

Fernanda Pinheiro Sardenberg Mattos

**IMPACTO DA MALOCCLUSÃO NA
QUALIDADE DE VIDA DE ESCOLARES
BRASILEIROS: ESTUDO DE BASE
POPULACIONAL**

BELO HORIZONTE

2013

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POPULACIONAL**

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

Orientadora: Profa. Dra. Miriam Pimenta Parreira do Vale

Co-orientadora: Prof. Dra. Sheyla Márcia Auad

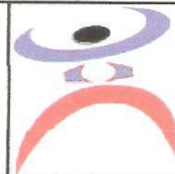
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Universidade Federal de Minas Gerais
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FOLHA DE APROVAÇÃO

Impacto da maloclusão na qualidade de vida de escolares brasileiros: estudo de base populacional


FERNANDA PINHEIRO SARDENBERG MATTOS


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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Belo Horizonte, 12 de julho de 2013.



ATA DA DEFESA DE TESE DA ALUNA FERNANDA PINHEIRO SARDENBERG MATTOS

Realizou-se, no dia 12 de julho de 2013, às 08:00 horas, sala 3403, Faculdade de Odontologia, da Universidade Federal de Minas Gerais, a defesa de tese, intitulada *Impacto da malocclusão na qualidade de vida de escolares brasileiros: estudo de base populacional*, apresentada por FERNANDA PINHEIRO SARDENBERG MATTOS, 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). Sheyla Márcia Auad (UFMG), Prof(a). Maria Leticia Ramos Jorge (UFVJM), Prof(a). Leandro Silva Marques (UFVJM), Prof(a). Isabela Almeida Pordeus (UFMG), Prof(a). Saul Martins de Paiva (UFMG).

A Comissão considerou a tese:

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

DEDICATÓRIA

Às crianças e seus respectivos pais, pela generosidade em aceitar participar deste estudo, muito obrigada! Este trabalho é para vocês!

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A maior riqueza do homem é a sua incompletude.

Nesse ponto sou abastado.

Palavras que me aceitam como sou - eu não aceito.

*Não aguento ser apenas um sujeito que abre portas, que
puxa válvulas, que olha o relógio, que compra pão às 6
horas da tarde, que vai lá fora, que aponta lápis, que vê
a uva etc. etc.*

Perdoai

Mas eu preciso ser Outros.

Eu penso renovar o homem usando borboletas.

Rubem Alves

RESUMO

RESUMO

Impacto da maloclusão na qualidade de vida de escolares brasileiros: estudo de base populacional

A aparência estética desempenha um papel importante nas interações sociais e bem-estar psicológico. Desta forma, a maloclusão pode afetar negativamente a qualidade de vida dos indivíduos acometidos. O objetivo deste estudo foi avaliar os fatores associados à maloclusão e seu impacto sobre a Oral Health-Related Quality of Life (OHRQoL) de escolares brasileiros. Foi realizado um estudo caso-controle com 510 crianças (sendo 102 casos e 408 controles selecionados aleatoriamente), aninhado a um estudo transversal de base populacional com 1204 crianças de 8 a 10 anos de idade, de escolas de ensino fundamental em Belo Horizonte, Brasil. O instrumento utilizado para medir a OHRQoL foi a versão brasileira do Child Perceptions Questionnaire (CPQ₈₋₁₀). O grupo caso foi composto por crianças com alto impacto (CPQ₈₋₁₀ ≥ 16) e o grupo controle foi composto por crianças sem e com baixo impacto em relação à OHRQoL (CPQ₈₋₁₀ ≤ 5). Para cada criança no grupo caso, quatro crianças foram selecionadas para o grupo controle, após pareamento por gênero e tipo de escola (pública ou privada). Os exames clínicos das crianças foram realizados por duas odontopediatras previamente calibradas utilizando-se o Dental Aesthetic Index (DAI) como critério diagnóstico de maloclusão. Este estudo foi aprovado pelo Comitê de Ética em Pesquisa em seres humanos da Universidade Federal de Minas Gerais (UFMG). A análise dos dados envolveu estatística descritiva, análise bivariada, modelo de regressão de Poisson e análise de regressão logística múltipla com modelo hierarquizado, com o nível de significância de 5%. No estudo transversal foi possível observar que o espaçamento no segmento anterior e overjet mandibular foram significativamente associados com impacto na OHRQoL ($p < 0,05$). Escolares com maloclusão foram 1,3 vezes (IC 95%:1,15–1,46) mais propensos a apresentarem um impacto negativo na OHRQoL do que aqueles sem maloclusão. Crianças pertencentes a famílias com renda igual ou inferior a dois salários mínimos eram 1,59 vezes (IC 95%:1,35–1,88) mais propensas a ter um impacto negativo na OHRQoL do que aquelas pertencentes a famílias com renda mais alta. No estudo caso-controle os valores mais elevados de prevalência de

maloclusão foram observados no grupo caso (OR:4,02; IC 95%:2,55–6,33). A análise de regressão logística múltipla com abordagem hierárquica demonstrou que crianças com maloclusão tinham 3,6 mais chances de apresentarem um impacto negativo na OHRQoL (OR:3,61; IC 95%:2,24–5,82) e que para cada aumento no valor do DAI, a chance de uma criança estar no grupo caso aumentou em 10% (OR:1,10; IC 95%:1,06–1,14). Overjet maxilar (OR:3,56; IC 95%:1.18–10.76), um segmento apinhado (OR:2,03; IC 95%:1.15–3.57), dois segmentos apinhados (OR:2,79; IC 95%:1.21–6.42) e espaçamento no segmento anterior (OR:1,96; IC 95%:1.07–3.61) foram estatisticamente diferentes entre os grupos caso e controle. Os resultados demonstram que os escolares de Belo Horizonte com maloclusão foram mais propensos a ter impacto negativo na OHRQoL do que aqueles sem e com leve maloclusão.

Descritores: estética, qualidade de vida, maloclusão, dentição mista, qualidade de vida relacionada à saúde bucal, criança

ABSTRACT

ABSTRACT

Impact of malocclusion on quality of life of Brazilian schoolchildren: population-based study

The aesthetic appearance plays an important role in social interactions and psychological well-being. Thus malocclusion may negatively affect the quality of life of affected individuals. The aim of this study was to evaluate factors associated with malocclusion and the impact on quality of life related to oral health in Brazilian schoolchildren. A case-control study with 510 randomly selected children (102 cases and 408 controls), nested in a population-based cross-sectional study with 1204 children aged 8 to 10 years old, who attended elementary schools was conducted in Belo Horizonte, Brazil. The instrument used to measure oral health related to quality of life (OHRQoL) was the Brazilian version of the Child Perceptions Questionnaire (CPQ₈₋₁₀). The case group consisted of children with high impact (CPQ₈₋₁₀ \geq 16) and the control group consisted of children without and with low impact regarding OHRQoL (CPQ₈₋₁₀ \leq 5). For each child in the case group, four children were selected for the control group, after pairing by gender and type of school (public or private). Oral examinations were performed on the children by two previously calibrated pediatric dentists using the Dental Aesthetic Index (DAI) to diagnose malocclusion. This study received approval from the Human Research Ethics Committee of the Federal University of Minas Gerais (UFMG). Data analysis involved descriptive statistics, bivariate analysis, the Poisson regression model and conditional logistic regression with hierarchical approach, with a significance level of 5%. In the cross-sectional study, anterior segment spacing and anterior mandibular overjet were significantly associated with impact on OHRQoL ($p < 0.05$). Schoolchildren with malocclusion were 1.30-fold (95%CI: 1.15–1.46) more likely to experience a negative impact on OHRQoL than those without malocclusion. Children belonging to families with an income less than or equal to two times the minimum wage were 1.59-fold (95%CI: 1.35–1.88) more likely to experience a negative impact on OHRQoL than those belonging to families with the highest income. In the case-control study higher prevalence values of malocclusion were observed in the case group (OR:4,02; 95%CI: 2,55–6,33). The multiple conditional logistic regression

analysis with a hierarchical approach demonstrated that children with malocclusion had a 3.6-fold greater chance of being allocated to the case group (OR:3,61; 95%CI: 2,24–5,82) and each unit increase in the DAI score denoted a 10% increase in the chance of being in the case group (OR:1,10; 95%CI: 1,06–1,14). Anterior maxillary overjet (OR:3,56; 95%CI:1.18–10.76), one-segment crowding (OR:2,03; 95%CI:1.15–3.57), two-segment crowding (OR:2,79; 95%CI:1.21–6.42) and anterior segment spacing (OR:1,96; 95%CI:1.07–3.61) were statistically significantly different between the case and control groups. The results showed that in Belo Horizonte, schoolchildren with malocclusion were more likely to experience negative impact on OHRQoL than those without malocclusion.

Keywords: aesthetics, quality of life, malocclusion, mixed dentition, oral health related quality of life, child

LISTA DE ABREVIATURAS

ANOVA: Analysis of variance

CDOE: Community Dentistry and Oral Epidemiology

CI: Confidence Interval

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

CPQ: Child Perceptions Questionnaire

CPQ₈₋₁₀: Child Perceptions Questionnaire for ages 8 to 10

DAI: Dental Aesthetic Index

DMFT: Decayed, Missing and Filled Teeth

ES: Espírito Santo

FAPEMIG: Fundação de Amparo à Pesquisa do Estado de Minas Gerais

IVS: Índice de Vulnerabilidade Social

MG: Minas Gerais

OHRQoL: Oral Health-Related Quality of Life

OMS: Organização Mundial de Saúde

OR: Odds Ratio

p: p-value

PIDAQ: Psychosocial Impact of Dental Aesthetics Questionnaire

PR: Prevalence ratio

QoL: Quality of Life

SAS: Secretaria de Atenção à Saúde

SEE-MG: Secretaria de Estado de Educação de Minas Gerais

SME-BH: Secretaria Municipal de Educação de Belo Horizonte

SPSS: Statistical Package for the Social Sciences

SVI: Social Vulnerability Index

TDI: Traumatic Dental Injury

UFMG: Universidade Federal de Minas Gerais

UP: Unidade de Planejamento

USA: United States of America

US\$: American dollar

WHO: World Health Organization

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CONSIDERAÇÕES INICIAIS

CONSIDERAÇÕES INICIAIS

O termo qualidade de vida (Quality of Life – QoL) abrange uma variedade de condições que podem afetar o indivíduo, seus sentimentos e comportamentos relacionados com seu cotidiano, incluindo, mas não se limitando, à sua condição de saúde e intervenções médicas. Possui múltiplas dimensões e resulta da atuação de vários eventos concorrentes, ou seja, é multi-determinado e refere-se a algo muito mais amplo do que saúde (de Oliveira e Sheiham, 2003).

Dois aspectos são relevantes quando se contextualiza QoL: a subjetividade e multidimensionalidade. A subjetividade aborda a percepção do indivíduo sobre o seu estado de saúde e sobre o seu contexto de vida, sua situação pessoal em cada uma das dimensões relacionadas à QoL; e a multidimensionalidade se refere ao reconhecimento de que o construto é composto por diferentes dimensões (de Oliveira e Sheiham, 2003).

Sendo uma noção eminentemente humana, a QoL tem sido aproximada ao grau de satisfação encontrado na vida familiar, amorosa, social e ambiental. Valores não materiais como amor, liberdade, inserção social, solidariedade, realização pessoal e felicidade também compõem sua concepção (Guyatt et al., 1993).

Devido a sua mutabilidade o conceito de QoL está estreitamente relacionado ao tempo, local e contexto cultural no qual o indivíduo está inserido (de Oliveira e Sheiham, 2003). A fim de avaliar percepções subjetivas, tais como dor, estética, e funcionalidade, indicadores de QoL relacionada a saúde bucal (Oral Health-Related Quality of Life – OHRQoL) são utilizados para dimensionar o impacto das condições bucais na vida dos indivíduos afetados (Geels et al., 2008).

