

Correlation of Oral Health Education by Community Health Workers with Changes in Oral Health Practices in Migrant Populations in Washington State

Journal of Primary Care & Community Health
Volume 12: 1–5
© The Author(s) 2021
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/21501327211002417
journals.sagepub.com/home/jpc



Ileana Maria Ponce-Gonzalez^{1,2} , Allen D. Cheadle³,
and Michael Leo Parchman⁴

Abstract

Introduction: An important question for oral health education is whether knowledge gained during lay-led workshops is retained and applied in daily practice. This study assessed the knowledge retention and changes in oral health practices several months after oral health education workshops were held for migrant farmworkers by Community Health Workers (CHWs). **Methods and Results:** Follow-up surveys were conducted with 32 participants 1 to 43 months post participation (60% between 6 and 21 months). The results showed a high degree of retention, in such areas as general oral health knowledge, and brushing/flossing frequency and technique among this sample. There was no relationship between length of time since the educational workshop and knowledge retained or behaviors changed. **Conclusions and Recommendations:** An interactive, lay-led oral health education program run by CHWs can be an effective way to deliver sustained improvements in oral health knowledge and changes in oral health practice in migrant populations.

Keywords

community health workers, oral health education, migrant and underserved populations

Dates received 20 February 2021; revised 20 February 2021; accepted 23 February 2021.

Introduction

Oral health is one of the greatest unmet health needs of migrant farmworkers.¹ Poor oral health reduces quality of life and is related to the development and exacerbation of chronic illnesses such as cardiovascular disease and diabetes.^{1,2} In addition to the many barriers migrant workers face in accessing oral health care,³ a lack of knowledge about what contributes to good oral health, and a failure to understand good oral hygiene behaviors contribute to their well-documented poor oral health outcomes.⁴

In a previous paper we described the results of an oral health education program implemented in Washington State by the Community Health Worker Coalition for Migrants and Refugees (CHWCMR).⁵ That paper reports on the results of 12 interactive, lay-led oral health training workshops that were conducted with 311 participants throughout the state in 2017 (see Figure 1) All workshops were conducted in Spanish in rural areas and most participants were migrant farmworkers or a member of their family. A

pre-post survey of participants conducted on the day of the training showed significant increases across all areas of oral health knowledge.⁵

An important question for this and other lay-led education programs is whether knowledge gained during the

¹University of Washington Seattle Campus Ringgold standard institution—Health Science, Seattle, Washington, USA

²Community Health Worker Coalition for Migrants and Refugees, Edmonds, Washington, USA

³Kaiser Permanente Washington Health Research Institute Ringgold standard institution—Center for Community Health & Evaluation, Seattle, Washington, USA

⁴Kaiser Permanente Washington Health Research Institute Ringgold standard institution—MacColl Center for Health Care Innovation, Seattle, Washington, USA

Corresponding Author:

Ileana Maria Ponce-Gonzalez, University of Washington Seattle Campus Ringgold Standard Institution—Health Science, 1959 NE Pacific St H-Wing, Six Floor, Seattle, Washington 98195-0005, USA.
Email: ileanaponce@chwcoalition.org



