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Participatory Group Prenatal Education Using Photonovels: Evaluation of a Lay Health Educator Model with Low-Income Latinas

By Susan J. Auger, Sarah Verbiest, James V. Spickard, Florence M. Simán and Mélida Colindres | December 1, 2015

Abstract

Summary: The objective of this research was to examine the effectiveness of a participatory prenatal education program for low-income Latinas. Lay health educators facilitated groups using photonovels and experiential learning activities.

Methods: We used a community-based participatory research approach with a mixed method evaluation. Data included participant pre- and post-test surveys, focus groups, and a medical record review of participant outcomes and a control-match group who received usual care.

Results: Participants (n=43) showed a significant increase in their knowledge of pregnancy, childbirth, and breastfeeding (P < .001) and a significant increase in confidence at being able to navigate their pregnancies, care for themselves and their babies, and interact with health professionals (P ≤ .05). They reported an increase in social support, a deeper understanding of information from medical providers, greater engagement, and behavior changes. There were no statistically significant differences in health outcomes between the participants and the control group. Conclusions: This study demonstrated that 1) a participatory prenatal education program can be an effective way to foster health literacy and empowerment among low-income Latinas; and 2) trained lay educators can be effective group facilitators. The intervention's tripartite approach offers a vehicle for health professionals to partner with Latino communities to promote active participation and capacity building for health and change. This strategy could be adapted and tested with other topics and communities.

Keywords: Prenatal, Hispanic/Latino, photonovels, lay health educators, participatory education, health literacy, empowerment, health care disparities, equity, community-based participatory research.
Introduction

Prenatal care provides an opportunity to promote health and reduce risks for mothers, infants, and families. [1] [2] Studies show that timely, comprehensive care, increased social support, and reduced stress during the prenatal period can reduce the likelihood of pregnancy complications, postpartum depression, and adverse perinatal outcomes. [3][4] [5] Unfortunately, Hispanic women are twice as likely to receive late or no prenatal care as non-Hispanic white women. [6] Latinas with low incomes experience many barriers to healthcare, including poverty, low education levels, lack of insurance, immigration issues, and language barriers. [2] [6] [7][8] The diverse groups within the Hispanic population have varied health needs and health care utilization patterns, and face different barriers to accessing care. [9] These within-group differences pose additional challenges for engaging Latinas and providing health care services in a culturally and linguistically appropriate way and may contribute to health and health care disparities.[9]

For Latinas who do receive care, a 10- to 15- minute prenatal visit may be sufficient to screen for potential medical problems, answer basic questions, and monitor fetal growth. Such a short session, however, is not conducive either to in-depth prenatal education nor to counseling which bridges cultural differences. [10][11] Clinicians also have little time to help women identify and adopt healthier lifestyle changes or more effectively manage stress related to the complex needs of being poor and socially disadvantaged. [10][12][13] The shortage of interpreters and Spanish-speaking providers creates additional barriers for accessing and receiving quality prenatal care and education. [7][14] In addition, the traditional model of prenatal care does not facilitate women giving and receiving social support, nor does it strengthen their helping networks in the community.[10]

Reaching and engaging Latinas in prenatal care could play an important role in efforts to reduce disparity and improve health outcomes for Hispanic adults and children. Pregnancy and childbirth, the most common reasons for hospital admission, are often a Hispanic family's first contact with the US health care system. [15][16] The nature of this experience can have a long-term impact on the use of other health care services by Hispanic women and their families. [15][17][18] The currently estimated 12 million Hispanic women of
fertility rates of Latinas make the need to cultivate positive, culturally sensitive experiences in prenatal care ever more pressing.

