Parental perceptions of impact of oral disorders on Colombian schoolchildren's oral health-related quality of life

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ABSTRACT

There is no study assessing the impact of dental caries (DC), dental fluorosis (DF) and traumatic dental injuries (TDI) on oral health-related quality of life (OHRQoL) in school children from Colombia. The purpose of this study was to assess the impact of DC, DF and TDI on Colombian schoolchildren´s OHRQoL using their parents as proxies. The parents of 338 children aged 6 to 14 years from public and private schools of Cartagena, Colombia answered the Parental-Caregiver Perception Questionnaire (P-CPQ) on child's OHRQoL adapted to Colombian Spanish language and a socioeconomic questionnaire. Three calibrated examiners performed the clinical assessment for DC, DF and TDI. Poisson regression associated clinical and socioeconomic conditions to the outcome. Overall, 90.24% of parents reported children's oral impact (total P-CPQ score ≥ 1). The mean (standard deviation) P-CPQ scores were 12.49 (14.04). The multivariate adjusted model showed that children from public schools and who have dental caries experience (RR= 1.28; p=0.04 and RR= 1.37; p= 0.018, respectively) were more likely to experience negative impact on total P-CPQ scores.

DC was found to be associated to parental-caregiver perception of impact on their children's oral health-related quality of life, but DF and TDI were not.

Key words: *Dental caries, dental fluorosis, tooth injuries, quality of life, child.*

Percepción de los padres del impacto de desordenes orales de escolares colombianos sobre la calidad de vida relacionada con la salud oral

RESUMEN

No existen estudios que evalúen el impacto de la caries dental (CD), la fluorosis dental (FD) y el trauma dentoalveolar (TDA) sobre la calidad de vida relacionada con la salud bucal (CVRSB) de escolares de Colombia que pertenece a países de habla hispana. El propósito de este estudio fue evaluar el impacto de la caries dental (CD), la fluorosis dental (FD) y el trauma dentoalveolar (TDA) sobre la calidad de vida relacionada con la salud bucal de escolares colombianos usando sus padres como proxies. Los padres de 338 niños y niñas de 6 a 14 años de escuelas públicas y privadas de Cartagena, Colombia, contestaron el Parental-Caregivers Perception Questionnaire (P-CPQ) on child's OHRQoL adaptado al español colombiano y un cuestionario socioeconómico. Tres examinadores calibrados realizaron la evaluación clínica para CD, FD y TDA. La regresión de Poisson asoció las condiciones clínicas y socioeconómicas al puntaje total del P-CPQ y sus dominios. En general, el 90,24% de los padres reportaron el impacto oral de los niños sobre la calidad de vida (puntaje P-CPQ total ≥ 1). La media (DE) del P-CPQ fue de 12,49 (14,04). El modelo multivariado ajustado mostró que los niños de escuelas públicas que tenían experiencia de caries dental (RR = 1,28, p = 0,04 y RR = 1,37, p = 0,018, respectivamente) tuvieron mayor probabilidad de experimentar un impacto negativo en las puntuaciones totales del P-CPQ.

La CD mostró asociación con la percepción del impacto de los padres-cuidadores sobre la salud oral de sus hijos en relación con la calidad de vida. Sin embargo, FD y TDA no se encontraron asociados.

Palabras clave: *Caries dental, fluorosis dental, traumatismos de los dientes, calidad de vida, niñez*

INTRODUCTION

Oral health is currently considered an important pillar in overall human welfare, with strong influence on its development[1]. Everybody without exception should enjoy good oral health status guaranteeing certain activities and functions such as chewing, phonation and smiling as a sign of personal image, enabling social interaction, personal and emotional

development and having positive impact on quality of life[1, 2,] throughout their lifetime.

There is consensus in the literature regarding the negative impact of dental caries (DC) on school children's Oral Health-Related Quality of Life (OHRQoL) through proxy-reports from parents or caregivers[3-5]. Similarly, traumatic dental injuries (TDI) also have been shown to have negative impact on schoolchildren's OHRQoL[6,7]. In addition, a review of the literature showed that severe dental fluorosis (DF) was consistently reported to have negative effects on OHRQoL[8].In spite of this evidence, to the best of our knowledge, there is no study assessing the impact of these oral diseases and disorders, mainly TDI and DF, on schoolchildren, based on parents' proxy reports. Parents' perceptions concerning their children's oral health are important because they may enable clinicians to improve children's oral health, and thereby their OHRQoL[9]. Moreover, parents are usually the primary decision-makers on matters affecting their children's health and healthcare[10,11].

