

Pathways between fishery access and early childhood development: a longitudinal cohort study

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Abstract

Background Access to natural resources is fundamental to human wellbeing. We aimed to disentangle the multiple pathways through which fishery resources benefit early childhood development. Although evidence has linked fish consumption and early childhood development, differences in nutrient content across fish species and the role of fishing income might modify or extend how fishery access shapes child development. To address these gaps, we examined how the species of fish consumed affects early childhood development and disentangled the effects of fishing income and fish consumption.

Methods In this longitudinal cohort study, we analysed data from fishing households around Lake Victoria, Kenya, surveyed at nine timepoints between December, 2012, and April, 2015. We used a statistical approach that implemented fixed-effects in structural equation models to investigate how child consumption of two predominant fish species and household fishing income affected child gross motor, personal–social, and communication development scores.

Findings Consumption of only one of the two predominant fish species significantly benefited all three child development outcomes. Fishing income significantly increased gross motor and personal–social development. The sizes of these significant effects of fish consumption and fishing income were similar (ranging from 0·10 SD unit, 90% CI 0·03–0·18 to 0·18 SD unit, 90% CI 0·09–0·28). Fishing income significantly increased child development scores through its effect on child growth.

Interpretation Natural resources provide for multiple pathways linking human and ecosystem health. Disentangling these pathways is crucial to fostering sustainable ecosystem management that preserves health benefits, such as the early childhood development benefits of fish access within fishing communities.

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Contributors

RAR contributed to study design, data analysis, development of the first draft of the manuscript, writing of the manuscript, and verification of the underlying data. EMM contributed to data collection, study design, and writing of the manuscript. BJM contributed to data collection and writing of the manuscript. JSB contributed to study design. LHF contributed to study design and writing of the manuscript. KJF contributed to data collection, study design, writing of the manuscript, and verification of the underlying data. RAR and KJR accessed and verified the underlying study data.

Declaration of interests

We declare no competing interests.

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