Tradicionalmente, os profissionais da Odontologia realizam os diagnósticos utilizando indicadores clínicos para determinar a presença ou ausência de doenças (Allen, 2003, Gherunpong et al., 2004). Com a mudança do paradigma meramente biomédico para o conceito de promoção da saúde, tornou-se necessário associar os indicadores objetivos em saúde bucal, constituídos pelas medidas clínicas, às informações do impacto das alterações bucais no dia a dia dos indivíduos (Hancock, Blinkhorn, 1996; Tesch et al., 2007; Montero-Martín et al., 2009).

Indicadores de saúde são ferramentas que representam sob a forma numérica, as diferenças entre pessoas e comunidades no que diz respeito à QoL associada à saúde.

Porém, não se pode perder de vista que QoL é um construto que, como tal, não pode ser completamente operacionalizado e diretamente medido. Assim, é importante ressaltar que as medidas numéricas obtidas com a aplicação dos indicadores de QoL associadas à saúde devem ser sempre consideradas índices imperfeitos de um construto subjacente (Tesch et al., 2007).

Na epidemiologia, indicadores de saúde são geralmente expressos como proporções ou taxas que descrevem a saúde de uma população (Tesch et al., 2007). Mensurar a saúde representa uma tentativa de traduzir um conceito abstrato para uma linguagem concreta. Por isso, há indicadores de saúde que contemplam as várias dimensões da saúde bucal percebida, tais como: aspectos relacionados à função, dor/desconforto, bem-estar psicológico, social e estético (Locker et al., 2002; de Oliveira e Sheiham, 2004).

As alterações bucais na infância podem afetar de forma negativa as habilidades cognitivas e sociais, levando a possíveis comprometimentos na fonação, alimentação, sono e socialização, em decorrência de alterações funcionais, estéticas e da ocorrência de sintomatologia dolorosa (McGrath et al., 2004). Dentre essas alterações bucais está a maloclusão, que consiste em anomalias de crescimento e desenvolvimento, afetando, principalmente, os músculos e os ossos maxilares no período da infância e da adolescência, podendo produzir alterações na oclusão. Por apresentar alta prevalência, possibilidade de prevenção e tratamento, além de provocar impacto social pela interferência na QoL dos indivíduos afetados, a maloclusão é considerada um problema de saúde pública (Corruccini, 1984; de Oliveira e Sheiham, 2004).

A aparência da boca e o sorriso têm impacto significativo sobre julgamentos de atração facial. Sentimentos negativos em relação à estética facial estão associados com a percepção da criança de que sua saúde bucal afeta negativamente todas as atividades de sua vida, com exceção do desempenho escolar, podendo comprometer sua QoL (Bos et al., 2003; Dunlow et al., 2007).

Indivíduos insatisfeitos com sua aparência relatam maior desagrado com os seus dentes do que com qualquer outra estrutura da face (Bos et al., 2003). Assim, a maloclusão pode afetar negativamente as interações sociais e bem-estar psicológico. Desta forma, torna-se importante identificar de que maneira podemos dimensionar o quanto essa percepção subjetiva das funções físicas, psicológicas e sociais, e também o

senso subjetivo de bem-estar ficam comprometidos (de Oliveira, Sheiham, 2004; Marques et al., 2006; O'Brien et al., 2006; Bernabé et al., 2008; Peres et al., 2008; Liu et al., 2009). Para isso, é indispensável compreender os aspectos biopsicossociais da maloclusão e sua implicação na QoL dos indivíduos (de Oliveira, Sheiham, 2004; Marques et al., 2006).

O tratamento ortodôntico tradicionalmente concentra-se em critérios clínicos, na necessidade normativa, baseando-se em índices oclusais, embora o impacto psicossocial da estética dentária apresente igual importância (Locker, Slade, 1994; de Oliveira, Sheiham, 2003, 2004; Marques et al., 2006; O'Brien et al., 2006). Um estudo com escolares brasileiros mostrou que a insatisfação com o alinhamento dos dentes era um dos fatores que mais influenciaram a autopercepção sobre a necessidade de tratamento ortodôntico (Marques et al., 2009^a).

Como a percepção das crianças sobre a aparência de seus dentes começa cedo; indivíduos com oito anos de idade apresentam critérios semelhantes aos dos adultos em relação à autopercepção da imagem corporal (Kiyak, 1981). Neste período da dentição mista, diversas alterações oclusais podem ocorrer comprometendo a autoimagem.

Diante deste cenário, Martins-Júnior et al. (2012) avaliaram a associação entre os tipos de maloclusão e a qualidade de vida em crianças de 8 a 10 anos de idade constatando que, as crianças com maloclusão foram mais predispostas a apresentar um impacto negativo na qualidade de vida em comparação com aquelas sem maloclusão. Portanto, é importante avaliar a oclusão na dentição mista e no início da dentição permanente, objetivando prevenir um dano funcional e psicológico maior.

Assim sendo, a avaliação da necessidade de tratamento ortodôntico deve também considerar a idade da criança (Kiyak, 1981; Tausche et al., 2004). No entanto, a maioria dos estudos que investigaram o impacto da maloclusão na OHRQoL está focada em adolescentes com dentição permanente (Helm et al., 1986; Mandall et al., 2001; Flores-Mir et al., 2004; de Oliveira, Sheiham, 2004; Marques et al., 2006; O'Brien et al., 2006; Mtaya et al., 2008; Peres et al., 2008; de Paula Júnior et al., 2009; Marques et al., 2009^b; Marques et al., 2009^c; Dias, Gleiser, 2010; Tessarollo et al., 2012; Liu et al., 2011; Scapini et al., 2013).

Há uma carência de estudos sobre o impacto da maloclusão na dentição mista, principalmente estudos que abordam fatores psicossociais que influenciam a demanda

por tratamento ortodôntico. Desta forma, este trabalho tem como objetivos avaliar os fatores associados à maloclusão e seu impacto na QoL de crianças de oito a dez anos de idade.

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Artigo 1

Malocclusion and oral health-related quality of life in Brazilian schoolchildren

A population-based study

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ABSTRACT

Objective: To test the hypothesis that malocclusion and its impact on quality of life has no effect on 8- to 10-year-old Brazilian schoolchildren as measured by an oral health-related quality of life (OHRQoL) instrument.

Materials and Methods: A cross-sectional study was carried out with a population-based sample of 1204 8- to 10-year-old children attending elementary schools in Belo Horizonte, Brazil. Dental examinations were carried out by two calibrated examiners. OHRQoL was assessed using the Brazilian version of the Child Perceptions Questionnaire. The Dental Aesthetic Index was used for the clinical assessment of malocclusion. Dental caries and socioeconomic factors were used as controlling variables. Bivariate analysis involved the chi-square test and the Fisher exact test. A Poisson regression model was employed for the multivariate analysis ($P < .05$).

Results: Anterior segment spacing and anterior mandibular overjet were significantly associated with impact on OHRQoL ($P < .05$). Schoolchildren with malocclusion were 1.30-fold (95% CI:1.15–1.46; $P < 0.001$) more likely to experience a negative impact on OHRQoL than those without malocclusion. Children belonging to families with an income less than or equal to two times the minimum wage were 1.59-fold (95% CI: 1.35–1.88; $P < 0.001$) more likely to experience a negative impact on OHRQoL than those belonging to families with the highest income.

Conclusions: Schoolchildren with malocclusion from lower-income families experience a greater negative impact on OHRQoL.

Key words: Oral health-related quality of life; Malocclusion; Children

INTRODUCTION

Perceptions regarding health status and physical, psychological, social, and material aspects characterize the multidimensional concept of quality of life, which can be satisfactorily addressed when individuals are evaluated based on their own experiences.¹ In order to evaluate subjective perceptions, such as pain, esthetics, and functionality, indicators of oral healthrelated quality of life (OHRQoL) are used to determine the impact of oral conditions.²

Esthetic appearance plays an important role in social interactions and psychological well-being. The appearance of the mouth and smile has a significant impact on judgments regarding facial attraction. Thus, malocclusion may adversely affect social interactions and psychological well-being.³⁻⁷

Orthodontic treatment traditionally focuses on normative, clinician-measured criteria based on occlusal indices, despite the fact that the psychosocial impact of dental esthetics has equal importance.^{3,5} Dissatisfaction with the alignment of the teeth, missing teeth, and peer-based teasing due to the appearance of the teeth are factors that influence self-perceptions regarding the need for orthodontic treatment among Brazilian schoolchildren.⁸ However, the majority of the studies that investigated the impact of malocclusion on OHRQoL focused on adolescents with permanent dentition.^{3-5,8-18}

As children's feelings about their dental appearance begin early, at about 8 years of age, children have criteria similar to those of adults regarding the self-perception of body image. Occlusal changes may occur in the mixed dentition and affect self-image. Therefore, it is important to evaluate the occlusion in the mixed dentition and early permanent dentition in order to avoid further functional and psychological harm. Thus, the assessment of the need for orthodontic treatment should also consider the child's

age.^{19,20} Moreover, there is a lack of studies addressing the impact of malocclusion in the mixed dentition. Especially lacking are studies dealing with the psychosocial factors that influence the demand for orthodontic treatment.

It is important to address the malocclusion as a public health problem, because it has a high prevalence and it is preventable and treatable. For this it is necessary to understand the biopsychosocial aspects of malocclusion and its effect on quality of life of individuals.^{3,4} Given the lack of representative population-based studies addressing this subject in the extant literature, the aim of the present study was to evaluate factors associated with malocclusion and its impact on the quality of life of 8- to 10-year-old Brazilian schoolchildren.

MATERIALS AND METHODS

This study received approval from the Human Research Ethics Committee of the Federal University of Minas Gerais, Brazil. Prior to data collection, only those children and parents/guardians who agreed to participate by signing a statement of informed consent were included in the study.

Study design and sample characteristics

A cross-sectional study was carried out at public and private elementary schools in the city of Belo Horizonte, Brazil, from March to December 2010. Belo Horizonte is divided into nine administrative districts. To ensure the representativeness of the sample, children were selected in proportion to the distribution of schoolchildren and public and private institutions in the different districts. For such, a two-stage sampling method was employed. The first stage was the randomization of public and private

schools in each administrative district. In the second stage, classes were randomly chosen from the schools selected. All 8- to 10-year-old children belonging to the selected classrooms were invited to participate. For those who expressed interest, the researcher sent a letter to the parents explaining the purpose, characteristics, importance, and methods of the study and requesting written consent for participation of their children.

The sample size was calculated to give a standard error of 3%, a 95% confidence interval, and a 62.6% prevalence of malocclusion.⁴ A correction factor of 1.2 was applied to increase the precision, as a multistage sampling method was adopted rather than random sampling.²¹ The minimal sample size needed to satisfy the requirements was estimated at 1197 children, to which 20.0% was added (n= 1436) to compensate for potential losses due to refusal to participate.

The inclusion criteria were either gender, age 8 to 10 years, presence at school on the day of data collection, and authorization from parent/guardian. The exclusion criterion was previous orthodontic treatment.

Calibration exercise and pilot study

Seventy children were examined for malocclusion and dental caries by two examiners previously calibrated. Cohen kappa values for interexaminer agreement ranged from .78 to 1.00. Fifty children were reexamined after 2 weeks to assess intraexaminer agreement, for which Cohen kappa values ranged from .93 to 1.00.

A pilot study was carried out at a public school to test the methods and comprehension of the instruments. The children in the pilot study were not included in

the main sample. The results demonstrated that there was no need to change the methodology proposed.

Clinical oral examination

Oral examinations were performed at school during daytime hours. The criteria of the Dental Aesthetic Index (DAI) were used to measure malocclusion, which was dichotomized as either absent ($DAI \leq 25$) or present ($DAI > 25$). The molar relationship was not analyzed as a single variable since it is not directly related to dental esthetics, but was retained for the calculation of the DAI, as it is a component of the DAI regression equation.

The criteria for the diagnosis of dental caries were based on World Health Organization recommendations, using the decayed, missing, and filled teeth index.²² The children were allocated to two groups: those without untreated lesions (component $D = 0$) and those with one or more untreated lesions (component $D \geq 1$).