The parental-caregiver perceptions questionnaire (P-CPQ) is an instrument of the Child Oral Health Quality of Life Questionnaire (COHQLQ). It was developed in English in Canadá[12] and has been cross-culturally translated. Its validity has been demonstrated in English in the United Kindgom[13], Chinese in China[14], Portuguese in Brazil[15] and Spanish in Peru[16]. However, although the Spanish version of the P-CPQ[11] has been validated, it has not yet been tested for Spanish-speaking schoolchildren. The use of the P-CPQ in Spanish-speaking countries such as Colombia is essential, considering the high prevalence of DC and DF in schoolchildren, 51%[17] and 81% [18], respectively. Prevalence of TDI may have been neglected in Colombia, since there is no epidemiological survey of its extent. At present, the assessment of the impact of these oral conditions on Colombian schoolchildren's OHRQoL is unexplored. Therefore, the aim of this study was to assess the impact of DC, DF and TDI on the OHRQoL of 6- to 14-year-old Colombian schoolchildren in a population-based sample using parents' proxy-reports.

MATERIALS AND METHODS

This study followed Ethics Guidelines of the Declaration of Helsinki, Edinburgh amendment 2000, 1975 and Resolution 008430 of 1993 the former Ministry of Health of the Republic of Colombia. All parents received information regarding the aim of the study and signed informed consent forms.

Study population and data collection

A cross-sectional study was performed in 2015 on a population-based sample of children aged 6-14 years enrolled at public or private schools and living in Cartagena, Colombia. Cartagena city has an estimated population of 1,001,755 inhabitants, including 215,007 schoolchildren[19].

Sample size was calculated using a 94.5% prevalence of oral impact on schoolchildren's OHRQoL[15], with 95% confidence interval, a standard error of 3% and a design effect of 1.3. To cover non-response, the sample was increased by 15% to 338 children and their parents. Inclusion criteria were children of both genders, who had not received dental treatment in the past 3 months, with no systemic disease and/or neurological disease, with parents/caregivers who were fluent in Spanish language and who agreed to participate in the study.

A 2-stage random sampling procedure was adopted to select the sample. The first stage units were all public and private schools in the city. A total four schools, two public and two private, were randomly selected [WHO, 1997]. Since the schools were of different sizes, an equal probability selection method (probability proportional to the size) was used to ensure that all children would have the same chance of being selected [WHO, 1997]. The second stage units were the 6- to 14-year-old children enrolled at each selected school. At the school, the parents whose children were selected were summoned to be informed of the study objective, and one of the parents (preferably the one who spent most time with the child) was invited to answer two structured questionnaires in face-to-face interviews: one on socioeconomic conditions and another on the child's OHRQoL. Interviews were conducted by two dental assistants who were blind to the clinical oral examinations. They were trained in the reading and intonation of each question and the answer options in the OHRQoL instruments.

Socioeconomic conditions such as parental age, number of children and family income were collected as discrete quantitative variables, and parental level of education and family structure were collected as ordinal and nominal qualitative variables, respectively. All these socioeconomic data were then

categorized for statistical analysis as follows: child's age [children (6 – 9 years old), teenager (10 – 14 years old)], child's gender [female, male], type of school [public, private], age of parents [≤ 44 years old, > 44 years old], number of siblings [≤ 2 children, > 2 children], father's and mother´s education [< 10 years, ≥ 10 years], family income [measured in terms of the Colombia minimum wage-CMW, a standard for this type of assessment, which corresponds to approximately US$ 255.4 per month categorized into ≤ One CMW, ≥ Two CMW], housing ownership[yes, no], household crowding [≤ two members per room, > two members per room] and type of family [Nuclear family, Non-nuclear family].

OHRQoL instrument

The parental-caregiver perceptions of Child Oral Health-Related Quality of Life Questionnaire (P-CPQ) was used to assess children's OHRQoL. This instrument is applied to parents of children aged 6-14 years[15]. The P-CPQ contains 31 items grouped into four subscales: oral symptoms (6 items), functional limitations (8 items), emotional well-being (7 items), and social well-being (10 items). The questions are related to the frequency of events over the past three months. Answers are recorded on a Likert five-point scale used with the following response options: "Never" = 0, "once / twice" = 1, "sometimes" = 2, "often" = 3, "every day / almost every day" = 4. The P-CPQ scores are calculated as a simple sum of the response codes. Since there are 31 questions, the final score can range from 0 to 124, where a higher score indicates a higher degree of impact of oral conditions on children's oral health-related quality of life according to their parents.