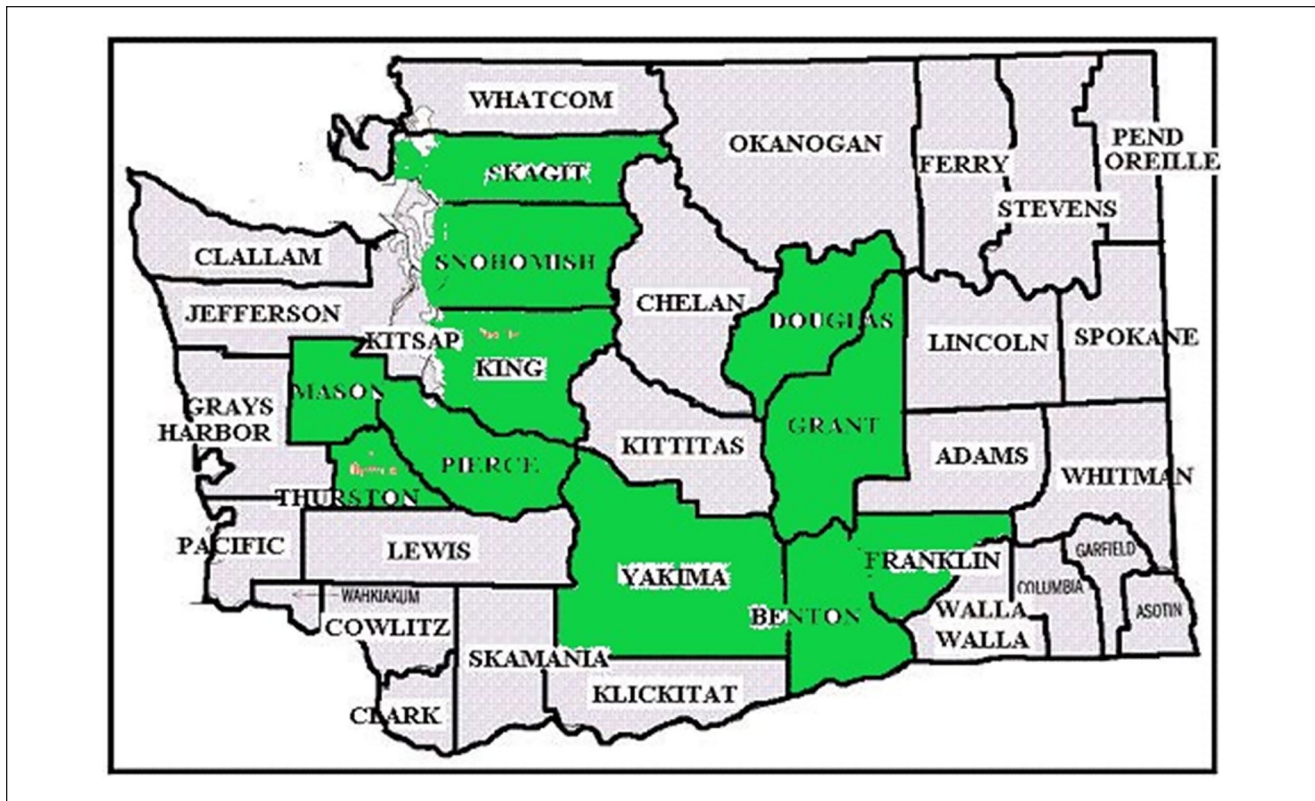


Figure 1. Counties in Washington State where oral health trainings were held.¹

workshops training is retained and applied in daily oral health practice. A “lay leader” is a trusted member of the community, who has been trained in principles of improving oral health and how to teach others in their community to do so using a train the trainer model. All of the oral health workshop lay leaders are CHWs, consistent with the American Public Health Association of a Community Health Worker (CHW) as “a frontline public health worker who is a trusted member of and/or has an unusually close understanding of the community served. This trusting relationship enables the CHW to serve as a link between health or social services and the community to facilitate access to services and improve the quality and cultural competence of service delivery.”⁶

Retention in knowledge and sustained changes in practice are essential in this population, because (1) tooth caries remains the most prevalent chronic condition among migrant children; (2) many of the adults have a chronic condition such as diabetes that increases the risk of poor oral health outcomes; (3) this population has limited access to oral health services; and (4) food insecurity is prevalent which leads to poor nutrition with daily diets that are rich in simple carbohydrates sugars. Since CHWs are trusted members of their communities they have great potential to improve oral health prevention by using a peer-to-peer training model. They may also serve an

important role in establishing sustained healthy oral behaviors and self-management to prevent and improve oral health conditions. The purpose of this study was to assess the retention of oral health knowledge and the sustainability of changes in oral health practices several months post workshop completion among migrants with limited level of health literacy and knowledge about oral health prevention.

