o incisivo inferior esteja girovertido de modo que uma porção do bordo incisal esteja em mordida cruzada (isto é, esteja vestibular ao incisivo superior), mas uma outra porção do bordo incisal não esteja.
- **Mordida aberta anterior vertical:** caso exista uma falta de sobreposição vertical entre quaisquer dos incisivos antagonistas (mordida aberta), a quantidade de mordida aberta é estimada utilizando-se uma sonda IPC. A maior mordida aberta é registrada arredondando-se os milímetros.
- **Relação molar ântero-posterior:** esta avaliação é mais freqüentemente baseada no relacionamento dos primeiros molares superiores e inferiores permanentes. Caso esta avaliação não possa ser baseada nos primeiros molares, pois um ou ambos estão ausentes, não totalmente erupcionados, ou com a anatomia alterada devido a cáries extensas ou a restaurações, os relacionamentos dos caninos e pré-molares permanentes serão avaliados. Os lados direito e esquerdo são avaliados com os dentes em oclusão e somente registraremos o maior desvio da relação molar normal. Os seguintes códigos são utilizados: 0 –normal, 1 - meia cúspide (o primeiro molar inferior está meia cúspide mesial ou distal a seu relacionamento normal) e 2 - uma cúspide (o primeiro molar inferior está uma cúspide ou mais mesial ou distal a seu relacionamento normal).

A forma de medição das características oclusais como preconizadas pela OMS é descrita na figura abaixo:

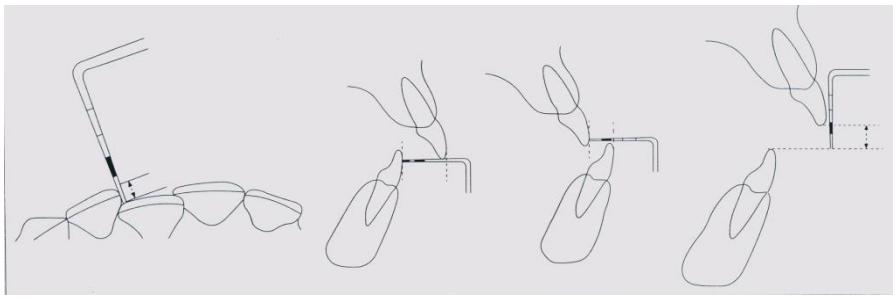


Figura 4: Mensuração das irregularidades no segmento anterior, da sobressaliência anterior superior e inferior, e da mordida aberta anterior vertical, utilizando-se uma sonda milimetrada.

Análise dos dados coletados sobre as anomalias dentofaciais:

A coleta de dados de acordo com os critérios do IED permite que seja feita uma análise de cada um dos componentes separados do índice, ou agrupados, sob as anomalias da dentição, espaço e oclusão. É também possível calcularmos os valores padrão do IED utilizando a equação de regressão do IED, na qual os componentes mensurados do IED são multiplicados por seus coeficientes de regressão, sendo seus produtos adicionados à constante da equação de regressão. A soma resultante é o valor IED padrão.

A equação de regressão utilizada para o cálculo dos valores de IED padrão é a seguinte:

(dentes visíveis ausentes x 6) + (apinhamento) + (espaçamento) + (diastema x 3) + (maior irregularidade maxilar anterior) + (maior irregularidade mandibular anterior) + (sobressaliência maxilar anterior x 2) + (sobressaliência mandibular anterior x 4) + (mordida aberta anterior x 4) + (relação molar ântero-posterior x 3) + 13.

A necessidade de tratamento, bem como a severidade da maloclusão na população são classificadas baseando-se nos resultados do IED como demonstrado no Quadro 5, que se segue:

Quadro 6: Definição da gravidade da maloclusão segundo o valor do IED.

Gravidade da maloclusão	**Indicação de tratamento**	**Valor do IED**
Sem anormalidade ou maloclusões leves	Sem necessidade, ou necessidade leve	≤ 25
Maloclusão definida	Eletivo	26-30
Maloclusão severa	Altamente desejável	31-35
Maloclusão muito severa ou incapacitante	Fundamental	≥ 36

ANEXO I

NORMAS DE PUBLICAÇÃO DO PERIÓDICO COMMUNITY DENTISTRY AND ORAL EPIDEMIOLOGY

Community Dentistry and Oral Epidemiology

Edited by:
A. John Spencer

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Top**Author Guidelines**

Content of Author Guidelines: 1. General, 2. Ethical Guidelines, 3. Submission of Manuscripts, 4. Manuscript Format and Structure, 5. After Acceptance

Relevant Documents: Copyright Transfer Agreement , Colour Work Agreement Form

Useful Websites: Submission Site, Articles published in *Community Dentistry and Oral Epidemiology*, Author Services, Wiley-Blackwell's Ethical Guidelines, Guidelines for Figures

1. GENERAL

The aim of *Community Dentistry and Oral Epidemiology* is to serve as a forum for scientifically based information in community dentistry, with the intention of continually expanding the knowledge base in the field. The scope is therefore broad, ranging from original studies in epidemiology, behavioral sciences related to dentistry, and health services research through to methodological reports in program planning, implementation and evaluation. Reports dealing with people of all age groups are welcome.