When considering the types of changes needed to improve access and quality of care to Hispanic women, several factors warrant attention. Of the 75 million Americans with limited health literacy skills, Hispanic adults have the lowest health literacy of any racial or ethnic group. [20] For instance, 66% of Hispanics have limited health literacy skills compared to 28% of whites. [20] The predicted epidemic of limited health literacy among adults in the United States makes improving individual and organizational health literacy skills an imperative for patient- (or family) centered care, especially for Hispanics, and for promoting health equity. [21][22] The projected shortage of US public health workers heightens the need for partnerships and innovative strategies to serve low-income and uninsured populations. [23]

This article presents the findings from an evaluation of a community-based group prenatal education program for low-income Latinas in central North Carolina. The aim of this study was to develop and test a way to bridge communities and health care systems by working with lay health educators who were trained in a participatory education process called the Teach-With-Stories Method. The intervention supplemented the individual prenatal care that participants received at their local clinic.

**Background**

The group intervention was designed to synergistically address health literacy and individual and group empowerment while providing prenatal education in a culturally and linguistically appropriate way. [24] It consisted of three components: the use of photonovels as an educational tool, participatory education, and a lay educator model.

**Photonovels.**

Photonovels, similar to comic books but with photographs in place of drawings, are a popular media format in Mexico and Latin America. They are used as an education tool because, first, research shows that people remember stories better than they remember a set of facts, and second, using stories with familiar characters and settings can help people feel more comfortable talking about their lives and issues. [25] Photonovels have been shown to be particularly effective for those with limited literacy skills, because the ‘dialog bubble’ format uses easy-to-read language and short, conversational sentences. [25]

There is a growing body of research that demonstrates the cultural and linguistic appropriateness of photonovels and their effectiveness with Latinos. [26][27] Some researchers engaged learners in the creation and production of the photonovel as the intervention. [28][29] In other studies, researchers have tested the photonovel as a strategy in the information dissemination process to address health literacy issues, such as readability, engagement, perceived relevance, factual recall, and attitudes towards future
We tested the use of photonovels in a way that incorporates both problem-posing and health literacy strategies through a participatory group process. Groups met weekly for seven weeks, facilitated by a lay health educator. The photonovel was read out loud by participants like a play, so everyone could participate regardless of reading ability. The facilitators periodically stopped to discuss the story. According to health literacy experts, the ‘chunking’ of information supports comprehension and minimizes memory overload. [25] In addition, the opportunity to interact and connect new information with a person’s own knowledge and experience facilitates the conversion of learning to long-term memory. [25] Using the photonovel in a dialogic process also served as a catalyst for critical thinking and bonding. The women were able to bring in their own feelings, thoughts, questions, and stories. Cueva [33] explains that the interactive use of story “embraces a holistic, interconnected process of living and learning as participants engage in creating meaning both individually and collectively through reflection and conversation.”

The intervention was based on the *De Madre a Madre* Prenatal Care prenatal care photonovel series. The series contains seven stories inspired by the actual experiences of Latinas during pregnancy and childbirth. The main characters are three women in different stages of pregnancy. As friends, they support each other through the joys, concerns, and practical issues that arise during this time. Each photonovel contains key prenatal health messages related to a specific topic. These topics are: Pregnancy, Going to the Clinic, Nutrition, Risks, Labor, Breastfeeding, and First Week with Baby.

**Participatory Education.**
Participatory education, also known as popular education, has been used to promote more equitable conditions around the world, addressing issues such as poverty, racism, and powerlessness. [34][35][36][37] Similar to participatory medicine, empowerment is at the heart of participatory education. [36] Shared power and inclusion are central to the philosophy and practice of empowerment. [37] In contrast to a power-over (or top-down) approach, everyone is treated as both a teacher and a learner. [38] The teacher serves as a “facilitator” rather than an “expert” and participants are engaged as active, competent change agents rather than passive recipients of knowledge. [39] Empowerment is context- and population-specific and non-linear; therefore definitions, processes, and outcomes vary for different people in different contexts. [40] Based on a review of the literature in public health, Wiggins [34] concluded that popular education is an effective method for increasing empowerment and improving health. However, it remains largely unknown and untapped in mainstream public health efforts in industrialized countries. [34]

**Lay Health Educators.**
Lay health educators are trained people who are respected and trusted members of their community. [41] They are in a unique position to provide peer support and facilitate partnerships between communities and health care systems since they have a personal understanding of their communities’ history, sociocultural context, experiences, challenges,
national efforts to reduce racial and ethnic health disparities. They offer a cost-effective way to promote wellness and prevention and build capacity for change among individuals, families, and communities. In this study, we were exploring whether lay educators could effectively facilitate an empowerment-based group intervention.