In this study, the P-CPQ was adapted from the Peruvian Spanish version[16] to the Colombian context. This Peruvian Spanish version was pilot-tested on a convenience sample of 30 parents of children aged 6-14 years. These parents were not included in the final sample. Parents suggested that some words or expressions should be substituted by synonyms to facilitate the comprehension of the questionnaire. Modifications were made according the parents' comments. A Revision Panel consisting of three postgraduate professors in Pediatric Dentistry, Research and Family Health areas, all fluent in Spanish, who knew the objectives of the study and had experience in OHRQoL studies, reviewed the results and in consensus developed the Colombian Spanish version of the PCPQ.

Children's oral examination

Four previously calibrated examiners performed the children's oral examinations. The examiners were all graduate dentists with experience in previous epidemiological surveys. All examiners underwent two 6-hour sessions of training and calibration exercises with pictures of clinical cases for the clinical study conditions, with a 1-week interval between sessions. Intra- and inter-examiner reliability was established using all examiners' assessments of 20 children who received dental treatment at Dental School of Cartagena University. These children did not form part of the study sample. Kappa values were calculated for intra- and inter-examiner for all clinical conditions.

Dental caries was assessed according to the World Health Organization criteria and calculated in terms of decayed, missing, and filled teeth in permanent dentition (DMFT) and primary dentition (dmft)[11]. For most children with mixed dentition, the caries index was obtained by the sum of the dmft and DMFT scores. To calculate mean dmft/DMFT index, we added the individual average values and divided by the total number of children examined. The prevalence of children affected by the disease was described using the Knutson index [20]: children who have dental caries or have experienced dental caries (dmft/ DMFT > 0) and children who have never had experienced dental caries (dmf/ DMFT = 0).

Dental fluorosis (DF) was assessed using the criteria proposed by Thylstrup-Fejerskov,[21] which is more sensitive than Dean's index for individual classification of teeth into ten categories[22]. A score of zero indicates healthy enamel; scores of one to four indicate spots on the enamel surface, which increase as the score increases. Enamel destruction is observed in scores five to nine, where score five represents mottled enamel with holes smaller than 2mm in diameter, which are fused in score six to form bands less than 2mm deep. For the current study, DFwas categorized as mild (code 1,2,3), moderate (code 4-6) and severe fluorosis (code 7-9)[21].

Traumatic dental injury (TDI) was evaluated using the criteria proposed by Andreasen et al.[23]and evaluated as a possible confounding variable, based on the system adopted by the WHO. It includes

injuries to hard dental tissues and pulp; injuries to hard dental tissues, pulp and alveolar process; and injuries to periodontal tissues. TDI data were analyzed according to presence of at least one kind of trauma or absence of TDI (tooth present and sound).

Data analysis

Data were analyzed using STATA 9.0 (Stata Corp, College Station, TX, USA). Descriptive analyses assessed measures of central tendency (mean, standard deviation and observed range) of the total and individual domain scores of P-CPQ.

Poisson regression with robust variance was performed to associate domains and total P-CPQ scores to oral clinical conditions (DC, DF and TDI) and socioeconomic conditions. Univariate Poisson regression was performed to select variables with a p-value ≤0.20 to enter the final model. Then the selected variables were tested in the adjusted multivariate model and only remained in the final model if p-value ≤ 0.05. In these analyses, the outcome was employed as a count outcome, and rate ratios (RR) and 95% confidence intervals (95% CI) were calculated.

RESULTS

Internal consistency of the P-CPQ was analyzed using Cronbach's alpha coefficient, providing values of 0.85 for total P-CPQ scores in the pilot test phase and 0.89 for total P-CPQ scores in the final sample size of the study, showing the stability of the instrument.

As a result of the calibration process, the examiners obtained inter-examiner reliability values of Cohen's Kappa agreement of 0.87 for DC and 0.92 for DF and TDI. For intra-examiner agreement, the examiners obtained kappa values of 0.89 for DC, 0.85 for DF and 0.90 for TDI.

A total 370 parents were invited to participate in the study, of whom 10 were excluded because they did not conform to the study inclusion criteria. Of the 360 eligible participants, 338 provided signed parental informed consent (positive response rate = 93.8%).

