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Examining Knowledge Change Associated with Prenatal Education Programs in Ontario

A Locally Driven Collaborative Project

PHO Grand Rounds
May 12, 2015

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Natalie Bourdages – Toronto Public Health
The Healthy Pregnancies Locally Driven Collaborative Project

• This project is supported through the Locally Driven Collaborative Project (LDCP) program at Public Health Ontario

• Views expressed in the presentation are the views of the LDCP Healthy Pregnancies team members and do not necessarily reflect those of Public Health Ontario
The Healthy Pregnancies Locally Driven Collaborative Project

Overview

• Introduction
• Part 1: The Healthy Pregnancies Locally Driven Collaborative Project
• Part 2: The Healthy Pregnancies Knowledge Survey
• Part 3: Findings
• Part 4: Conclusions
The Healthy Pregnancies Locally Driven Collaborative Project

Locally Driven Collaborative Project (LDCP) Program

Brings together representatives from health units to collaboratively develop and implement applied research or program evaluation projects that explore a topic, intervention, or program related to an important public health issue.
The Healthy Pregnancies Locally Driven Collaborative Project

Who are we?

Lead:
– Oxford County Public Health & Emergency Services

Co-applicants:
– Toronto Public Health
– Wellington-Dufferin-Guelph Public Health
– Brant County Health Unit

Collaborators:
– Best Start Resource Centre
– Chatham-Kent Public Health Unit
– Durham Region Health Department
– Halton Region Health Department
– North Bay Parry Sound District Health Unit
– Leeds, Grenville and Lanark District Health Unit
– York Region Community and Health Services
Prenatal Education Programs in Ontario

What we know:

- Often accessed through local public health units
- Attended by 1/3 of women and 2/3 of first-time mothers in Canada (PHAC, 2009)
- Widely recommended

Prenatal Education Programs in Ontario

Environmental scan

• 30 health units (83% response rate)
• Estimated 17,612 clients served in 2011
• 40% offered online & in-person programs
• Best Start modules frequently used

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong># clients served annually</strong> (mean = 587.07, median= 270, range= 38-4671)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-150</td>
<td>4</td>
<td>13.33</td>
</tr>
<tr>
<td>151-300</td>
<td>12</td>
<td>40.00</td>
</tr>
<tr>
<td>301-450</td>
<td>3</td>
<td>10.00</td>
</tr>
<tr>
<td>451-600</td>
<td>4</td>
<td>13.33</td>
</tr>
<tr>
<td>601-750</td>
<td>1</td>
<td>3.33</td>
</tr>
<tr>
<td>751-900</td>
<td>1</td>
<td>3.33</td>
</tr>
<tr>
<td>901+</td>
<td>5</td>
<td>16.67</td>
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<tr>
<td><strong>Modes of delivery available</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Online only</td>
<td>1</td>
<td>3.33</td>
</tr>
<tr>
<td>In-person only</td>
<td>17</td>
<td>56.67</td>
</tr>
<tr>
<td>Both online and in-person</td>
<td>12</td>
<td>40.00</td>
</tr>
<tr>
<td><strong>Curriculum used</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Best Start Resource Centre $^2$</td>
<td>16</td>
<td>53.33</td>
</tr>
<tr>
<td>Canada Prenatal Nutrition Program $^2$</td>
<td>9</td>
<td>30.00</td>
</tr>
<tr>
<td>Gift of Motherhood (online)</td>
<td>10</td>
<td>33.33</td>
</tr>
<tr>
<td>A New Life (online)</td>
<td>2</td>
<td>6.67</td>
</tr>
<tr>
<td>Injoy Birth &amp; Parenting Education $^2$</td>
<td>2</td>
<td>6.67</td>
</tr>
<tr>
<td>Own curriculum</td>
<td>9</td>
<td>30.00</td>
</tr>
<tr>
<td>Other/unnamed</td>
<td>9</td>
<td>30.00</td>
</tr>
</tbody>
</table>

$^1$ Values do not add up to 100%, as some public health units >1 curricula
$^2$ Or adapted version
What we know:

• Highly variable, evolving

• Shift to online format
Many research gaps...
Proposed Primary Objective:
Is there a difference in the amount of change in knowledge and/or confidence among women participating in public health prenatal education programs delivered in-person compared to online?

