<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
<th>Degree</th>
<th>Abstract title</th>
</tr>
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<tbody>
<tr>
<td>Ariel Snell</td>
<td>MMPH</td>
<td>MPH</td>
<td>Association Between a Child’s Caries Experience and the Mother’s Perception of Her Child’s Oral Health Status</td>
</tr>
<tr>
<td>Erica Stevens</td>
<td>MMPH</td>
<td>MPH</td>
<td>Proximity to a Major Road, Dust Mite Allergen Exposure, and Asthma in Puerto Rican Children</td>
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<tr>
<td>Jeremy Landeo Gutierrez</td>
<td>MMPH</td>
<td>MPH</td>
<td>Exposure to Violence, Chronic Stress and Asthma in Puerto Rican Children</td>
</tr>
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Abstract

Objectives. Mothers play a primary role in the health of their children. This role may be of particular importance for children in Appalachia who have increased caries relative to children in other regions of the United States. The authors examined the degree to which a child’s caries experience was in concordance with mother’s perception of the health of her child’s teeth, and how concordance varied by sociodemographic factors.

Methods. The authors obtained cross-sectional data on mother-child dyads with children younger than 6 years through the Center for Oral Health Research in Appalachia study. They interviewed and clinically examined a community-based sample of 815 mother-child dyads in Pennsylvania and West Virginia. They used an unadjusted zero-inflated negative binomial model to estimate the association between a mother’s perception of her child’s oral health status and her child’s caries. The authors compared sociodemographic factors between concordant and non-concordant mother-child dyads using \( \chi^2 \) tests.

Results. The mother’s perception of child oral health status was associated with child’s caries experience \((P<.001)\). Two-thirds of mother-child dyads showed concordance between the mother’s perception of her child’s oral health status and the child’s dental caries experience \((n=522, 64\%)\). Concordance was associated with younger child age and child dental insurance \((P<.01)\).

Conclusions. On average, mothers accurately perceived their child’s caries experience. This accuracy was higher for younger children and children with dental insurance.

Practical Implications. The mother’s awareness of her child’s oral health status has public health significance, as it could be used to develop effective prevention and treatment strategies, particularly for young children vulnerable to dental caries.
Erica Stevens, MMPH

Title: Proximity to a major road, dust mite allergen exposure, and asthma in Puerto Rican children

Authors: Erica L. Stevens, MD¹, Franziska Rosser, MD, MPH¹, Erick Forno, MD, MPH¹, Edna Acosta-Perez, PhD². Glorisa Canino, PhD², Juan C. Celedón, MD, DrPH, ATSF¹

¹Division of Pulmonary Medicine, Department of Pediatrics, UPMC Children’s Hospital of Pittsburgh, University of Pittsburgh, Pittsburgh, PA

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Word count: 369

Background: Traffic-related air pollution (TRAP) and dust mite allergen exposure have been linked to morbidity from asthma but have not been well studied in combination. We aimed to examine the combined effects of these risk factors on asthma and asthma outcomes in Puerto Rican children, a group disproportionately affected by asthma.

Methods: Cross sectional study of 563 Puerto Rican children aged 6-14 years with (n=285) and without (n=278) asthma. House dust samples were obtained from 3 areas in the participants’ homes. The dust was sifted through a 50-m-mesh metal sieve, and the fine dust was reweighed, and extracted, and aliquoted for analysis of Dermatophagoides pteronyssinus [Der p 1] (hereinafter referred to as “dust mite”), using mAb Multiplex assays. The distance between a participant’s home and a major roadway (a marker of TRAP) was calculated as described in Rosser et al (2014)(1). Linear or logistic regression was used for the multivariable analysis of asthma, severe asthma exacerbations, FVC, FEV₁, and FEV1/FVC.
Results: In a multivariable analysis, there was a significant interaction between the highest (fourth) quartile of dust mite allergen levels (≥9.43 mcg/g) and the highest (fourth) quartile for distance to a major road (>441 meters) on asthma (P<0.05). We thus stratified the multivariable analysis by highest quartile of dust mite allergen levels vs. the other quartiles. Among children unexposed to the highest dust mite allergen level (i.e. the lowest three quartiles, n=421), those who lived furthest away (>441 m) from a major road had 48% lower odds of asthma than those living within 441 meters of a major road (95% confidence interval for the odds ratio=0.32 to 0.84, P<0.01). In contrast, there was no significant association between residential distance to a major road and asthma among children exposed to the highest dust mite allergen levels (n=142). We found no significant association between proximity to a major road or dust mite and lung function measures or severe asthma exacerbations.