The journal encourages manuscripts which present methodologically detailed scientific research findings from original data collection or analysis of existing databases. Preference is given to new findings. Confirmation of previous findings can be of value, but the journal seeks to avoid needless repetition. It also encourages thoughtful, provocative commentaries on subjects ranging from research methods to public policies. Purely descriptive reports are not encouraged, nor are behavioral science reports with only marginal application to dentistry.

Knowledge in any field only advances when research results and policies are held up to critical scrutiny. To be consistent with that view, the journal encourages scientific debate on a wide range of subjects. Responses to research results and views expressed in the journal are always welcome, whether in the form of a manuscript or a commentary. Prompt publication will be sought for these submissions. Book reviews and short reports from international conferences are also welcome, and publication of conference proceedings can be arranged with the publisher.

Please read the instructions below carefully for details on the submission of manuscripts, the journal's requirements and standards as well as information concerning the procedure after acceptance of a manuscript for publication in *Community Dentistry and Oral Epidemiology*. Authors are encouraged to visit Wiley-Blackwell Author Services for further information on the preparation and submission of articles and figures.

2. ETHICAL GUIDELINES

Community Dentistry and Oral Epidemiology adheres to the below ethical guidelines for publication and research.

2.1. Authorship and Acknowledgements

Authorship: Authors submitting a manuscript do so on the understanding that the manuscript have been read and approved by all authors and that all authors agree to the submission of the manuscript to the Journal.

Community Dentistry and Oral Epidemiology adheres to the definition of authorship set up by The International Committee of Medical Journal Editors (ICMJE). According to the ICMJE

criteria, authorship should be based on 1) substantial contributions to conception and design of, or acquisition of data or analysis and interpretation of data, 2) drafting the article or revising it critically for important intellectual content and 3) final approval of the version to be published. Authors should meet conditions 1, 2 and 3.

It is a requirement that all authors have been accredited as appropriate upon submission of the manuscript. Contributors who do not qualify as authors should be mentioned under Acknowledgements.

Acknowledgements: Under acknowledgements please specify contributors to the article other than the authors accredited and all sources of financial support for the research.

2.2. Ethical Approvals

In all reports of original studies with humans, authors should specifically state the nature of the ethical review and clearance of the study protocol. Informed consent must be obtained from human subjects participating in research studies. Some reports, such as those dealing with institutionalized children or mentally retarded persons, may need additional details of ethical clearance.

Experimental Subjects: experimentation involving human subjects will only be published if such research has been conducted in full accordance with ethical principles, including the World Medical Association Declaration of Helsinki (version 2008) and the additional requirements, if any, of the country where the research has been carried out.

Manuscripts must be accompanied by a statement that the experiments were undertaken with the understanding and written consent of each subject and according to the above mentioned principles.

All studies should include an explicit statement in the Material and Methods section identifying the review and ethics committee approval for each study, if applicable. Editors reserve the right to reject papers if there is doubt as to whether appropriate procedures have been used.

Ethics of investigation: Manuscripts not in agreement with the guidelines of the Helsinki Declaration as revised in 1975 will not be accepted for publication.

2.3 Clinical Trials

Clinical trials should be reported using the CONSORT guidelines available at http://www.consort-statement.org. A CONSORT checklist should also be included in the submission material.

Community Dentistry and Oral Epidemiology encourages authors submitting manuscripts reporting from a clinical trial to register the trials in any of the following free, public clinical trials registries: www.clinicaltrials.gov,http://clinicaltrials.ifpma.org/clinicaltrials, http://isrctn.org/. The clinical trial registration number and name of the trial register will then be published with the manuscript.

2.4 Observational and Other Studies

Observational studies such as cohort, case-control and cross-sectional studies should be reported consistent with guidelines like STROBE.Meta analysis for systematic reviews should be reported consistent with guidelines like QUOROM and MOOSE. These guidelines can be accessed at www.equator-network.org

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Manuscripts should be submitted electronically via the online submission sitehttp://mc.manuscriptcentral.com/cdoe. The use of an online submission and peer review site enables immediate distribution of manuscripts and consequentially speeds up the review process. It also allows authors to track the status of their own manuscripts. Complete instructions for submitting a manuscript are available online and below. Further assistance can be obtained from the Editorial Assistant, Beverly Ellis,beverly.ellis@adelaide.edu.au

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3.1. Getting Started

• Launch your web browser (supported browsers include Internet Explorer 6 or higher, Netscape 7.0, 7.1, or 7.2, Safari 1.2.4, or Firefox 1.0.4) and go to the journal's online Submission Site:http://mc.manuscriptcentral.com/cdoe

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- Enter your institution and address information as appropriate, and then click 'Next.'
- Enter a user ID and password of your choice (we recommend using your e-mail address as your user ID), and then select your area of expertise. Click 'Finish'.