Non-clinical oral examination

Impact on OHRQoL was measured using the Brazilian version of the Child Perceptions Questionnaire (CPQ₈₋₁₀).²³ This instrument is made up of 25 items distributed among four subscales: oral symptoms (five items), functional limitations (five items), emotional well-being (five items), and social well-being (10 items). The items address the frequency of events in the 4 previous weeks. A five-point rating scale is used, with the following options: never = 0; once/twice = 1; sometimes = 2; often = 3; and every day/almost every day = 4. CPQ₈₋₁₀ scores are calculated by summing all the item scores, with the total score ranging from 0 (no impact of oral condition on

OHRQoL) to 100 (maximal impact of oral condition on OHRQoL). There are also two questions on patient identification (gender and age) and two global indicators asking the children for a global rating of their oral health and the extent to which the orofacial condition affects their overall well-being. For the statistical analysis, impact on OHRQoL was classified as either low impact ($CPQ_{8-10} \leq 10$) or high impact ($CPQ_{8-10} > 10$) based on median value of CPQ_{8-10} total score.

A questionnaire addressing demographic data (child's birth date and gender, parents'/guardians' schooling, and place of residence) was sent to the parents/guardians. The Social Vulnerability Index (SVI) was used for the determination of socioeconomic status for the city of Belo Horizonte to determine the degree of social exclusion. This index measures the vulnerability of the population through the determination of neighborhood infrastructure, access to work, income, sanitation services, healthcare services, education, legal assistance, and public transportation.²⁴ A value of social exclusion is given for each region of the city, which is divided into five classes. For the statistical analysis, the SVI was grouped into two categories: "high social vulnerability" and "low social vulnerability."^{24,25} Monthly family income (categorized based on the minimum wage used in Brazil—one minimum wage is roughly equal to US \$258.33) and parents'/guardians' schooling (categorized in years of study) were also used as socioeconomic indicators.

Statistical analysis

The Statistical Package for the Social Sciences (version 19.0; SPSS Inc, Chicago, IL, USA) was used for the data analysis. Descriptive analyses were performed (frequency distribution and cross-tabulation). The Kolmogorov-Smirnov test revealed

that the normality of the sample could not be confirmed. The chi-square test and Fisher exact test were used to test associations between the impact on OHRQoL and the independent variables. Based on the Bonferroni correction, a P value less or equal to .017 was considered significant for the partition of the variables “family income,” “parents/guardians,” “schooling,” and “anterior segment spacing.” This P value resulted from the division of 0.05 by three (0.05/3; three 2 x 2 sub-tables were constructed as result of the partition for each variable). The Poisson regression model with robust variance was used for the multivariate analysis. Independent variables were introduced into the model based on their statistical significance ($P < .20$) and/or clinical epidemiological importance. The significance level was set at 5%.

RESULTS

A total of 1204 children showing similar distribution in relation to gender (44.7% boys and 55.3% girls) and age (8 years: 28.2%, 9 years: 35.5%, and 10 years: 36.3%) and being representative of 8 to 10-year-old schoolchildren living in Belo Horizonte, Brazil, participated in the present study. The response rate was 83.8%.

A total of 388 (32.2%) had malocclusion, and 278 (23.1%) had untreated dental caries. Regarding the socioeconomic factors, the majority of children lived in areas of low social vulnerability (63.0%), had a monthly family income lower than or equal to two times the minimum wages (49.2%), had parents/guardians with less than 12 years of schooling (75.0%), and lived in a household with up to four residents (60.0%; Table 1).

Negative impact on OHRQoL was significantly associated ($P < .05$) with presence of malocclusion, presence of untreated dental caries, and low socioeconomic

factors (public schools, more people in household, lower family income, lower parents'/guardians' schooling, and higher social vulnerability; Table 2). No statistically significant association was found between OHRQoL and gender. The bivariate analysis demonstrated that most types of malocclusion were not significantly associated with OHRQoL. However, significant associations were found for anterior segment spacing and anterior mandibular overjet (Table 3).

In the Poisson regression model (Table 4), gender, social vulnerability, type of school, parents'/guardians' schooling, and number of people in household were initially included in the model. However, these variables did not remain in the final model, as they did not meet the statistical significance required. The model was also adjusted for untreated dental caries, which is a potential confounding variable. The final model revealed that schoolchildren with malocclusion were 1.30-fold (95% CI: 1.15–1.46; $P<.001$) more likely to experience a negative impact on OHRQoL than those without malocclusion, and those belonging to families with an income less than or equal to two times the minimum wage were 1.59-fold (95% CI: 1.35–1.88; $P<.001$) more likely to experience a negative impact on OHRQoL than those belonging to families with a higher income.

DISCUSSION

There is increasing interest in the impact of malocclusion on psychosocial well-being in childhood and adolescence. The experiences in childhood play a significant role in later years, and a negative dental appearance in childhood may be an object of teasing by other children.^{26,27} In the present study, malocclusions in the anterior segment (anterior segment spacing and anterior mandibular overjet) were significantly associated

with OHRQoL. This finding is consistent with previous studies, which indicate that segment spacing and mandibular overjet are among the conditions of most concern to children,^{9-11,28,29} though anterior spacing, particularly a midline diastema and a missing tooth in the anterior segment, does not necessarily indicate a malocclusion in this age of group.

In the present study, schoolchildren with malocclusion experienced 30.0% more negative impact on OHRQoL than those without malocclusion, which is supported by a number of studies suggesting that unpleasing dental esthetics have a negative impact on psychosocial well-being.^{4,12-14} However, three of these previous studies were carried out with adolescents,^{4,12,13} and the other one, despite investigating children with an age group similar to that of the present study, did not use a validated instrument to measure the OHRQoL.¹⁴ Individuals with malocclusion (particularly in the anterior region) may require orthodontic treatment in order to improve oral health, dental function, and esthetics, resulting in an improvement in OHRQoL. This statement is supported by the present study, since anterior segment spacing and anterior mandibular overjet were associated with negative OHRQoL, as well as by a previous study with a similar age group that showed that malocclusion in the anterior teeth, especially crowding and increased overjet, was a cause of concern for children.¹⁴

Schoolchildren belonging to families with low income were almost 60.0% more likely to experience a negative impact on OHRQoL than those from families with the highest income. This result is in agreement with another study carried out in Brazil that found that 69.0% of individuals were unable to enjoy the benefits of treatment due to the financial costs involved.¹³ As orthodontic treatment is elective, and Brazilian public healthcare services do not offer orthodontic treatment, investigations into esthetic

alterations stemming from malocclusion are particularly important for a better assessment of treatment needs and for predicting the demand for public resources. Previous studies have demonstrated that socioeconomic status influences the association between different oral conditions and OHRQoL.^{8,11,13,14}

No statistically significant differences were found between genders regarding the impact of malocclusion on OHRQoL, which corroborates some previous studies.^{12,13,15,16,30} However, gender has been described as a factor affecting the self-perception of dental appearance/malocclusion.^{17,18,31}

The sample size calculation was based on a different age group, and this could be a limitation of the present study. However, there was no previous Brazilian data for malocclusion only in mixed dentition in the same age group. Moreover, the DAI was developed for permanent teeth and so has a tendency to be oversensitive during the mixed dentition period, possibly confounding the results due to the transitory developmental conditions.³² Also, the CPQ as a generic measure of OHRQoL could not address aspects specifically related to malocclusion. Thus, some items were perceived not to be relevant to children with this condition, which may possibly be a weakness of this study. Moreover, cross-sectional studies have limitations inherent in the design, as such studies are carried out either at a single point in time or over a short period, so the associations identified cannot be considered a causal relationship.^{25,32,33}

It is important to evaluate schoolchildren presenting both the late mixed dentition and early permanent dentition, as an early diagnosis may facilitate preventive or interceptive orthodontics, if necessary, taking advantage of the child's growth potential. The present study corroborates the literature, which reports that malocclusion, especially in the anterior teeth, can compromise a child's psychosocial well-being. This

underscores the importance of considering both the normative need observed by the dentist and the subjective need perceived by the child^{8,17,20} in order to fulfill the patient's needs.

CONCLUSION

- The results of the present study revealed that individuals with malocclusion experienced a greater negative impact on OHRQoL than those without malocclusion.

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Table 1: Frequency distribution of sample (n = 1204) according to variables; Belo Horizonte, Brazil, 2010.

Variables	Frequency n (%)
Child's gender	
Male	538(44.7)
Female	666(55.3)
Age (years)	
8	339 (28.2)
9	428 (35.5)
10	437 (36.3)
Malocclusion	
No	816 (67.8)
Yes	388 (32.2)
Presence of untreated dental caries	
No	926 (76.9)
Yes	278 (23.1)
Social vulnerability	
Low	759 (63.0)
High	445 (37.0)
Family income	
≥ 5 minimum wages	318 (26.7)
3 to 4 minimum wages	288 (24.2)
≤ 2 minimum wages	586 (49.2)
Parents/ guardians' schooling	
≥ 12 years of study (college)	300 (25.0)
9 to 11 years of study (high school)	474 (39.5)
≤ 8 years of study (elementary school)	426 (35.5)
Number of people in the household	
Up to 4 people	722 (60.0)
5 or more people	482 (40.0)

Table 2: Bivariate analysis of associations between OHRQoL and independent variables (n = 1204); Belo Horizonte, Brazil, 2010.

<i>Variables</i>	<i>OHRQoL</i>		Unadjusted PR (95% CI)	P-value*
	Low impact n(%)	High impact n(%)		
Child's gender				
Male	298(55.4)	240(44.6)	1.00	0.134
Female	340(51.1)	326(48.9)	1.09(0.98-1.21)	
Type of child's school				
Private	181(64.0)	102(36.0)	1.00	<0.001
Public	457(49.6)	464(50.4)	1.29(1.16 - 1.44)	
Number of people in the household				
Up to 4 people	401(55.5)	321(44.5)	1.00	0.030
5 or more people	237(49.2)	245(50.8)	1.13(1.01 - 1.26)	
Family income				
≥ 5 minimum wages ^a	208(65.4)	110(34.6)	1.00	<0.001
3 to 4 minimum wages ^a	165(57.3)	123(42.7)	1.23(1.01 - 1.51)	
≤ 2 minimum wages ^b	255(43.5)	331(56.5)	1.63(1.38 - 1.93)	
Parents/guardians' schooling				
≥ 12 years of study ^c	204(68.0)	96(32.0)	1.00	<0.001
9 to 11 years of study ^b	247(52.1)	227(47.9)	1.50(1.24 - 1.81)	
≤ 8 years of study ^a	186(43.7)	240(56.3)	1.76(1.46 - 2.12)	
Social vulnerability				
Low	420(55.3)	339(44.7)	1.00	0.033
High	218(49.0)	227(51.0)	1.13(1.01 - 1.27)	
Malocclusion				
No	472(57.8)	344(42.2)	1.00	<0.001
Yes	166(42.8)	222(57.2)	1.35(1.19 - 1.54)	
Presence of untreated dental caries				
No	537(58.0)	389(42.0)	1.00	<0.001
Yes	101(36.3)	177(63.7)	1.60(1.35 - 1.88)	

Values in parentheses refer to percentages between rows.

*chi-square test; results in bold type significant at 5% level; OHRQoL: oral health-related quality of life; Bonferroni corrections (p < 0.017); same letters indicate similarity between groups; different letters indicate differences between groups.

