Somatic pain before, during and after pregnancy in primiparous women in Ireland: a longitudinal cohort study

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Context

- Nearly all women experience some somatic pain during pregnancy (Borg-Stein et al. 2005).
- Women with somatic pain report lower self-rated health (Schytt et al. 2005)
- Pain can be disabling and negatively impact sleep.
- Absence of data on the prevalence of somatic pain during pregnancy & postpartum in Ireland.
- Pain as a symptom is complex & multifactorial.
Aim/objectives

**Aim**
To identify the **prevalence** of, and changes in, somatic pain experienced by primiparous women **pre-pregnancy, during pregnancy, and postpartum** in one maternity hospital in Ireland.

**Objectives**
1. To identify the **prevalence** of somatic pain pre-pregnancy, in early pregnancy and 3 months postpartum
2. To examine **associations** between pain and women’s mental health during pregnancy
Methodology

**MAMMI** (Maternal health And Maternal Morbidity in Ireland) study
- Longitudinal cohort study
- Ethical approval of university and site hospital

**Data Collection**
- Self-completed surveys (during pregnancy & 3 months postpartum)
- 2000 participants (1092 to date)

**Data Analysis**
- Descriptive statistics
- Correlational statistics
Data Collection – Self-reported Pain
## Participant characteristics

<table>
<thead>
<tr>
<th>Age</th>
<th>MAMMI (%) (n = 1092)</th>
<th>Hospital (%) (n = 8846)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 24</td>
<td>8.4</td>
<td>14.4</td>
</tr>
<tr>
<td>25-29</td>
<td>25.4</td>
<td>23.2</td>
</tr>
<tr>
<td>30-34</td>
<td>41.4</td>
<td>34.8</td>
</tr>
<tr>
<td>35-39</td>
<td>21.3</td>
<td>22.0</td>
</tr>
<tr>
<td>Over 40</td>
<td>3.5</td>
<td>5.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Country of birth</th>
<th>MAMMI (%) (n = 1078)</th>
<th>Hospital (%) (n = 8846)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ireland</td>
<td>65.3</td>
<td>64.4</td>
</tr>
<tr>
<td>Other European country</td>
<td>27.3</td>
<td>22.0</td>
</tr>
<tr>
<td>Non-European country</td>
<td>7.4</td>
<td>13.4</td>
</tr>
</tbody>
</table>
Somatic pain 12 months pre-pregnancy & in early pregnancy

- Any pain
- Head (front/side)
- Neck
- Shoulder L
- Shoulder R
- Rib pain
- Upper arm L
- Upper arm R
- Lower arm L
- Lower arm R
- Wrist L
- Wrist R
- Hand L
- Hand R
- Fingers L
- Fingers R
- Hip L
- Hip R
- Pubic symphysis
- Thigh L
- Thigh R
- Knee L
- Knee R
- Lower leg L
- Lower leg R
- Ankle L
- Ankle R
- Foot L
- Foot R
- Head (back)
- Posterior Neck
- Upper/mid back
- Low back
- Posterior pelvis
- Sijts
- Ankle (back) L
- Ankle (back) R

Legend:
- Pre-pregnancy
- Early pregnancy
Somatic pain 12 months pre-pregnancy & in early pregnancy

- **Pre-pregnancy**
- **Early pregnancy**
- Marked increase in prevalence

- **Any pain**
- **Head (front/side)**
- **Neck**
- **Shoulder L**
- **Shoulder R**
- **Rib pain**
- **Upper arm L**
- **Upper arm R**
- **Lower arm L**
- **Lower arm R**
- **Wrist L**
- **Wrist R**
- **Hand L**
- **Hand R**
- **Fingers L**
- **Fingers R**
- **Hip L**
- **Hip R**
- **Pubic symphysis**
- **Thigh L**
- **Thigh R**
- **Knee L**
- **Knee R**
- **Lower leg L**
- **Lower leg R**
- **Ankle L**
- **Ankle R**
- **Foot L**
- **Foot R**
- **Head (back)**
- **Posterior Neck**
- **Upper/mid back**
- **Low back**
- **Posterior pelvis**
- **Ankle (back) L**
- **Ankle (back) R**
Somatic pain during pregnancy and 3 months postpartum

- Early pregnancy
- 3 months postpartum
Somatic pain during pregnancy and 3 months postpartum

Early pregnancy
3 months postpartum

Marked increase in prevalence
Marked decrease in prevalence

- Any pain
- Head (front/side)
- Neck
- Shoulder L
- Shoulder R
- Rib pain
- Upper arm L
- Upper arm R
- Lower arm L
- Lower arm R
- Wrist L
- Wrist R
- Hand L
- Hand R
- Fingers L
- Fingers R
- Hip L
- Hip R
- Pubic symphysis
- Thigh L
- Thigh R
- Knee L
- Knee R
- Lower leg L
- Lower leg R
- Ankle L
- Ankle R
- Foot L
- Foot R
- Head (back)
- Posterior Neck
- Upper/mid back
- Low back
- Posterior pelvis
- Ankle (back) L
- Ankle (back) R
Somatic pain pre-pregnancy and 3 months postpartum