• If you have an account, but have forgotten your log in details, go to Password Help on the journals online submission system http://mc.manuscriptcentral.com/cdoe and enter your e-mail address. The system will send you an automatic user ID and a new temporary password.
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- When you have selected all files you wish to upload, click the 'Upload Files' button.

• Review your submission (in HTML and PDF format) before sending to the Journal. Click the 'Submit' button when you are finished reviewing.

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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 will be automatically converted to HTML and a PDF document on upload and will be used for the review process. The text file must contain the entire manuscript including title page, abstract, text, references, tables, and figure legends, but no embedded figures. Figure tags should be included in the file. Manuscripts should be formatted as described in the Author Guidelines below.

3.4. Suggest Two Reviewers

Community Dentistry and Oral Epidemiology attempts to keep the review process as short as

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3.5. 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.

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After submission you will receive an email to confirm receipt of your manuscript. If you do not receive the confirmation email within 10 days, please check your email address carefully in the system. If the email address is correct please contact your IT department. The error may be caused by some sort of spam filtering on your email server. Also, the emails should be received if the IT department adds our email server (uranus.scholarone.com) to their whitelist.

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All manuscripts (except invited reviews and some commentaries and conference proceedings) are submitted to an initial review by the Editor or Associate Editors. Manuscripts which are not considered relevant to the practice of community dentistry or of interest to the readership of *Community Dentistry and Oral Epidemiology* will be rejected without review. Manuscripts presenting innovative hypothesis-driven research with methodologically detailed scientific findings are favoured to move forward to peer review. All manuscripts accepted for peer review will be submitted to at least 2 reviewers for peer review, and comments from the reviewers and the editor are returned to the lead author.

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Revised manuscripts must be uploaded within two or three months of authors being notified of conditional acceptance pending satisfactory Minor or Major revision respectively. Locate your manuscript under 'Manuscripts with Decisions' and click on 'Submit a Revision' to

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Community Dentistry & Oral Epidemiology requires that sources of institutional, private and corporate financial support for the work within the manuscript must be fully acknowledged, and any potential grant holders should be listed. Acknowledgements should be brief and should include information concerning conflict of interest and sources of funding. It should not include thanks to anonymous referees and editors.

3.11 Editorial Board Submissions

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Font: All submissions must be double spaced using standard 12 point font size.

Abbreviations, Symbols and Nomenclature: Authors can consult the following source: CBE Style Manual Committee. Scientific style and format: the CBE manual for authors, editors, and publishers. 6th ed. Cambridge: Cambridge University Press, 1994

4.3. Structure

All manuscripts submitted to *Community Dentistry and Oral Epidemiology* should follow the guidelines regarding structure as below.

Title Page: should include a title of no more than 50 words, a running head of no more than 50 characters and the names and institutional affiliations of all authors of the manuscript should be included.

Abstract: All manuscripts submitted to *Community Dentistry and Oral Epidemiology* should use a structured abstract under the headings: Objectives - Methods - Results - Conclusions.

Main Text of Original Articles should include Introduction, Materials and Methods and Discussion.

Introduction: should be focused, outlining the historical or logical origins of the study and not summarize the results; exhaustive literature reviews are not appropriate. It should close with the explicit statement of the specific aims of the investigation.

Materials and Methods must contain sufficient detail such that, in combination with the references cited, all studies reported can be fully reproduced. As a condition of publication, authors are required to make materials and methods used freely available to academic researchers for their own use.

Discussion: may usually start with a brief summary of the major findings, but repetition of parts of the abstract or of the results sections should be avoided. The section should end with a brief conclusion and a comment on the potential clinical program or policy relevance of the findings. Statements and interpretation of the data should be appropriately supported by original references.

4.4. References

The list of references begins on a fresh page in the manuscript, using the Vancouver format. References should be numbered consecutively in the order in which they are first mentioned

in the text. Identified references in the text should be sequentially numbered by Arabic numerals in parentheses, e.g., (1,3,9). Superscript in-text references are not acceptable in CDOE. For correct style, authors are referred to: International Committee of Medical Journal Editors. Uniform requirements for manuscripts submitted to biomedical journals: writing and editing for biomedical publication. http://www.icmje.org October 2004. For abbreviations of journal names, consult http://www.lib.umich.edu/dentlib/resources/serialsabbr.html

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Examples of the Vancouver reference style are given below:

Journals

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(List all authors when six or fewer. When seven or more, list first six and add et al.)

