

Maternal Education and Cockroach Sensitization in Asthmatic Children

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RATIONALE

- Environmental allergies are a trigger for allergic asthma.
- Sensitization to pests, such as cockroaches, is associated with more acute asthma visits.
- Our goal: To evaluate how various social determinants of health, particularly maternal education, were associated with sensitization to pests in asthmatic children.

METHODS

- Children's Mercy Kansas City's environmental health department collected data during home assessments for families with asthmatic children.
- Demographics collected included household income, maternal education, and type of insurance.
- Maternal education level was categorized as less than high school, high school, college, and graduate.
- 167 participating families had maternal education level and German cockroach IgE values.

METHODS

- A Tobit regression model was developed that left-censored patients with IgE values <0.35 ku/L, which was the lowest limit of detection.
- For this model, the dependent variable, German cockroach IgE, was used to measure sensitization to pests.
- Independent variables included income, mother's education, insurance, and home allergen levels for Alternaria (mold), cockroach, and mouse.

Variable	Coef.	Std. Err.	(95% Conf. Interval)	
Income	3.84	2.86	-1.88	9.56
Mother's education	-3.38	1.45	-6.29	-.47
Insurance	.05	1.88	-3.71	3.81
Alternaria mold allergen level	.14	.10	-.06	.34
Cockroach allergen level	-1.34	3.33	-8.00	5.33
Mouse allergen level	-.16	.95	-2.07	1.74

RESULTS

- Detectable cockroach and mouse allergen levels were in 69 homes.
- German cockroach IgE values ranged from 0.42 to 26.4 ku/L.
- For each increase in maternal education level, the expected German cockroach IgE was 3.38 ku/L lower than values from homes with less maternal education, holding all other variables constant (p=0.024).
- Cockroach sensitization was seen to a greater degree for homes with lower reported maternal education level.

CONCLUSIONS

- Data suggests association between home environment and maternal education level, which may impact health of asthmatic children.
- Larger prospective studies minimizing study dropouts are warranted.