Table 1 shows the socioeconomic and clinical conditions of the sample. Overall, most children had dental caries experience (62.4%), whereas DF and TDI were present in 64.5% and 8.9%, respectively. All questionnaires were fully completed without any missing data, and there were no 'don't know' responses. Most of the questionnaires were answered by mothers (79.3%). Overall, 90.24% of parents reported children's oral impacts (total P-CPQ score ≥ 1). Table 2 contains the mean, standard deviation, and the range observed for the total P-CPQ scores and individual domains.

Table 3 shows the univariate unadjusted analysis of clinical and socioeconomic variables associated

Table 1: Sample sociodemographic features (n = 338).

Variables	n (%)
Child age	
Teenager (10 – 14 years old)	152 (45)
Children (6 – 9 years old)	186 (55)
Child gender	
Male	180 (53.3)
Female	158 (46.7)
Type of School	
Private	170 (50.3)
Public	168 (49.7)
Age of parents	
≤ 44 years old	297 (87.9)
> 44 years old	41 (12.1)
Number siblings	
≤ 2 children	205 (60.6)
> 2 children	133 (39.4)
Father's education level	
≥ 10 years	91 (26.9)
< 10 years	247 (73.1)
Mother's education level	
≥ 10 years	84 (24.8)
< 10 years	254 (75.2)
Family Income	
≥ Two CSW	263 (77.8)
≤ One CSW	75 (22.2)
Household crowding	
≤ 2 members	239 (79.7)
> 2 members	99 (29.3)
Type of family	
Nuclear family	196 (57.9)
Non-Nuclear family	142 (42.1)
Clinical features	
Dental Caries	
Absence	121 (35.8)
Presence	217 (64.2)
Dental Fluorosis	
Absence	119 (35.4)
Presence	217 (64.6)
Traumatic Dental Injuries	
Absence	308 (91.1)
Presence	30 (8.9)

Table 2: Mean, standard deviation, possible range, and range observed for overall and for each P-CPQ11–14 domain scores (n = 338).

P-CPQ	Mean(SD)	Range Observed
Oral symptoms	3.88 (3.5)	0-20
Functional limitations	3.43 (4.17)	0-24
Emotional well-being	2.09 (3.90)	0-30
Social well-being	3.09 (6.15)	0-48
Total Score	12.49 (14.04)	0-90

with total and individual domains of the P-CPQ. There was significant association between some independent variables, total scores, and individual domains ($p < 0.05$): oral symptoms and mother's education and family income; emotional well-being domain and dental caries experience; social well-being domain and children's education, number of siblings; and total P-CPQ and members in family and dental caries.

The multivariate-adjusted model (Table 4) showed that children from public schools and children who have dental caries experience (RR= 1.28; p=0.04 and RR= 1.37; p= 0.018, respectively) were more likely to experience a negative impact on total P-CPQ scores. Children whose mothers have an educational level < 10 years and children who have dental caries experience showed positive and negative impact on the oral symptoms domain, respectively (RR= 0.75, p= 0.02 and RR= 1.22, p=0.04, respectively). Children who studied atpublic schools were more likely to experience negative impact on the emotional well-being and social well-being domains ($p<0.05$) (Table 4).

DISCUSSION

To the best of our knowledge, this is the first study to measure the impact of DC, TDI and DF on the OHRQoL of Colombian schoolchildren from parents' proxy-reports using a Spanish version of the P-CPQ[16]. The questionnaire showed semantic equivalence and good understanding by parents considering that Peru and Colombia share many similarities in their Spanish language and vocabulary. Cronbach's alpha coefficient was 0.89 for the total scale, indicating acceptable internal reliability, as values of 0.5 or above are considered acceptable[24]. Similar findings were reported for the Peruvian Spanish version[16]and in the original English and Brazilian versions[12,15], indicating its satisfactory use for assessing children's OHRQoL according to parents' perceptions in Colombia.

In this study, dental caries was the only oral disease that showed negative impact on total P-CPQ scores in the oral symptoms domain, though it did not affect other domains. A study in China also found negative impact of dental caries using the P-CPQ in 12-year-old children[25], but in this case, the impact was on the social and emotional well-being domains. There is no study using P-CPQ in Colombian and other Spanish speaking countries like Perú[16], but other instruments in Spanish that assess OHRQoL according to children and adolescent´s perceptions, such as the Child Perceptions Questionnaire 11-14 (CPQ11-14)[26] report impact of DC on the oral domain. This may indicate agreement between children and their parents/caregivers regarding the impact of DC on schoolchildren´s OHRQoL, and it will be important to explore the matter in future studies. Therefore, even when children and adolescents are able to provide self-reports, parents/caregivers' proxy reports should be obtained to provide additional supplementary information about the impact of different oral outcomes on childrens' OHRQoL[27]. Both views jointly may offer a more comprehensive basis for professional clinical decisions. This information may also be useful for health authorities in planning oral healthcare services[28].

