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ALLEVIATING SOCIAL ISOLATION AND FOOD INSECURITY THROUGH
COMMUNITY GARDENING: HOW THE ORONO COMMUNITY GARDEN
IMPACTS SENIORS

by

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A Thesis Submitted in Partial Fulfillment
of the Requirements for a Degree with Honors
(Sociology)

The Honors College

University of Maine

May 2016

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Abstract

Senior food insecurity and social isolation are potentially two serious issues within Maine communities. The Orono Community Garden (OCG) is a local effort to combat both of these issues. The OCG relies on volunteer workers, who donate the food they produce to low-income seniors living in three neighboring housing complexes in Orono, Maine. This project uses participant observation, surveys, and personal interviews as the basis for a qualitative analysis, to assess how seniors' food security is influenced due to the food from the OCG, the ways in which the OCG provides a sense of community and social integration for the seniors, and how the garden impacts volunteers who work there. This research contributes to our understanding of the roles and functions of a community gardens, as well as its impact on senior food security and social isolation.

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Introduction

As America's older population continues to grow, there is increasing concern with improving the quality of life among the growing senior population. By 2050, the senior population is expected to double in size to a record 83 million adults aged 65 and older (Ortman, Velkoff, and Hogan, 2014). As the nation ages, understanding and addressing the needs of older adults becomes increasingly imperative.

Older Americans face a number of challenges, including obtaining enough food to be considered food secure (Keller et al. 2007; Quandt and Rao, 1999; Wright et al. 2015; Feeding America, 2011; Macfarland et al. 2013; Bowman 2007). In 2013, 5.4 million seniors in America over the age of 60 were categorized as food insecure. (Ziliak and Gunderson, 2013; Feeding America, 2014; Hunger in Maine, 2015). Seniors have difficulty obtaining food due to mobility constraints, issues with transportation, and limited incomes (Keller et al. 2007). These same obstacles often leave food insecure seniors socially isolated, which can lead to feelings of loneliness and depression (Keller et al. 2007; Quandt and Rao, 1999). Tomaka, Thompson, and Palacios (2006) defined social isolation as "an objective physical separation from other people" while loneliness is a "subjective feeling, an unfavorable balance between actual and desired social contact". Social isolation and food insecurity are two problems that are often intricately interwoven for much of the low income senior population. Social isolation often compounds problems of food security for seniors. Work has been done not only to uncover the causes of food insecurity, but also to create solutions to the hunger experienced by vulnerable senior populations.

Community gardening is a local food movement which offers a possible solution to senior social isolation and food insecurity. Community gardens bring members of a community together in a common, shared space and offer an opportunity to increase food security among vulnerable populations, while also increasing social ties (Obach and Tobin, 2014). Community gardening can serve as a solution because it works to alleviate both issues of isolation and food insecurity within one program. Community gardens provide fresh produce without hefty expense to consumers (Okvat and Zautra, 2011; Armstrong, 2000; Alaimo et al. 2008). Food from a community garden is also easier to obtain due to its proximity to those consuming it (Alaimo et al. 2008; Twiss et al. 2003), a point that is particularly important to senior populations who often have difficulty with mobility and transportation (Childrens' Womens' and Seniors' Health Branch, 2004; Bowman, 2007; Quandt and Rao, 1999; Keller et al. 2007). By their nature, community gardens require the formation of social networks, which pool neighborhood resources and knowledge (Teig et al. 2009). Community garden participants work together to grow food, form social ties, and share knowledge in an effort to improve and feed their communities and themselves.

This research seeks to answer a number of questions related to senior food security and social isolation through a case study of a community garden in Orono, Maine which donates food produced in the garden to seniors, many of whom are low-income, living in nearby subsidized senior housing complexes. Maine serves as a particularly relevant location for studying senior food insecurity because it has one of the oldest populations in the nation, suffers from high rates of food insecurity, and has a growing local food movement (Burnett and Matlins, 2006). The first question addressed

in this research asks in what ways does produce from the OCG impact the seniors' food security? Secondly, the research explores in what ways does the OCG decrease the social isolation of the seniors who receive food from it? The third question asks what benefits the OCG volunteers gain from working in the garden?

Senior Food Insecurity and Social Isolation

Considerable work has been done to examine the issues of food insecurity facing America's growing senior population (Bowman, 2007; Dean, Sharkey, and Johnson, 2011; Feeding America, 2011; Keller et al. 2007; MacFarland et al. 2013; Quandt and Rao, 1999; Wright et al. 2015). Food insecurity is defined by the USDA as "limited or uncertain availability of nutritionally adequate and safe foods, or limited or uncertain ability to acquire acceptable foods in socially acceptable ways" (USDA Economic Research Service, 2015:1). This is perhaps one of the most daunting problems facing seniors today, with 5.4 million seniors over the age of 60 being categorized as food insecure (Ziliak and Gunderson, 2013). Seniors who are classified as food insecure are sixty percent more likely to experience depression, and are fifty three percent more likely to have a heart attack than their food secure cohort (Feeding America, 2014). Senior hunger is a growing issue within Maine communities, with senior hunger increasing by 50% between 2008 and 2013 (Senior Hunger, 2013; Wright et al. 2015). Approximately 23% of seniors are food insecure in Maine according to the Good Shepherd Food Bank (Hunger in Maine, 2015).

A number of factors contribute to seniors' high rates of food insecurity. Keller et al. (2007) found that low and fixed incomes negatively affect seniors food security.

While seniors' incomes may be fixed, their expenses are not, and fluctuating living expenses can divert money that would ordinarily be spent on food. Keller et al. (2007) found that the public perceives seniors as food secure because they receive monthly entitlements like Social Security from the government.

