Can Community Gardening Programs Alleviate Barriers to Hypertension Management?

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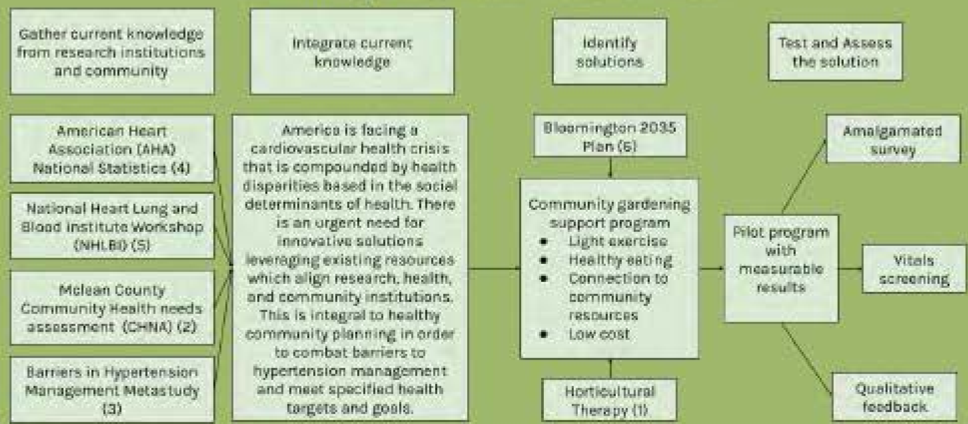
Introduction

Spending time outdoors and gardening have long been acknowledged as having potential positive impacts on both physical and psychological health (1). This pilot study sought to test whether a ten-week social gardening program could showcase demonstrable beneficial effects on hypertension. A cohort of 12 participants assembled through convenience sampling went through a pre/post test designed community gardening intervention, as a potential low cost high engagement health solution.

Methods
Community Based Action Research Model



Qualitative Feedback

"I liked being around the students and being in a diverse group."

"I liked meeting people, especially the young people. It showed me that I could learn new things."

"I like that I now know everybody in the group pretty well–learning from other people is a big thing with me."

"I learned a lot about vegetables and am now interested in growing them though before I had no green thumb."

Breaking ground at the Westside Gardens

Preparing Salsa at the community clinic

Eating a meal at the community clinic

Methods
Program Schedule

Date	Activity	Barrier/need addressed
5/3	Pre survey, vitals, and introductions.	Data collection
5/10	Cohort introductions, tilling soil and planting seeds followed by a discussion of different plant types (annual v. perennial).	*Healthy Eating/Active Living*: Combining education with hands-on gardening improves food literacy and encourages long term healthy behaviors (2).
5/17	Yoga and an icebreaker, tilling soil and planting seeds. And a lecture on different seed types (Heirloom vs Hybrid).	*Behavioral Health*: Stress-reducing physical activity like yoga combined with gardening may lower blood pressure and improve mental well being (2).
5/24	Discussion of plant physiology: Growth and reproductive cycles, cation exchange and pH dynamics of different plants.	*Healthy Eating/Active Living*: Teaching the participant about the science behind plant nutrition and soil health allows them to cultivate produce at home (2).

Date	Activity	Barrier/need addressed
5/31	Planting melon seeds, cucumber, tomatoes, and various greens.	*Healthy Eating/Active Living*: Promotes movement, increases produce access, and helps teach self reliance in food production (2).
6/7	Cooking Demonstration: pasta and salsa.	*Healthy Eating/Active Living*: Cooking using whole foods (2).
6/14	Harvested veggies and donated them to the WBRP.	*Affordability and Accessibility*: Increasing access to fresh produce by addressing nutritional gaps in the neighborhood (3).
6/21	Cooking Demonstration: Current jam preparation.	*Healthy Eating/Active Living*: Building food literacy (2).
6/28	Planter workshop hosted by the WBRP.	*Lifestyle Related*: Promoting outdoor engagement skills (3).
7/2	Post survey and vitals	Data Collection.

Planter Workshop course at a community center

Weeding at the Westside Community Garden

Veggie donation at the Veggie Oasis

Preparing Current jam at the community clinic

Results

Measure	Pretest Average	Posttest Average	Significance
Diastolic	92 mmhg	79.7 mmhg	p= 0.0005
Systolic	147 mmhg	130 mmhg	p= 0.0137
Weight	188.3 lbs	189.1 lbs	p= 0.9248

Blood Pressure Monitoring frequency p= 0.9797	
Pretest	Posttest
Daily: 3 Several times per week: 3 1x/week: 1 1-3x/month: 0 <1x/month: 3 Never: 2	Daily: 2 Several times per week: 2 1x/week: 0 1-3x/month: 2 <1x/month: 5 Never: 1

Measure	Pretest Average	Posttest Average	Significance
Mars-5	Low adherers: 0 High adherers: 6	Low adherers: 0 High adherers: 6	p= 1.0000
Stress	Average: 13.3 Low: 7 Moderate: 5	Average: 12.4 Low: 5 Moderate: 7	p= 0.6171
Depression	Average: 4.2 Category 1: 9 Category 2: 0	Average: 3.5 Category 1: 11 Category 2: 1	p= nan
ASSIST Tobacco	Average: 2.1 Low: 10 Moderate: 2	Average: 2.8 Low: 10 Moderate: 2	p= 1.0000
ASSIST Alcohol	Average: 7.6 Low: 9 Moderate: 3	Average: 6.6 Low: 10 Moderate: 2	p= 1.0000
Salt Use	302.08	259.79	p= nan

Psychological Well Being			
Measure	Pretest Average	Posttest Average	Significance
Self Acceptance	16.42	17.25	p= 0.3173
Purpose in life	13.25	15.83	p= 0.5153
Environmental Mastery	17.00	16.17	p= 0.1573
Autonomy	18.50	18.33	p= 0.1573
Personal growth	19.50	17.83	p= nan
Positive Relations with Others	15.92	16.75	p= 1.000

Discussion

Our study showed that the program has promise as an effective intervention. Cohort blood pressure significantly lowered towards a healthy 120/80 mmhg level. Measures for barriers towards hypertension management and health goals of the Bloomington CHNA (2) showed insignificant change over the course of the program or were unfit for statistical analysis. This study could benefit from a larger cohort and more trials to allow for stronger statistical analysis. Our hope is to act as a starting point for broadening the ways in which not only Bloomington but the broader field of medicine formulate health solutions; bridging health, community, and social structures.

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