Widström E, Linna M, Niskanen T. Productive efficiency and its determinants in the Finnish Public Dental Service. Community Dent Oral Epidemiol 2004;32:31-40.

Corporate author

WHO Collaborating Centre for Oral Precancerous Lesions. Definition of leukoplakia and related lesions: an aid to studies on oral precancer. Oral Surg Oral Med Oral Pathol 1978;46:518-39.

Books and other monographs

Personal author(s)

Fejerskov O, Baelum V, Manji F, Møller IJ. Dental fluorosis; a handbook for health workers. Copenhagen: Munksgaard, 1988:41-3.

Chapter in a book

Fomon SJ, Ekstrand J. Fluoride intake. In: Fejerskov O, Ekstrand J, Burt BA, editors: Fluoride in dentistry, 2nd edition. Copenhagen: Munksgaard, 1996; 40-52.

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Tables are part of the text and should be included, one per page, after the References. All graphs, drawings, and photographs are considered figures and should be sequentially numbered with Arabic numerals. Each figure must be on a separate page and each must have a caption. All captions, with necessary references, should be typed together on a separate page and numbered clearly (Fig.1, Fig. 2, etc.).

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Special issues: Larger papers, monographs, and conference proceedings may be published as special issues of the journal. Full cost of these extra issues must be paid by the authors. Further information can be obtained from the editor or publisher.

5. AFTER ACCEPTANCE

Upon acceptance of a manuscript for publication, the manuscript will be forwarded to the Production Editor who is responsible for the production of the journal.

5.1 Proof Corrections

The corresponding author will receive an email alert containing a link to a web site. A working email address must therefore be provided for the corresponding author. The proof can be downloaded as a PDF (portable document format) file from this site.

Acrobat Reader will be required in order to read this file. This software can be downloaded (free of charge) from the following Web site: www.adobe.com/products/acrobat/readstep2.html . This will enable the file to be opened,

read on screen, and printed out in order for any corrections to be added. Further instructions will be sent with the proof. Hard copy proofs will be posted if no e-mail address is available; in your absence, please arrange for a colleague to access your e-mail to retrieve the proofs. Proofs must be returned within three days of receipt.

As changes to proofs are costly, we ask that you only correct typesetting errors. Excessive changes made by the author in the proofs, excluding typesetting errors, will be charged separately. Other than in exceptional circumstances, all illustrations are retained by the publisher. Please note that the author is responsible for all statements made in his work, including changes made by the copy editor.

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ANEXO J

NORMAS DE PUBLICAÇÃO DO PERIÓDICO INTERNATIONAL JOURNAL OF PAEDIATRIC DENTISTRY

International Journal of Paediatric Dentistry

Edited By: Chris Deery

Impact Factor: 1.008

ISI Journal Citation Reports © Ranking: 2011: 55/81 (Dentistry Oral Surgery & Medicine); 81/115 (Pediatrics)

Online ISSN: 1365-263X

Author Guidelines

Content of Author Guidelines: 1. General, 2. Ethical Guidelines, 3. Manuscript Submission Procedure, 4. Manuscript Types Accepted, 5. Manuscript Format and Structure, 6. After Acceptance.

Relevant Documents: Sample Manuscript, Copyright Transfer Agreement

Useful Websites: Submission Site, Articles published in *International Journal of Paediatric Dentistry*, Author Services, Wiley-Blackwell's Ethical Guidelines, Guidelines for Figures.

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1. GENERAL

International Journal of Paediatric Dentistry publishes papers on all aspects of paediatric dentistry including: growth and development, behaviour management, prevention, restorative treatment and issue relating to medically compromised children or those with disabilities. This peer-reviewed journal features scientific articles, reviews, clinical techniques, brief clinical reports, short communications and abstracts of current paediatric dental research. Analytical studies with a scientific novelty value are preferred to descriptive studies.

Please read the instructions below carefully for details on the submission of manuscripts, the journal's requirements and standards as well as information concerning the procedure after acceptance of a manuscript for publication in International Journal of Paediatric Dentistry. Authors are encouraged to visit Wiley-Blackwell Author Services for further information on the preparation and submission of articles and figures.

In June 2007 the Editors gave a presentation on How to write a successful paper for the*International Journal of Paediatric Dentistry*.

2. ETHICAL GUIDELINES

Submission is considered on the conditions that papers are previously unpublished, and are not offered simultaneously elsewhere; that authors have read and approved the content, and all authors have also declared all competing interests; and that the work complies with the Ethical Policies of the Journal and has been conducted under internationally accepted ethical standards after relevant ethical review.