Keller (2007) and Graham (2014) found that some older adults are hesitant to utilize financial assistance programs, due to perceived stigmas associated with accepting help, and a perceived decrease of independence. Graham (2014) noted that seniors were embarrassed to utilize programs like food pantries because it seemed like "begging," which felt degrading after years of being able to provide for themselves. Utilizing food pantries or borrowing money for food are "socially unacceptable" avenues for food procurement, and often lead to "feelings of embarrassment, hurt pride, and loss of independence" (Wolfe, Frongillo, and Valois, 2003). Dean et al. (2011) found that seniors have low levels of participation in food relief programs because they do not know what programs are available to them within their communities.

Mobility constraints and lack of transportation also contribute to senior food insecurity (Keller et al. 2007; Quandt and Rao 1999; Bowman, 2007; Wolfe et al. 2003). This problem is magnified in rural areas, including Maine, where public transportation is limited, and grocery stores may be located in larger town centers, often some distance away (Quandt and Rao, 1999). Seniors often have to rely on neighbors or family to ensure they have access to food, and to provide reliable transportation to grocery stores. Programs that bring food directly to seniors within their homes alleviate some of the complications associated with seniors' lack of mobility. One such program is Meals on Wheels, which delivers up to five nutritious meals a week to seniors who have difficulty

obtaining enough food, and who have limited mobility (Meals on Wheels, 2016; Meals on Wheels, 2015). According to advocates of Meals on Wheels, their program “is more than just a meal; it is also a wellness check and a friendly visit” (Meals on Wheels, 2016). Orono also has other home delivery meal programs for seniors, including the Parker dining program, operated by the Orono Senior Center, offers home delivered meals to seniors five days a week, for about \$3.25 a meal. The Food Pals program in Orono provides a home delivered meal to seniors living in subsidized housing once a month. Research has found that seniors who receive home delivered meals over an extended period of time have higher overall rates of food security (Dean et al. 2011).

In addition to the home delivered meal programs mentioned above, Maine also offers over 100 locations where mobile seniors can congregate for a mid-day meal (Nutrition Programs, 2015), which helps seniors access prepared meals at less expense than cooking the meals themselves. The program also increases social connectedness through a shared meal experience. Maine seniors also have access to the Senior FarmShare Program, which allots \$50 of Maine produce to seniors who make less than \$21,775 per year (Maine Senior FarmShare Program, 2016). Food insecure seniors may also utilize food pantries, and other locally operated food relief networks throughout the state (Graham, 2014). Yet, despite the large number of relief efforts, seniors continue to experience food security at increasing rates (Hunger in Maine, 2016; Graham 2014). Thus, more work must be done within the state to assess the twofold issues of senior food insecurity and senior social isolation.

Relying on others to access food can be risky for seniors, who may not be able to get to a grocery store if the person they rely on for transportation becomes ill, or has

some other obligation arise (Wolfe et al. 2003). Seniors living in rural areas are particularly vulnerable because they experience social isolation at higher rates than seniors living in urban areas, and thus may have greater difficulty finding someone to assist them with accessing food (Tomaka et al. 2006). Dean et al. (2011) notes that social isolation is a danger to seniors due to their reduced social capital, which is defined as “an individual’s ability to access resources through one’s social networks” (171). Thus a person’s social capital is directly related to the quality and quantity of social interaction they experience. Seniors who are socially isolated have more limited social capital, and consequently, can have more difficulty accessing food and accessing programs that would potentially help them to become more food secure (Dean et al. 2011). Limited family-based social capital due to outliving relatives, or not having family near by, may mean that seniors lack assistance in obtaining and preparing food (Dean et al. 2011; Quandt and Rao, 1999). Dean et al. (2011) found in their research that when seniors lack emotional support due to limited familial interaction, they may not eat regularly due to a lack of pressure from socialization to maintain social norms surrounding eating.

An increased risk of food insecurity is not the only negative outcome of social isolation in seniors. Seniors frequently rate relationships as one of the most important aspects of life, and as such, social isolation among this population is often connected to a number of negative outcomes (Childrens’ Womens’ and Seniors’ Health Branch, 2004). Seniors who are socially isolated experience feelings of loneliness at higher rates than socially integrated seniors, which can lead to a number of ill health effects, including increased rates of depression, higher levels of disability from chronic diseases, and premature death (Childrens’ Womens’ and Seniors’ Health Branch, 2004; Tomaka et al.

2006). While seniors may experience social isolation, it is important to recognize that not all socially isolated seniors experience loneliness (Tomaka et al. 2006; Haskell, 2016). Some seniors may wish to live solitary lives, and take pride in being independent (Haskell, 2016).

Community Gardening as a Solution

Community gardens have been shown to have a number of positive benefits associated with them, including learning experiences, community building opportunities, more affordable and accessible fresh produce, increased civic pride, increased democratic participation, and increased social support (Twiss et al. 2003; D'Abundo and Carden, 2008; Teig et al. 2009; Armstrong, 2000; MacFarland et al. 2013; Okvat and Zautra, 2011; Guitart et al. 2012).

Historically, community gardens typically have been created in response to a need; often they have been implemented as a way to feed people, or to address other social problems (Okvat and Zautra, 2011; Pudup, 2008; Kurtz, 2001; Bassett, 1979; Armstrong, 2000; Walter, 2014). According to Bassett (1979), community gardens have worked as a “buffering mechanism...that has helped support the cultural system during periods of social and economic stress” (2). During the Great Depression, community gardens were used by relief agencies as an inexpensive means to address widespread hunger that overwhelmed their food relief networks (Pudup 2008; Armstrong, 2000; Walter, 2014).