Methods

Program Description

The oral health education program was a joint collaborative effort of CHWCMR, a non-profit community-based organization in Washington State, and the Arcora Foundation. Subsequent to the original findings from the 12 workshops conducted in calendar year 2017, between 2017 and 2019. CHWCMR conducted a total of 32 oral health workshops with 697 participants living in rural and low-income communities across Washington State. Seventy-two percent were women and 42% were between 29 and 49-years old, followed by 29% between 18 and 24-years old. Forty-six percent of participants had a high school level of education and 6% did not attend any school. Seventy-seven percent were born in Mexico and only 9% were US citizens.

The oral health education program included both didactic and interactive components as previously described.⁵ The didactic component consisted of a presentation about key oral health knowledge and practice—for example, brushing, flossing, implications of oral health for physical health. The interactive component involved a figure drawing exercise where participants shared thoughts on the determinants of their oral health. Each session was led by 2 people: (1) a master trainer with a Master's in Public Health or a Diabetes Self-Management Program⁷ credential, and (2) a lay leader who had received training for 4 h in the oral health workshop curriculum. Participants attending the workshop were given a \$25 stipend. All of the workshops were conducted in Spanish.

Data Collection

This is a mixed-methods study that includes qualitative, open-ended questions, and quantitative data (eg, closed-ended surveys). To assess the retention of knowledge and behavior changes brought about by the oral health training program, follow-up structured surveys were conducted with a random sample of participants. Informed consent was signed by participants for each of the pre and post surveys, and was obtained orally prior to the focus group.

For this evaluation, we randomly selected 4 of the 12 lay leaders and asked them to identify and interview 10 participants from their previous workshops. Each lay leader conducted 2 workshop each with an average of 21 participants per workshop. The overall evaluation design and methods were reviewed and approved by the Kaiser Permanente Washington Research Institute Institutional Review Board. Participants consented to participate when they completed the pre/post surveys

The structured survey included 2 open-ended questions about both oral health knowledge and oral hygiene behavior changes:

- Knowledge: “In brief, what did you learn about in the workshop?”
- Oral hygiene behaviors: “How do you take care of your teeth now, compared to before the workshop?”

Analysis

Responses to each open-ended question were reviewed independently by 2 of the authors. (IPG and MP) Each reviewer created a code for common responses to the question. For example, in response to the question “What did you learn about during the workshop” common responses included the importance of flossing or general knowledge about oral health. The coded responses were compared between the 2 reviewers and they then applied them to a small sample of surveys together. New coded responses

were developed, or previous codes merged, until a consensus was reached on a final set of codes that described all responses. Some participants gave more than 1 response to the question, so the total frequencies of coded responses is greater than the final number of participants.

Results

The 4 lay leaders (CHWs) were only able to identify and obtain consent from 32 out of the 168 individuals who participated in their workshops. Due to the limited level of literacy of MSFW, the lay leaders spent more time with participants to ensure questions were appropriately understood. The time elapsed post workshop until the interview ranged from 1 to 43 months, with the majority (63%; n=20) between 6 and 21 months. Three-quarters of the respondents (n=24) were female, all but 1 person self-identified as Hispanic, the mean age was 38 years, and 56% (n=18) had completed only a middle school education or less.

The coded results of the surveys, along with sample responses, are shown in Table 1. Four categories of knowledge were identified in the coding: increased general knowledge about oral health (40.6% respondents), brushing practices (37.5%), how and why to floss (n=12.5%), and the importance of visiting the dentist regularly (6.3%). Under oral hygiene behavior change there were 4 categories identified: Increased frequency of flossing (50%), increased brushing (43.8%), improvements in brushing technique (n=12.5%), and general oral health care (9.4%). All of those surveyed reported retention of at least one of the knowledge or behavioral practices.

Table 2 shows the percent of respondents who mentioned a specific type of oral health knowledge or behavior change broken down by time elapsed between workshop and survey and demographic variables. No clear patterns emerged and few of the results were statistically significant. Of note, there was no clear pattern in decline of either knowledge or behavior the longer the time elapsed post workshop; in 2 of the 3 cases where differences were significant, there was *greater* retention as the length of time from the workshop increased.