3. MANUSCRIPT SUBMISSION PROCEDURE

Articles for the *International Journal of Paediatric Dentistry* should be submitted electronically via an online submission site. Full instructions and support are available on the site and a user ID and password can be obtained on the first visit. Support is available by phone (+1 434 817 2040 ext. 167) or here. If you cannot submit online, please contact Jenifer Jimenez in the Editorial Office by e-mail IJPDedoffice@wiley.com.

3.1. Getting Started

Launch your web browser (supported browsers include Internet Explorer 5.5 or higher, Safari 1.2.4, or Firefox 1.0.4 or higher) and go to the journal's online submission site:http://mc.manuscriptcentral.com/ijpd

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process. Manuscripts will be considered for 'fast-track publication' under special circumstances after consultation with the Editor-in-Chief.

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International Journal of Paediatric Dentistry 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 and their area of expertise. In addition to your choice the journal editor will choose one or two reviewers as well.

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3.10 Online Open

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final version of their article. With OnlineOpen, the author, the author's funding agency, or the author's institution pays a fee to ensure that the article is made available to non-subscribers upon publication via Wiley Online Library, as well as deposited in the funding agency's preferred archive.
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4. MANUSCRIPT TYPES ACCEPTED

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.

Short Communications: 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.

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.

Brief Clinical Reports/Case Reports: Short papers not exceeding 800 words, including a maximum of three illustrations and five references may be accepted for publication if they serve to promote communication between clinicians and researchers. If the paper describes a genetic disorder, the OMIM unique six-digit number should be provided for online cross reference (Online Mendelian Inheritance in Man).

A paper submitted as a Brief Clinical/Case Report should include the following:

- a short **Introduction** (avoid lengthy reviews of literature);

- the **Case report** itself (a brief description of the patient/s, presenting condition, any special investigations and outcomes);
- a **Discussion** which should highlight specific aspects of the case(s), explain/interpret the main findings and provide a scientific appraisal of any previously reported work in the field.
- Please provide up to 3 bullet points for your manuscript under the heading: 1. Why this clinical report is important to paediatric dentists. Bullet points should be added to the end of your manuscript, before the references.

Letters to the Editor: Should be sent directly to the editor for consideration in the journal.

5. MANUSCRIPT FORMAT AND STRUCTURE

5.1. Format

Language: The language of publication is English. Authors for whom English is a second language must have their manuscript professionally edited by an English speaking person before submission to make sure the English is of high quality. It is preferred that manuscript is professionally edited. A list of independent suppliers of editing services can be found athttp://authorservices.wiley.com/bauthor/english_language.asp. All services are paid for and arranged by the author, and use of one of these services does not guarantee acceptance or preference for publication

5.2. Structure

The whole manuscript should be double-spaced, paginated, and submitted in correct English. The beginning of each paragraph should be properly marked with an indent.

Original Articles (Research Articles): should normally be divided into: Summary, Introduction, Material and methods, Results, Discussion, Bullet points, Acknowledgements, References, Figure legends, Tables and Figures arranged in this order.

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.

Material and methods should be clearly described and provide enough detail so that the observations

can be critically evaluated and, if necessary repeated. Use section subheadings in a logical order to title each category or method. Use this order also in the results section. Authors should have considered the ethical aspects of their research and should ensure that the project was approved by an appropriate ethical committee, which should be stated. Type of statistical analysis must be described clearly and carefully.

(i) Experimental Subjects: Experimentation involving human subjects will only be published if such research has been conducted in full accordance with ethical principles, including the World Medical Association Declaration of Helsinki (version 2008) and the additional requirements, if any, of the country where the research has been carried out. Manuscripts must be accompanied by a statement that the experiments were undertaken with the understanding and written consent of each subject and according to the above mentioned principles. A statement regarding the fact that the study has been independently reviewed and approved by an ethical board should also be included. Editors reserve the right to reject papers if there are doubts as to whether appropriate procedures have been used.

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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.

Discussion section presents the interpretation of the findings. This is the only proper section for subjective comments and reference to previous literature. Avoid repetition of results, do not use subheadings or reference to tables in the results section.

Bullet Points should include one heading:
*Why this paper is important to paediatric dentists.

Please provide maximum 3 bullets per heading.

Review Articles: may be invited by the Editor. Review articles for the *International Journal of Paediatric Dentistry* should include: a) description of search strategy of relevant literature (search terms and databases), b) inclusion criteria (language, type of studies i.e. randomized controlled trial or other, duration of studies and chosen endpoints, c) evaluation of papers and level of evidence. For examples see:
Twetman S, Axelsson S, Dahlgren H et al. Caries-preventive effect of fluoride toothpaste: a systematic review. Acta Odontologica Scandivaica 2003; 61: 347-355.
Paulsson 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 ilustrations. 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.