**Methods**

**Study Design**

Our goal was to develop an educational program and materials that reflected the culture and language of Latinas and their families and the lived experiences in their communities. To serve as a bridge and extension of prenatal care in the community, the materials needed to be medically accurate, and the program needed to be accepted by health professionals and feasible for lay educators to implement. We used a community-based participatory research process to achieve these objectives and to develop training and support materials to help maintain the fidelity of the empowerment-based model in practice. In this article, we focus on the outcome evaluation.

**Community-based participatory research community.**

The learning community was made up of: a bilingual, bicultural study team; an advisory group of 12 local *promotoras*; a local Latino community-based organization; scientific advisors; and a national community advisory board (CAB). The *promotoras* were women, Spanish-speaking (monolingual and bilingual), with diverse Hispanic backgrounds. Most of the CAB members were experienced health professionals from multiple systems of care (state, federal, safety net, hospital) that serve low-income pregnant Latinas in the United States. Members also included researchers from multiple disciplines and representatives from organizations across the country that work with community health workers and lay health educators/promotores.

**Study Objectives.**

We sought to discover whether this program would increase participants’ knowledge, confidence, and social support in the areas of pregnancy, childbirth, and breastfeeding; whether it would facilitate behavior change; whether it could do so in a culturally sensitive manner; and whether it would make any difference to pregnancy outcomes or health care utilization.

**Research Plan**

The study was conducted in three steps. In the first step, we developed the photonovels and training materials using a community-based participatory (CBPR) approach and directional data from a survey of prenatal health professionals and interviews with health care administrators. We tested and refined the training and implementation materials through a Plan-Do-Study-Act (PDSA) cycle methodology.

In the second step, the team implemented and evaluated the intervention in two cycles at two sites in central North Carolina (implementing a total of four programs). The CAB
members, scientific and *promotora* advisors, and community members provided input about the study design and helped develop and test the data collection instruments. The CAB members and facilitators also assisted in the analysis of our study findings. In step three, outcome data was collected for a control-matched group of pregnant women who received usual care at those sites. This data was compared to the outcome data of participants in the intervention groups.

**Teach-With-Stories facilitators.**
Two members from the *promotora* advisory group were selected to be facilitators for the study. Each facilitator was paired with a community member who had little or no experience as a lay health educator.

**Recruitment and sample for program participants.**
The team recruited a convenience sample of pregnant Latinas from two clinics that serve low-income populations. Site A was a community health center and Site B was a local health department. To be included in the study, the women had to be 18 years or older; no more than 27 weeks pregnant; and speak Spanish. (We did not screen for English fluency.) Incentives included a new car seat, transportation reimbursement, childcare, and prepaid telephone cards (or equivalent cash amount towards an existing cell phone plan).

**Participatory prenatal education program.**
According to the five steps of the Teach-With-Stories Method, in a typical session, the participants were welcomed (step 1); then they either shared their experiences since they last met or participated in an icebreaker activity (step 2). After discussing their interests and questions about the topic of the day, the group read and discussed the photonovel (step 3). After the story, the group participated in an interactive learning activity (step 4). In the wrap-up process, participants shared what was most meaningful for them and what they might practice at home or share with others (step 5). The locations of the programs included a health clinic, local church, and a community-based organization. Each of the four programs consisted of seven sessions, which were approximately 90-120 minutes long.

**Selection and sample for secondary data review.**
The staff from Sites A and B provided de-identified records from their respective clinics for a matched group of Latinas with similar demographic characteristics who had not been through the program. To minimize potential selection bias, site staff used a randomized selection process and did not have access to the study findings. Sites A and B had different medical record systems.

**Mixed-Method Evaluation**

**Theoretical framework.**
Relational-cultural theory [50] and the stages of change model [51] influenced our development and selection of study instruments and helped guide the process evaluation.
dimensions of culture. [52] We included questions in our evaluation surveys and focus groups to reflect these concepts.