Table 3: Bivariate analysis of associations between OHRQoL and type of malocclusion (n = 1204); Belo Horizonte, 2010

<i>Variables</i>	<i>OHRQoL</i>		P-value
	Low impact n(%)	High impact n(%)	
Missing tooth			
No	632(53.0)	560(47.0)	0.835*
Yes	6(50.0)	6(50.0)	
Crowding			
Without crowding ^a	411(55.2)	333(44.8)	0.053*
One crowded segment ^a	170(51.4)	161(48.6)	
Two crowded segments ^a	57(44.2)	72(55.8)	
Anterior segment spacing			
Without spacing ^a	494(56.5)	381(43.5)	<0.001*
One segment spacing ^b	112(43.1)	148(56.9)	
Two segments spacing ^{a,b}	32(46.4)	37(53.6)	
Median diastema			
≤ 2 mm	624(53.5)	543(46.5)	0.061*
> 2 mm	14(37.8)	23(62.2)	
Upper anterior crowding			
≤ 2 mm	596(53.6)	516(46.4)	0.142*
> 2 mm	42(45.7)	50(54.3)	
Lower anterior crowding			
≤ 2 mm	612(53.0)	543(47.0)	0.992*
> 2 mm	26(53.1)	23(46.9)	
Anterior open bite			
≤ 2 mm	625(53.5)	544(46.5)	0.057*
> 2 mm	13(37.1)	22(62.9)	
Anterior maxillary overjet			
≤ 4 mm	606(54.7)	502(45.3)	<0.001*
> 4 mm	32(33.7)	63(66.3)	
Anterior mandibular overjet			
No	617(53.7)	532(46.3)	0.024*
Yes	21(38.2)	34(61.8)	

Values in parentheses refer to the percentages between rows.

*chi-square test; †Fisher's exact test; results in bold type significant at 5% level Bonferroni corrections (p < 0.017); same letters indicate similarity between groups; different letters indicate differences between groups.

Table 4: Poisson regression model explaining independent variables in children with impact on OHRQoL (n = 1204); Belo Horizonte, Brazil, 2010.

Variables	Adjusted PR [§] (95% CI)	P value
Malocclusion		
No	1.00	<0.001
Yes	1.30(1.15 - 1.46)	
Family income		
≤ 2 minimum wages	1.59(1.35 - 1.88)	<0.001
3 to 4 minimum wages	1.23(1.00 - 1.50)	0.048
≥ 5 minimum wages	1.00	

PR: Prevalence ratio (obtained by adjusted Poisson regression with robust variance); CI: confidence interval

Results in bold type significant at 5% level

§Adjusted for control variables (dental caries, gender, social vulnerability, type of school, parents'/guardians' schooling and number of people in household)

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Artigo 2

Impact of malocclusion on quality of life of Brazilian schoolchildren: population-based case-control study

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ABSTRACT

Objective: The aim of the present study was to assess the impact of malocclusion on oral health-related quality of life (OHRQoL) among Brazilian schoolchildren. *Methods:* A population-based, matched, case-control study was carried out with 510 children aged eight to ten years. One hundred and two cases and 408 controls were selected from among 1204 children at public and private schools in the city of Belo Horizonte, Brazil. The case group was made up of children with a high impact on OHRQoL and the control group was composed of children with a low or no impact on OHRQoL. The Brazilian version of the Child Perceptions Questionnaire (CPQ₈₋₁₀) was used to measure OHRQoL. For each child in the case group, four children were selected for the control group, matched for gender and type of school (private or public). The Dental Aesthetic Index was used to diagnose malocclusion. Data analyses involved descriptive statistics and conditional logistic regression using a hierarchical approach, with the level of significance set to 5%. *Results:* Higher prevalence rates of malocclusion were found in the case group (OR=3.61; 95%CI: 2.24-5.82). The adjusted multiple conditional logistic regression model revealed statistically significant differences between groups regarding anterior maxillary overjet (OR:3,56; 95%CI:1.18-10.76), one-segment crowding (OR:2,03; 95%CI:1.15-3.57), two-segment crowding (OR:2,79; 95%CI:1.21-6.42) and anterior segment spacing (OR:1,96; 95%CI:1.07-3.61). *Conclusions:* Schoolchildren with malocclusion are more likely to experience negative impact on OHRQoL than those without malocclusion.

Keywords: aesthetics, quality of life, malocclusion, mixed dentition, oral health-related quality of life, child

INTRODUCTION

Aesthetic appearance plays an important role in social interactions and psychological wellbeing. Concern regarding one's face and body is expressed at an increasingly early age. Children at about eight years have criteria similar to those of adults regarding the self-perception of body image (1, 2). To evaluate their appearance, children compare themselves to others of their own age and the judgment of peers exerts an influence on the development of self-esteem (3–5). Moreover, individuals considered more attractive are more socially accepted by their peers, are considered to be more intelligent and are believed to have better social skills (4, 6).

Dental aesthetics has a significant impact on decisions regarding facial attraction. Individuals with malocclusion in childhood may be the object of teasing and name calling by other children and can therefore experience negative feelings and inhibition with regard to social interactions (3, 7, 8). A number of studies have addressed the relevance of the psychosocial impact of dental aesthetics on oral health-related quality of life (OHRQoL) and have stressed the importance of considering both normative needs observed by the dentist and subjective needs perceived by the patient. Numerical measurements of OHRQoL have the potential to provide insight into an individual's perceptions, which is an important indicator of orthodontic treatment needs (7–15).

Major changes occur in the dental arches in the dynamic mixed dentition phase, with possible deviations from normality. Extreme overjet and overbite exert a direct effect on facial aesthetics and can cause an impact on a child's quality of life. It is therefore essential to evaluate the occlusion in the mixed dentition and early permanent dentition phases in order to avoid further functional and psychological harm (16).

However, data on the bio-psychosocial aspects of malocclusion are scarce, especially in the mixed dentition phase. Indeed, there is no previous case-control study assessing the aesthetic impact of malocclusion on quality of life in this phase.

The aim of the present study was to assess the effect of the malocclusion on OHRQoL among Brazilian schoolchildren aged eight to ten years.

MATERIALS AND METHODS

This study received approval from the Human Research Ethics Committee of the Federal University of Minas Gerais, Brazil. Prior to data collection, only those children and parents/guardians who agreed to participate by signing a statement of informed consent were included in the study.

Study design and sample characteristics

A population-based, matched, case-control study nested in a cross-sectional study was carried out at public and private elementary schools in the city of Belo Horizonte (southeast Brazil) from March to December 2010. The city of Belo Horizonte is divided into nine administrative districts. To ensure the representativeness of the sample, children were randomly selected from nine public and nine private institutions (1 public and 1 private school from each district). A representative cross-sectional survey was carried out with 1204 schoolchildren aged eight to ten years for the selection of individuals for the case and control groups (17).

The minimum sample size was calculated to give a power of 80.0% (type II error), a standard error of 5.0% (type I error) and matching sets of cases and controls at a proportion of 1:4. The odds ratio (OR) between children with malocclusion and those

without malocclusion was set to 2.0 and the probability of malocclusion among the controls was set to 50.0%. The minimum sample size to satisfy the requirements of the study was 85 cases and 340 controls. To increase the accuracy of the study, reduce the random error and boost the statistical power (18, 19), the decision was made to use the maximum number of cases and controls possible employing the existing database. Thus, the final sample involved 102 cases and 408 controls.

Selection of cases and controls

Impact on OHRQoL was classified into terciles. The first tercile was composed of individuals with low or no impact on OHRQoL (low impact group, $CPQ_{8-10} \leq 5$). The second tercile was made up of individuals with moderate impact on OHRQoL (moderate impact group, $6 \leq CPQ_{8-10} \leq 15$) and the third tercile was composed of those with a high impact on OHRQoL (high impact group, $CPQ_{8-10} \geq 16$). Individuals belonging to the second tercile were excluded from the analysis due to the possibility of overlap with the other groups (25). This suggests that the two remaining groups were significantly different from each other and represented case and control groups. Analysis of variance (ANOVA) confirmed the statistically higher variability in means between the case and control groups in comparison to intra-group variability ($p < 0.001$).

Children in the case group were selected from the 387 children who had high impact on OHRQoL and the controls were selected from the 412 children who had low impact on OHRQoL. The selection of children for both groups was performed maintaining the proportion of children in each administrative district of the city of Belo Horizonte to preserve the representativeness of the data. For each child in the case group, four

children were selected for the control group, matched for gender and type of school (private or public).

Calibration exercise

The calibration exercise consisted of two steps. The first step was the theoretical, which involved a discussion of the criteria for the diagnosis of malocclusion (analysis of orthodontic dental models and photographs), traumatic dental injury (TDI) and dental caries (analysis of photographs). Three experts, gold standards for each condition examined, coordinated this step, instructing two paediatric dentists on how to perform the examination. TDI and dental caries were included in the clinical examination and treated as confounding variables due to the fact that these conditions can exert an influence on OHRQoL.

In the clinical step, seventy children were examined for these three conditions, previously selected by the gold standards. Cohen's Kappa values for inter-examiner agreement ranged from 0.78 to 1.00. Fifty children were re-examined after two weeks to assess intra-examiner agreement, for which Cohen's Kappa values ranged from 0.93 to 1.00.

Pilot study

A pilot study was carried out with 70 children at a public school to test the methods and comprehension of the instruments. The children in the pilot study were not included in the main sample. The results demonstrated that there was no need to change the proposed methods.

Clinical oral examination

Oral examinations were performed at school during daytime hours. The criteria of the Dental Aesthetic Index (DAI) were used to diagnosis malocclusions. For statistical purposes, this variable was dichotomised as either absent ($DAI \leq 25$) or present ($DAI > 25$). The criteria for the diagnosis of dental caries were based on World Health Organization recommendations, using the Decayed, Missing and Filled Teeth (DMFT) index (20). The children were allocated to two groups: those without untreated carious lesions (component D = 0) and those with one or more untreated carious lesions (component D \geq 1). The Andreasen classification (21) was used to record evidence of TDI to the upper and lower incisors: non-complicated fracture (enamel and enamel-dentin fracture), complicated fracture (enamel-dentin-pulp fracture), tooth dislocation (lateral luxation, intrusion and extrusion), avulsion, tooth discoloration and restoration of fractured tooth.

Non-clinical data

The impact on OHRQoL was measured using the Brazilian version of the Child Perceptions Questionnaire (CPQ₈₋₁₀) (22), which is made up of 25 items distributed among four subscales: oral symptoms (5 items), functional limitations (5 items), emotional wellbeing (5 items) and social wellbeing (10 items). The items address the frequency of events in the previous four weeks. A five-point rating scale is used with the following options: never = 0; once/twice = 1; sometimes = 2; often = 3; and every day/almost every day = 4. CPQ₈₋₁₀ scores are calculated by summing all item scores, with the total score ranging from 0 (no impact of oral condition on OHRQoL) to 100 (maximal impact of oral condition on OHRQoL). There are also two questions on

patient identification (gender and age) and two global indicators asking the children for a global rating of their oral health and the extent to which the orofacial condition affects their overall wellbeing.

A questionnaire was sent to the parents/guardians addressing demographic data (child: birth date and gender; parents/caregivers: age, relationship to child, schooling and monthly household income). Two questions were related to the perception of parents/caregivers regarding their child's general and oral health: "In general, how would you rate your child's overall health?" and "In general, how would you rate your child's oral health?". The response options were 1 = very good, 2 = good, 3 = fair, 4 = poor and 5 = very poor. For statistical purposes, this variable was dichotomised as "very good/good" and "fair/poor/very poor". There were also three questions related to the perception of the parents/caregivers regarding the psychosocial impact of dental appearance on the child. For such, three questions were taken from the modified 23-item Brazilian version of the Psychosocial Impact of Dental Aesthetics Questionnaire (PIDAQ), which addresses aspects of OHRQoL specifically related to orthodontics and was developed for young adults (17, 23). The questions were: "Do you think your child is satisfied with the appearance of his/her teeth?"; "Does your child get angry with comments about his/her teeth even if it is a joke?" and "Do you think the position of your child's teeth is good?". The response options were 1 = yes, 2 = no.

The Social Vulnerability Index (SVI) was used for the determination of socioeconomic status. The SVI was developed for the city of Belo Horizonte to determine the degree of social exclusion. This index measures the vulnerability of the population through the determination of neighbourhood infrastructure and access to work, income, sanitation services, healthcare services, education, legal assistance and public transportation. A

social exclusion score is attributed to each region of the city, allowing the determination of five different classes. Class I is comprised of families with greatest degree of social vulnerability and Class V consists of families with the least degree of vulnerability. For statistical purposes, the SVI was grouped into two categories: “high social vulnerability” (Classes I and II) and “low social vulnerability” (Classes III to V) (24). Monthly family income (categorised based on the monthly minimum wage in Brazil – roughly equal to US\$ 260 at the time of data collection) and parents/guardians’ schooling (categorised in years of study) were also used as socioeconomic indicators.

