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## Community, Population and Global Health

### Cumulative Gardening Experiences and Fruit and Vegetable Intake in Adolescents

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**Learning Outcome:** Describe the potential collective effect of gardening experiences on fruit and vegetable intake in adolescents, specifically the associations between cumulative gardening experiences and increased vegetable intake.

Gardening experiences have shown to increase children's willingness to try fruits and vegetables (FV), but few studies have investigated the impact of cumulative gardening experiences on FV intake in adolescents. This study compared the potential collective effect of previous gardening experiences on current FV intake in high school students enrolled in food system focused class. Students completed a gardening experience questionnaire (GEQ), food frequency questionnaire (Short Healthy Eating Index), and demographic survey (fall or spring 2021). The GEQ inquired about students' gardening experiences across four life stages (elementary, middle, high school, and the last 12 months). Participants' skin carotenoid status (SCS), an indirect, objective FV intake indicator, was measured in triplicate on their index finger via resonance Raman spectroscopy (Veggie Meter™, Longevity, Inc.). Of the 375 adolescents, most were white (54.7%), female (53.6%), and 15 years old (26.7%). Only 47 students never gardened. An ANOVA showed that students who gardened at four life stages ate more FV ( $4.7 \pm 0.3$  C/day) than those who gardened at three stages ( $3.5 \pm 0.3$  C/day;  $p=0.019$ ), two ( $3.6 \pm 0.2$  C/day;  $p=0.025$ ), one ( $3.7 \pm 0.2$  C/day;  $p=0.048$ ), and never ( $3.5 \pm 0.3$  C/day;  $p=0.039$ ). There were no differences in SCS. Examining FV intake separately, there were no differences in fruit intake across groups; however, those that gardened at four stages reported eating more vegetables ( $2.5 \pm 0.3$  C/day) than those who never gardened ( $1.6 \pm 0.3$  C/day;  $p=0.025$ ). Adolescents with ongoing gardening experience reported eating more FV than those with less gardening experience. Future research should investigate methods to promote gardening to improve adolescent FV intake.

**Funding Source:** This study was funded by a grant from the Walmart Foundation.

### Detroiters' Food Needs and Perceptions of Food Assistance Programs During the COVID-19 Pandemic

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**Learning Outcome:** Upon completion, participant will be able to identify perceptions of food assistance programs and how to better meet food needs in Detroit during the COVID-19 pandemic.

**Background:** The COVID-19 pandemic has caused a rise in food prices and unemployment, making it more challenging to meet basic food needs. This is particularly concerning because not only has COVID-19 affected Detroit more than any other area of the state of Michigan, but 39% of Detroit households reported experiencing food insecurity before the pandemic. This study aims to examine Detroiters' perceptions of food assistance programs, and what would help them better meet food needs.

**Methods:** An online survey was completed by 654 Detroit residents in 2022. Respondents were asked an open-ended question about what would help to meet food needs. Those who indicated using food pantries or SNAP in the last year were asked open-ended questions about their experiences using each program. Responses were coded by two coders, who discussed coding differences and reached consensus.

**Results:** To better meet food needs, Detroiters' reported needing more food stores, lower food prices, food delivery, greater availability of healthy food options, and more resources to cover the cost of food. Although many Detroiters felt that both SNAP and food pantries were helpful, some SNAP recipients reported that the benefits were not enough or that they had stopped or decreased. Some food pantry users reported being given expired food or not having transportation to food pantries

**Conclusion:** These findings indicate that despite current efforts to ensure adequate food assistance during the COVID-19 pandemic, there are still gaps in meeting Detroiters' food needs that need to be addressed.

**Funding Source:** United Way of Southeastern Michigan

### Dietary Diversity in Infancy Is Associated with Linear Growth in The Second Year of Life

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**Learning Outcome:** Upon completion, participant will be able to describe how dietary diversity contributes to growth in low-and middle-income settings. Despite the high prevalence of undernutrition among young children in low- and middle-income settings, few studies have examined how dietary diversity and adequacy during the complementary feeding period impacts subsequent growth and body composition. We therefore examined associations between dietary diversity (DD, range 0-7) and minimum DD (MDD, DD >4) at 9 months of age with subsequent growth trajectories (up to 23 months of age) among a cohort of infants in Nyanza, Kenya. Infants (n=212) are from the Pith Moromo study, a prospective maternal-infant cohort in Kenya. Repeated measures of infant DD and growth were obtained at 9 12 15 18 and 23 months. Multiple linear regression models were used to examine the relationship between DD (continuous and dichotomous) and weight-for-age (WAZ), length-for-age (LAZ) and weight-for-length (WLZ) z-scores from 9 to 23 months, adjusting for infant age, breastfeeding, food insecurity, maternal HIV status, and other covariates. At 9 months, mean DDS was  $3.38 \pm 1.81$  46% met MDD, and mean LAZ, WAZ, and WLZ were  $-0.63 \pm 1.27$ ,  $-0.10 \pm 1.22$ , and  $0.38 \pm 1.29$ , respectively. In adjusted models, meeting MDD compared to DD ≤ 4, was associated with higher LAZ across time ( $\beta=0.34$ , CI:0.05-0.64), but MDD was not associated with WAZ or WLZ. Similar patterns were found with continuous DDS. While minimum dietary diversity was positively associated with linear growth from 9 to 23 months, it was not associated with weight or relative size. Future studies should evaluate how to increase the dietary diversity of infants at risk for stunting.

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### Examination of the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) use and infant feeding choices

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**Learning Outcome:** Upon completion, participant will be able to describe how food access affects infant feeding practices in the household at the beginning versus the end of the monthly WIC benefit cycle.

**Background:** More than half of the infants in the United States benefit from food assistance provided through WIC. The study objective was to understand the utilization of WIC-approved items and the association with infant feeding choices at a monthly level.

**Methods:** Mothers of 7 -to-12-month-old infants were interviewed to collect information on the use of WIC-approved food items for infants. Along with the interview 24-hour recalls were conducted at the beginning and end of the WIC benefit cycle using the NDSR program (n = 50). Analyses were conducted to estimate overall feeding choices and any differences in feeding patterns and choices between the beginning and end of the benefit cycle.

**Results:** At 7-months and onwards 90% of the infants were receiving fully formula-fed WIC packages. Participants reported purchasing 7 cans of 12.4 ounces powdered formula 24 ounces of infant cereal, and 129 ounces of jarred fruits/vegetables. About half of the participants (59%) reported shopping for WIC food all at once. Intake of jarred fruits and vegetables was more common at the beginning of the WIC benefit cycle compared to the end of the month.

**Conclusion:** WIC plays a critical role in ensuring formula affordability for low-income households. Cyclical pattern in feeding choices is likely to occur between the beginning and end of the WIC benefit cycle. An in-depth investigation of monthly changes in the supply of infant formula and related foods is critical in understanding if inconsistent access to food or food insecurity occurs for infants at a monthly level.

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