Victory gardens were utilized during the two World Wars as a means for Americans to feed themselves and their communities (Armstrong, 2000; Walter, 2014;

Kurtz, 2001). Wartime community gardens were a patriotic act, which allowed the nation's economic capacity to be put toward the war effort (Pudup, 2008; Kurtz, 2001). Wartime gardens were sponsored by the United States government, and promoted an imagery of an upstanding citizenry; patriotism, efficiency, diligence, social order and strength were invoked on the home front, as citizens were called upon to "Sow Seeds For Victory" and consider "Every Garden a Munitions Plant" (Kurtz, 2001:658). Victory gardens set a precedent for community participation in response to larger community issues. The National War Garden Commission's Victory Garden Program yielded more than 40% of the vegetables consumed in the United States in 1943 (Kurtz, 2001).

Modern community gardens are driven by similar sentiments to the community gardens of the past, and are cited as increasing food access and food amounts (Drake and Lawson, 2015; D'Abundo and Carden, 2008). Quality of diet is often linked to income, and people with low or fixed incomes tend to eat less nutritious food, which can have health consequences (Gerster-Bentaya, 2013). Community gardens are often cited as improving diets by providing foods that would be unaffordable in stores (Drake and Lawson, 2015; D'Abundo and Carden, 2008).

Other benefits of community gardens include the opportunities they provide for creating social ties, and a sense of community within neighborhoods (Obach and Tobin, 2014; Drake and Lawson, 2015; D'Abundo and Carden, 2008; Walter, 2013; Teig et al. 2009). Gardens are also used in today's communities to increase empowerment and self-sufficiency for growers and recipients (Kurtz, 2001). According to Obach and Tobin (2014) modern agriculture has undermined the community component of food procurement. Community gardens provide a space to become reconnected with

community through food. As such, they can be seen as a form of civic agriculture--in contrast to the more prominent industrial agriculture model--with the ability to connect producers and consumers in a more engaged way (Obach and Tobin, 2014). Community gardens require a more cooperative, community based approach to the procurement of food. Gerster-Bentaya (2013) found that one of the most frequently cited motivators for participating in community gardens was the potential for social exchanges and community building. As such, these gardens are not simply a way to procure food, they also require the formation of social networks and the pooling of neighborhood resources in a collective effort (Teig et al. 2009). Teig, et al. (2009) found that individuals involved in community gardens enjoyed their time in the garden because it provided a “place where diverse people come together to form a community that is working toward a common goal... the garden is a place to bridge social barriers and build social networks” (1119). Gardens provide a sense of togetherness and belonging for the participants working on site and may also increase civic engagement outside of the garden. Teig et al. (2009) found that participation in community gardens encouraged individuals to lead more engaged lives.

Another reason for creating community gardens is for the learning opportunities people gain from working in them. According to Walter (2013), community gardens can be seen as a “public pedagogy”, or a place for learning that is outside of an institutional format (Walter, 2013). Participation in a community gardens allows participants to learn naturally and socially within a community (Walter, 2013). Through working in the garden, adults are able to learn about gardening through hands on, informal experiences. Levkoe (2006), found that besides being a place to learn about gardening, participating in

food justice movements like community gardens also helps adults “develop strong civic virtues and critical perspectives along with the necessary experience for shaping policy makers’ decisions...and has the ability to increase the confidence, political efficacy, knowledge, and skills of those involved” (90). This notion further supports the notion garden’s promote civic agriculture.

Maine has a rich community garden movement, many community garden projects in the state partner with civic organizations to alleviate food insecurity (Feulner, 2015). The Yarmouth community garden has distributed over 25,000 pounds of food to people in need (Feulner, 2015). The Bangor community garden requires gardeners to volunteer a few hours each season in their community plot, which donates food to the Maine Harvest for Hunger, a program run by the University of Maine’s Cooperative Extension (Feulner, 2015; Maine Harvest for Hunger, 2016). Veggies for All is a food bank farm in Unity, Maine, which donates all the food produced to eleven food banks throughout Maine (Veggies for All, 2016). Veggies for All is a program of the Maine Farmland Trust, and has donated 130,000 pounds of local, high quality produce since it’s conception in 2007 (Veggies for All, 2016). The program reaches around 1,500 low-income people each year (Veggies for All, 2015). Cultivating Community in Portland has a community garden plot on which 48 community members work together to grow 2,000 pounds of produce annually (Growing Spaces, 2015). All produce grown in this garden plot is donated to the elderly, and low-income families in surrounding neighborhoods (Growing Spaces, 2016). Seniors can also receive \$50 of local produce through the Maine Seniors FarmShare program, which utilizes one million dollars in grant money to provide local produce to 18,739 seniors throughout the state (Senior

FarmShare Enrollment, 2016). This backdrop of civic gardening provides the context in which the OCG was created, and has thrived.

The Orono Community Garden

The Orono Community Garden (OCG) is attempting to alleviate both senior food insecurity and senior social isolation. The OCG also aims to teach community members about sustainable gardening practices. According to the garden manager, the OCG was started in 2004 as an educational outreach program with a number of goals in mind, including:

1. Teaching people how to grow food organically;
2. Providing fresh, high quality produce to low-income seniors; and
3. Fostering a sense of community between seniors and garden volunteers

(Interview 15).

In 2004, after returning from a sabbatical in Italy in which he became concerned about sustainability within the food system, the garden manager created an educational program through the Cooperative Extension called “Agriculture Supported Community”, which was open to the public (Extension, 2016). The class was taught at the Birch St. Senior Center in Orono, and focused on increasing the consumption of Maine foods, connecting people and local businesses with local producers in order to get quality local food, and teaching people to grow and provide food for people in need (Interview 15).