According to the stages of change model, behavior change evolves out of a complex, progressive process that is not necessarily rational or linear. [51] The model helps explain the stages in both self-initiated and intervention-initiated change efforts. [51] This framework informed our participant observations, reflections and interpretations regarding indicators of “change” or “progress” that were reported or observed outside the group and that emerged in the group dynamics and dialogue.

**Surveys.**

All surveys were presented orally and in Spanish. Participants provided information about their backgrounds, home and work situations. They also completed pre- and post-study surveys related to: 1) prenatal knowledge, 2) perceived social support, 3) psychological well-being, and 4) confidence. The 21-item knowledge survey contained three multiple choice questions from each of the seven *De Madre a Madre* photonovels about critical health messages. The test-retest reliability for this survey (Cohen's Kappa) yielded a K of .87; this indicates good agreement. [53]

We administered the “Multidimensional Scale of Perceived Social Support,” a standardized measure developed by Zimet, Dahlem, Zimet, & Farely [54] to assess social support received from spouse/partner, family, and friends. We used Ryff and Keyes’s [55] “Scales of Psychological Well-Being” to assess multidimensional aspects of psychological wellness. For Cycle 2, we created an additional survey based on findings from Cycle 1 to assess the participants’ confidence regarding their ability to carry out 12 basic actions related to pregnancy and childbirth. The test-retest reliability for this survey (Cronbach's alpha) yielded a value of .726; this indicates good agreement. [56]

**Process Evaluation.**

After each session, the participants completed a written satisfaction survey to provide input for program planning. Emoticons included on the survey provided feedback on their emotional and social experience. The study team members observed all sessions, recording participant feedback after each. After each cycle was completed, the facilitators from each site met with the study team to debrief as a group about their observations and impressions of the process and lessons learned about similarities and variations regarding implementation and outcomes. These findings were then discussed and analyzed with the study's CAB members. Our process evaluation also included gathering information on the organizational and community impact, however due to space limitations, these findings will be reported in a separate publication.

**Focus groups.**

The team also carried out semi-structured conversations with the participants in each group three months after the end of their respective programs. The questions gave participants
90-minute focus groups were conducted by the study team members in Spanish and recorded.

**Medical record review.**

With the assistance of the staff from our two Sites, we collected data from the medical records of participants (from both cycles) after they had delivered and had their 6-week post-partum visits. The control group (n=43) was selected only after the interventions were completed. The control group matched the participant group in age, number of children, and weeks pregnant at the first prenatal visit. All were Latinas who received usual care at Sites A and B. Four of the program participants were excluded from the medical record review since they received prenatal care at satellite clinics of Site A or B and therefore did not meet the inclusion criteria. We did not explore infant care utilization due to limitations in data collection.

**Data Analysis**

The surveys were designed and pilot-tested to ensure the ease of completion and accuracy of data entry into an Excel database for analysis. The project statistician used frequencies to describe the sample. The pre-test and post-test measures for knowledge, psychological well-being, social support and confidence, and the medical record data were analyzed using Paired t-tests. The criterion for statistical significance for all tests was $P < .05$. After each focus group, the study team members shared the feedback with the facilitators so they could help interpret the findings and provide additional insights and information about interactions with participants during and after the program. The tapes were translated into English by a team member present during the focus group for further thematic analysis by English-speaking study members. The session evaluations were reviewed by the facilitators at the end of each session and summarized by a study team member.

**Results**

The entire study was completed December 2014; we collected data for the part of the research reported here between March 2011 and April 2012.

**Study Participants**

Two educational programs were held in Cycle 1 (combined n=23) and two educational programs in Cycle 2 (combined n=22). The four groups of participants were similar in composition so the sample will be described in the aggregate. A total of 45 Spanish-speaking Latinas participated in the study. Selected demographic characteristics are shown in Table 1. Of the 45 participants in the study, 43 completed all sessions. One participant moved out of state and the other was unable to attend the final session, because she was having her baby.