- Any pain
- Head (front/side)
- Neck
- Shoulder L
- Shoulder R
- Rib pain
- Upper arm L
- Upper arm R
- Lower arm L
- Lower arm R
- Wrist L
- Wrist R
- Hand L
- Hand R
- Fingers L
- Fingers R
- Hip L
- Hip R
- Thigh L
- Thigh R
- Knee L
- Knee R
- Lower leg L
- Lower leg R
- Ankle L
- Ankle R
- Foot L
- Foot R
- Head (back)
- Posterior Neck
- Upper/mid back
- Low back
- Posterior pelvis
- Ankle (back) L
- Ankle (back) R

Pre-pregnancy
3 months postpartum

- Marked increase in prevalence
- Marked decrease in prevalence
NUMBER OF AREAS OF PAIN (OF 36 BODY AREAS): DURING PREGNANCY

- No pain: 19%
- 1: 15%
- 2: 17%
- 3-5: 28%
- 6-10: 17%
- 10+: 4%
NUMBER OF AREAS OF PAIN

<table>
<thead>
<tr>
<th>Areas</th>
<th>NO PAIN</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year Before Pregnancy</td>
<td>27.1%</td>
<td>19.2%</td>
<td>17.2%</td>
<td>15.0%</td>
<td>10.4%</td>
<td>9.4%</td>
<td>6.2%</td>
<td>4.4%</td>
<td>2.6%</td>
<td>1.9%</td>
<td>1.6%</td>
<td>2.9%</td>
</tr>
<tr>
<td>In early pregnancy</td>
<td>17.2%</td>
<td>17.4%</td>
<td>15.0%</td>
<td>14.5%</td>
<td>12.5%</td>
<td>9.4%</td>
<td>6.7%</td>
<td>4.6%</td>
<td>2.6%</td>
<td>2.6%</td>
<td>1.5%</td>
<td>4.3%</td>
</tr>
<tr>
<td>3 month Postpartum</td>
<td>15.0%</td>
<td>16.7%</td>
<td>12.5%</td>
<td>9.6%</td>
<td>5.6%</td>
<td>4.4%</td>
<td>6.5%</td>
<td>4.0%</td>
<td>3.6%</td>
<td>3.8%</td>
<td>2.0%</td>
<td>5.9%</td>
</tr>
</tbody>
</table>
Low back Pain (LBP) & Pelvic Girdle Pain (PGP) during pregnancy

- Anterior PGP: 10.5%
- Posterior PGP: 57.8%
- LBP: 25.3%
- Anterior & Posterior PGP: 8.2%
LOW BACK & PELVIC GIRDLE PAIN PREVALENCE

- **Lumbar**
  - Year Before Pregnancy: 18.3%
  - In early pregnancy: 25.3%
  - 3month Postpartum: 38.6%

- **Pelvic girdle**
  - Year Before Pregnancy: 40.7%
  - In early pregnancy: 60.1%
  - 3month Postpartum: 53.6%

- **Anterior pelvic girdle**
  - Year Before Pregnancy: 1.4%
  - In early pregnancy: 10.5%
  - 3month Postpartum: 11.9%

- **Posterior pelvic girdle**
  - Year Before Pregnancy: 40.3%
  - In early pregnancy: 57.8%
  - 3month Postpartum: 52.3%

- **Ant & Post pelvic girdle**
  - Year Before Pregnancy: 10%
  - In early pregnancy: 8.2%
  - 3month Postpartum: 10.0%
The complexity of pain

- Depression/anxiety
- Sleep deprivation
- Disability/deconditioning
- Activity avoidance
Pain & Depression, Anxiety, Stress during pregnancy

- Depression, Anxiety & Stress measured by the DASS 21 scale
- Mann Whitney U test

<table>
<thead>
<tr>
<th></th>
<th>Any Pain</th>
<th>PGP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td>p=0.002</td>
<td>P=0.001</td>
</tr>
<tr>
<td>Anxiety</td>
<td>p&lt;0.0001</td>
<td>p&lt;0.0001</td>
</tr>
<tr>
<td>Stress</td>
<td>p=0.005</td>
<td>p=0.021</td>
</tr>
</tbody>
</table>
Conclusion

• Somatic pain significantly *increases* during pregnancy, particularly in the pelvic girdle and low back.
• Pain often *persists* postpartum.
• Women often have pain in *several areas*, potentially increasing its negative impact.
• Assessment of the pain is required to direct *management* where appropriate and reduce risk chronicity.
• Further research to explore the interrelations between pain and other maternal morbidities pregnancy and postpartum.
Acknowledgments

• The women who participated in the study
• Principal Investigators Prof Cecily Begley and Prof Mike Clarke
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• The midwives and midwifery students who distributed the information
• Rotunda Hospital
• Health Research Board Ireland
References


