

PROMOTORA MODEL

to improve oral health: an exploratory study among diverse low-income community

*Modelo Promotora para mejorar la salud oral:
un estudio exploratorio entre diversas comunidades
de bajos ingresos*

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Abstract

The Promotora Model is an educational strategy that has been used to improve the health of underserved populations. We have implemented this exploratory model in a clinical site in Collier County, Florida. The main objective of this study was to increase parents'/guardians' knowledge and ability to improve their children's oral health through educational strategies delivered in both English and Spanish. Families with children age 5 years or younger, most of whom were on a waiting list for dental treatment under sedation, were recruited individually to attend the educational activities (n= 2,533). The mean number of visits to the education room was 2.21 ± 0.49 . Sessions included discussion about dental caries and its etiology and transmission. Also, oral hygiene and feeding practices (e.g., use of baby bottle, frequency of tooth-brushing, and use of dental floss) were discussed with parents/guardians. Following the American Association of Pediatric Dentistry (AAPD) caries risk assessment guidelines, 89 % of the children were classified as high risk for dental caries. After subsequent visits to the education room, parents reported an improvement of their children's oral hygiene practices and were more conscious about bacterial transmission and other modifiable risk factors. The implementation of the "Promotora Model" appears to be an effective educational approach to improve oral health based on cultural and behavioral patterns of the families at clinical and community settings.

KEY WORDS (MeSH): oral health, health promotion, health education, healthy people programs.

Resumen

El Modelo Promotora es una estrategia educacional utilizada para mejorar la salud de poblaciones más desatendidas. Este modelo exploratorio se implementó en un ambiente clínico en el Condado de Collier, Florida-USA. El objetivo de este estudio fue mejorar el conocimiento y habilidad de los padres/custodios con relación a la salud oral de sus hijos, a través de estrategias de educación como método, tanto en inglés como en español. Se seleccionaron individualmente familias con niños hasta con 5 años de edad, en su mayoría en lista de espera para ser sedados y recibir tratamiento dental y para asistir a las actividades educacionales (n= 2.533). El promedio de visitas al salón de educación fue $2,21 \pm 0,49$. Las sesiones incluyeron discusiones con los padres/custodios relacionadas a la caries dental, su etiología y transmisión, higiene oral y práctica de alimentación, (ej., uso del biberón, frecuencia de cepillado dental y uso del hilo dental). Siguiendo las directrices de la American Association of Pediatric Dentistry (AAPD) para el diagnóstico del riesgo de caries dental, 89 % de los niños fueron clasificados como de alto riesgo para caries dental. Después de visitas sucesivas al salón de educación, los padres reportaron una mejoría en las prácticas de higiene oral de sus niños y ser más conscientes sobre la transmisión bacteriana y otros factores de riesgos modificables. La implementación del "Modelo Promotora" pareciera ser una propuesta de herramienta educacional efectiva para mejorar la salud oral, basándose en patrones culturales de conducta de las familias en ambientes clínicos y en comunidades.

PALABRAS CLAVE (DeCS): salud bucal, promoción de la salud, educación en salud, programas gente sana.

Introduction

A “Promotora de Salud (PdS)” the Spanish term used for Community Health Worker (CHW), Community Health Liaison, Lay Health Advocates, and Outreach Educator, among others is a community member who provides basic health education in the community in which they live, guidance in accessing community resources associated with health and interpretation and in most cases with translation ¹. The PdS activities are focused on group or individual educational intervention strategies that influence knowledge, attitudes and practices on an individual or community level. One of the most relevant aspects of PdS is that there is a connection between the PdS and the target community into which they are inserted due to social, cultural and language similarities², developing an egalitarian relationship³.

Since the early 1950s and 1960s, Latin American countries such Mexico, Brazil, Peru, Bolivia, and Chile have incorporated the PdS model as an approach for improving the health of the people in rural communities. With the support of the Pan-American Health Organization and the World Health Organization, some community members have been trained and certified as PdS.

The Promotora Model has been used mostly in Latin American countries, amongst rural or poor communities, where access to health care is limited or nonexistent⁴. On the other hand, in the United States the model has been used for outreach to rural, marginalized and hard-to-reach communities and populations.

