



# Systematic Review of Effective Community-Based and System Level Interventions for Improving Food Security

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## BACKGROUND

- Approximately 11.8 percent (15 million) of U.S. households experienced food insecurity during 2017.<sup>1</sup>
- Access to adequate, nutritious, and safe food affects not only the wellbeing of people who face food insecurity but also hampers their ability to manage chronic health conditions, such as type 2 diabetes mellitus, heart disease, and hypertension.<sup>2</sup>
- Many interventions or programs targeted at providing food assistance to the food insecure populations have been implemented in the United States.
- Previous literature has identified a few programs as valuable sources to bridge the food security gap for food insecure populations,<sup>3,4</sup> but, there has been no known research study that has examined the effectiveness of these programs collectively within the United States.

## AIMS

- Assess existing literature on food security programs in the United States.
- Examine the most effective community-based and system level interventions or programs that have increased consumption of nutritious food among the food-insecure population.**

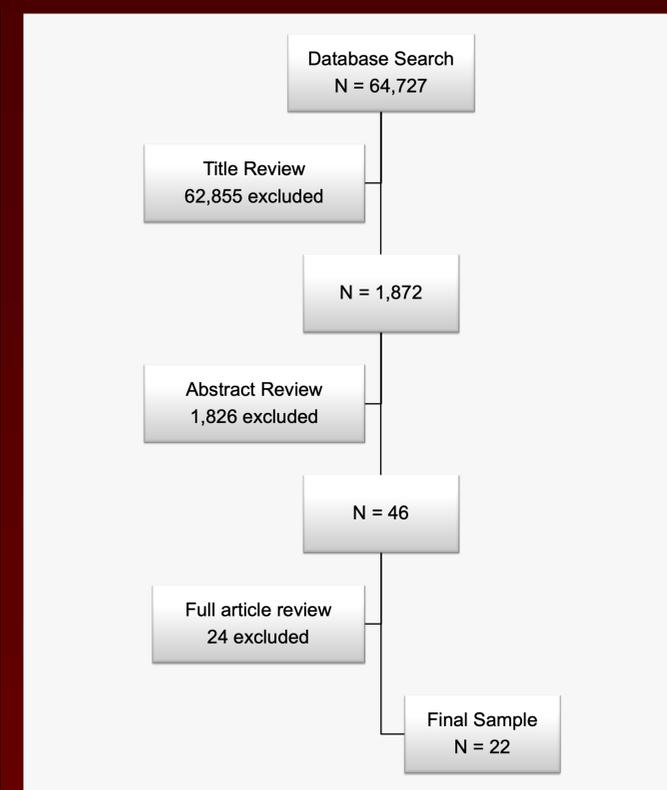
## METHODS

- Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines
- After compiling a list of *relevant* search terms, a comprehensive search of the Agricola, EBSCOhost, ProQuest, and PubMed databases was conducted
- Inclusion criteria: empirical, relevant studies published from 2009 to 2018, written in English language and in the United States

## RESULTS

| Study                                | Study Design                                   | Findings  |
|--------------------------------------|--|---|
| Bowling et al. <sup>5</sup>          | Quasi-Exp. study                               | Higher vegetable consumption and lower soda consumption. No change in food assistance spent on food and vegetables.   |
| Collins et al. <sup>6</sup>          | Randomization design                           | Prevalence of very low food security among children reduced by one third.   |
| Coughenour et al. <sup>7</sup>       | Cross-sectional study                          | Dollar-discount stores had lower availability of produce but provided quality fresh and healthy foods at significantly discounted cost.   |
| Cullen et al. <sup>8</sup>           | Randomized control trial.                      | Significant improvements in the consumption of food and nutrients recorded in both groups and significant reduction in BMI were only recorded in the intervention group.                                    |
| Davis et al. <sup>9</sup>            | Quasi-Exp design                               | Intervention group were more likely to report consuming eating fruit and drinking 100% fruit juice at least twice daily.  |
| Dollahite et al. <sup>10</sup>       | Switching-rep rand-exp. design                 | Positive outcomes, with reported behavior changes retained at least 2 months.   |
| Eicher-Miller et al. <sup>11</sup>   | Single-blind random design                     | FSNE was successful in improving participants' food insecurity and food insufficiency.  |
| Gans et al. <sup>12</sup>            | Randomized control trial                       | Intervention group increased total food and vegetables intake by 0.44 cups with the control group decreasing intake by 0.08 cups.   |
| Gordon et al. <sup>13</sup>          | Random-assign design                           | Benefit groups in both sets of sites had similar large reductions in very low food security among children, relative to no-benefit controls.  |
| Hosseini et al. <sup>14</sup>        | Qualitative study                              | Older women would be less reliant on the soup kitchen if they had better access to transportation, and information about their eligibility for various federal programs.                                    |
| Huang et al. <sup>15</sup>           | Panel design                                   | The NSLP increases household-level food security among low-income families with children.   |
| Kegler et al. <sup>16</sup>          | Quasi-Exp. design                              | Intervention households reported significant improvements in household food inventories, healthier meal preparation and family support for healthy eating.  |
| Lohse et al. <sup>17</sup>           | Randomized Controlled Trial                    | Eating participants who were food secure had more confidence in managing money for food and keeping track of food-related purchases than food-insecure persons.   |
| Martin et al. <sup>18</sup>          | Random-parallel-group with equal randomization | Freshplace members were less than half as likely to experience very low food security, increased self-sufficiency, and increased fruits and vegetables by one serving per day compared to the control group |
| Nagata et al. <sup>19</sup>          | Quasi-Exp. study                               | Intervention groups were less likely to report consuming soft drinks and candy but no significant changes in fruit and vegetable consumption were recorded.   |
| Ohri-Vachaspati et al. <sup>20</sup> | Cross-sectional study                          | Schools participating in the FFVP were significantly more likely to provide fresh fruit during lunch meals.   |
| Prelip et al. <sup>21</sup>          | Quasi-Exp. design                              | Significant positive influence in attitudes regarding Fruits and vegetables were recorded. However, a significant increase in their consumption was not observed.   |
| Ridberg et al. <sup>22</sup>         | Panel design                                   | 72% increased their summative score over the course of the program. Participants had higher change scores with 5 or 6 clinical visits, compared with 1 or 2 visits.   |
| Saxe-Custack et al. <sup>22</sup>    | Qualitative study                              | Fruit and vegetable prescription program was perceived as effective in increasing food security, food access and child consumption of fresh fruits and vegetables.  |
| Torrence et al. <sup>23</sup>        | Quasi-Exp. design                              | Significant change in participant perception of food security, self-efficacy with physical activity and healthy eating, and cooking confidence.   |
| Trude et al. <sup>24</sup>           | Randomized Controlled trial                    | Intervention group had 1.4 times Increase in healthier food and beverages purchase and a 3.5% reduction kcal from sweets.   |
| White et al. <sup>25</sup>           | Qualitative study                              | Produce quantity were abundant, accessible and affordable to most participants. However, payment timing was recorded as a barrier for some participants.  |

## PRISMA FLOW CHART



## DISCUSSION

- Depending on the interventions that were used to assess the improvements of food security level, all the studies were classified into six categories: *Educational and Behavioral Programs; Fresh Fruit and Vegetable Programs; Summer Electronic Benefits Transfer; Discounted Food Options; Soup Kitchens; and Multicomponent Programs.*
- Multicomponent interventions leverage the strengths of the individual interventions and appear more effective in remedying food insecurity.**
- Most successful programs have a recurring trait of incorporating some form of educational and behavioral interventions.

## REFERENCES