Statistical analysis

The Statistical Package for Social Sciences (version 19.0, SPSS Inc., Chicago, IL, USA) was used for the data analysis. Simple descriptive statistics were generated to characterise the sample. Unadjusted conditional logistic regression analysis was performed for comparisons of the independent variables in the case and control groups. The level of significance was set to 5%.

Multiple conditional logistic regression analyses were performed using a hierarchical structure, as proposed by Victora et al. (26). The variables were grouped in levels from distal to proximal determinants. The selection of variables included in each level was based on the strength of association in the unadjusted analyses, considering $p < 0.20$. The levels were socioeconomic status (social vulnerability, family income and parents/caregivers’ schooling); parents’ perception regarding their child’s oral health (assessment of parents/guardians of child’s general and oral health, dissatisfaction with the appearance and position of their teeth and anger with comments about their teeth); demographic features (child’s age), and clinical variables (untreated dental caries, TDI

and malocclusion [DAI criteria: anterior maxillary overjet, missing teeth, crowding, anterior segment spacing, anterior open bite and molar relationship]). For each level, the variables were adjusted for factors on the same level and the more distal levels, as shown in Figure 1. Variables were maintained in the models based on their statistical significance ($p < 0.20$). TDI and dental caries were maintained in the final models due to their theoretical significance. Once a variable was selected for a level, it was maintained in subsequent models. Three multiple conditional logistic regressions with a hierarchical approach were performed to determine associations between the independent variables and outcome. The first model was constructed with dichotomised malocclusion; the second was constructed with the numerical DAI and the third model was constructed with the DAI criteria.

RESULTS

Among the 510 children included in the present study, 54.9% were girls and 45.1% were boys. Most of the children in both groups were enrolled at public schools (75.5%). Table 1 displays the frequency distribution of the sample according to the independent variables. The prevalence of malocclusion was 28.8%. Moreover, 34.5% of the children received a poor assessment of oral health by the parents/caregivers. Statistically significant differences between the case and control groups were found regarding anterior maxillary overjet, missing teeth, crowding, anterior segment spacing and the molar relationship ($p < 0.05$) (Table 2).

Children with malocclusion had a 4.2-fold greater chance of being allocated to the case group than children without malocclusion. The analysis of the numerical DAI demonstrated that each unit increase in the DAI score denoted a 10% increase in the

chance of being in the case group. Moreover, statistically significant differences between groups were found regarding child's age, presence of untreated dental caries, social vulnerability, parents/caregivers' schooling, parents/caregivers' assessment of child's oral and general health, satisfaction with the position of their child's teeth, child's satisfaction with his/her teeth appearance and child's anger with comments about his/her teeth (Table 3).

Three multiple conditional logistic regression analyses with a hierarchical approach were carried out to determine associations between the independent variables and outcome. In the first adjusted model, children with malocclusion had a 3.6-fold greater chance of being allocated to the case group than children without malocclusion. In the second model, each unit increase in the DAI score led to a 10% greater chance of being allocated to the case group. In the third model, the DAI criteria that remained associated with OHRQoL were crowding, anterior segment spacing and anterior maxillary overjet (Table 4).

DISCUSSION

In the present study, children with malocclusion had a greater chance of being in the case group (high impact on OHRQoL) than the control group (low or no impact on OHRQoL). This result is in agreement with findings reported in a number of studies on the association between malocclusion and impact on OHRQoL and demonstrates that childhood experiences play a significant role in the development of self-image and self-esteem. An unpleasant dental appearance can cause shyness and embarrassment and can stigmatise a person (7, 13, 17, 27, 28).

A cross-sectional study conducted in the city of Belo Horizonte (Brazil) with children of the same age group also found a statistically significant association between malocclusion and OHRQoL (17). The impact on OHRQoL may not be directly associated with the severity of malocclusion, as some individuals accept a major deviation, while others seek orthodontic treatment to repair small irregularities (29–32). An investigation conducted with Brazilian adolescents found that individuals who sought orthodontic treatment at the State University of Rio de Janeiro were 3.1 times more likely to report worse OHQoL than students from a public school near the university clinic who did not seek orthodontic treatment (32). Moreover, a case-control study with Brazilian adolescents revealed that only 36% of individuals with normative orthodontic treatment needs reported no impact on OHQoL (8).

Although the majority of studies on the psychosocial aspects of malocclusion indicate an association with OHRQoL, differences in methodology should be considered when comparing the findings. In the present study, the individuals were divided into terciles, with the second tercile removed from the analysis to avoid overlap (25). If the groups were separated by the median, which was 10 in the present study, an individual with a value of 10 would be allocated to the control group and one with a value of 11 would be allocated to the case group. However, as these individuals are located near the cutoff point, they are probably very similar to each other and should therefore not represent different groups. Following the elimination of the second tercile, the remaining individuals had OHRQoL values that more adequately represented the two distinct groups (low impact and high impact).

The aesthetic aspect of malocclusion with the potential for causing psychological or social problems was assessed using the DAI. Anterior maxillary overjet, crowding and

anterior segment spacing were determinant factors impacting OHRQoL. Previous studies found that the aesthetic impact of malocclusion was associated with anterior maxillary overjet and crowding, which were the conditions that most contributed to dissatisfaction with one's dentofacial appearance and the main reasons for seeking treatment (3, 7, 9, 27, 33–36).

The unadjusted conditional logistic regression analyses revealed that age was a protective factor, as older children had a lesser chance of being in the case group. A number of occlusal changes can occur in this phase of life, even among children of a similar age, who do not experience the psychosocial impact of malocclusion in a homogeneous fashion. Children categorised with high social vulnerability and those whose parents/caregivers had a low level low schooling had greater chance of being in the case group. Studies have shown that socioeconomic status can affect the health behaviour of children and their families, demonstrating that a poor socioeconomic status is related to worse oral health (37–40).

Children were more likely to experience a negative impact on OHRQoL when their parents/guardians assessed their general and oral health as poor and when they believed that their child was experiencing psychosocial impact due to his/her dental appearance. Previous investigations suggest that parents' impressions regarding their child's oral health may affect oral health decisions (39, 41). Oral health is strongly related to general health, as oral manifestations may be a risk factor for diseases that can affect one's wellbeing (42).

In a number of studies, dissatisfaction with the dental appearance and the need for orthodontic treatment were perceived by both children and their parents and parents/caregivers' perception of their child's needs was the factor that most contributed

to seeking such treatment (27, 41, 43). Parents also play an important role in the motivation of children regarding orthodontic treatment. However, a number of studies have stressed that parents were more concerned with aesthetic issues than functional alterations and tend to overestimate the need for orthodontic treatment and the emotional impact of malocclusion perceived by their children (27, 41, 43–45).

Multifaceted disorders have numerous risk factors working together and it is important to consider possible correlations with confounding variables (46, 47). The presence of untreated dental caries could be associated with malocclusion and could have an influence on OHRQoL (46, 48). Therefore, these variables should be considered confounding factors and be included in the multiple logistic regressions due to their clinical-epidemiological significance, regardless of their statistical significance.

The multiple conditional logistic regression analysis with a hierarchical approach demonstrated that children with malocclusion had a 3.6-fold greater chance of being allocated to the case group. Although these data reflect the impact of malocclusion on OHRQoL when the variable is dichotomised, there is loss of information on individual differences as well as a loss of effect size and statistical power (49). However, as another approach to the analysis, the same variable offers relevant information. Since the independent variable was treated as a continuous variable, each unit increase in the DAI score denoted a 10% increase in the chance of being in the case group.

The consideration of both the self-perceptions of children and the perceptions of parents/caregivers regarding their child's oral health can contribute to the development of protocols regarding orthodontic treatment needs. However, few studies have been conducted with children in the mixed dentition phase and the assessment of the need for

orthodontic treatment should consider the child's age to avoid further functional and psychological harm (1, 16).

As Brazil is a country with considerable social disparities, setting priorities for health care based on knowledge of the psychological wellbeing of patients is of utmost importance. This may assist in the allocation of public resources, since Brazilian public healthcare services provide limited orthodontic treatment around the country (27, 39, 41, 43–45, 50). The fact that socioeconomic inequalities exert a considerable influence on access to orthodontic treatment has been demonstrated in a previous investigation involving 403 Brazilian adolescents from public and private schools and their respective parents, in which 69% of parents reported that their children could not undergo orthodontic treatment due to the financial costs involved (27).

OHRQoL assessment measures are often in the form of questionnaires. The use of foreign instruments in other cultural contexts and different languages requires a process of translation, cross-cultural adaption and validation. Guidelines have been established for cross-cultural adaptation to ensure that the translated version is valid and can be used in international studies for the purposes of comparison (51). However, it should be borne in mind that quality of life is a construct and, as such, cannot be fully operationalised or directly measured. Thus, information bias could be a limitation of the present study.

This study provides evidence supporting the negative impact of malocclusion on OHRQoL among Brazilian schoolchildren. Investigations into aesthetic alterations stemming from malocclusion as well as knowledge on the psychological effect of malocclusion and individuals' perceptions of treatment needs could contribute to the planning of public health policies. Further studies should be encouraged to assess the

needs of the population and predict the demand for public resources, thereby contributing to the implementation of orthodontic treatment in the Brazilian public healthcare system.

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Table 1. Characteristics of the sample according to independent variables; Belo Horizonte, Brazil, 2011

Variables	Frequency n	%
Children' age		
8 years old	151	29.6
9 years old	187	36.7
10 years old	172	33.7
Social vulnerability		
Low	320	62.7
High	190	37.3
Family income		
≥ 5 minimum wages	144	28.5
3 to 4 minimum wages	135	26.7
≤ 2 minimum wages	226	44.8
Parent's/caregiver's schooling		
> 12 years of study (college)	140	27.6
9 to 11 years of study (high school)	205	40.4
≤ 8 years of study (elementary school)	163	32.1
Number of children in the house		
Only child	128	25.2
Two or more children	380	74.8
Relationship to child		
Mother	424	83.1
Other	86	16.9
Assessment of parents/guardians' on the child's general health		
Good	453	89.2
Bad	55	10.8
Assessment of parents/guardians' on the child's oral health		
Good	329	65.5
Bad	173	34.5
Do you think your child is satisfied with the appearance of her teeth?		
Yes	269	54.2
No	227	45.8
Do you think your child gets angry with comments about her teeth even if it is a joke?		
No	317	63.3
Yes	184	36.7
Do you think the position of your child's teeth is good?		
Yes	214	42.5
No	290	57.5
Presence of untreated dental caries		
No	412	80.8
Yes	98	19.2
Presence of traumatic dental injury		
No	451	88.8
Yes	57	11.2
Malocclusion		
Absent	363	71.2
Present	147	28.8

Table 2. Bivariate analysis of the associations between study groups and type of malocclusion according to the DAI; Belo Horizonte, Brazil, 2011