Acknowledgements: Under acknowledgements please specify contributors to the article other than the authors accredited. Please also include specifications of the source of funding for the study and any potential conflict of interests if appropriate. Suppliers of materials should be named and their location (town, state/county, country) included.

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:

1. Kronfol NM. Perspectives on the health care system of the United Arab Emirates. East Mediter Health J. 1999; 5: 149-167.
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.
If more than 6 authors please, cite the three first and then et al. When citing a web site, list the authors and title if known, then the URL and the date it was accessed (in parenthesis). Include among the references papers accepted but not yet published; designate the journal and add (in press). Please ensure that all journal titles are given in abbreviated form.

We recommend the use of a tool such as Reference Manager for reference management and formatting. Reference Manager reference styles can be searched for here:www.refman.com/support/rmstyles.asp.

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Tables: should be numbered consecutively with Arabic numerals and should have an explanatory title. Each table should be typed on a separate page with regard to the proportion of the printed column/page and contain only horizontal lines

Figures and illustrations: All figures should be submitted electronically with the manuscript via ScholarOne Manuscripts (formerly known as Manuscript Central). Each figure should have a legend and all legends should be typed together on a separate sheet and numbered accordingly with Arabic numerals. Avoid 3-D bar charts.

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Artigos científicos publicados em periódicos

- ✓ Panepinto JA, Torres S, **Bendo CB,** McCavit T, Dinu B, Sherman-Bien S, Bemrich-Stolz C, Varni JW. PedsQL™ Sickle Cell Disease Module: Feasibility, Reliability and Validity. Pediatr Blood Cancer 2013 (in press).

- ✓ Franciosi JP, Hommel KA, **Bendo CB**, King EC, Collins MH, Eby MD, Marsolo K, Abonia JP, von Tiehl KF, Putnam PE, Greenler AJ, Greenberg AB, Bryson RA, Davis CM, Olive AP, Gupta SK, Erwin EA, Klinnert MD, Spergel JM, Denham JM, Furuta GT, Rothenberg ME, Varni JW. PedsQL™ Eosinophilic Esophagitis Module: Feasibility, reliability and validity. J Pediatr Gastroenterol Nutr 2013 (in press).

- ✓ **Bendo CB**, Vale MP, Figueiredo LD, Pordeus IA, Paiva SM. Social vulnerability and traumatic dental injury among Brazilian schoolchildren: a population-based study. Int J Environ Res Public Health 2012;9:4278-91.

- ✓ Oliveira M, **Bendo CB**, Ferreira MC, Paiva SM, Vale MP, Serra-Negra JM. Association between childhood dental experiences and dental fear among dental, psychology and mathematics undergraduates in Brazil. Int J Environ Res Public Health 2012;9:4676-87

- ✓ Sardenberg F, Martins MT, **Bendo CB**, Pordeus IA, Paiva SM, Auad SM, Vale MP. Malocclusion and oral health-related quality of life in Brazilian schoolchildren. Angle Orthod 2013;83:83-9.

- ✓ **Bendo CB**, Paiva SM, Viegas CM, Vale MP, Varni JW. The PedsQL™ Oral Health Scale: Feasibility, reliability and validity of the Brazilian Portuguese version. Health Qual Life Outcomes 2012;10:42.

- ✓ Ferreira MC, Goursand D, **Bendo CB**, Ramos-Jorge ML, Pordeus IA, Paiva SM. Agreement between adolescents' and their mothers' reports of oral health-related quality of life. Braz Oral Res 2012;26:112-8.

- ✓ Costa LR, Costa PS, Brasileiro SV, **Bendo CB**, Viegas CM, Paiva SM. Post-discharge adverse events following pediatric sedation with high doses of oral medication. J Pediatr 2012;160:807-13.

- ✓ **Bendo CB**, Viegas CM, Sardenberg F, Zarzar PM, Vale MP, Paiva SM. Programa de promoção de saúde em odontopediatria. Arq Odontol 2011;47:42-4.Scarpelli AC,

- ✓ **Bendo CB**, Novaes-Junior JB, Barreiros ID, Paiva SM. Conservative treatment for tooth discolouration as a consequence of chemotherapy/radiotherapy for a patient with undifferentiated nasopharyngeal carcinoma. Rev Odonto Ciênc 2011;26:84-7.

- ✓ **Bendo CB**, Paiva SM, Torres CS, Oliveira AC, Goursand D, Pordeus IA, Vale MP. Association between treated/untreated traumatic dental injuries and impact on quality of life of Brazilian schoolchildren. Health Qual Life Outcomes 2010;8:114.

