EPI 2008
XVIII CONGRESSO MUNDIAL DE EPIDEMIOLOGIA
VII CONGRESSO BRASILEIRO DE EPIDEMIOLOGIA
EPIDEMIOLOGIA NA CONSTRUÇÃO DA SAÚDE PARA TODOS:
MÉTODOS PARA UM MUNDO EM TRANSFORMAÇÃO
PORTO ALEGRE - BRASIL - 20 A 24 DE SETEMBRO DE 2008

Inequalities of oral health between black and white adolescents in Brazil

José Leopoldo Ferreira Antunes (FOUSP) leopoldo@usp.br

José Leopoldo Ferreira Antunes (1)
João Luiz Dornelles Bastos (2,3)
Antonio Carlos Frias (1)
Maria da Luz Rosário de Sousa (4)
Karen Glazer Peres (2)
Marco Aurélio Peres (2)

(1) Faculdade de Odontologia, Universidade de São Paulo.
(2) Grupo de Estudos de Odontologia em Saúde Coletiva (www.geosc.ufsc.br). Programa de Pós-Graduação em Saúde Pública, Universidade Federal de Santa Catarina.
(3) Programa de Pós-Graduação em Epidemiologia, Universidade Federal de Pelotas.
(4) Faculdade de Odontologia de Piracicaba, Universidade Estadual de Campinas.

Objectives

This study aimed to compare the oral health status of black and white Brazilian adolescents, and to assess the magnitude of racial differences of oral health indices in macro-regions of the country.

Methods

- A nationwide survey of oral health was performed in 2002-03: 15,695 adolescents (15-19 years old) were examined.

- Oral health outcomes related to black and white individuals were compared by the Prevalence Ratio, as assessed by multivariate Poisson regression.

Table 1. Socio-demographic characteristics and oral health conditions: prevalence in the sample by each Brazilian region. 15,695 adolescents (15 to 19 years old), Brazil, 2002-2003.

Socio-demographic characteristics	North	Northeast	Southeast	South	Center-West	Brazil
Sex: female	59.3%	61.0%	57.4%	55.3%	57.5%	58.4%
Ethnic-racial group: black	77.2%	73.7%	51.6%	18.9%	57.8%	56.0%
Living in the rural area	7.9%	19.2%	16.3%	13.6%	9.6%	13.6%
Absent fluoridated water	93.7%	84.6%	45.0%	14.8%	48.9%	59.2%
Retard in school	71.2%	67.6%	48.9%	42.5%	54.9%	57.8%
Household crowding: average	1.34	1.00	0.91	0.81	0.87	1.00
Family income: none	4.9%	6.8%	9.6%	4.9%	5.7%	6.3%
Less than 1 Brazilian MW*	36.1%	47.7%	20.7%	12.0%	20.3%	28.6%
1 to 2 Brazilian MW*	31.2%	24.6%	25.7%	23.4%	24.2%	26.0%
More than 2 Brazilian MW*	27.8%	20.9%	44.0%	59.7%	49.8%	39.1%
Outcomes of oral health	**North**	**Northeast**	**Southeast**	**South**	**Center-West**	**Brazil**
Perception of dental treatment need	83.2%	81.9%	74.5%	68.8%	74.7%	77.0%
Never attended by the dentist	15.6%	22.1%	10.2%	5.2%	8.7%	13.0%
Prevalence of untreated dental caries	76.0%	75.0%	53.8%	56.5%	64.8%	65.9%
Endodontic treatment need	10.6%	17.2%	10.5%	9.8%	13.7%	12.3%
Orthodontic treatment need	17.7%	20.0%	18.5%	19.2%	18.2%	18.8%
Gingival bleeding at probing	37.9%	43.5%	28.9%	32.8%	25.7%	35.0%
Dental calculus	49.3%	42.4%	28.0%	21.9%	24.3%	34.5%
Periodontal pockets	2.1%	1.0%	1.6%	0.9%	0.9%	1.3%
Toothache	16.9%	18.6%	15.8%	13.5%	18.3%	16.5%
Number of examined adolescents	3654	3712	2858	3628	1843	15,695

* Brazilian MW (minimum wage) corresponded to US$70 during the period of data gathering.

The Southeast region presented a better overall profile of oral health for most conditions currently assessed.

Table 2. Prevalence ratio of oral health outcomes between Brazilian regions (in comparison to the Southeast). 15,695 adolescents (15 to 19 years old), Brazil, 2002-2003.