Variables	Study group				p-value	Unadjusted OR* [95% CI]
	Case (n = 102)		Control (n = 408)			
	n	(%)	n	(%)		
Missing tooth						
No	98	(96.1)	406	(99.5)	0.015	1 8.29[1.50,45.89]
Yes	4	(3.9)	2	(0.5)		
Crowding						
Without crowding	55	(53.9)	275	(67.4)	–	1
One crowded segment	35	(34.3)	102	(25.0)	0.028	1.72[1.06,2.78]
Two crowded segments	12	(11.8)	31	(7.6)	0.075	1.94[0.94,4.00]
Anterior segment spacing						
Without spacing	69	(67.6)	329	(80.6)	–	1
One segment spacing	28	(27.5)	67	(16.4)	0.008	1.99[1.19,3.32]
Two segments spacing	5	(4.5)	12	(2.9)	0.211	1.99[0.68,5.82]
Upper anterior crowding						
≤ 2 mm	95	(93.1)	387	(94.9)	0.498	1 1.36[0.56,3.29]
> 2 mm	7	(6.9)	21	(5.1)		
Lower anterior crowding						
≤ 2 mm	96	(94.1)	395	(96.8)	0.205	1 1.90[0.70,5.13]
> 2 mm	6	(5.9)	13	(3.2)		
Anterior open bite						
≤ 2 mm	97	(95.1)	400	(98.0)	0.103	1 2.58[0.83,8.05]
> 2 mm	5	(4.5)	8	(2.0)		
Anterior maxillary overjet						
≤ 4 mm	93	(91.2)	399	(97.8)	0.003	1 4.29[1.66,11.11]
> 4 mm	9	(8.8)	9	(2.2)		
Molar relation						
Normal	78	(76.5)	346	(84.8)	–	1
Half cuspid	23	(22.5)	49	(12.0)	0.009	2.08[1.20,3.62]
One cuspid	1	(1.0)	13	(3.2)	0.304	0.34[0.04,2.65]
Posterior crossbite						
No	88	(86.3)	377	(92.4)	0.054	1 1.94[0.99,3.79]
Yes	14	(13.7)	31	(7.6)		
Anterior mandibular overjet						
No	99	(97.1)	397	(97.3)	0.892	1 1.09[0.30,4.00]
Yes	3	(2.9)	11	(2.7)		
Diastema						
≤ 2 mm	99	(97.1)	401	(98.3)	0.430	1 1.74[0.44,6.83]
> 2 mm	3	(2.9)	7	(1.7)		

*Conditional logistic regression

Results in bold type are significant at 5% level

Table 3. Conditional logistic regression analysis of independent variables by study groups; Belo Horizonte, Brazil, 2011

Variables	Study group				p-value	Unadjusted OR* [95% CI]
	Case (n = 102)		Control (n = 408)			
	n	(%)	n	(%)		
Children' age	–	–	–	–	0.005	0.67[0.51,0.89]
Social vulnerability						
Low	54	(52.9)	266	(65.2)	0.023	1 1.67[1.07,2.58]
High	48	(47.1)	142	(34.8)		
Family income						
≥ 5 minimum wages	26	(25.7)	118	(29.2)	0.209	1 0.65[0.34,1.27]
3 to 4 minimum wages	17	(16.8)	118	(29.2)		
≤ 2 minimum wages	58	(57.4)	168	(41.6)		
Parent's/caregiver's schooling						
> 12 years of study (college)	21	(20.6)	119	(29.3)	0.282	1 1.37[0.77,2.45]
9 to 11 years of study (high school)	40	(39.2)	165	(40.6)		
≤ 8 years of study (elementary school)	41	(40.2)	122	(30.0)		
Number of children						
Only child	21	(20.8)	107	(26.3)	0.256	1 1.36[0.80,2.31]
Two or more children	80	(79.2)	300	(73.7)		
Relationship to child						
Mother	88	(86.3)	336	(82.4)	0.345	1 0.74[0.40,1.38]
Other	14	(13.7)	72	(17.6)		
Assessment of parents/guardians' on the child's general health						
Good	85	(83.3)	368	(90.6)	0.036	1 1.94[1.04,3.60]
Bad	17	(16.7)	38	(9.4)		
Assessment of parents/guardians' on the child's oral health						
Good	55	(53.9)	274	(68.5)	0.006	1 1.86[1.19,2.89]
Bad	47	(46.1)	126	(31.5)		
Do you think your child is satisfied with the appearance of her teeth?						
Yes	44	(44.0)	225	(56.8)	0.022	1 1.68[1.08,2.61]
No	56	(56.0)	171	(43.2)		
Do you think your child gets angry with comments about her teeth even if it is a joke?						
No	49	(48.0)	268	(67.2)	< 0.001	1 2.21[1.42,3.44]
Yes	53	(52.0)	131	(32.8)		
Do you think the position of your child's teeth is good?						
Yes	33	(32.7)	181	(44.9)	0.027	1 1.68[1.06,2.66]
No	68	(67.3)	222	(55.1)		
Presence of untreated dental caries						
No	67	(65.7)	345	(84.6)	< 0.001	1 2.86[1.75,4.67]
Yes	35	(34.3)	63	(15.4)		
Presence of traumatic dental injury						
No	92	(90.2)	359	(88.4)	0.613	1 0.83[0.40,1.71]
Yes	10	(9.8)	47	(11.6)		
Malocclusion						
Absent	47	(46.1)	316	(77.5)	< 0.001	1 4.02[2.55,6.33]
Present	55	(53.9)	92	(22.5)		
DAI - Numerical variable	–	–	–	–	< 0.001	1.11[1.07,1.15]

*Conditional logistic regression; Results in bold type are significant at 5% level

Table 4. Multiple conditional logistic regression with hierarchical approach to assess the association between independent variables and outcome; Belo Horizonte, Brazil, 2011

Variables	Study group	
	Case (n = 102)	Control (n=408)
	p-value	Adjusted OR [95% CI]
MULTIVARIATE MODEL 1*		
Malocclusion		
Absent		1
Present	< 0.001	3.61[2.24,5.82]
MULTIVARIATE MODEL 2*		
DAI – Numerical variable		
	< 0.001	1.10[1.06,1.14]
MULTIVARIATE MODEL 3*		
Missing tooth		
No		1
Yes	0.081	8.60[0.77,96.19]
Crowding		
Without crowding	–	1
One crowded segment	0.015	2.03[1.15,3.57]
Two crowded segments	0.016	2.79[1.21,6.42]
Anterior segment spacing		
Without spacing	–	1
One segment spacing	0.030	1.96[1.07,3.61]
Two segments spacing	0.053	3.30[0.99,11.01]
Anterior maxillary overjet		
≤ 4 mm		1
> 4 mm	0.024	3.56[1.18,10.76]
Molar relation		
Normal	–	1
Half cuspid	0.268	1.42[0.76,2.64]
One cuspid	0.152	0.21[0.02,1.79]

*Conditional logistic regression adjusted by children's age, social vulnerability, family income, perception of parents about child anger with comments about her tooth, dental caries and traumatic dental injuries.
Results in bold type are significant at 5% level

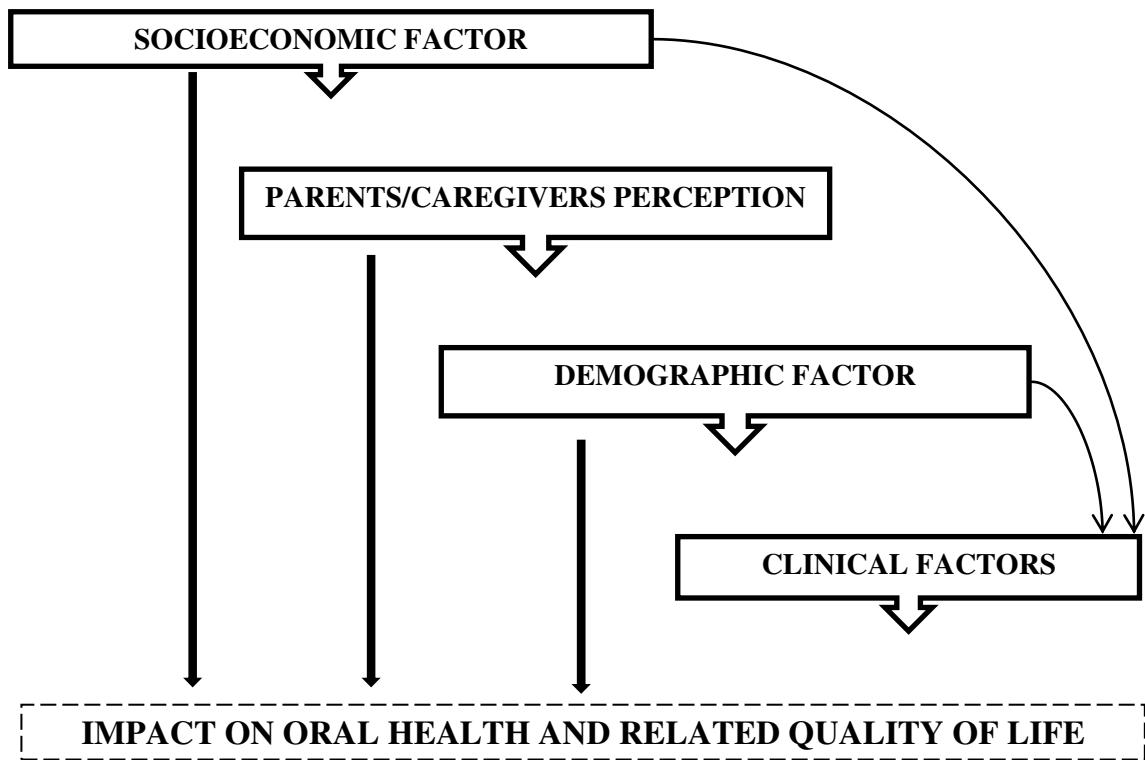


Figure 1

Figures

Figure 1: Hierarchical analysis model

CONSIDERAÇÕES FINAIS

CONSIDERAÇÕES FINAIS

A autoimagem é o resultado das observações que o indivíduo tem de si próprio, sendo esta auto-observação moldada pelo eu unitário e pelo contexto social, pela imagem que o indivíduo supõe projetar para os demais. Intrinsecamente ligada a autoimagem está a autoestima que inclui a avaliação subjetiva que o indivíduo faz de si mesmo, respectivamente, traduzem-se como a percepção e a valoração que o sujeito faz de si (Sharkey, Singelis, 1995).

Sendo a face a característica física mais importante no desenvolvimento da autoimagem e autoestima, faz-se necessário avaliar o impacto estético e psicossocial da maloclusão, uma vez que indivíduos insatisfeitos com aparência facial, apontam maior descontentamento com os dentes do que com qualquer outra característica facial (Berscheid et al., 1973; Bos et al., 2003).

Neste contexto, após levantamento e avaliação crítica dos estudos encontrados na literatura, comprovou-se a necessidade de investigar o impacto psicossocial da maloclusão na OHRQoL de crianças de 8 a 10 anos de idade, uma vez que não foi encontrado nenhum trabalho avaliando este tipo de impacto, na fase da dentição mista, com desenho de estudo do tipo caso-controle.

Este estudo comprovou a forte associação existente entre a maloclusão e a OHRQoL em indivíduos muito jovens, além de ratificar a associação entre a percepção dos pais e o impacto negativo na OHRQoL de suas crianças.

De posse destes dados é de suma importância a disponibilização destes resultados obtidos a partir de um estudo de base populacional, a fim de auxiliar na reorientação dos serviços públicos de saúde, pois sendo a maloclusão um problema de saúde pública e uma condição passível de prevenção se faz necessário que a mesma seja reconhecida como tal por profissionais e gestores de saúde, pela comunidade, e pelas famílias dos indivíduos acometidos.

Apesar do tratamento ortodôntico ter sido incorporado no serviço público (Portaria Ministerial Nº 718/SAS de 20/12/2010) ele se faz, em sua grande maioria, através de tratamentos do tipo preventivo e interceptativo. Observando quanto da tipologia do aparelho utilizado no setor público, há uma preferência pelos removíveis (Theis et al., 2007), o que muitas vezes não é suficiente para sanar os problemas

instalados. Segundo Maciel (2008), apenas quatro municípios brasileiros oferecem o tratamento com o chamado aparelho ortodôntico fixo total.

Diante deste cenário, o desenvolvimento de estudos que objetivem o conhecimento do impacto da maloclusão na qualidade de vida das crianças e de suas famílias é de suma importância para elaboração de estratégias de promoção de saúde que tenham como propósito a ampliação do acesso a saúde, ao tratamento ortodôntico e a capacitação de recursos humanos, além de viabilizar o desenvolvimento e a adoção de políticas públicas que atuem na prevenção e priorização dos indivíduos com maior necessidade a fim de minimizar as desigualdades sociais.

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APÊNDICES

APÊNDICE A: CARTA DE APRESENTAÇÃO PARA AS INSTITUIÇÕES

Carta de Apresentação para as Instituições

Belo Horizonte, __ de _____ de 2010.