Discussion

Follow-up assessments from participants in a CHW-led oral health education workshop developed for migrants and refugees demonstrates sustained and persistent improvements in both oral health knowledge and preventive behaviors. The surveys were designed to assess whether knowledge and behaviors previously shown to be increased during the workshop⁵ were retained several months later. The results showed a fairly high degree of retention, in such areas as general oral health knowledge, and brushing/flossing frequency and techniques. This is a very important and

Table 1. Sustained Knowledge and Behavior Changes among Training Participants.

Issue/barrier	% of respondents ^a	Examples of responses
Knowledge—What did you learn?		
General oral health knowledge	40.6	“The steps to take to have good oral hygiene and make it a habit” “That oral hygiene is very important for your health in general”
Brushing	37.5	“How to brush my teeth the right way” “How important it is to brush your teeth at least three times a day”
Flossing	12.5	“How important it is to use dental floss” “To use dental floss—I didn’t use before and I do now”
How often to visit the dentist	6.3	“How important it is to eat healthy”
Behavior—How do you take care of your teeth differently?		
Increased flossing frequency	50.0	“I floss every day, correctly, and replace my brush more frequently” “I use dental floss more often”
Increased brushing frequency	43.8	“I brush three times a day now” “I brush two times now and I floss frequently.”
Brushing technique	12.5	“I brush my teeth more frequently and I do it the right way now.”
General oral health care	9.4	“I try to take care of my teeth and oral health” “I have changed a lot!”

^aPercent of respondents who mentioned the topic (n = 32 respondents total).

Table 2. Sustained Knowledge and Behavior Changes, by Time Elapsed and Demographics.

Issue/barrier	Time elapsed ^a		Gender		Age		Education ^b	
	<10 months	10 + months	Female	Male	<40 years	40 + years	MS	>MS
# of respondents	12	20	24	8	14	17	18	14
Knowledge—What did you learn?								
General oral health knowledge	66.7	25.0**	41.7	37.5	42.9	35.3	38.9	42.9
Brushing	16.7	50.0*	41.7	25.0	28.6	47.1	55.6	14.3**
Flossing	8.3	15.0	12.5	12.5	7.1	17.7	11.1	14.3
How often to visit the dentist	0.0	10.0	8.3	0.0	7.1	5.9	0.0	14.3
Behavior—How do you take care of your teeth differently?								
Increased flossing frequency	16.7	70.0**	50.0	50.0	57.1	47.1	44.4	57.1
Increased brushing frequency	58.3	35.0	45.8	37.5	35.7	47.1	44.4	42.9
Brushing technique	16.7	10.0	8.3	25.0	14.3	11.8	11.1	14.3
General oral health care	16.7	5.0	8.3	12.5	14.3	5.9	11.1	7.1

Figures show the percent of respondents in each category who mentioned a specific type of oral health knowledge or behavior change.

^aMonths elapsed between workshop and survey.

^bMS = Middle school or less / >MS = GED or more education.

** $P < .05$ for test of difference in percentages between the 2 categories.

* $P < .10$ for test of difference in percentages between the 2 categories.

encouraging finding since migrants or agricultural seasonal farmworkers have poor access to oral health services and limited knowledge in preventive services in oral health.^{8,9} In addition, migrants face many barriers to receiving health care in general and dental health care in particular, including lack of transportation, insurance, and sick leave; the threat of wage or job loss; language barriers; lack of a regular dental practitioner; limited clinic hours; and limited English proficiency.³ In addition to these barriers in access, many migrant workers lack basic oral health knowledge, including the relationship between sweet foods and caries

and the positive effects of good oral hygiene and fluoride on dental health and overall health.⁴

