RANDOMIZED CONTROLLED TRIAL OF THE EFFECT OF LAY HEALTH ADVISOR INTERVENTION ON CHILD’S CARIES PREVENTION BEHAVIORS IN IMMIGRANT MOTHERS

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Date: April 29, 2015
Introduction

- Over 130,000 immigrant brides were married in Taiwan between 1987 and 2010, among whom 82% were Vietnamese or Indonesian women.

- Immigrant women have difficulty accessing the health care system because of language barriers, cultural conflicts, social and interpersonal isolation, and a lack of support systems. (Yang and Wang, 2003)
Original Paper

Caries Research

Caries Res 2014;48:575–583
DOI: 10.1159/000351680

Received: January 14, 2013
Accepted after revision: April 25, 2013
Published online: July 29, 2014

Oral Health Disparities of Children among Southeast Asian Immigrant Women in Arranged Transnational Marriages in Taiwan

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Figure 1. Comparison of dental caries between native and immigrant children. 
dt= decay teeth; mt= missing teeth; ft= filling teeth; dmft= caries index;  
SiC=Significant Caries index

**P<0.01; ***P<0.001

Lin YC et al. 2014
Immigrant-native differences in caries-related knowledge, attitude, and oral health behaviors: a cross-sectional study in Taiwan

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Abstract

Background: With the growing number of transnational marriages in Taiwan, oral health disparities have become a public health issue. This study assessed immigrant-native differences in oral health behaviors of urban mothers and their children.

Methods: We used the baseline data of an oral health promotion program to examine the immigrant-native differences in caries-related knowledge, attitude, and oral health behaviors. A cross-sectional study was conducted to collect data from mothers in urban area, Taiwan. A total of 150 immigrant and 440 native mothers completed the self-report questionnaires. Logistic regression models analyzed the racial differences in oral health behaviors.

Results: Approximately 37% of immigrant mothers used dental floss, 25% used fluoride toothpaste, and only 13.5% of them regularly visited a dentist. Less that 40% of immigrant mothers brush their children’s teeth before aged one year, 45% replaced child’s toothbrush within 3 months, and only half of the mothers regularly took their child to the dentist. Immigrant mothers had lower level of caries-related knowledge and attitudes than native mothers (p < .001). Compared to native group, the immigrant mothers were less likely to use of dental floss (Adjusted odds ratio (aOR) = 0.35), fluoride toothpaste (aOR = 0.29), visit a dentist in the past 2 years (aOR = 0.26), and take their children to regular dental check-up (aOR = 0.38); whereas, they were more likely to not consume sweeten beverages (aOR = 3.13).

Conclusions: The level of caries-related knowledge, attitudes and oral health behaviors were found lower in immigrant mothers than native ones. The findings suggested cross-cultural caries prevention programs aimed at reducing immigrant-native disparities in child oral health care must be developed for these immigrant minorities.

Keywords: Attitudes, Behavior, Dental caries, Immigrants, Health care
Lay Health Advisor Strategy

• Evidence suggests that the use of **Lay Health Advisor (LHA)** is an effective strategy for reducing or eliminating health disparities.  (Gwede et al., 2012; Walton et al., 2012)

• **LHAs**—also known as natural helpers, **community health workers**, and frontline workers—are lay personnel employed to serve as a link between professional health care staff and the community.
Justification & Objective

• Although LHA approach was commonly used in promoting cancer screening and other fields, neither in dental field nor oral health promotion.

• The 5-year LHA Approach to Promote Oral Health Program for immigrant children was first implemented in 2011, Taiwan.
Method

• **Study design**
  - Randomized control trial

• **Study population**
  - Immigrant mothers and their children aged 2-6 years

• **Anticipate sample**
  - Each group needed 100 children
Method

• LHA Selection and Recruitment
  - Bilingual Vietnamese or Indonesian women who had lived in the selected urban communities for at least 1 year
  - Recruited from churches, schools, and immigrant service centers

• 50 LHAs were recruited and 37 completed the training course.
Original Paper

Caries Res 2015;49:147–156
DOI: 10.1159/000363067
Received: December 14, 2013
Accepted after revision: April 17, 2014
Published online: January 28, 2015

Evaluating the Effect of a Community-Based Lay Health Advisor Training Curriculum to Address Immigrant Children’s Caries Disparities