In 1990s, the model regained attention in the United States due to the efforts of the Centers for Disease Control and Prevention (CDC) ⁵. It was implemented in Latino communities and in underserved population as a strategy to modify risk behaviors associated with chronic diseases such as cardiovascular disease, diabetes and obesity. States like California have incorporated the PdS model into the health care team ⁴. In the United States-Mexico border region, for example, the model has been introduced into clinical setting as an educational strategy for culturally and effective service for chronic diseases ⁶. Because dental caries is one of the most prevalent chronic diseases among children younger than 5 years of age ⁷, researchers have stated that there is a need to motivate, and educate parents or guardians in underserved population to improve their children’s oral health. The Promotora Model has been found to be an important and effective tool for improving oral health knowledge and preventive counseling of parents/caregivers, especially among underserved Latino families ⁸.

In this exploratory model, our main objective was to increase parents’/guardians’ knowledge and ability to improve their children’s oral health, within a clinical setting at the University of Florida/Naples Children Education Foundation (NCEF) Pediatric Dental Center.

Materials and methods

Implementation

Based on a local needs assessment and with generous support from the Naples Children and Education Foundation (NCEF), the University of Florida/NCEF Pediatric Dental Center was opened in Naples, Florida in 2007. The clinic serves as a training site for University of Florida College of Dentistry's Pediatric Dentistry Residency Program and is Collier County's primary source of dental care for young children from low-income families. Soon after the clinic opened, it rapidly became apparent that early childhood caries (ECC) was rampant in the surrounding community and parents' knowledge of basic oral hygiene was very low. The need for treatment of ECC under sedation or general anesthesia rapidly exceeded capacity, leading to a waiting list of more than one year. It was clear that we needed to implement ECC prevention in the community and increase oral health literacy. With additional funding from NCEF, we launched our "Phase II Project", which included community-based prevention programs that deliver evidence-based prevention services to at-risk infants, toddlers, and school-aged children. In June 2014, we implemented an educational program for those families who visit the Pediatric Dental Center. A bilingual (Spanish and English) dental public health specialist was hired to serve as the "Promotora de Salud" (PdS) to individually help parents and caregivers understand the importance of their children's oral health, the etiology of dental caries in their children, and steps they can take to help prevent dental caries. The PdS developed educational material and videos, and prepared the clinic's education room.

Site

This exploratory Promotora Model has been applied in a clinical educational site (NCEF Pediatric Dental Center) in Collier County, located in southwest Florida.

Target community

During the period of July 2014 through February 2016, 2,533 low-income families visited the education room. Most of the families are Hispanic, which reflects the ethnic composition of the clinic's patient population. The overwhelming majority of the children seen in the education room have been classified as being at high risk for dental caries following the American Association of Pediatric Dentistry (AAPD) caries risk assessment guidelines⁹. The majority of the children seen were on the waiting lists for dental treatment under intravenous sedation, oral sedation, or general anesthesia.

Of the 2,533 families seen by the PdS, 327 returned for recall visits. During those recall visits, improvements and behavioral changes incorporated on their children's oral health were discussed.

Educational strategy

Using an educational intervention approach, the Pds individually invited the families to visit the education room. Families were specifically targeted if they children age 5 years or younger and if it was the child's first dental visit, but other visit types and ages also were included. The oral health intervention was directed to the parents or caregivers based on the age of the children, using educational videos from National Institutes of Health and educational materials prepared by the Pds in both English and Spanish.

The program was presented by the Pds to the parents, and the time frame used for the educational activity was around 30 minutes.

Educational topics/ activities

The Pds discussed oral hygiene and feeding practices (e.g., use of baby bottle, frequency of tooth-brushing, and use of dental floss), the process of caries initiation, transmission, oral hygiene techniques, and the benefits of community water fluoridation with the parents/caregivers. There was a question and answer session with each family in order to listen and answer the parents' or caregivers' concerns about their child's oral health.

At the end of the educational activities, the parent was asked to select at least three goals or behavioral changes she/he was willing to incorporate in their children's oral health before the next three-month recall visit. After three months, parents/caregivers were asked which of the behavioral changes that she/he selected had actually been incorporated; based on the parents'/caregivers' answers, the Pds started a discussion session to reinforce the oral health topics.

Results

Of the participants in the Pds educational activity, 50.2 % of the families' children were 5 years of age or younger, 88.6 % were classified as high risk for dental caries, and the large majority (88.9 %) of parents/guardians who visited the education room were women (TABLE 1). The majority of participants (68.2 %) reported they were Hispanic.