The OCG was planted on unused town land located behind the senior center in Orono. The garden manager’s idea was that students from the “Agriculture Supported

Community” course would learn to grow food while volunteering in the OCG, and that food would then be distributed to low-income seniors in the neighboring area.

When the garden was created, the manager did not anticipate how large the program would grow to be. He recalled:

The first thought was that we would see if we could grow food for a dozen people or so... One of the people in the class put a flyer up in Hasbrouck, and forty people signed up saying that they wanted food. I was like [makes a pained noise], we couldn't do forty people, so I started getting creative about where we could get extra food, and sure enough, we had our first year and it went well (Interview 15).

To meet the demand for the OCG produce, volunteers had to garden much more intensively than originally planned (Interview 15). The manager had to get creative with food sources, and began taking donations from other university programs as well as from local farmers.

After receiving the go ahead to use the land behind the senior center from the Orono Department of Parks and Recreation, the OCG crew began breaking ground for the garden plots. Original funding for the OCG project came from Extension funds and a grant from the Maine Community Foundation (Extension, 2016). Support was also given by the University of Maine, which donated compost in the first year, and has continued to do so in the subsequent years (Interview 15).

About 20-30 people volunteer in the OCG each year (UMaine Today, 2008). Volunteers include participants in the University of Maine's Cooperative Extension Master Gardeners program. To complete the program, Master Gardeners are required to do several hours of community service, and some do that at the OCG. The garden manager, who teaches at the University of Maine, is often able to recruit students to volunteer in the garden by offering extra credit to students in his sustainable agriculture

classes. General community members also volunteer in the garden. Produce is delivered in two low-income senior housing complexes, Longfellow Heights, which is located adjacent to the OCG, and Hasbrouck Court (Interview 15). In 2008 the OCG expanded its plot to include an additional quarter acre at UMaine's Rogers Farm, a research facility for the University of Maine located about three miles from Orono (Interview 15). Plots located at Rogers Farm contain the spreading vegetables like peppers, beans, and potatoes for the OCG (Jemison, 2015).

Other organizations within the Orono community provide support to the OCG project. In 2008, Hannaford Supermarket, located in neighboring Old Town, donated 200 reusable tote bags to be used for OCG deliveries (UMaine Today, 2008). The OCG also gets support from the Cooperative Extension's Master Gardeners' program, which donates some of the food from its "plant a row" program (UMaine Today, 2008). The Black Bear Food Guild, a few local farmers, and the Roger's Farm research trials also donate additional food to help feed the 55 seniors on a weekly basis (UMaine Today, 2008, Jemison, 2016).

Community members and organizations also provide funding and non-financial support to the OCG. The Church of Universal Fellowship congregation in Orono approached the garden manager and offered to hold public dinners to raise money for the OCG project (Jemison, 2016). Volunteers have also made food products to sell at Orono Festival days, and some other members of the community simply donate funds (Jemison, 2015). The Orono Health Association also made a donation of \$500 (Jemison, 2015), and the OCG has received small grants from the Maine Community Foundation, The Harvest Fund, and Bridge

Builders (Tate, 2007). One volunteer and her husband help the garden manager maintain the infrastructure of the garden in lieu of volunteering extensive time in the garden. In the following quote a garden volunteer discusses her involvement in the garden “For example, we help him acquire four to five gallons of fertilizer each year. My husband built the tomato trellises he has been using for the past few years, things like that” (Interview 13). Community support is essential for the long-term success of the garden, and the level of support received demonstrates how successful this garden project has been in fostering a strong sense of commitment and community.

The garden, now in its twelfth year, delivers bags of vegetables to 55 seniors at around 7pm each Tuesday from the end of June to the end of September. The 20-30 Volunteers work an average of seven hours a week in the garden. Each Tuesday and Saturday, volunteers congregate either at the OCG site, or at Roger’s farm, and work together planting, cultivating, and harvesting vegetable plots. While some volunteers plant and harvest, other volunteers sort the vegetables and wash them in preparation for the evening delivery. Once all of the vegetables have been harvested and washed, they are packed into the donated reusable bags, and loaded into carts that will be taken to the senior housing complexes. Delivery bags include harvested vegetables from the OCG, the Rogers Farm plots, and donated veggies.

After all of the bags are packed, volunteers bring one bag of food to each senior’s front door. When the seniors are home, the volunteers give the bag directly to them. Some volunteers stay and chat, others hand off the bag with a brief, but friendly exchange. When seniors aren’t home, delivery bags are left on their front door step.

In 2008, the garden started providing tomato plants to seniors who wished to grow their own tomatoes, a practice which has continued on into the most recent garden season. Tomato plants were grown in buckets on seniors' front doorsteps, allowing seniors to participate in the food production process themselves.

The garden director estimates they provide an average of \$20 worth of organic produce to each senior each week, equating to about 8 pounds of total produce. The garden produces more than 20 different kinds of vegetables, including lettuce, garlic, onions, beets, beet greens, potatoes, zucchini, yellow squash, tomatoes, cabbage, and broccoli (Jemison, 2014). Each week, bags include recipes that feature the foods found within that week's bag, and a list identifying what foods are in the bag. Recipes are included to help ensure the seniors know of a way to incorporate the delivery items into their diets, and to make unfamiliar foods more accessible.

Methodology

Data was collected using three different methods: participant observation, written surveys, and personal interviews. The researcher volunteered in the garden on two delivery days. Surveys were given to all seniors participating in the OCG project. Interviews were conducted with a self-selected group of seniors participating in the OCG. Additional interviews were conducted with the garden manager, as well as several garden volunteers. This data forms the basis of this qualitative analysis.