À coordenação da instituição _____

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

A pesquisa, intitulada "**Avaliação da influência das doenças cárie e maloclusão na qualidade de vida de crianças de 8 a 10 anos de idade**", tem como objetivo avaliar a repercussão da cárie, do traumatismo dentário e da maloclusão na qualidade de vida das crianças. Para tanto, será necessário o preenchimento de um formulário pelos responsáveis, uma breve entrevista com cada criança, além do exame clínico das crianças na faixa etária de 8 a 10 anos. Esta escola está sendo convidada a participar por trabalhar com crianças nesta faixa etária.

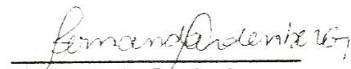
O exame clínico das crianças será realizado na própria escola, sendo chamado um aluno de cada vez, com duração de 10 a 15 minutos, não atrapalhando o andamento escolar. Este exame não oferece risco para as crianças, é rápido e indolor. As crianças que necessitarem de atendimento odontológico serão encaminhadas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

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

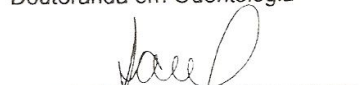
Atenciosamente,



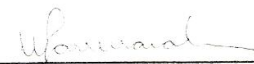
Milene Martins
Doutoranda em Odontologia



Fernanda Sardenberg
Doutoranda em Odontologia



Prof. Dr. Saul Martins de Paiva
Coordenador da pesquisa



Profa. Dra. Isabela Almeida Pordeus
Coordenadora da pesquisa

APÊNDICE B: FORMULÁRIO DIRIGIDO AOS PAIS

U F M G

Faculdade de Odontologia – Universidade Federal de Minas Gerais

Prezado responsável,

Precisamos da sua ajuda para o preenchimento deste formulário!

Após respondê-lo, pedimos a gentileza de entregá-lo ao(a) professor(a) de seu filho.

Estas informações são muito importantes para o nosso trabalho!

Muito obrigada pela sua colaboração!



PARTE I – Identificação:

DADOS DE SEU(UA) FILHO(A):

- 1- Nome da criança: _____
- 2- Endereço: Rua / Avenida: _____
Número: _____ Apartamento: _____ Bairro: _____ CEP: _____
- 3- Telefones: residencial _____ celular _____
- 4- Sexo: () menino () menina
- 5- Dia, mês e ano em que a criança nasceu: ____/____/____
- 6- A criança é: (MARQUE COM UM X)
- () filho(a) único(a) () filho(a) mais novo(a) () filho(a) mais velho(a) () filho (a) do meio

DADOS DO RESPONSÁVEL (QUE ESTÁ RESPONDENDO A ESTE FORMULÁRIO):

- 7- Idade do responsável: _____
- 8- Número de filhos: _____
- 9- O que você é da criança: (MARQUE COM UM X)
- () Mãe () Pai () Irmão () Avós () Outros. Qual? _____
- 10- Quantas pessoas moram na sua casa? _____
- 11- Você estudou até quando? (MARQUE COM UM X)
- () não estudou
- () 1ª. a 4ª. série incompleta () 1ª. a 4ª. série completa
- () 5ª. a 8ª. série incompleta () 5ª. a 8ª. série completa
- () 1º. ao 3º. ano científico incompleto () 1º. ao 3º. ano científico completo
- () ensino superior incompleto () ensino superior completo
- 12- Somando a sua renda com a renda das pessoas que moram com você, quanto é aproximadamente, a renda da sua família?
- () não tem renda
- () até 1 salário mínimo () até 3 salários mínimos () até 5 salários mínimos
- () até 2 salários mínimos () até 4 salários mínimos () acima de 5 salários mínimos

PARTE II – Informações clínicas:

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

muito boa boa regular ruim muito ruim

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

muito boa boa regular ruim muito ruim

15- Você acredita que sua criança está satisfeita com a aparência dos dentes dela?

Sim Não

16- Sua criança se irrita com comentários sobre os dentes dela mesmo que seja de brincadeira?

Sim Não

17- Você acha boa a posição dos dentes de sua criança?

Sim Não

18- Sua criança bateu com o dente em algum lugar e machucou esse dente?

Sim Não

► Se você respondeu **SIM** na **questão 18** (acima), responda as perguntas abaixo: (MARQUE COM UM X)

19- Quantos anos sua criança tinha quando machucou o dente?

Menos de 6 anos Mais de 7 anos Qual idade?
 _____ Não lembro

20- Onde ela machucou o dente?

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

21- Como ela machucou o dente?

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

22- A criança foi atendida pelo dentista por causa do dente machucado?

Sim Não Não lembro

MUITO OBRIGADA!!



APÊNDICE C: FICHA CLÍNICA

PRONTUÁRIO PARA EXAME CLÍNICO

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

Traumatismo Dentário

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

CPO-D

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)

--

APÊNDICE D: TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO



TERMO DE CONSENTIMENTO LIVRE E ESCLARECIDO

Prezado responsável, estamos convidando seu filho(a) a participar do estudo que tem como título: "AVALIAÇÃO DA INFLUÊNCIA DAS DOENÇAS CÁRIE E MALOCCLUSÃO NA QUALIDADE DE VIDA DE CRIANÇAS DE 8 A 10 ANOS DE IDADE". Este estudo objetiva fazer uma avaliação, através de um estudo epidemiológico, da influência das doenças cárie e maloclusão na qualidade de vida das crianças de 8 a 10 anos de idade, na cidade de Belo Horizonte.

Para a realização desta pesquisa será necessário que seu filho(a) responda a um questionário, relativo à saúde bucal e atividades que ele pratica.

Além disto, será feito um breve exame clínico para se avaliar as condições de saúde bucal, que seu filho apresenta.

É importante que você saiba que nenhuma criança será identificada, sendo mantido o caráter confidencial da informação, de modo que seus nomes não serão identificados. Gostaríamos de informar também que se você quiser desistir da pesquisa poderá fazê-lo a qualquer momento.

Estar participando do estudo não lhe trará nenhuma despesa financeira. Se tiver dúvidas, pode entrar em contato com a gente através dos telefones: 31 96510383/84615685 ou entrar em contato com o Comitê de Ética em Pesquisa desta Universidade pelo telefone: 31 34094592.

Após receber informações sobre a pesquisa, autorizo que meu filho(a) participe deste estudo e concordo que seja realizado exame clínico nele(a), _____, bem como, que ele(a) responda ao questionário. Autorizo também, que os dados obtidos através do exame clínico e das respostas aos questionários sejam apresentados e publicados em eventos e artigos científicos.

Belo Horizonte, ____ de _____ de _____.

Nome: _____

Responsável pela criança

Assinatura da criança _____

Milene Aparecida Torres Saar Martins/ Fernanda Sardenberg

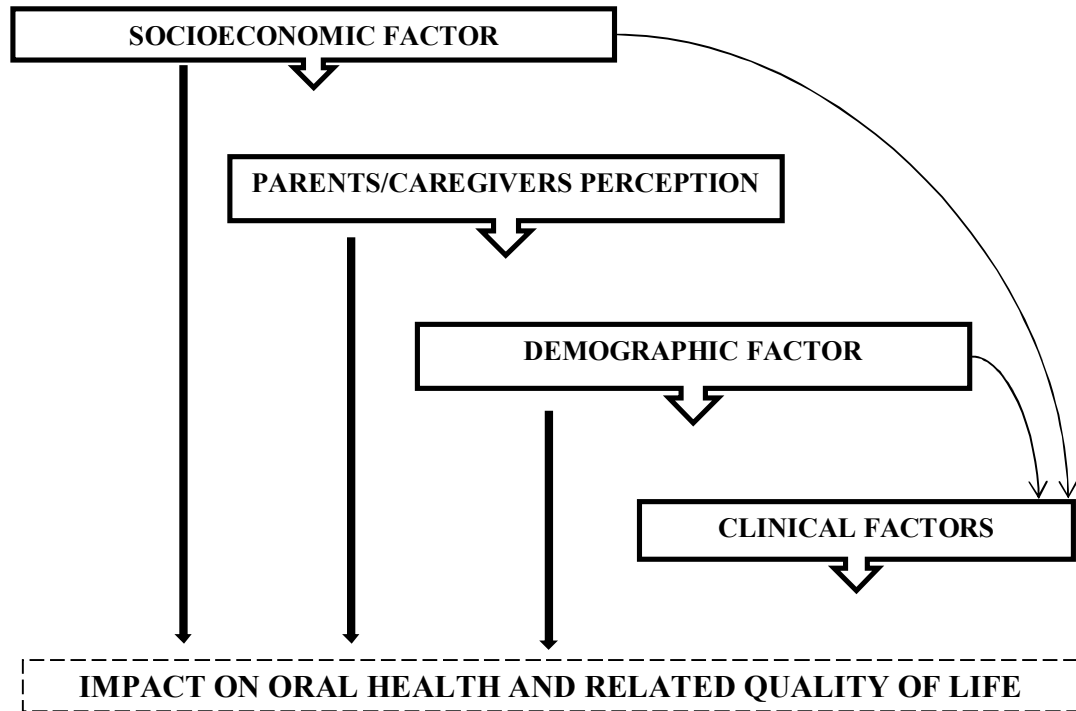
Pesquisadoras

COEP/UFMG: Telefone: 34094592

Presidente: Profa. Maria Helena de Lima Perez Garcia

Av. Antônio Carlos, 6627. Unidade Administrativa II, sala 2005, Pampulha.

**APÊNDICE E: FLUXOGRAMA EXPLICATIVO DO MODELO DE ANÁLISE
HIERÁRQUICA**



ANEXOS

**ANEXO A: PARECER DO COMITÊ DE ÉTICA EM PESQUISA EM SERES
HUMANOS – UFMG**



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

Parecer nº. ETIC 0465.0.203.000-09

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

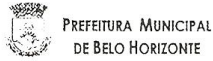
DECISÃO

O Comitê de Ética em Pesquisa da UFMG – COEP aprovou, no dia 16 de dezembro de 2009, após atendidas as solicitações de diligência, o projeto de pesquisa intitulado "**Avaliação da influência das doenças cárie e maloclusão qualidade de vida de crianças de 8 a 10 anos de idade**" 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.


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

ANEXO B: AUTORIZAÇÃO DA SECRETARIA MUNICIPAL DE EDUCAÇÃO



SMED/EXTER/1679-2008.

Belo Horizonte, 07 de outubro de 2008.

Prezada Professora,

Em atenção à solicitação de V. S^a, referente ao projeto de pesquisa "Avaliação da influência das doenças cárie e maloclusão na qualidade de vida de crianças de 8 a 10 anos de idade", autorizamos a realização da referida pesquisa com alunos das escolas da Rede Municipal de Educação.

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.

Sendo o que se apresenta no momento, somos.

Atenciosamente,


HUGO VOCURCA TEIXEIRA
Secretário Municipal de Educação

À Professora
Milene Aparecida Torres Saar Martins
Faculdade de Odontologia da
Faculdade Federal de Minas Gerais
NESTA

ANEXO C: AUTORIZAÇÃO DA SECRETARIA ESTADUAL DE EDUCAÇÃO



SECRETARIA DE ESTADO DE EDUCAÇÃO DE MINAS GERAIS
SUBSECRETARIA DE DESENVOLVIMENTO DA EDUCAÇÃO BÁSICA

TERMO DE AUTORIZAÇÃO

ASSUNTO: Estudo de caso nas instituições públicas estaduais de ensino de Belo Horizonte.

INTERESSADO: Milene Martins - aluna de doutorado da Faculdade de Odontologia – UFMG.

DATA: outubro/2008.

Eu, **Raquel Elizabete de Souza Santos**, Subsecretária de Desenvolvimento da Educação Básica da Secretaria de Estado de Educação de Minas Gerais – SEE/MG sou favorável a realização do estudo **“Avaliação da influência das doenças cárie e maloclusão na qualidade de vida de crianças de 8 a 10 anos de idade”** nas instituições públicas estaduais de ensino de Belo Horizonte.