Proposed Secondary Objectives:

• Are public health prenatal education programs in Ontario associated with changing women’s knowledge, confidence and behaviour related to healthy pregnancies and/or breastfeeding?
• Are there changes in women’s knowledge and confidence related to healthy pregnancy behaviours?
• Are there changes in women’s knowledge and/or confidence levels related to breastfeeding initiation and/or exclusivity up to two months postpartum?
• Do women have a learning preference when it comes to the delivery of prenatal education programs?
• Are women satisfied with their prenatal education programs?
Primary Objective:

• To compare women’s change in knowledge about healthy pregnancies, healthy lifestyles and breastfeeding before and after participating in in-person compared to online public health prenatal education programs offered in Ontario

Secondary Objectives:

• To examine the differences in learning preferences for delivery of prenatal education programs amongst pregnant adult women.
• To examine women’s level of satisfaction and preferences with prenatal education.
Study Design

- Quasi-experimental study
- Seven recruiting health units
- Pre- and post-program surveys measured knowledge change related to:
  - Healthy pregnancies
  - Healthy lifestyles
  - Breastfeeding

Recruiting Health Units
- Chatham-Kent Public Health Unit
- Halton Region Health Department
- Leeds, Grenville and Lanark District Health Unit
- North Bay Parry Sound District Health Unit
- Toronto Public Health
- Wellington-Dufferin-Guelph Public Health
- York Region Community and Health Services
Part 1: The Healthy Pregnancies Locally Driven Collaborative Project

- **Screening**: Participants who registered for prenatal programs at recruiting public health units
- **Eligibility**: Participants who completed the pre-program survey
- **Included**: Participants who completed the post-program survey
The Healthy Pregnancies Locally Driven Collaborative Project

Part 1: The Healthy Pregnancies Locally Driven Collaborative Project

Part 2: The Healthy Pregnancies Knowledge Survey

Part 3: Findings

Part 4: Conclusions
Part 2: The Healthy Pregnancies Knowledge Survey

Survey

• 25 item survey reflecting three major topic areas within prenatal education programs

• Scored out of 32 for a total score

• Scored with three separate scores within the three content areas.
The Healthy Pregnancies Locally Driven Collaborative Project

Part 1: The Healthy Pregnancies Locally Driven Collaborative Project

Part 2: The Healthy Pregnancies Knowledge Survey

Part 3: Findings

Part 4: Conclusions
Part 3: Findings

Screening

Women who registered for prenatal programs and expressed interest in participating in the study (n = 1108)

Eligibility

Participants who were eligible and completed the pre-survey (n = 741)

Included

Participants who completed the post-survey (n = 511)

Lost to follow up (n = 230)

Participants who completed their program in person (n= 261, 51.1%)

Participants who completed their program online (n= 250, 48.9%)
Part 3: Findings

Study Population Characteristics (n=511)

Age:
- Range: 20 to 45 yrs old
- Mean: 30.2 yrs old

First pregnancy:
- 90% primiparous

Ethnicity:
- 64% White (NA, British, Europe)
- 23% Asian (East, SE, South Asia)

Newcomer:
- 31% born outside Canada
  - 29% lived in Canada 5 years or less

Education:
- 89% completed post-secondary school

Trimester:
- Overall:
  - 1st trimester = 2%
  - 2nd trimester = 41%
  - 3rd trimester = 57%
- In-person:
  - 1st trimester = 0%
  - 2nd trimester = 36%
  - 3rd trimester = 64%
- Online:
  - 1st trimester = 5%
  - 2nd trimester = 45%
  - 3rd trimester = 50%
### Part 3: Findings

Knowledge scores before and after program completion (n=511)

<table>
<thead>
<tr>
<th></th>
<th>Knowledge Score (%)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-program</td>
<td>Post-program</td>
</tr>
<tr>
<td><strong>Total Knowledge Score</strong>(^1)</td>
<td>21 (65.6)</td>
<td>25 (78.1)</td>
</tr>
<tr>
<td><strong>Healthy Pregnancy</strong>(^2)</td>
<td>9 (75.0)</td>
<td>10 (83.3)</td>
</tr>
<tr>
<td><strong>Healthy Living</strong>(^3)</td>
<td>8 (72.7)</td>
<td>9 (81.8)</td>
</tr>
<tr>
<td><strong>Breastfeeding</strong>(^4)</td>
<td>5 (50.5)</td>
<td>6 (66.7)</td>
</tr>
</tbody>
</table>