Participant Observation

The researcher gathered data while volunteering in the garden for two, three-hour garden sessions in September 2015. During these times, the researcher met other

volunteers, was given a tour of the garden, and was able to work hands on with the tools that the gardeners use throughout the growing season. Her duties included harvesting, sorting, cleaning and packing vegetables for delivery to the participating seniors. After preparing and packing the vegetables, the volunteers split into two groups to deliver the bags to the seniors' homes. After each three-hour volunteer session, the researcher recorded all of the events and her observations in a field notebook.

Surveys

A four question, open-ended survey was included in the food delivery bags on the last delivery day of the season to the 55 participating seniors. A self-addressed stamped envelope was provided for the participants, along with a letter explaining what the survey would be used for.

The survey questions were: 1. How many years have you been receiving food from the garden? 2. If the OCG project were to ever end, what things would you miss? 3. Do you eat differently while the garden is running than you do during the rest of the year, and if so how? And 4. Describe your relationship with the people who bring you food from the OCG. An additional multiple-choice question asking these seniors how many years they had participated in the OCG was also included. We asked about the length of participation in the garden to see if the overall perception of the garden experience was influenced by the number of years in the program. The second question, which asked what participants would most miss if the garden ended, was posed in an attempt to uncover what seniors felt was more important to them; i.e. did they value the food or the social engagement from weekly deliveries more. The third question, which asked about eating habits, was used to see how food secure seniors in the program were. The last

question about volunteer relationships was asked to better understand how much social engagement the garden drop-offs provided for the seniors. Out of the 55 surveys distributed, 18 were mailed back with responses.

Interviews

Interview participants were self-selecting. On the last day of garden deliveries, the researcher, with the garden manager present, asked seniors if they would be willing to participate in one-hour interviews in which they would discuss their experience with the garden. Only seniors who were home on the night of delivery, and who agreed to share their contact information were later contacted to participate in interviews. In total, 25 seniors out of the total 55 gave their contact information to set up an interview. Out of the 25 seniors who gave their contact information, only 12 were able to set up interviews. Interviews ranged in length from 30 minutes to an hour.

Recorded interviews were conducted with 12 of the seniors participating in the OCG program. Interviews consisted of questions formulated in an effort to assess how food secure the recipients of the garden perceived themselves to be, if the recipients were socially isolated, if the recipients wanted more social engagement than they got, and how much their involvement in the garden program made them feel more socially included. Nine of the 21 interview questions were asked with the intention of measuring the seniors' food security, and 11 of the 21 questions were asked to measure their level of social engagement.

The recorded interviews were conducted in the seniors' homes, and then transcribed. Following transcription, interviews were then analyzed and coded to look for patterns in responses to questions regarding food security, social isolation, and the

garden's impacts on both. Typed transcriptions of the interviews were used during the coding process, interviews were read over multiple times, and notes were taken which identified key phrases and categories (University of Texas). Codes can be based on Themes, topics, ideas, concepts, terms, phrases, and keywords, portions of data that are coded in the same manner are deemed to be about the same topic or theme (Gibbs and Taylor, 2005). New codes are created as new themes arise in the transcripts, coding categories are later refined to only include relevant codification (Gibbs and Taylor, 2005). The code for this research was developed by reading through all the interviews twice without taking notes or coding. On the third read, passages that pertained to food security or social isolation were noted. On the fourth read, noted passages were assigned categories, which simply defined the topic, being discussed. For instance, the following passage was coded as "Knowledge of food relief programs."

I: Do you know of any programs available to seniors who don't have enough food?

S: Well they've got a couple of... Oh what do you call them... Places where they get food...

I: Food Pantries?

S: Yeah, they've got two of them around here, but I've never been to one of them.

Interviews were read through two additional times to ensure that all passages that could pertain to a particular code were included. Codes were then put into a spreadsheet, and organized by which interview went with which code. In total, 27 original codes were identified. Some codes were only found in 2-3 interviews, and in these cases were discarded as being non-representative of the group as a whole. In total, 12 codes were identified as being representative of the interview group as a whole, these codes include:

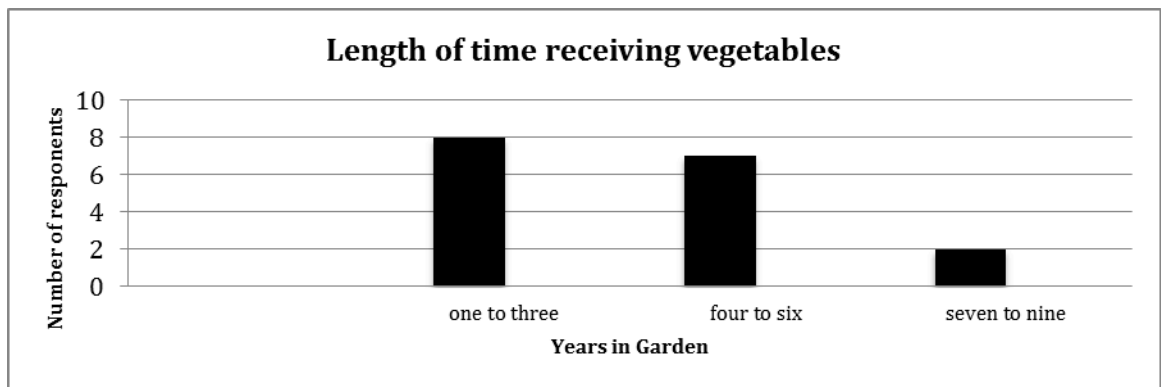
1. Currently food-secure, 2 Past food insecurity, 3 Knowledge of food relief programs, 4 Participates in multiple food relief programs, 5 Thinks hunger is a problem in Maine, 6 Garden food is a substitution, 7 Shares/Swaps food with neighbors, 8 Likes to keep to themselves, 9 Socializes with family, 10 Looks forward to seeing volunteers, 11 Doesn't want input in the garden, and 12 Talks with neighbors about the garden.

