Associations of drinking water access, household water and food insecurity, and mental well-being of pregnant women in low-income, urban neighborhoods of Beira, Mozambique

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**BACKGROUND**

- Water and food insecurity are clear drivers of adverse physical health impacts, but increasing evidence has also identified linkages to mental well-being.
- The mental well-being implications of water insecurity are higher for women as they bear disproportionate burdens for household water management.
- Prenatal stress and poor mental well-being have been associated with negative impacts on fetal and child development.

**STUDY SETTING**

- Beira is a growing port city and experiences frequent natural disasters.
- Half of the 600,000 population lives in dense informal settlements.

**RESEARCH QUESTIONS**

To comprehensively explore the relationships of drinking water access, water and food insecurity, and mental well-being amongst pregnant women in low-income, urban neighborhoods of Beira, Mozambique, we investigated the following questions:

1. Is household drinking water access associated with prenatal mental well-being?
2. Are food and water insecurity associated with prenatal mental well-being?
3. Is there potential mediation by food and water insecurity on prenatal mental well-being?

**METHODS**

- **Data:** Collected from November 2021 to September 2022 as part of the PAASIM Study. Surveys from 740 third-trimester pregnant women met the inclusion criteria for this analysis.
- **Statistics:** Generalized estimating equations estimated associations in Questions 1 and 2. Causal mediation analysis was used to determine mediating effects in Questions 3a and 3b.

**RESULTS**

**Question 1:** Drinking water was not associated with mental well-being

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<thead>
<tr>
<th>Drinking Water Access</th>
<th>Mental Well-Being</th>
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<tbody>
<tr>
<td>OR=1.00 (0.73, 1.38)</td>
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**Question 2:** Water insecurity and food insecurity were associated with adverse mental well-being

<table>
<thead>
<tr>
<th>Water Insecurity</th>
<th>Mental Well-Being</th>
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<tbody>
<tr>
<td>OR=1.42 (0.99, 2.03)</td>
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<table>
<thead>
<tr>
<th>Food Insecurity</th>
<th>Mental Well-Being</th>
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<tr>
<td>OR=2.23** (1.51, 3.32)</td>
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**Question 3a:** Mediation analysis could not take place on pathways related to drinking water access because drinking water access was not found to be associated with any other factor

**Question 3b:** Food insecurity fully mediated the pathway between water insecurity and mental well-being

Causal Mediation Analysis

The lack of significant direct association (path c’) but presence of overall association (path c) and significant indirect associations (paths a and b) suggests the presence of full mediation by food insecurity.