In this study, we found no association between traumatic dental injuries and the perception of the impact of OHRQoL, but this maybe due to the low prevalence of TDI in the sample, in agreement with Abanto et al.[29]. Nevertheless, assessment of the impact of TDI on schoolchildren's OHRQoL using CPQ 11-14 shows a negative impact on OHRQoL. Crown discoloration also shows a negative impact using this scale[30]. This is another finding that shows different perceptions between children and their parents/caregivers regarding presence of TDI.

Dental fluorosis was not found to be associated with the perception of impact on OHRQoL, in agreement with a study performed in Pinheiro Preto, Brazil, but differing from a study in Colombia[31] which reported that children often avoided smiling because of the appearance of their teeth due to DF. It should be noted that said study was conducted in an endemic fluorosis zone. In contrast, our results show low prevalence of DF, and the fact that the

Table 3: Univariate analysis of socioeconomic variables and clinical conditions associated with the total score of P-CPQ and total score for domains.

	ORAL SYMPTOMS DOMAIN		FUNCTIONAL LIMITATIONS DOMAIN		EMOTIONAL WELL-BEING DOMAIN		SOCIAL WELL-BEING DOMAIN		TOTAL P-CPQ SCORE	
	Robust RR (95% CI)	P-value	Robust RR (95% CI)	P-value	Robust RR (95% CI)	P-value	Robust RR (95% CI)	P-value	Robust RR (95% CI)	P-value
Child age										
Teenager (10 - 14 years old)										
Children (6 - 9 years old)	0.94 (0.77 – 1.14)	0.54	1.23 (0.93 – 1.61)	0.13	0.76 (0.50 – 1.14)	0.19	0.84 (0.55 – 1.29)	0.44	0.95 (0.74 – 1.21)	0.68
Child gender										
Male										
Female	1.03(0.85 – 1.26)	0.70	1.12(0.86 – 1.46)	0.36	1.11(0.74 – 1.67)	0.59	1.13(0.74 – 1.73)	0.55	1.09(0.86 – 1.39)	0.44
Type of school										
Private										
Public	1.08 (0.89 – 1.31)	0.41	1.15 (0.89 – 1.49)	0.27	1.40 (0.91 – 2.15)	0.11	1.46 (0.94 – 2.28)	0.08	1.24 (0.97 – 1.57)	0.08
Number siblings										
≤ 2 children										
> 2 children	1.00 (0.81 – 1.23)	0.99	0.93 (0.71 – 1.22)	0.63	1.31 (0.87 – 1.98)	0.18	1.73 (1.14 – 2.62)	0.00*	0.18 (0.92 – 1.51)	0.18
Father's education level										
≥ 10 years										
< 10 years	0.87 (0.69 – 1.09)	0.22	1.09 (0.81 – 1.46)	0.56	0.99 (0.59 – 1.64)	0.98	1.18 (0.76 – 1.84)	0.44	1.02 (0.78 – 1.34	0.85
Mother's education level										
≥ 10 years										
< 10 years	0.77 (1.61 – 0.99)	0.04*	1.09 (0.81 – 1.46)	0.56	1.06 (0.65 – 1.72)	0.81	1.16 (0.74 – 1.82)	0.50	1.00 (0.75 – 1.32)	0.99
Family income										
≥ Two CSW										
≤ One CSW	0.78 (0.61 – 0.99)	0.04*	1.10 (0.79 – 1.52)	0.55	1.08 (0.68 – 1.73)	0.72	1.00 (0.65 – 1.56)	0.97	0.97 (0.74 – 1.27)	0.83
Household crowding										
≤ 2 members										
> 2 members	0.91 (0.72 – 1.16)	0.47	0.76(0.57– 1.03)	0.07	0.89 (0.58 – 1.37)	0.61	0.81(0.52-1.27)	0.37	0.84 (0.64 – 1.09)	0.21
Type of family										
Nuclear family										
Non-nuclear family	1.11 (0.92 – 1.35)	0.24	1.26 (0.97 – 1.64)	0.07	1.29 (0.86 – 1.94)	0.21	1.12 (0.73 – 1.71	0.58	1.18 (0.93 – 1.50)	0.15
Clinical features										
Dental Caries										
Absence										
Presence	1.19(0.97-1.45)	0.08	1.18(0.90-1.55)	0.22	1.61(1.03-2.5)	0.03	1.57(1.00-2.48)	0.05*	1.33(1.04-1.70)	0.02
Dental fluorosis										
Absence										
Presence	1.04 (0.85 – 1.28)	0.64	1.01 (0.77 – 1.31)	0.93	0.84 (0.54 – 1.29)	0.44	1.18 (0.75 – 1.84)	0.46	1.02 (0.80 – 1.31)	0.81
Traumatic dental injuries										
Absence										
Presence	1.16 (0.83 – 1.64)	0.37	1.04 (0.69 – 1.55)	0.84	1.33 (0.71 – 2.47)	0.36	1.44 (0.69 – 3.01)	0.39	1.21 (0.87 – 1.68)	0.25