- ✓ **Bendo CB**, Paiva SM, Oliveira AC, Goursand D, Torres CS, Pordeus IA, Vale MP. Prevalence and associated factors of traumatic dental injuries in Brazilian schoolchildren. J Public Health Dent 2010;70:313-8.

- ✓ **Bendo CB**, Scarpelli AC, Vale MP, Araújo Zarzar PM. Correlation between socioeconomic indicators and traumatic dental injuries: a qualitative critical literature review. Dent Traumatol 2009;25:420-5.

Dados bibliométricos

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Base de dados WEB OF SCIENCE

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Colaboração em orientação de Iniciação Científica

- ✓ Bolsista FAPEMIG Lícian Domingues de Figueiredo
- ✓ Bolsista CNPq Daniela Nunes Ferreira

Apresentação de trabalhos em eventos científicos

- ✓ Apresentação de pôster no Annual Meeting of the American Association for Dental Research, 2012.

Bendo CB, Goursand D, Torres CS, Pordeus IA, Vale MP, Paiva SM. Impact of Oral Conditions on Quality of Life among Adolescents. In: Annual Meeting of the American Association for Dental Research, 2012, Tampa, Florida, EUA.

- ✓ Apresentação oral no 18th Annual Conference - International Society for Quality of Life Research, 2011.

Bendo CB, Abreu MH, Vale MP, Pordeus IA, Paiva SM. Impact of adolescent's tooth injuries on family's quality of life. In: 18th Annual Conference - International Society for Quality of Life Research, 2011, Denver, Colorado, EUA.

- ✓ Apresentação oral na 27ª Reunião Anual da Sociedade Brasileira de Pesquisa Odontológica, 2010.

Bendo CB, Torres CS, Paiva SM, Oliveira AC, Goursand D, Pordeus IA, Vale MP. Traumatismo dentário em adolescentes: prevalência, fatores associados e influência na qualidade de vida. In: 27ª Reunião Anual da Sociedade Brasileira de Pesquisa Odontológica, 2010, Águas de Lindóia, São Paulo, Brasil.

- ✓ Apresentação de pôster na 26ª Reunião Anual da Sociedade Brasileira de Pesquisa Odontológica, 2009.

Bendo CB, Oliveira AC, Paiva SM, Torres CS, Goursand D, Vale MP. Influência do traumatismo dentário na qualidade de vida de adolescentes de Belo Horizonte. In: 26ª Reunião Anual da Sociedade Brasileira de Pesquisa Odontológica, 2009, Águas de Lindóia, São Paulo, Brasil.

Resumos de trabalhos publicados em anais de eventos científicos

- ✓ Torres CS, **Bendo CB**, Abreu MH, Vale MP, Paiva SM. Comparison between matched and unmatched case-control studies on OHRQoL. In: Annual Meeting of the International Association for Dental Research, 2013, Seattle, Washington, EUA. [https://iadr.confex.com/iadr/13iags/webprogram/Paper173709.html].

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- ✓ Oliveira MA, Vale MP, Paiva SM, **Bendo CB**, Oliveira PD, Serra-Negra JM. Factor Analysis of the Brazilian Version of Dental Fear Survey In: Annual Meeting of the American Association for Dental Research, 2012, Tampa, Florida, EUA. [http://iadr.confex.com/iadr/2012tampa/webprogram/Paper157630.html].

- ✓ **Bendo CB**, Abreu MH, Vale MP, Pordeus IA, Paiva SM. Impact of adolescent's tooth injuries on family's quality of life In: 18th Annual Conference - International Society for Quality of Life Research, 2011, Denver, Colorado, EUA. Quality of Life Research, 2012;20(suppl 1):15. [http://www.springerlink.com/content/0962-9343/20/s1/]

- ✓ Paiva SM, Ferreira MC, Goursand D, **Bendo CB**, Pordeus IA. Agreement between mother's and children's Oral Health-Related Quality of Life In: IADR, 2011, San Diego, California, EUA. [http://iadr.confex.com/iadr/2011sandiego/webprogram/Paper144914.html]

- ✓ Oliveira PD, Costa M, **Bendo CB**, Paiva SM, Auad SM. Dental erosion in Brazilian children with gastroesophageal reflux disease In: IADR, 2011, San Diego, Califórnia, EUA. [http://iadr.confex.com/iadr/2011sandiego/webprogram/Paper148242.html]

- ✓ Figueiredo LD, **Bendo CB**, Abreu MH, Vale MP, Pordeus IA, Paiva SM. Associação entre fraturas de esmalte/dentina e impacto na família: estudo representativo de adolescentes de Belo Horizonte In: 28ª Reunião Anual da Sociedade Brasileira de Pesquisa Odontológica, 2011, Águas de Lindóia, São Paulo, Brasil. Brazilian Oral Research, 2011;25:33.