Participarão da pesquisa, posteriormente ao consentimento dos responsáveis, crianças na faixa etária de 8 a 10 anos. Para tanto será necessário o preenchimento de um questionário, além do exame clínico das crianças. Em casos de necessidade de tratamento odontológico essas crianças serão encaminhadas para o atendimento clínico na **Faculdade de Odontologia da UFMG**.

A participação na pesquisa será voluntária e a identidade dos indivíduos será mantida em sigilo.

A instituição e os participantes não terão ônus com a pesquisa.

Atenciosamente,

RAQUEL ELIZABETE DE SOUZA SANTOS

SUBSECRETÁRIA DE DESENVOLVIMENTO DA EDUCAÇÃO BÁSICA

Raquel Elizabete de Souza Santos
Mosp. 033
Desenvolvimento da Educação Básica

ANEXO D: ÍNDICE DE VULNERABILIDADE SOCIAL (IVS)

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

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

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

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

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

QUADRO 1: Composição do IVS e ponderações para cálculo.

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

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

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

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

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

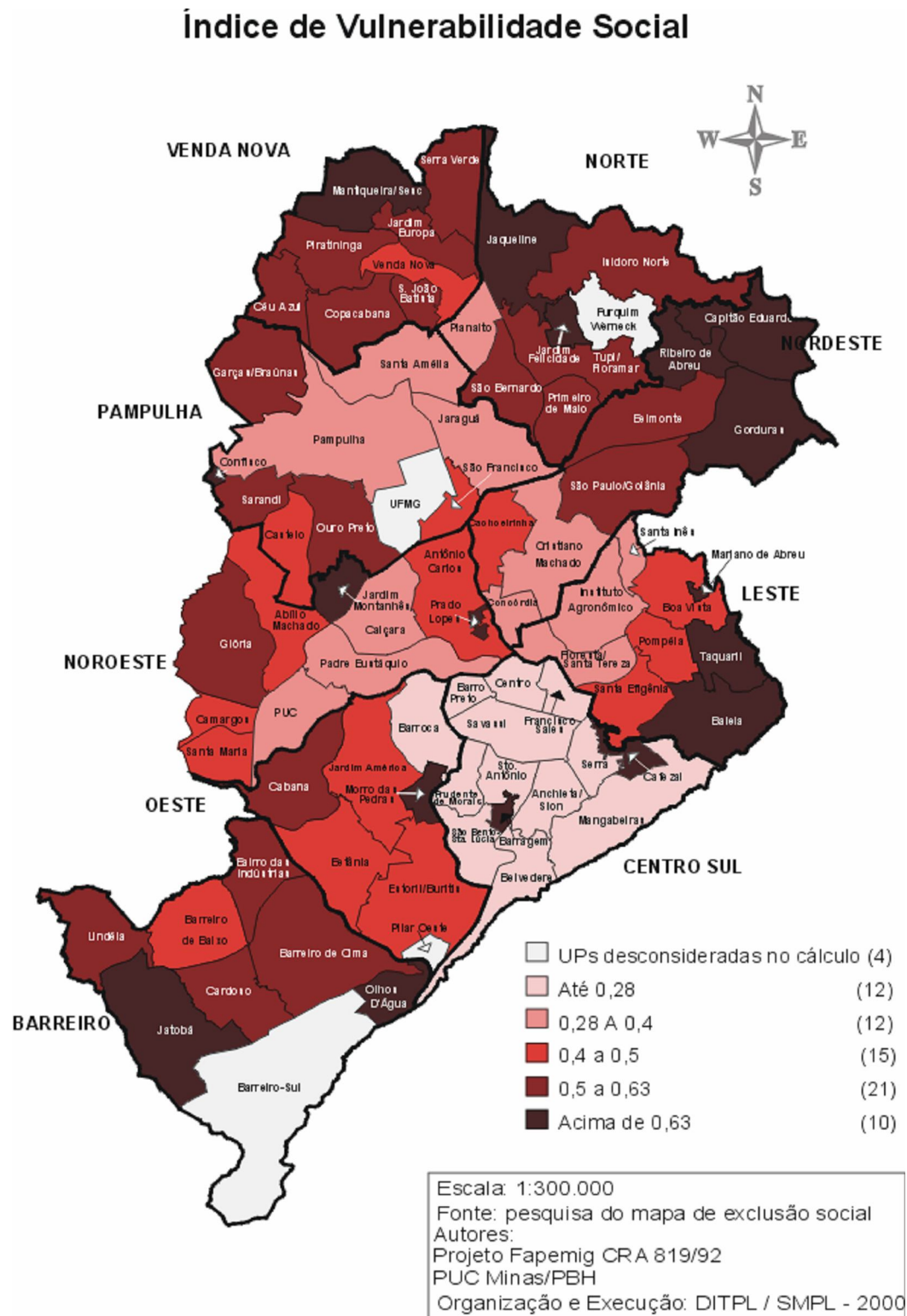


FIGURA 2 – Unidades de Planejamento de Belo Horizonte

ANEXO E: VERSÃO BRASILEIRA DO QUESTIONÁRIO DE QUALIDADE DE VIDA CPQ 8-10

VERSÃO BRASILEIRA DO CPQ₈₋₁₀

Data de hoje: ____/____/____.

1. Você é um menino ou uma menina?

- Menino
- Menina

2. Quantos anos você tem?

3. Você acha que os seus dentes e a sua boca são:

- Muito bons
- Bons
- Mais ou menos
- Ruins

4. Quanto os seus dentes ou a sua boca te incomodam?

- Não incomodam
- Quase nada
- Um pouco
- Muito

5. No último mês, quantas vezes você sentiu dor de dentes ou dor na boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

6. No último mês, quantas vezes você teve feridas na sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

7. No último mês, quantas vezes você sentiu dor nos seus dentes quando comeu alguma coisa ou bebeu alguma coisa gelada?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

8. No último mês, quantas vezes a comida ficou agarrada em seus dentes?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

9. No último mês, quantas vezes você ficou com cheiro ruim na sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

10. No último mês, quantas vezes você gastou mais tempo do que os outros para comer sua comida por causa de seus dentes ou de sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

11. No último mês, quantas vezes você teve dificuldade para morder ou mastigar comidas mais duras como: maçã, pão, milho ou carne, por causa de seus dentes ou de sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

12. No último mês, quantas vezes foi difícil para você comer o que você queria por causa dos seus dentes ou de sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

13. No último mês, quantas vezes você teve problemas para falar por causa dos seus dentes ou de sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

14. No último mês, quantas vezes você teve problemas para dormir à noite por causa dos dentes ou de sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

15. No último mês, quantas vezes você ficou chateado por causa dos seus dentes ou de sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

16. No último mês, quantas vezes você se sentiu triste por causa dos seus dentes ou de sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

17. No último mês, quantas vezes você ficou com vergonha por causa dos seus dentes ou de sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

18. No último mês, quantas vezes você ficou preocupado com o que as pessoas pensam sobre seus dentes ou sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

19. No último mês, quantas vezes você achou que você não era tão bonito quanto outras pessoas por causa dos seus dentes ou de sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

20. No último mês, quantas vezes você faltou à aula por causa dos seus dentes ou de sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

21. No último mês, quantas vezes você teve problemas para fazer seu dever de casa por causa dos seus dentes ou de sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

22. No último mês, quantas vezes você teve dificuldade para prestar atenção na aula por causa dos seus dentes ou de sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

23. No último mês, quantas vezes você não quis falar ou ler em voz alta na sala de aula por causa dos seus dentes ou de sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

24. No último mês, quantas vezes você deixou de sorrir ou dar risadas quando estava junto de outras crianças por causa dos seus dentes ou de sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

25. No último mês, quantas vezes você não quis falar com outras crianças por causa dos seus dentes ou de sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

26. No último mês, quantas vezes você não quis ficar perto de outras crianças por causa dos seus dentes ou de sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

27. No último mês, quantas vezes você ficou de fora de jogos e brincadeiras por causa dos seus dentes ou de sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

28. No último mês, quantas vezes outras crianças fizeram gozação ou colocaram apelidos em você por causa dos seus dentes ou de sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes

29. No último mês, quantas vezes outras crianças fizeram perguntas para você sobre seus dentes ou sua boca?

- Nenhuma vez
- Uma ou duas vezes
- Às vezes
- Muitas vezes
- Todos os dias ou quase todos os dias

ANEXO F: NORMAS DE PUBLICAÇÃO – COMMUNITY DENTISTRY AND ORAL EPIDEMIOLOGY



COMMUNITY DENTISTRY AND
ORAL EPIDEMIOLOGY

Community Dentistry and Oral Epidemiology

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

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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.

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

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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.

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Standard journal article

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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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Artigos científicos publicados durante o Doutorado

- 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.

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- Martins MT, Vale MP, Sardenberg F, Abreu MHN, Paiva SM, Pordeus IA. Factors associated with dental caries in Brazilian children: a multilevel approach. Submitted to *Community Dentistry and Oral Epidemiology* – ID CDOE-12-207.R1.

- Sardenberg F, Auad SM, Martins MT, Viegas CM, Pordeus IA, Paiva SM, Vale MP. Impact of malocclusion on quality of life of Brazilian schoolchildren: population-based case-control study. Submitted to Community Dentistry and Oral Epidemiology – ID CDOE-13-212.

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- 28ª Reunião Anual da Sociedade Brasileira de Pesquisa Odontológica, Águas de Lindóia, SP, Brasil, 2011. Fatores Predisponentes a cárie dentária em crianças brasileiras. Abreu, L.G.; Martins, M.T.; Vale, M.P.; Sardenberg F.; Abreu, M.H.N.; Paiva, S.M.; Pordeus, I.A.
- XI Encontro Científico da Faculdade de Odontologia da UFMG- IX Encontro Mineiro das Faculdades de Odontologia. 2011. Prevalência de Cárie Dentária em Crianças de 8 a 10 anos de idade, na cidade de Belo Horizonte. 2011. Teixeira, B.R.; Vale M.P.; Martins, M.T., Martins, M.A.T.S., Sardenberg F.; Abreu, M.H.N.; Pordeus, I.A.; Oliveira, A.C.; Paiva, S.M.
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- Teixeira, B.R.; Vale M.P.; Martins M.A.T.S.; Sardenberg F.; Pordeus, I.A.; Oliveira, A.C.; Paiva, S.M. Impacto da cárie dentária na qualidade de vida de crianças de 8 a 10 anos de idade, na cidade de Belo Horizonte. In: 28ª Reunião Anual da Sociedade Brasileira de Pesquisa Odontológica, 2011, Águas de Lindóia. Brazilian Oral Research, 2011. v. 25. p. 90.
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- The Angle Orthodontist: início em Outubro de 2010
- European Journal of Orthodontics: início em Março de 2012

Participação em bancas examinadoras

- Imparato, J. C. P.; Cerqueira, D.; Sardenberg, F. Participação Em Banca De Etelvina Pereira Rezende. Avaliação Do Conhecimento Dos Educadores Físicos Frente À Conduta De Traumatismo Dentário. 2010. Monografia (Especialização em Odontopediatria) - Centro de Pesquisas Odontológicas São Leopoldo Mandic.

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Orientações Concluídas – Monografias De Conclusão De Curso De Especialização Em Odontopediatria

- Marcella Teixeira Gomes. Preparo De Canal Radicular De Dente Decíduo Pelo Sistema Mecânico Oscilatório Relato De Caso. 2011. Monografia. (Especialização em Odontopediatria) - Centro de Pesquisas Odontológicas São Leopoldo Mandic. Orientador: Fernanda Pinheiro Sardenberg Mattos.
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Aulas ministradas:

- Controle mecânico e químico do biofilme dental. 2009. Aula teórica. Centro de Pesquisas Odontológicas São Leopoldo Mandic. (4horas/aula).
- Dieta em odontopediatria. 2009. Aula teórica. Centro de Pesquisas Odontológicas São Leopoldo Mandic. (4horas/aula).
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