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Table 4: Multivariate analysis of sociodemographic variables and clinical conditions associated with the total score for domains and P-CPQ.

	ORAL SYMPTOMS DOMAIN		FUNCTIONAL LIMITATIONS DOMAIN		EMOTIONAL WELL-BEING DOMAIN		SOCIAL WELL-BEING DOMAIN		TOTAL P-CPQ SCORE	
Variables	**Robust RR (95% CI)**	**P-value**	**Robust RR (95% CI)**	**P-value**	**Robust RR (95% CI)**	**P-value**	**Robust RR (95% CI)**	**P-value**	**Robust RR (95% CI)**	**P-value**
Mother's education level										
≥10 years										
<10 years	0.75 (0.59-0.96)	0.02	†		†		†		†	
Type of school										
Private										
Public	†		†		1.75 (1.13-2.72)	0.012	1.96 (1.25-3.07)	0.003	1.37 (1.05-1.78)	0.018
Dental Caries										
Absence										
Presence	1.22(1.04-1.49)	0.04	†		†		†		1.28(1.02-1.65)	0.04

Oral symptoms: Xi2: 9.36, p=0.009. Functional limitations: no report, Emotional well-being: 10.82. p=0.004, Social well-being: Xi2 = 21.9, p = 0.0001, P-CPQ: Xi2 = 15.60, p = 0.001.
†Variables not associated with the respective domains in the final multivariate model after the adjustment.

DF variable was dichotomized may explain the different findings.

Our study found significant associations between P-CPQ scores, its domains and some socioeconomic conditions such as children who study at public schools with poor OHRQoL in emotional and social domains and mother's education with better OHRQoL in oral domains. This is similar to the findings in a systematic review assessing the impact of parental socioeconomic status and home environment on children's OHRQoL, which reports that children from an area with high deprivation had poorer OHRQoL than children from areas with low and medium categories of deprivation[32,33]. It also reports that higher educational level of the mother and father predicted better OHRQoL in children, but observed the mother's education – and not the father's education – was significantly related to OHRQoL scores.[34] Several studies also report that attending a poor school and maternal level education are meaningful aspects for children's oral health. In such conditions, some parents and their children do not have enough opportunities to access dental services or to purchase oral hygiene articles[29,30], which may explain the impact on social and emotional domains. Most families in Colombia live in areas with high deprivation and do not have oral health education or services to promote good OHRQoL. It is important to foster the role of schools in reducing health disparities among children[35]. With regard to mother's low level of education having positive impact on the oral symptoms domain of P-CPQ, one study reports how Latina mothers in the USA with higher educational status did not perceive cavities as more serious[36,37]. Previous qualitative studies describe how Latina mothers reported they did not perceive that dental decay was a condition that affected young children[38,39]. This may explain the positive impact in our study. Thus, it is important identify specific cultural beliefs that run counter to optimal oral health in young children.

This study is the first to test the P-CPQ in Spanish-speaking schoolchildren and indicates the need to design public policies in oral health providing comprehensive care to children and their parents and redirecting efforts towards providing proper treatment, reducing the prevalence of dental caries and improving quality of life. This study also contributes to public health by providing understanding of the psychosocial impact of DC, DF and TDI. In addition, the first use of the Spanish version P-CPQ has important implications for research and practice. In this regard, the first use of

the P-CPQ in a Spanish-speaking country enables comparisons with other cultural and ethnic groups around the world, and provides support for public oral health programs and dental care services for this age group. It also provides additional information to the results of a previous study on preschool children.[40]

CONCLUSIONS

According to parents' proxy-reports, the presence of dental caries and attending public schools have a negative impact on the OHRQoL of Colombian schoolchildren, whereas mothers with educational level < 10 year has a positive impact.

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