- ✓ Oliveira MA, Silva FF, **Bendo CB**, Ferreira MC, Paiva SM, Vale MP, Serra-Negra JM. Estudo da associação entre auto-relato sobre saúde bucal e medo de dentista entre universitários de Belo Horizonte In: 28ª Reunião Anual da Sociedade Brasileira de Pesquisa Odontológica, 2011, Águas de Lindóia, São Paulo, Brasil. Brazilian Oral Research, 2011;25:232.

- ✓ Silva FF, Oliveira MA, **Bendo CB**, Ferreira MC, Paiva SM, Vale MP, Serra-Negra JM. Estudo de prevalência do medo de dentista entre universitários de odontologia, psicologia e matemática da UFMG- um estudo piloto In: 28ª Reunião Anual da

Sociedade Brasileira de Pesquisa Odontológica, 2011, Águas de Lindóia, São Paulo, Brasil. Brazilian Oral Research, 2011;25:169.

- ✓ Silva FF, Oliveira MA, **Bendo CB**, Ferreira MC, Paiva SM, Vale MP, Serra Negra JM. Associação entre autorelato de universitários sobre saúde bucal e o medo frente ao tratamento odontológico: estudo piloto In: XI Encontro Científico da Faculdade de Odontologia da UFMG, 2011, Belo Horizonte, Minas Gerais, Brasil. Arquivos em Odontologia. 2011;47:17. [http://www.odonto.ufmg.br/index.php/pt/arquivos-em-odontologia-principal-121/edi-atual-principal-124/cat_view/34-revista-arquivos-em-odontologia/129-edicao-atual/138-volume-47-2011/139-suplemento]

- ✓ Oliveira MA, Silva FF, **Bendo CB**, Ferreira MC, Paiva SM, Vale, MP, Serra-Negra JM. Medo frente ao tratamento odontológico: avaliação entre universitários de odontologia, psicologia e matemática – um estudo piloto. In: XI Encontro Científico da Faculdade de Odontologia da UFMG, 2011, Belo Horizonte, Minas Gerais, Brasil. Arquivos em Odontologia. 2011;47:15. [http://www.odonto.ufmg.br/index.php/pt/arquivos-em-odontologia-principal-121/edi-atual-principal-124/cat_view/34-revista-arquivos-em-odontologia/129-edicao-atual/138-volume-47-2011/139-suplemento]

- ✓ Figueiredo LD, **Bendo CB**, Torres CS, Goursand D, Pordeus IA, Vale MP, Paiva SM. Traumatismos dentários em escolares de Belo Horizonte: prevalência e impacto na qualidade de vida. In: XI Encontro Científico da Faculdade de Odontologia da UFMG, 2011, Belo Horizonte, Minas Gerais, Brasil. Arquivos em Odontologia. 2011;47:14.

[http://www.odonto.ufmg.br/index.php/pt/arquivos-em-odontologia-principal-121/edi-atual-principal-124/cat_view/34-revista-arquivos-em-odontologia/129-edicao-atual/138-volume-47-2011/139-suplement]

- ✓ Ferreira DN, **Bendo CB**, Torres CS, Paiva SM, Vale MP. Influência da vulnerabilidade social na prevalência de traumatismos dentários em escolares de Belo Horizonte In: 27ª Reunião Anual da Sociedade Brasileira de Pesquisa Odontológica, 2010, Águas de Lindóia, São Paulo, Brasil. Brazilian Oral Research, 2010;24:69.

- ✓ Torres CS, **Bendo CB**, Goursand D, Vale MP, Pordeus IA, Paiva SM. Influência da vulnerabilidade social na qualidade de vida relacionada à saúde bucal de adolescentes de Belo Horizonte In: 27ª Reunião Anual da Sociedade Brasileira de Pesquisa Odontológica, 2010, Águas de Lindóia, São Paulo, Brasil. Brazilian Oral Research, 2010;24:333.

- ✓ **Bendo CB**, Torres CS, Paiva SM, Oliveira AC, Goursand D, Pordeus IA, Vale MP. Traumatismo dentário em adolescentes: prevalência, fatores associados e influência na qualidade de vida In: 27ª Reunião Anual da Sociedade Brasileira de Pesquisa Odontológica, 2010, Águas de Lindóia, São Paulo, Brasil. Brazilian Oral Research, 2010;24:38.

- ✓ **Bendo CB**, Oliveira AC, Paiva SM, Torres CS, Goursand D, Vale MP. Influência do traumatismo dentário na qualidade de vida de adolescentes de Belo Horizonte In: 26ª Reunião Anual da Sociedade Brasileira de Pesquisa Odontológica, 2009, Águas de Lindóia, São Paulo, Brasil. Brazilian Oral Research, 2009;23:26.