**Table 1. Selected Demographic Characteristics of Participants (n=45)**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age range</td>
<td>18-50</td>
</tr>
<tr>
<td>Average age</td>
<td>28</td>
</tr>
<tr>
<td>Education level</td>
<td>High</td>
</tr>
<tr>
<td>Employment status</td>
<td>Full</td>
</tr>
<tr>
<td>Income level</td>
<td>Low</td>
</tr>
<tr>
<td>Marital status</td>
<td>Single</td>
</tr>
<tr>
<td>Children under 5</td>
<td>2</td>
</tr>
<tr>
<td>Children over 5</td>
<td>1</td>
</tr>
<tr>
<td>Average number of</td>
<td>3</td>
</tr>
<tr>
<td>Average weeks</td>
<td>28</td>
</tr>
<tr>
<td>Average weeks</td>
<td>28</td>
</tr>
</tbody>
</table>
had her baby during the program.

Prenatal Knowledge

We examined the changes in knowledge on 21 key prenatal health messages before and after the seven sessions. The results by questions for each cycle are shown in Figure 1. The participants demonstrated a statistically significant increase in knowledge after attending the program (P < .001). Figure 1. Results: Knowledge by Question.

Social Support

The Social Support Survey results, shown in Figure 2, showed no significant change in perceived support from family, friends, or a ‘special someone.’ In Cycle 2, we added ‘group members’ to this list. Participants indicated at the end of the program that they experienced a high level of support from their group peers.

Figure 2. Results: Perceived Social Support.

Psychological Well-Being

Though it is highly regarded by many investigators, the Ryff and Keyes [55] “Scales of Psychological Well-Being” did not appear to measure their intended effects validly for our target population, most likely due to cultural and/or literacy issues. For example,

<table>
<thead>
<tr>
<th>Country of Origin</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>34</td>
<td>75</td>
</tr>
<tr>
<td>Central America</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>United States</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Missing</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married or living with partner</td>
<td>36</td>
<td>80</td>
</tr>
<tr>
<td>Single or separated</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td>Missing</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Number of Children</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>10</td>
<td>22</td>
</tr>
<tr>
<td>One</td>
<td>14</td>
<td>31</td>
</tr>
<tr>
<td>Two</td>
<td>11</td>
<td>24</td>
</tr>
<tr>
<td>Three or more</td>
<td>10</td>
<td>22</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Education</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-8 years</td>
<td>17</td>
<td>37</td>
</tr>
<tr>
<td>Some high school</td>
<td>15</td>
<td>33</td>
</tr>
<tr>
<td>Graduated from high school</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Some university or university graduate</td>
<td>4</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Work</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keeping house</td>
<td>21</td>
<td>46</td>
</tr>
<tr>
<td>Full-time</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>Part-time</td>
<td>11</td>
<td>24</td>
</tr>
<tr>
<td>Unemployed</td>
<td>7</td>
<td>15</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Residence in NC</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 10 years</td>
<td>16</td>
<td>35</td>
</tr>
<tr>
<td>Six-10 years</td>
<td>20</td>
<td>44</td>
</tr>
<tr>
<td>Three-five years</td>
<td>8</td>
<td>17</td>
</tr>
<tr>
<td>One to two years</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fluency in English</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium to high</td>
<td>12</td>
<td>54</td>
</tr>
<tr>
<td>Low to none</td>
<td>10</td>
<td>45</td>
</tr>
</tbody>
</table>
calling them “too abstract.” They said that they could not answer such questions in general, only in relation to specific persons. Participants had particular trouble interpreting the reverse-coded items.

**Self Confidence**

The results of the Confidence Survey, developed for Cycle 2, are presented in Figure 3. Participants, on average, had more confidence after the program than before about all 12 actions related to pregnancy and childbirth. The difference is statistically significant ($P \leq .05$). The largest increases in confidence occurred with items about asking the doctor or nurse questions, calling the clinic, asking family and friends for help, and putting the baby in a safe sleep position.

