Risk of Preterm Birth among Women Living in Deprived Neighborhoods Differs by Depression and Anxiety Status during Pregnancy

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BACKGROUND
Burden of preterm birth
• Globally: 11.1%1
• Canada: 7.8%; Alberta: 8.7%1
• Contributes to 35% of neonatal deaths3
• Responsible for child morbidity4
• High healthcare cost5

Multiple risk factors for preterm birth6
• Anxiety and depression during pregnancy
• Living in deprived neighborhood

Anxiety/depression are common in pregnancy6
• Up to 27%
• Even higher amongst women living in deprived neighborhoods

OBJECTIVE
To examine whether anxiety, depression, or comorbid anxiety and depression during pregnancy modifies the relationship between neighborhood deprivation and preterm birth.

METHODS
Data sources:
All Our Families (n = 4,341)
Alberta Pregnancy Outcome and Nutrition (n = 2,187)
Two prospective pregnancy cohort studies
Linked Neighborhood SES data [Pampalon deprivation index]6

RESULTS

Analysis:
1. Univariate and stratified analysis
2. Multilevel logistic regression models
   • Interaction terms of neighborhood deprivation index and anxiety and/or depression
   • Adjusted for confounding (maternal age, parity, ethnicity, etc.)

INTERACTION TERMS

Table 1: Interaction of Neighborhood Deprivation with Anxiety and/or Depression Status for Preterm Birth

<table>
<thead>
<tr>
<th>Interaction terms</th>
<th>Odds Ratio</th>
<th>95% CI</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deprived neighborhood* presence of anxiety</td>
<td>1.50</td>
<td>0.42, 5.36</td>
<td>0.531</td>
</tr>
<tr>
<td>Deprived neighborhood* presence of depression</td>
<td>1.84</td>
<td>0.74, 4.58</td>
<td>0.187</td>
</tr>
<tr>
<td>Deprived neighborhood* comorbid anxiety and depression</td>
<td>1.87</td>
<td>0.48, 7.33</td>
<td>0.371</td>
</tr>
</tbody>
</table>

DISCUSSION
Strengths:
• Prospective cohort study with high response rate
• Analysis separated by anxiety, depression, and comorbid status

Limitations:
• Inadequate sample size for low prevalence outcome with several strata
• Analysis for subgroup of preterm birth
• Representation of high SES women

CONCLUSIONS
• Risk of delivering preterm baby is high among women living in deprived neighborhood in the presence of anxiety and/or depression.
• Anxiety and depression associated with the challenges of deprivation may extend stress-response activation • resulting in increased risk of preterm birth.
• Future studies with more power is needed to identify interactions, in order to determine high risk group and recommend early detection and intervention.

REFERENCES

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