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LHA Training

• Training manual and brochure development
• A 24-hr training session and 3-week practicum
• Caries prevention knowledge, oral hygiene demonstrations, teaching techniques, communication skills, and hands-on practice session
### Table 1. LHA pre- and post-training related to maternal oral health behaviors

<table>
<thead>
<tr>
<th>Behaviors</th>
<th>Tooth-brushing 3 times OR (95% CI)</th>
<th>Tooth-brushing 3 minutes OR (95% CI)</th>
<th>Modified Bass method OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>before</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Dental flossing OR (95% CI)</td>
<td>Fluoride toothpaste use OR (95% CI)</td>
<td>Child’s dental visit OR (95% CI)</td>
</tr>
<tr>
<td>Training</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>before</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>after</td>
<td><strong>4.56 (1.68-12.37)</strong></td>
<td><strong>5.63 (2.07-15.29)</strong></td>
<td><strong>3.57 (1.14-11.19)</strong></td>
</tr>
</tbody>
</table>

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**Intervention**

**Randomized**

**Intervention group**
- Pre-test
  - Questionnaire
  - Oral exam
- LHAs intervention
  - Home visit 4 times
  - Oral health education
- 1st Post-test
  - Questionnaire
- 2nd Post-test
  - Questionnaire
  - Oral exams

**Control group**
- Pre-test
  - Questionnaire
  - Oral exam
- Brochure only
- 1st Post-test
  - Questionnaire
- 2nd Post-test
  - Questionnaire
  - Oral exams

**Times**
- Time 1
- Time 2: 4 wks
- Time 3: 6 mons
Pre- and Post-test Survey

• Self-administered Questionnaire
  ➢ Maternal knowledge, attitude, self-efficacy and child’s behavior
  ➢ Vietnamese version
  ➢ Cronbach’s $\alpha$ are among 0.72-0.84
Preliminary Results
### Maternal knowledge, attitude, self-efficacy

**Table 2.** The *maternal caries-prevention* knowledge, self-efficacy, attitudes toward oral hygiene after LHA outreach

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Intervention (n=29)</th>
<th>Control (n=24)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before</td>
<td>After</td>
</tr>
<tr>
<td></td>
<td>mean    SD</td>
<td>mean    SD</td>
</tr>
<tr>
<td>Knowledge (0-10)</td>
<td>5.86 2.22 8.48 2.06</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Self-efficacy (3-12)</td>
<td>9.24 1.72 9.07 1.51</td>
<td>1.000</td>
</tr>
<tr>
<td>Attitude (9-45)</td>
<td>38.24 4.38 38.03 4.03</td>
<td>1.000</td>
</tr>
</tbody>
</table>

*Pa* value is from Wilcoxon signed test and Wilcoxon signed rank test.

*Pb* value is from Wilcoxon rank sum test.
## Child’s Oral Hygiene Behaviors

### Table 3. Child’s oral hygiene behaviors movement in stage after outreach

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Intervention</th>
<th>Control</th>
<th>OR (95%CI)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td><strong>Brushing 3+ times daily</strong></td>
<td>8</td>
<td>27.6</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Stage change</td>
<td></td>
<td></td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>-1 (went back 1 stage)</td>
<td>1</td>
<td>3.5</td>
<td>1</td>
<td>4.2</td>
</tr>
<tr>
<td>0 (stayed the same)</td>
<td>22</td>
<td>75.9</td>
<td>23</td>
<td>95.8</td>
</tr>
<tr>
<td>1 (moved forward 1 stage)</td>
<td>6</td>
<td>20.7</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Brushing for 3 minutes</strong></td>
<td>19</td>
<td>65.5</td>
<td>6</td>
<td>25.0</td>
</tr>
<tr>
<td>Stage change</td>
<td></td>
<td></td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>-1 (went back 1 stage)</td>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>4.2</td>
</tr>
<tr>
<td>0 (stayed the same)</td>
<td>13</td>
<td>44.8</td>
<td>19</td>
<td>79.2</td>
</tr>
<tr>
<td>1 (moved forward 1 stage)</td>
<td>16</td>
<td>55.2</td>
<td>4</td>
<td>16.7</td>
</tr>
</tbody>
</table>
Conclusion

• The LHA strategy was effective in improving immigrant maternal knowledge and child’s oral hygiene behaviors.

• Long-term effects of LHA intervention strategy on child’s caries should be evaluated.
References