Outcomes of oral health	North		Northeast		Southeast	South		Center-West	
	PR	95% CI	PR	95% CI	reference	PR	95% CI	PR	95% CI
Perception of dental treatment need	1.06	0.99-1.15	1.03	0.97-1.10	1.00	0.99	0.91-1.29	0.99	0.92-1.06
Never attended by a dentist	1.27	0.85-1.88	**1.65**	**1.16-2.35**	1.00	**0.63**	**0.42-0.94**	0.83	0.56-1.23
Prevalence of untreated dental caries	**1.21**	**1.08-1.35**	**1.18**	**1.06-1.32**	1.00	**1.17**	**1.07-1.29**	**1.18**	**1.07-1.29**
Endodontic treatment need	0.89	0.62-1.28	1.27	0.95-1.69	1.00	1.09	0.82-1.46	1.25	0.96-1.62
Orthodontic treatment need	0.95	0.76-1.18	0.99	0.79-1.69	1.00	1.10	0.92-1.30	0.99	0.81-1.21
Gingival bleeding at probing	1.17	0.95-1.45	**1.38**	**1.11-1.72**	1.00	1.24	0.93-1.66	0.89	0.69-1.15
Dental calculus	**1.63**	**1.32-2.02**	**1.45**	**1.15-1.84**	1.00	0.94	0.66-1.34	0.86	0.68-1.07
Periodontal pockets	1.10	0.37-3.29	0.42	0.14-1.26	1.00	0.96	0.46-1.98	0.58	0.28-1.21
Toothache	1.02	0.74-1.41	1.00	0.79-1.26	1.00	0.92	0.71-1.18	1.09	0.84-1.40

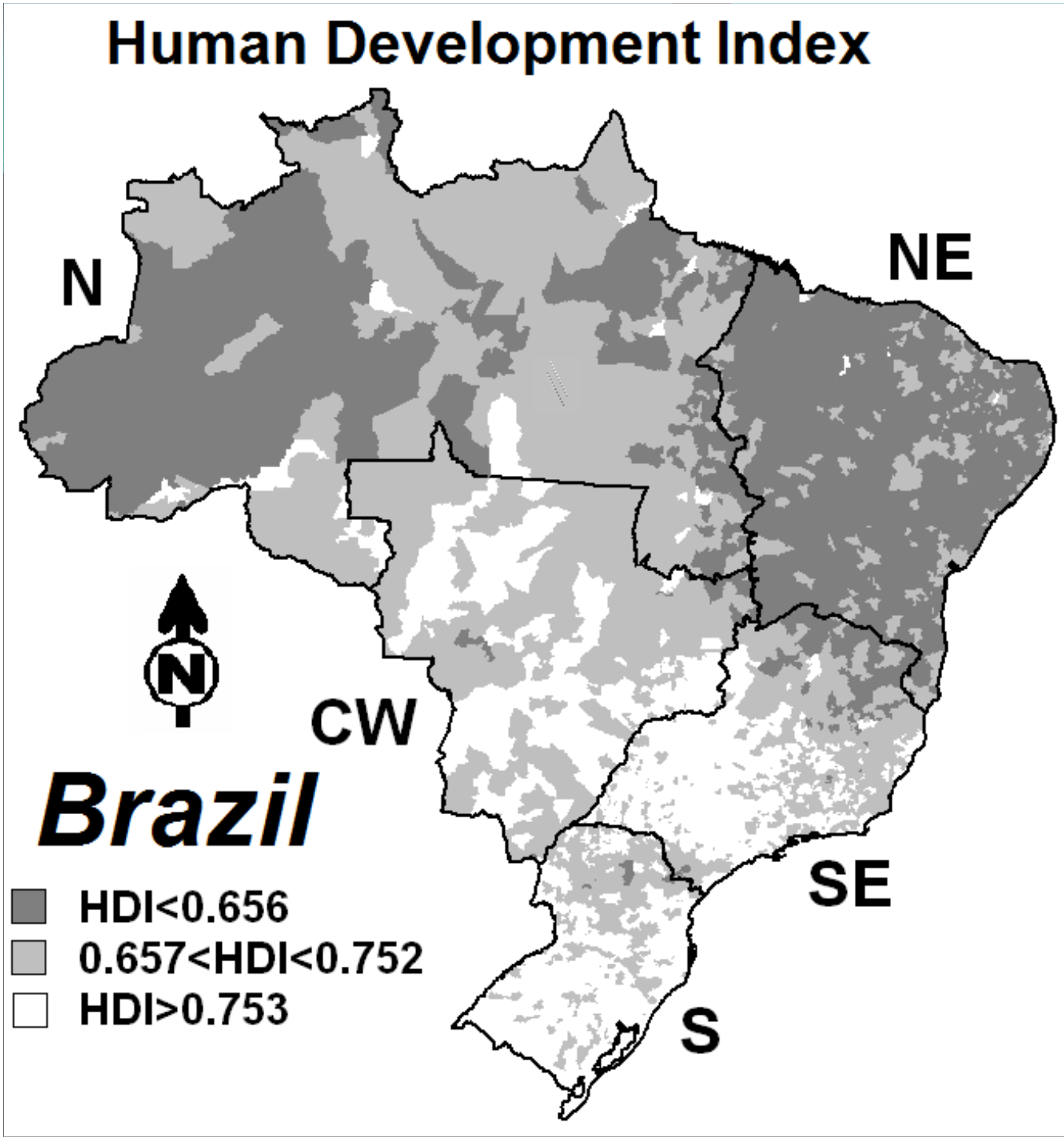
PR = prevalence ratio assessed by Poisson regression analysis and adjusted by age, ethnic-racial group, living area, fluoride addition to piped water, retard in school, household crowding and family income.
95% CI = 95% confidence interval.
Bold types and shaded areas in the table highlight significant associations ($p<0.05$).

