

Examining the Contribution of the Neighborhood Built Environment to the Relationship Between Neighborhood Disadvantage and Early Childhood Development in 205,000 Australian Children

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OBJECTIVE: We examined associations between neighborhood built environment features and early childhood development, and the contribution of the built environment to associations between neighborhood disadvantage and early childhood development.

METHODS: Spatial neighborhood built environment measures were linked to participant addresses in the 2015 Australian Early Development Census (AEDC) for children approximately 5 years old (n=205,030) living in Australia's 21 most populous cities. The AEDC contains teacher-reported data on five developmental domains for all children in their first year of formal schooling. AEDC scores were classified as 'developmentally vulnerable' (≤ 10 th centile) on each domain. Using multilevel logistic regression, 44 built environment measures were tested with developmental vulnerability on at least one domain of the AEDC, and contribution to associations with neighbourhood disadvantage.

RESULTS: Children had decreased odds of developmental vulnerability when living in areas with more early childhood education and care services exceeding Australian standards, healthier food outlets, and affordable housing, after adjusting for individual-level socioeconomic factors and neighbourhood disadvantage. Disadvantage remained significantly associated with developmental vulnerability after adjustment for child/family and neighborhood built environment features.

CONCLUSIONS: The neighborhood built environment had small effects on the neighborhood disadvantage-early childhood development relationship. However, small population effects may have wide-ranging impacts. Results suggest that modifying the built environment at scale, with attention to early childhood education and care, food provision, and housing, may be a promising strategy for supporting good child outcomes. More attention is needed to understand the mechanisms between neighborhood disadvantage and child development.

Primary author: BADLAND, Hannah (RMIT University)

Co-authors: Dr VILLANUEVA, Karen (RMIT University); Dr ALDERTON, Amanda (RMIT University); Prof. DAVERN, Melanie (RMIT University); Mr HIGGS, Carl (RMIT University); Prof. TURRELL, Gavin (RMIT University); Prof. GOLDFELD, Sharon (Royal Children's Hospital)

Presenter: BADLAND, Hannah (RMIT University)

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