\(^1\)Maximum score = 32  \(^2\)Maximum score = 12  \(^3\)Maximum score = 11  \(^4\)Maximum score = 9
Part 3: Findings

Self reported knowledge change

Program content:
- Preterm labour
- Stress and relaxation
- Healthy eating
- Physical activity
- Environmental exposures
- Resources for info
- Breastfeeding benefits
- Breastfeeding techniques

Percentage (%):
- Improved a lot
- Improved somewhat
- Did not change
- Somewhat more confused
- A lot more confused
## Part 3: Findings

### Knowledge change associated with in-person vs. online programs

<table>
<thead>
<tr>
<th>Program Type</th>
<th>Total Knowledge Scores *(%)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-program</td>
<td>Post-program</td>
</tr>
<tr>
<td>In-person</td>
<td>21 (65.6)</td>
<td>25 (78.1)</td>
</tr>
<tr>
<td>Online</td>
<td>22 (68.8)</td>
<td>24 (75.0)</td>
</tr>
</tbody>
</table>

* Maximum score = 32

**Are the programs equally effective?**
Part 3: Findings

Participant preferences: in-person vs. online

- When given the choice, the majority of women (60.1%) chose to take an in-person program over the online program.

- Majority of primiparous women (62.4%) chose to take the in-person prenatal classes.

- Majority of women in their 1\textsuperscript{st} and 2\textsuperscript{nd} trimester (56.2%) preferred to take the online prenatal program.
Part 3: Findings

Participants’ satisfaction

Q. How well did your prenatal education program satisfy your questions on the following:

- Physical changes of...
- Emotional changes of...
- Common changes during...
- Nutrition during and after...
- What to expect of a new baby
- The postpartum period
- Breastfeeding

[Bar chart showing satisfaction levels for each category]
Part 3: Findings

Participants’ satisfaction

Would you recommend this program to a friend?

![Bar chart showing satisfaction by mode]

- **Yes**
  - In-person: 100%
  - Online: 100%

- **No**
  - In-person: 0%
  - Online: 0%
Part 3: Findings

Behaviour Change

In-person
Part 3: Findings

Behaviour Change

Online
The Healthy Pregnancies Locally Driven Collaborative Project

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Part 4: Conclusions

The Healthy Pregnancy Knowledge Survey

Adoption of the Healthy Pregnancies Knowledge Survey by Ontario public health units can:

- aid in strengthening an under-developed and highly relevant evidence base on the effectiveness of prenatal education programs
- contribute to practice-based evidence on the effectiveness of prenatal education programs.
- allow for pooling of data across public health units.
Part 4: Conclusions

Program planning and development

- Participation in public health prenatal programs appears to increase pregnant women’s knowledge regarding healthy pregnancies, healthy lifestyles and breastfeeding.

- Online programs are an effective alternative for public health units with limited resources.

- Online programs may be a way to engage with a diverse group of women early in their pregnancy.

- Offering both types of programs accommodates women’s various learning styles and reduces barriers to program access.

- Limitations
Knowledge Exchange

• Knowledge exchange activities conducted throughout the project
  • Build awareness of project
  • Increase buy-in

• Activities:
  • Invited presentations to key stakeholders
  • Presentations and posters at conferences
    • Within and outside of Ontario
  • Workshop
  • Project summary
  • Report: Assessing Public Health Prenatal Education Knowledge
    • Available at: http://www.publichealthontario.ca/en/ServicesAndTools/ResearchAndEducationSupport/Pages/Past-LDCP-Cycles.aspx#.VSvV-_BRpv4
  • Journal articles
    • Currently in peer review process
  • Partner health unit presentation and poster
Acknowledgements

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• Recruitment public health unit staff
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• Study participants
• Students
  • Katelyn Godin – University of Waterloo
  • Harshani Gangodawilage – University of Guelph
• Dr. David Pearl – University of Guelph
Questions
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