Characteristics of the 327 families that returned for one or more recall visits between July 2014 and February 2016 are summarized in TABLE 2. Among those families, there was a mean (SD) number of 2.21 ± 0.499 , and 82 % of the families had visited the education room twice. Of the 327 families, 95.4 % (n = 312) had children at high risk for dental caries.

We explored the behavioral changes incorporated by the parents/caregivers in their child's oral health since their previous visit to the education room with the Pds (TABLE 3). All parents reported brushing their child's teeth more frequently since the previous visit, and 60 % reported they started using dental floss. The

TABLE 1.

SELECT CHARACTERISTICS OF THE CHILDREN WHO VISITED THE PROMOTORA AT THE UF/NCEF PEDIATRIC DENTAL CENTER, JULY 2014-FEBRUARY 2016.

CHARACTERISTIC	NUMBER	PERCENT
AGE (y)		
0–5	1.271	50.2
6–10	1.062	41.9
11 or older	200	7.9
CARIES RISK ASSESSMENT		
High	2.246	88.6
Moderate	169	6.8
Low	118	4.6
RELATIONSHIP OF ATTENDING ADULTS		
Both parents	174	6.8
Mother	2.252	88.9
Father	101	4.0
Other caregiver	6	0.3
TOTAL	2.533	100.0

TABLE 2.

SELECT CHARACTERISTICS OF THE CHILDREN WHO RETURN TO THE PROMOTORA FOR AT LEAST ONE RECALL VISIT AT THE UF.

CHARACTERISTIC	NUMBER	PERCENT
AGE (y)		
0–5	178	54.4
6–10	122	37.3
11 or older	27	8.3
CARIES RISK ASSESSMENT		
High	312	95.4
Moderate	11	3.4
Low	4	1.2
NUMBER OF VISITS TO PROMOTORA		
2	268	82.0
3	50	15.3
4	7	2.1
5	2	0.6
TOTAL	327	100.0

TABLE 3.

SELF-REPORTED BEHAVIORAL CHANGES INCORPORATED BY PARENTS OR GUARDIANS IN THEIR CHILD'S ORAL HEALTH SINCE THEIR PREVIOUS VISIT TO THE EDUCATION ROOM.

BEHAVIORAL CHANGE	NUMBER	PERCENT
USE DENTAL FLOSS		
Yes	75	60.0
No	50	40.0
WEANED CHILD FROM BABY BOTTLE OR SIPPY CUP*		
Yes	16	51.7
No	15	48.3
STOPPED FEEDING PRACTICES THAT PROMOTED BACTERIAL TRANSMISSION		
Yes	85	68.0
No	40	32.0
DRINK FLUORIDATED TAP WATER**		
Yes	38	51.4
No	36	48.6
TOTAL	125	100.0

* 94 children did not use baby bottle or sippy cup at their initial visit and were excluded from this behavior change assessment

** 51 children lived in households served by well water and were excluded from this behavior change assessment.

results from those who used baby bottle or sippy cup (n = 31) reveal that 51.7 % had weaned their child from the baby bottle or sippy cup by the recall visit.

Regarding bacteria transmission as a risk factor for dental caries, 68 % reported being more aware of bacteria transmission, such as by blowing on their child's food or sharing food from the same eating utensil. Among those who had fluoridated community water, 51.4 % reported they started drinking tap water at home.

Discussion

This exploratory study of the Promotora Model that we developed suggests this model was beneficial for the families attending an academic pediatric dental clinic. The use of a PdS specialist has helped families to improve knowledge and to understand the importance of maintaining their children's oral health by building communication based on cultural and family traditions. By targeting our clinical-based educational activities to families with children at high risk for dental caries, we observed some behavioral changes incorporated at home regarding oral hygiene techniques, knowledge of dental caries etiology and transmission, healthy diet, and the benefits of community water fluoridation.

The incorporation of Pds to provide educational information has been reported to be a successful approach^{10,11}. In this exploratory study, the educational activities conducted by the Pds regarding oral health have helped parents and caregivers to understand the importance of incorporating healthy oral behaviors at home. During the recall visits, parents/caregivers became more aware of caries initiation and transmission, and developed more positive attitudes and willingness to improve their children's oral health. Even though there is some controversy about the use of the educational activities within clinical and community settings¹², our model appears to be a promising approach to increasing parents'/guardians' knowledge and ability to improve their children's oral health.

The results of this study suggest that incorporating a Pds within a clinical dental setting is a favorable individualized educational strategy for Hispanic/Latino populations. The use of a bilingual dental public health specialist helped parents understand the importance of the oral health of their children.

