

Empty Stomachs, Restless Nights: Linking Housing Instability, Breakfast Skips, and Sleep Deficits to Academic Outcomes

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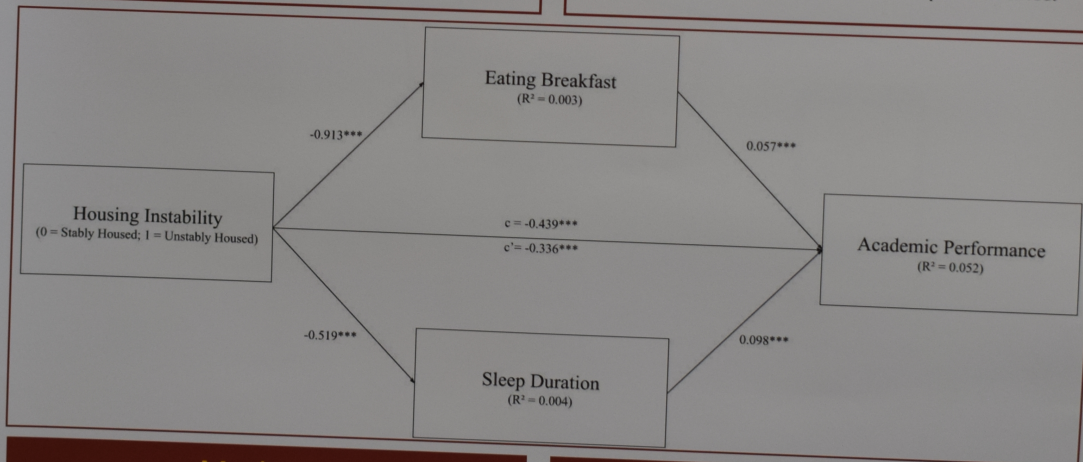
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Background

- During the 2021 – 2022 school year, 1.1 million students in the public school systems nationwide experienced housing instability.¹
- Housing instability among school-age youth is associated with:
 - Food insecurity and poor diet quality.^{2,3}
 - Irregular sleep and short sleep duration.⁴⁻⁶
 - Low attendance and academic stagnation.^{7,8}
- Academic performance in K-12 education is associated with social mobility in adulthood.⁹⁻¹¹
- Our study tested the following hypotheses:
 - H1: Housing instability is associated with lower breakfast access, sleep duration, and academic performance.
 - H2: Having regular breakfast and longer sleep predicts higher academic performance
 - H3: Both regular breakfast and sleep duration will mediate the relationship between housing instability and academic performance.

Results

- Descriptives:
 - Breakfast: 2.68 (unstable) vs. 3.48 (stable) days/week, $t = -5.58$, $p < .001$, $d = 0.30$.
 - Sleep: 1.95 (unstable) vs. 2.46 (stable), $t = -7.81$, $p < .001$, $d = 0.37$.
 - Academic performance: 2.58 (unstable) vs. 3.04 (stable), $t = -7.87$, $p < .001$, $d = 0.44$.
- Regression:
 - Housing instability predicted lower academic performance: $b = -0.40$, $p < .001$, model $R^2 = .047$.
 - Breakfast ($b = 0.06$, $p < .001$) and sleep ($b = 0.10$, $p < .001$) predicted better academic performance. $\Delta R^2 = 0.051$, final model $R^2 = .098$.
- Mediation:
 - Housing instability predicted irregular breakfast ($b = -0.91$) and shorter sleep duration ($b = -0.52$).
 - Both breakfast intake ($a*b = -0.052$) and sleep duration ($a*b = -0.051$) partially mediated housing instability and academic performance.



Methods

- Data: 2023 Youth Risk Behavior Survey
- Analytic sample: $N = 14,541$ high school students.
- Outcome: self-reported grades (0 = mostly F's to 4 = mostly A's).
- Predictors: housing status (stable = 0, unstable = 1); breakfast frequency (0–7 days); school nights' sleep duration (0 = < 4 hours to 6 = > 10 hours).
- Analyses using Stata 18 and SPSS 29:
 - Descriptive statistics, correlations, hierarchical regression using Stata 18
 - Mediation model using PROCESS macro v4.



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References

Conclusion & Recommendations

- Housing instability was associated with poorer academic performance, partially through differences in breakfast intake and sleep duration among school nights.
- Academic support alone may not be enough to mitigate the negative effects of housing precarity.
- School districts should address basic needs among unstably housed students alongside academic interventions:
 - Recommend universal access to breakfast at public schools.^{12,13}
 - Recommend later school start times.¹⁴
 - Increase school-based resources for students and families experiencing housing instability.
- Future studies should use longitudinal or experimental designs.