Additional interviews were conducted with the garden manager, and with three garden volunteers. The garden manager selected the garden volunteers who were interviewed based on the amount of time they had spent volunteering and their level of involvement in the garden. Five volunteers were suggested by the garden manager, but only three volunteers were able to participate in interviews. The interview with the garden manager addressed the original goals of the garden, and the managers' perceived outcomes of the garden. The garden manager's interview, which took approximately one hour, was also tape-recorded and transcribed. Garden volunteer interviewees were asked questions that sought to assess their own level of food security, their social isolation, and if the garden had been an educational experience for them. Garden volunteer interviews lasted between 30 minutes and one hour. Interviews were tape-recorded and transcribed. The garden manager and volunteer interviews were not coded in the same manner as senior interviews, but were instead used to provide a background context for the garden's role in the seniors and volunteers lives.

Results

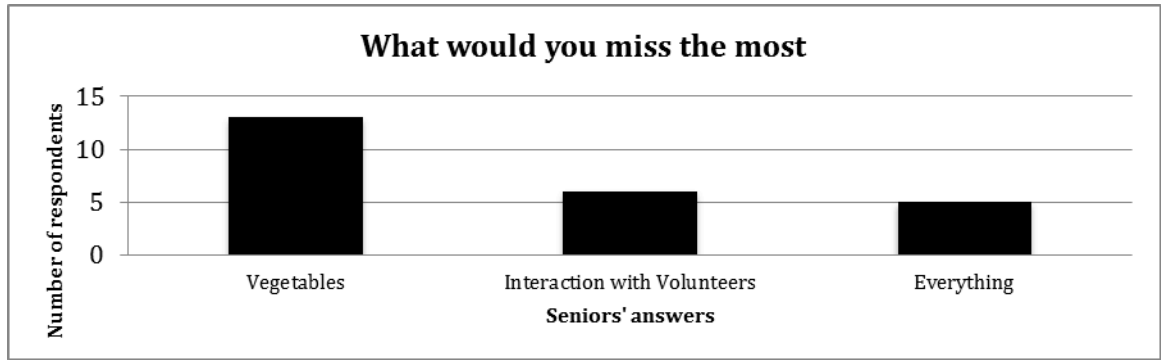
Of the 55 surveys distributed, 19 were completed and returned. The first question asked recipients how many years they had been receiving food from the garden with the options: one to three, four to six, and seven to nine years. Eight seniors indicated that they had received garden deliveries between one and three years, seven recipients had received food between four and six years, and two respondents indicated that they had been in the garden program for seven to nine years. Figure one shows the number of years seniors had participated in the garden.

Figure 1.



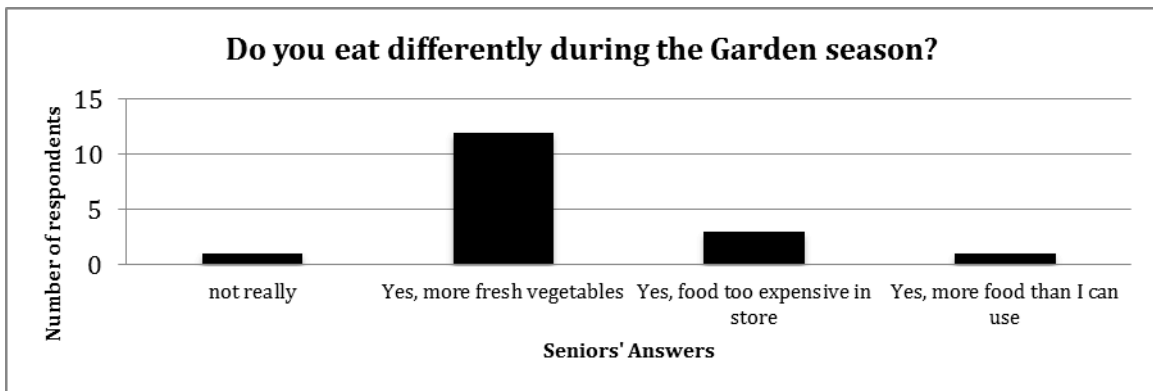
Secondly the survey asked seniors what they would miss the most if the garden program ended. This survey question was open ended. Of the nineteen respondents, thirteen indicated that they would most miss the vegetables; six indicated that they would most miss interacting with the volunteers; and five said they would miss all aspects of the garden. Some seniors gave multiple responses to this question, saying that they would miss the volunteers, and saying that they would miss the vegetables. Response frequencies to this question are shown in figure two.

Figure 2.



The third survey question was also open ended and asked seniors if they ate differently while the garden was operating then they did during the rest of the year. Eighteen out of nineteen seniors indicated that they ate differently while the garden was in season. Seniors either indicated eating more vegetables than they would normally, with one reporting having too many vegetables to eat while the garden was in season. Three of the seniors responded that they ate more vegetables while the garden was in season because purchasing them in the store during the rest of the year was too expensive. Responses are shown in figure three.

Figure 3.