The CHW-led oral health training and education offers an important avenue to increasing knowledge about good oral health practices,¹⁰ and the original published study was one of the first evaluations we are aware of about such an education programs in migrant populations led by CHWs, rather than dental professionals (dentists or dental hygienists). Overall, our positive findings for knowledge gain at the conclusion of the workshop reported in a previous paper, and the retention of knowledge and behaviors several

months after the workshop reported here, support the idea that migrant populations may be better reached by education programs led by CHWs, especially those programs using an interactive approach.^{11,12}

There are several limitations that should be noted. The surveys were conducted with a relatively small sample of participants. Obtaining data from MSFW is challenging due to their highly mobile lifestyle and fear of providing information to anyone given their varying levels of citizenship status. There may be a social desirability reporting bias as participants attempt to demonstrate that they learned something in the workshops to the lay leader (CHW) who led their workshop. All of the information about sustainment of knowledge and behaviors was self-reported since we had no way of observing oral health behaviors directly. In addition, we do not know if there were confounding events that occurred between the completion of the workshop and the follow-up survey. Finally, this was a community-based study that relied on the lay leaders to do the data collection. All of the lay leaders received training in surveying the participants, but there may have been inconsistencies in the way the surveys were administered.

Despite these limitations, this study demonstrated that an interactive, lay-led oral health education program can be an effective way to promote sustained improvements in oral health knowledge and behavior in migrant populations. Given the oral health disease burden in this population, and the limited knowledge about the effectiveness of using CHWs to promote good oral health practice among MSFW, these findings should encourage others to develop similar effective interventions using a lay leader (CHW) model.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: Funding for this study was provided by the Arcora Foundation.

ORCID iD

Ileana Maria Ponce-Gonzalez  <https://orcid.org/0000-0003-2139-9578>

References

1. Quandt SA, Clark HM, Rao P, Arcury TA. Oral health of children and adults in Latino migrant and seasonal farmworker families. *J Immigr Minor Health*. 2007;9:229-235.
2. Casanova L, Hughes FJ, Preshaw PM. Diabetes and periodontal disease: a two-way relationship. *Br Dent J*. 2014;217:433-437.
3. Hansen E, Donohoe M. Health issues of migrant and seasonal farmworkers. *J Health Care Poor Underserved*. 2003;14:153-164.
4. Woolfolk MP, Sgan-Cohen HD, Bagramian RA, Gunn SM. Self-reported health behavior and dental knowledge of a migrant worker population. *Community Dent Oral Epidemiol*. 1985;13:140-142.
5. Ponce-Gonzalez I, Cheadle A, Aisenberg G, Cantrell LF. Improving oral health in migrant and underserved populations: evaluation of an interactive, community-based oral health education program in Washington state. *BMC Oral Health*. 2019;19:30.
6. American Public Health Association. Community health workers. 2021. Accessed February 20, 2021. <https://www.apha.org/apha-communities/member-sections/community-health-workers>
7. Lorig KR, Ritter P, Stewart AL, et al. Chronic disease self-management program: 2-year health status and health care utilization outcomes. *Medical Care*. 2001;39:1217-1223.
8. Hoelt KS, Barker JC, Shiboski S, Pantoja-Guzman E, Hiatt RA. Effectiveness evaluation of Contra Caries Oral Health Education Program for improving Spanish-speaking parents' preventive oral health knowledge and behaviors for their young children. *Community Dent Oral Epidemiol*. 2016;44:564-576.
9. Kranz AM, Rozier RG, Zeldin LP, Preisser JS. Oral health activities of Early Head Start and Migrant and Seasonal Head Start programs. *J Health Care Poor Underserved*. 2012;23:1205-1221.
10. Nakre PD, Harikiran AG. Effectiveness of oral health education programs: a systematic review. *J Int Soc Prev Community Dent*. 2013;3:103-115.
11. Chang CP, Barker JC, Hoelt KS, Guerra C, Chung LH, Burke NJ. Importance of content and format of oral health instruction to low-income mexican immigrant parents: a qualitative study. *Pediatr Dent*. 2018;40:30-36.
12. Hoelt 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.