The Southeast region presented a higher racial inequality in all outcomes of oral health, with black adolescents ranking poorer than their white counterparts.

Table 3. Prevalence ratio of oral health outcomes between ethnic-racial groups (blacks in comparison to whites) in each Brazilian region. 15,695 adolescents (15 to 19 years old), Brazil, 2002-2003.

	North		Northeast		Southeast		South		Center-West	
Outcomes of oral health	**PR**	**95% CI**	**PR**	**95% CI**	**PR**	**95% CI**	**PR**	**95% CI**	**PR**	**95% CI**
Perception of dental treatment need	1.01	0.97-1.06	1.02	0.97-1.06	**1.07**	**1.01-1.15**	**1.09**	**1.01-1.18**	1.07	0.99-1.16
Never attended by a dentist	0.99	0.83-1.19	**1.22**	**1.03-1.43**	**1.53**	**1.04-2.27**	**1.70**	**1.14-2.54**	1.05	0.67-1.65
Prevalence of untreated dental caries	**1.07**	**1.02-1.12**	1.04	0.98-1.10	**1.09**	**1.02-1.17**	1.09	0.99-1.21	**1.15**	**1.02-1.29**
Endodontic treatment need	**1.35**	**1.07-1.71**	**1.23**	**1.05-1.45**	**1.36**	**1.03-1.81**	1.38	0.88-2.14	1.17	0.60-1.42
Orthodontic treatment need	1.00	0.83-1.21	1.17	0.97-1.41	**1.17**	**1.00-1.38**	1.16	0.96-1.39	0.99	0.80-1.22
Gingival bleeding at probing	0.98	0.85-1.12	1.12	0.96-1.32	**1.30**	**1.10-1.54**	1.06	0.80-1.40	1.05	0.84-1.31
Dental calculus	**1.19**	**1.05-1.34**	**1.23**	**1.05-1.44**	**1.43**	**1.16-1.75**	**1.46**	**1.10-1.94**	1.13	0.85-1.50
Periodontal pockets	1.90	0.87-4.13	0.47	0.21-1.06	**1.86**	**1.00-3.59**	2.72	0.96-7.73	1.60	0.61-4.21
Toothache	1.13	0.93-1.38	**1.25**	**1.06-1.48**	**1.29**	**1.01-1.65**	1.01	0.79-1.29	1.22	0.96-1.55

PR = prevalence ratio assessed by Poisson regression analysis and adjusted by age, living area, fluoride addition to piped water, retard in schoo household crowding and family income.
95% CI = 95% confidence interval.
Bold types and shaded areas in the table highlight significant associations ($p<0.05$).



Brazil presents huge socioeconomic inequalities; the South and the Southeast regions rank higher in the human development index.

Health inequity
"differences in health that are not only unnecessary and avoidable, but in addition unfair and unjust."
(Whitehead, 1992)

It is unnecessary, avoidable, unfair and unjust that the richest Brazilian region – the one with the best overall profile of oral health – presents a higher racial inequality of oral health.

Whitehead M. The concepts and principles of equity and health. Copenhagen: World Health Organization Regional Office for Europe, 1990 (EUR/ICP/RPD 414). Int J Health Services 1992; 22: 429-45.

Suppressing racial inequalities in oral health is a socially relevant goal for health services. It should also be considered an important strategy for the promotion of social justice.