Conclusions: Our findings suggest that living further than 441 meters from a major road is associated with lower odds of asthma, but only among children unexposed to high levels of dust mite allergen. This further suggests that reducing indoor dust mite allergen exposure could enhance the benefits of reduced exposure to TRAP.
Figure 1. Multivariable analysis of living more than 441 meters away from a major road and asthma, stratified by exposure to high dust mite allergen levels.

Models adjusted for age, gender, body mass index (BMI, parental asthma, and type of health insurance (private vs. others).
References

Jeremy Landeo Gutierrez - MMPH

Abstract for Dean’s Day 2020:

TITLE: Exposure to violence, chronic stress, and asthma in Puerto Rican children

AUTHORS: Jeremy Landeo Gutierrez, MD¹, Erick Forno, MD, MPH¹, Edna Acosta-Pérez, PhD², Glorisa Canino, PhD², Juan C. Celedón, MD, DrPH, ATSF¹

¹Division of Pediatric Pulmonary Medicine, UPMC Children’s Hospital of Pittsburgh, University of Pittsburgh
²Behavioral Sciences Research Institute, University of Puerto Rico

RATIONALE: Ethnic minority groups are both commonly exposed to chronic psychosocial stressors and disproportionately affected by asthma. Although exposure to violence and chronic stress have been each associated with asthma, little is known about their potential synergistic effects on childhood asthma in children. We hypothesized that children who are highly exposed to violence and chronic stress are at higher risk of asthma and reduced bronchodilator response (BDR).

METHODS: Cross-sectional study of 472 Puerto Rican children with (n=235) and without (n=237) asthma, ages 9–14 years. We assessed chronic stress using the Checklist of Children’s Distress Symptoms (CCDS) scale, and lifetime exposure to violence using the Children's Exposure to Community Violence (ETV) scale. Spirometry was performed following ATS recommendations for children. Asthma was defined as physician-diagnosed asthma and at least one episode of wheeze in the previous year. BDR was defined as percent change in FEV₁ after administration of a short-acting bronchodilator. Logistic or linear regression was used for the multivariable analysis of asthma and BDR, which were adjusted for age, gender, annual household income, and exposure to second-hand smoke.

RESULTS: In a multivariable analysis, each 1-point increment in the lifetime ETV scale was associated with 11% increased odds of asthma (95% confidence interval for odds ratio= 1.01-1.22, P=0.03), even after adjusting for high levels of chronic stress (i.e. in the upper quartile of the CCDS) and other covariates (Table 1, Panel A). In a separate multivariable analysis, children with high levels of chronic stress had 4.35% significantly lower BDR than those without high levels of chronic stress (standard error=1.57, P <0.01). Lifetime ETV was not significantly associated with BDR, and high levels of chronic stress were not significantly associated with asthma. There was no significant interaction between ETV and chronic stress on asthma or BDR.

CONCLUSION: In Puerto Rican children, lifetime ETV is associated with asthma, independently of high levels of chronic stress. In these children, high levels of chronic stress are linked to reduced BDR, independently of lifetime ETV. Future longitudinal studies are needed to better define the mechanisms or pathways underlying the observed associations.

Word count: 347
Table 1 – Multivariable analysis of lifetime exposure to violence and asthma (Panel A); and chronic stress and bronchodilator response (Panel B).

<table>
<thead>
<tr>
<th>Panel A</th>
<th>Model 1</th>
<th>Model 2</th>
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<tbody>
<tr>
<td>Variable</td>
<td>OR (95% CI)</td>
<td>P Value</td>
</tr>
<tr>
<td>Lifetime ETV*</td>
<td>1.12 (1.03, 1.23)</td>
<td>0.01</td>
</tr>
<tr>
<td>High Chronic Stress</td>
<td>1.06 (0.76, 1.48)</td>
<td>0.73</td>
</tr>
<tr>
<td>Age</td>
<td>0.87 (0.78, 0.96)</td>
<td>0.01</td>
</tr>
<tr>
<td>Gender</td>
<td>1.31 (0.90, 1.93)</td>
<td>0.16</td>
</tr>
<tr>
<td>Household Income</td>
<td>0.80 (0.54, 1.18)</td>
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</table>

<table>
<thead>
<tr>
<th>Panel B</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>Beta (Stand.Error)</td>
<td>P Value</td>
</tr>
<tr>
<td>High Chronic Stress</td>
<td>-4.01 (1.47)</td>
<td>0.01</td>
</tr>
<tr>
<td>High ETV*</td>
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</tr>
<tr>
<td>Age</td>
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<td>0.49</td>
</tr>
<tr>
<td>Gender</td>
<td>1.18 (1.32)</td>
<td>0.37</td>
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<tr>
<td>Household Income</td>
<td>0.16 (1.40)</td>
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<tr>
<td>Second-hand smoke exposure</td>
<td>1.15 (1.35)</td>
<td>0.39</td>
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</table>

*ETV, Exposure to Violence.