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Child Injury: Does home matter?

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Objectives

To examine the relationship between home risk and hospital treated injury in Australian children up to five years of age.

Approach

Women with children between two and four years of age enrolled in an Australian longitudinal birth cohort study, Environments for Healthy Living (EFHL) between 2009 and 2011, were invited to complete a Home Injury Prevention survey. A total home risk score (HRS) was calculated and linked to EFHL baseline demographic survey and perinatal data. The child's injury related state-wide hospital emergency department and admissions data was extracted from the child's date of birth until 31 December 2013. Multiple imputation methods were used to impute incomplete multivariate exposure factors. Zero-inflated poisson regression was used to estimate crude and adjusted rate ratios (RRs) between exposure (HRS quartiles) and outcome (count of injury related episodes of care) for child participants, accounting for individual person-years of exposure time.

Results

Data from 566 child participants were included with outcomes data available for 97% of the cohort. Using data linkage of administrative health records with multiple survey data sources, we found an inverse relationship between home risk and child injury, with children living in homes with the least injury risk (based on the absence of hazardous structural features of the home and safe practices reported) having 1.90 times the injury rate of children living in high risk homes (95% CI 1.15-3.14). Whilst this appears counter-intuitive, families in the lowest risk homes were more likely to be socio-economically disadvantaged than families

in the highest risk homes (more sole parents, lower maternal education levels, younger maternal age and lower income). After adjusting for demographic and socio-economic factors, the relationship between home risk and injury was no longer significant ($p > 0.05$).

Discussion and conclusions

Through the use of comprehensive linkage of five years of state-wide administrative health data, combined with individual survey data methods, this study overcame the most significant threat to longitudinal research - loss to follow-up. Our results demonstrated that children in socio-economically deprived families have higher rates of injury, despite living in a physical environment that contains substantially fewer injury risks than their less deprived counterparts. These findings support continued efforts to implement societal-wide, long term policy and practice changes to address the socioeconomic differentials in child health outcomes.

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