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A Methodology for Assessing the Association between Urban Rooftop Gardening and Household Dietary Diversity in Low-Income Dakar, 2018

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Abstract

Urban agriculture is promoted to enhance food security in African cities. Robust methodologies to quantify its specific effect on household nutrition, particularly through forms like rooftop gardening in dense informal settlements, are lacking. This gap is evident in West African urban contexts such as Dakar, Senegal. This article details a methodology for assessing the association between household engagement in rooftop gardening and Household Dietary Diversity Scores (HDDS) in low-income neighbourhoods of Dakar. Its primary objective is to outline a replicable study design, including sampling, data collection tools, and analytical approaches for measuring this relationship. The methodology employs a cross-sectional, comparative design. Households with established rooftop gardens are matched with non-gardening households in the same neighbourhoods based on key socio-economic confounders. Data collection combines a structured survey capturing HDDS (using a 12-food group reference period) and gardening practices with observational checklists to verify garden production. Statistical analysis uses multivariate regression to isolate the association between gardening status and HDDS, controlling for covariates. As a methodology article, it presents no empirical results. The proposed analytical framework is designed to detect the direction and magnitude of any association, such as whether gardening households are likely to have a higher average HDDS compared

to matched controls. The outlined methodology provides a rigorous, context-appropriate framework for investigating the link between rooftop gardening and dietary diversity in low-income urban settings. It addresses key challenges in sampling, measurement, and confounding control specific to dense informal settlements. Researchers adopting this methodology should conduct thorough community engagement prior to data collection and adapt the food group list to local dietary patterns. Future applications could strengthen the design by incorporating longitudinal elements to better infer causality. urban agriculture, rooftop gardening, dietary diversity, methodology, household nutrition, food security, Senegal This article provides a structured methodological protocol for public health and agricultural researchers aiming to empirically measure the nutritional linkages of urban agriculture in similar resource-constrained, high-density urban environments.