The last survey question was open ended and asked about seniors' relationships with the garden volunteers who make weekly deliveries at each of the respondents'

homes. All indicated that the garden volunteers were very friendly, as an example, one senior mentioned that they “were grateful for the hard work the volunteers put in the gardening.” Fifteen of the respondents used the word friendly or nice when referring to the volunteers. All of the survey respondents indicated that they had good relationships with the volunteers.

Twelve tape recorded interviews were conducted with seniors receiving food from the garden. Interviews were recorded using a Marantz recording device. All interviews contained the same preset questions, included in appendix A. One of the twelve interviews had to be discarded, as it was clear that the subject didn’t understand the questions being asked. The remaining eleven interviews were transcribed and then coded. Coding the interviews was an iterative process. Interview transcriptions were read through multiple times to discover what responses were given to pre-set questions about food security and social isolation. Coding was then done to analyze patterns that had emerged in the responses. Coding topics and patterns were discussed with two thesis advisors as a check for accuracy. Most responses related to food security or social isolation. These responses were broken down into more specific codes including: currently food secure, utilizes multiple food relief programs, looks forward to seeing volunteers, etc. In total, 21 different codes emerged from the interview data. Of the 21 codes, eight had a eight or more corresponding responses. Codes were then analyzed to look for patterns. Thirteen of the interview codes corresponded to food security, and eight of the interview codes corresponded to social isolation. Figure four shows all of the codes and which interviews had corresponding answers.

Figure 4.

Category	Int. 1	Int. 2	Int. 3	Int. 4	Int. 5	Int. 6	Int. 7	Int. 8	Int. 10	Int. 11	Int. 12
Food Security											
Currently food secure	x	x	x	x	x	x	x	x	x	x	X
Past food insecurity	x	x			x			x	x		X
Being thrifty with food money	x				x				x		X
Knowledge of food relief programs	x	x		x	x			x	x	x	X
Participates in multiple food relief programs	x	x		x	x		x	x	x	x	X
Thinks hunger is a problem in Maine	x	x		x			x	x			X
Garden food is a substitution	x	x	x	x	x		x		x	x	X
Easy to get to grocery store	x			x					x	x	
Looks forward to fresh food		x			x	x					
Housing development makes sure they have food		x			x		x		x		
Garden food is an addition						x	x	x	x	x	
Preserves garden food		x	x		x		x				X
Nothing goes to waste	x					x	x				
Social engagement											
Shares/swaps food with neighbors	X			x	x	x	x	x	x	x	
Likes to keep to themselves	X		x			x					X
Socializes with family	X	x	x	x	x	x			x	x	X
Looks forward to seeing volunteers	X	x	x	x	x	x	x	x	x	x	x
Doesn't want input in garden	X	x	x	x	x		x	x	x	x	X
Talks with neighbors about garden		x	x	x			x		x	x	
Doesn't talk to neighbors about garden			x					x			X
Wishes they had more engagement					x		x				

Two codes were unanimous across all of the interviews. All eleven interviewed seniors indicated that they were currently food secure and that they enjoyed seeing volunteers. Six of the interview participants reported having experienced food insecurity at some point in their lives. While all interview participants indicated that they were

currently food secure, eight of the respondents reported being aware of other food relief networks, and nine seniors indicated that they utilized multiple food relief programs.

The food provided by the garden was a substitution for nine of the interview participants, meaning that seniors were able to spend less money on groceries than they normally would. The amount of money spent on groceries decreased while they participated in the garden. The remaining two respondents said that they spent the same amount of money on groceries while the garden was in session, and that the food from the garden was simply an addition to the food they would typically purchase.

Eight of the interview subjects said that they swapped food from the garden with other people in their housing development during the delivery season. This ensured that no garden food went to waste. The garden provided an abundance of food that not only enabled seniors to spend less money on groceries, but also allowed them to form social networks to get foods that they enjoyed.

Seniors gave brief, limited responses when asked interview questions about food insecurity. Many responses about food security yielded only yes or no answers, and seniors were hesitant to elaborate when prompted with follow up questions. Questions about social engagement yielded the longest responses, with seniors spending the most amount of time discussing relationships with family members. Seniors went into detail discussing the frequency and nature of their interactions with family.

A second theme discussed in the interviews was the nature of seniors' social lives. Socializing with family was a theme across nine of the interviews. Nine respondents saw or spoke with family members at least once a week, with many having familial interaction several times a week. All but three of the interviewed seniors lived alone.

One of the cohabitating seniors lived with a partner, and the other pair of seniors was a mother and daughter.

All the interviewed seniors indicated that they looked forward to seeing volunteers at weekly drop offs. Three interview respondents indicated that they wanted more social engagement, with the rest of the respondents either saying that they liked to keep to themselves, or that they were content with their current levels of social interaction.

Additional interviews were conducted with three of the garden volunteers. Garden volunteers were asked questions about their food security, their level of social engagement with the seniors and other garden volunteers, and why they enjoyed volunteering in the garden. Two of the volunteers had experienced food insecurity at some point in their lives. The same two volunteers also took food from the garden on delivery nights. The third volunteer had never experienced food insecurity, and did not take food from the garden. All of the interviewed volunteers had worked in the garden for over two years. Two of the volunteers indicated that they had limited interactions with the seniors on delivery nights, however, one of the volunteers said that she knew many of the seniors well. Volunteers indicated that they had more awareness of their community because of their time in the garden. Volunteers also indicated that they had learned about gardening from their time at the OCG.

The interview with the garden manager asked questions about his food security, the general history of the garden, and what he thought the impacts of the garden were. The manager indicated that he had formed relationships with many of the senior recipients, and that he felt that the seniors enjoyed their weekly interactions with garden

volunteers. The manager also discussed how the OCG had brought a number of different community members and organizations together to address a common goal, creating a community around food.