Conclusion

Using a Pds within a clinical setting can be an effective educational approach to prevention when working with parents whose children are at high risk of developing dental caries. More research is needed to determine the impact of the Promotora Model in the preventing the onset or progression of dental caries among low-income populations that have an established dental home.

References

- ¹ Hilfinger-Messias DK, Parra-Medina D, Sharpe PA, Treviño L, Koskan AM, Morales-Campos D. Promotoras de Salud: Roles, Responsibilities, and Contributions in a Multi-Site Community-Based Randomized Controlled Trial. *Hispanic Health Care International: The Official Journal of the National Association of Hispanic Nurses*. 2013;11(2), 62–71. [On line] Available in: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3970723/>
- ² Rural Health Information Hub. Promotora de la Salud/Lay Health Worker Model. 2016. [On line] Available in: <https://www.ruralhealthinfo.org/community-health/community-health-workers/2/layhealth>
- ³ The Promotor Model. A Model for Building Healthy Communities. A Framing Paper. 2011. [On line] Available in: http://www.visionycompromiso.org/wordpress/wp-content/uploads/TCE_Promotores-Framing-Paper.pdf
- ⁴ Capitman JA, González A, Ramírez M, Pacheco T. The Effectiveness of a Promotora Health Education Model for Improving Latino Health Care Access in California's Central Valley. Central Valley Health Policy Institute. 2009. [On line] Available in: <https://www.fresnostate.edu/chhs/cvhpi/documents/cms-final-report.pdf>

- 5 National Center for Chronic Disease Prevention and Health Promotion. Division for Heart Disease and Stroke Prevention. Addressing chronic disease through community health workers. A policy and systems-level approach. A policy brief on community health workers. 2015. [On line] Available in: http://www.cdc.gov/dhdsp/docs/chw_brief.pdf
- 6 Balcazar H, Alvarado M, Cantu F, Pedregon V, Fulwood RA. Promotora de Salud for Addressing Cardiovascular Disease Risk Factors in the US-Mexico Border Region. Preventing Chronic Disease. Public Health Research, Practice, and Policy. 2009. [On line] Available in: https://www.cdc.gov/pcd/issues/2009/jan/pdf/08_0020.pdf. <https://www.fresnostate.edu/chhs/cvhipi/documents/cms-final-report.pdf>
- 7 Çolak H, Dülgergil ÇT, Dalli M, Hamidi MM. Early childhood caries update: A review of causes, diagnoses, and treatments. *Journal of Natural Science, Biology, and Medicine*. 2013; 4(1): 29-38. [On line] Available in: <http://doi.org/10.4103/0976-9668.107257>
- 8 Hoeft KS, Rios SM, Pantoja-Guzman E, Barker JC. Using community participation to assess acceptability of “Contra Caries”, a theory-based, promotora-led oral health education program for rural Latino parents: a mixed methods study. *BMC Oral Health*. 2015; 15: 103. [On line] Available in: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4558913/pdf/12903_2015_Article_89.pdf
- 9 Guideline on Caries-risk Assessment and Management for Infants, Children, and Adolescents. *Clinical Practice Guidelines. Reference Manual 2016-2017*, V 3 8: 142-149. [On line] Available in: http://www.aapd.org/media/Policies_Guidelines/G_CariesRiskAssessment7.pdf.
- 10 Ayala GX, Elder JP, Campbell NR, Arredondo E, Baquero B, Crespo NC et al. Longitudinal Intervention Effects on Parenting of the Aventuras para Niños Study. *American Journal of Preventive Medicine*. 2010;38(2): 154-162. [On line] Available in: <http://doi.org/10.1016/j.amepre.2009.09.038>.
- 11 Crespo NC, Elder JP, Ayala GX, Campbell NR, Arredondo EM, Slymen DJ et al. Results of a Multi-level Intervention to Prevent and Control Childhood Obesity among Latino Children: The Aventuras Para Niños Study. *Annals of Behavioral Medicine: A Publication of the Society of Behavioral Medicine*. 2012; 43(1): 84-100. [On line] Available in: <http://doi.org/10.1007/s12160-011-9332-7>.
- 12 Cascaes AM, Bielemann RM, Clark VL, Barros AJD. Effectiveness of interviewing at improving oral health: a systematic review. *Revista de Saúde Pública*. 2014; 48(1): 142-153. [On line] Available in: <http://doi.org/10.1590/S0034-8910.2014048004616>.