*Figure 3. Results: Confidence Survey.*
Overall, the participants reported feeling very positive about the program and would recommend it to any expectant mother. They felt the program gave them the confianza (trust and confidence) and ánimo (encouragement) for having a healthy pregnancy and being prepared for childbirth. Most of the mothers reported breastfeeding their newborns, though several supplemented breast milk with formula. Many participants would have liked a session to which they could bring their husbands and partners. The following four themes emerged during the focus group dialog (with translated quotes from participants):

1. The photonovels reinforced and increased access to information in the community. Consistent with the weekly session evaluations, the participants said they appreciated the information they learned during the sessions and often referred to the photonovels after the sessions. Most reported sharing the photonovels with family and friends.

I have a daughter, but there are still a lot of things you don’t know. And now with this pregnancy I have more self-confidence. For example, that fotonovela says when you should go to the doctor and when you should just call. The other day, I had some spotting and I remembered that one of the fotonovelas had that information...I just went and looked it up in the fotonovela. So then I felt more confident.

And each Wednesday when I’d come back they’d [my children] ask me the same thing. ‘And what fotonovela did you bring this time? Let’s see’...and they’d start reading to see
2. The program provided a bridge with prenatal providers to deepen and expand learning. Many participants reported that prenatal information was presented too fast during clinic visits to be absorbed. Hearing the information again in the program, then discussing it, allowed real learning. Other participants reported learning different information than what they received from their prenatal providers. They felt the program was designed for them as Latinas.

The thing is that here they give us more time to be able to explain to us what we’re feeling or about what we want to know. And there [at the clinic] it is quicker.

There’s more time, more trust, and from one question comes another. That wouldn’t come up if I was alone with the doctor.

3. Participants felt more confident, engaged, and able to act. Participants expressed gaining greater confidence in their abilities to handle pregnancy and childbirth and in asking family, friends and health professionals for help. They also gave examples of changing behaviors and ways of thinking, such as deciding to breastfeed, exercising more, making diet changes, and talking with their children differently.

I feel like this program has helped me because I feel more sure of myself to ask questions. Because before they would say, ‘This and that’ and then ask, ‘Do you have any questions?’ And I’d say, ‘No, it’s fine.’ And now if I see that my child has something I ask, ‘Why is that happening?’ I ask them [so I can] be very well informed.

For me it did help me because you see that the other children that I had... I never tried to give them my milk. And this time I did give him [my milk]...for about two or three weeks.

4. Lay health educators as facilitators helped create an environment of trust and support. Participants were very positive about the lay health educators as group facilitators. They found them trustworthy, knowledgeable, and approachable. The participants appreciated the support that they received from them and the other participants, indicating that it helped reduce their sense of isolation.

I have gone to places ... maybe it’s not about similar health topics, but where they’re explaining something and they [other educators] don’t instill trust for you to ask and
give your opinion and speak. And with them [TWS facilitators] it was completely different. They made you feel comfortable speaking with them.

I have a lot of kids and always at home. And I would say, I can't wait until Wednesday because I want to go. It's like...all of our conversations... they wake you up.

Medical Record Review

To evaluate the program's impact on health care utilization as compared to those who received usual care, we analyzed selected aspects of the medical records of the participants (n=39) and a demographically matched control group (n=43). The characteristics of each group and the comparison of selected birth data are summarized in Table 5. The only substantive difference between the participant and control groups was that the participant group had a slightly higher average Body Mass Index (BMI) at the first prenatal visit than the control group. The participant group showed a small increase in the average number of prenatal visits and a small decrease in the rate of hospitalizations during pregnancy. However, these differences were not statistically significant (at the $P \leq .05$ level).

There was one difference that approached statistical significance: the participant group had relatively fewer caesareans than the control group ($P \leq .08$). This was due largely to differences at Site B. Looking at the data from a national perspective, [57] the participants' cesarean rate at both clinics was lower than the overall US 2011 rate (32.8% for the general population and 32% for Latinas) by a statistically significant amount ($P.\leq.01$). The cesarean rate for the control group at Site A was also lower than the national norm; the cesarean rate for the control group at Site B matched the national figures.

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