Analysis

The short answer surveys asked seniors to indicate how many years they had been involved in the garden program. There was no correlation between length of time in the garden and seniors' perceptions of the garden's impacts. All of the seniors reported having a good relationship with garden volunteers, regardless of their length of time in the OCG program. Seniors who indicated that they had only been receiving vegetables for one to three years reported similar relationships with garden volunteers as seniors who had been receiving food for seven or more years. This could indicate that seniors and volunteers do not have significant personal relationships that develop past general friendly small talk. Charles Cooley gives us a framework for thinking about differences in relationships. Relationships can be categorized into two groups, primary groups and secondary groups (Cooley, 2012). Primary groups play the most critical role in an individual's life, as they are generally small, made up of people who engage in face to face interactions over long periods of time, and who fulfill emotional needs (Cooley, 2012). Secondary groups tend to be more impersonal, they are typically task focused and time limited. Secondary groups differ from primary groups in that they serve an instrumental function, with task oriented goals that do not address emotional needs. Primary and secondary groups are not rigid, and individuals can move from one group to

another if a relationship changes over time (Soc, 2012). Volunteers fall into a secondary social group for seniors. If relationships progressed as seniors remained in the program, we could expect to see a range in response about seniors' relationship with the volunteers; however, this was not the case. Despite the seniors reporting that they had "friendly" relationships with the volunteers, the responses were very similar across all lengths of participation.

The OCG was created to alleviate senior social isolation. The survey question asking seniors' what they would most miss if the garden were to be discontinued was used in part to assess how much seniors valued their relationship with garden volunteers. Of the 19 survey respondents, only six indicated that they would specifically miss garden volunteers if the program were to end. The seniors who reported they would miss volunteers said things like "[I would miss] all the smiling faces delivering the veggies" (Survey 4) and "I would miss the veggies, and interaction with the volunteers" (Survey 5). Despite referencing the interaction with volunteers without being prompted to do so, all of the seniors who mentioned the volunteers did so after discussing how they would miss the vegetables first "[I would miss] mostly the fresh vegetables, and *then* the very pleasant people delivering them" (Survey 6). These responses demonstrate that the seniors rely on the garden for food primarily, and social interaction secondarily.

While seniors overwhelmingly spoke positively about their interactions with the garden volunteers, the data indicates they are not looking to the volunteers as a primary source of social interaction. Responses to the questions on interactions with the volunteers included, "I am grateful for the hard work the volunteers put in the gardening. They are so friendly and seeing them on summer Tuesdays is a bright moment in my life"

(Survey 5), and “The people who bring the food are friendly, and you feel so proud to live in Orono with such caring people” (Survey 7). However, interaction with the volunteers does not represent a primary relationship for most seniors in the program. Seniors reported very short, yet friendly exchanges with the volunteers, saying that they only spoke quickly because they had so many deliveries to make. Most seniors reported that the volunteers stayed for less than five minutes at each drop off. The excerpt below from one of the interviews is representative of the interactions:

Interviewer: Do you spend much time talking to [volunteers] each week?

Subject: No, I don't.

I: Less than five minutes?

S: Yea, we pass a few words, that's all. Sometimes I don't get here to see them; they deliver the groceries when I'm out or something (Interview 6).

An interview with a garden volunteer confirmed these findings “unfortunately I can't stay long [at each drop off]. I usually just drop and run. They talk to the [garden manager] a lot, but they don't know me” (Interview 13). From this data, we can conclude that volunteers are a secondary group for seniors receiving food from the garden. Interaction between volunteers and seniors is primarily utilitarian; the volunteers are providing a service to the seniors, and that is the extent of their relationship. Seniors do not look to volunteers to meet their more complex emotional needs because volunteers are not categorized by seniors as primary relationships. Seniors fulfill their more intimate social needs through relationships with family members who would be in their primary relationship category.

Seniors had more substantial relationships with the garden manager, who frequently stays at drop offs longer than the rest of the volunteers. For some seniors, the

manager may have crossed the boundary from secondary relationship to primary relationship. The manager said that making connections with people has been the most important part of the garden to him. He states, “It’s been the personal thing that’s ended up being the most important. Making connections with people... making these connections you didn’t expect to make is probably the one thing that I’ll always look back on with great fondness when the project does finally end” (Interview 15). Seniors reported looking forward to interactions with the garden manager; one senior said “When I hear him with that little yellow cart... I always go to the back door and say ‘hi’ and that young man [the manager] that brings it always calls me sweetie, so I kind of look forward to that” (Interview 1). The garden manager and his wife were the only volunteers that were specifically mentioned by the seniors who were interviewed and surveyed. “They are all very kind and helpful, I know the [manager] and his wife well” stated one senior (Survey 2). According to the garden manager’s wife, they form more primary relationships with about three seniors each year. In the following excerpt she discusses her relationships with the seniors:

Some of them want us to come in and chat, others just want to take their bag and that’s it... Some talk about their kids and their families and their health problems... We have had some great relationships and lost quite a few, at any given year we probably have three close relationships... Every week going and seeing the same faces with more extroverted people [allows us to make those connections] (Interview 16).

The garden manager and his wife may spend a more significant amount of time with the seniors than do other volunteers because it was their vision that the garden drop offs would decrease seniors’ social isolation. The following conversation with a senior

further exemplifies that the manager has a more primary relationship with seniors than other volunteers:

I: Do you like seeing the volunteers each week?

S: They're just wonderful. I couldn't say enough nice things about them.

I: Do you talk to them for very long when they come by with the food?

S: No, because I know they've got a lot to do. [The manager], we take a little more time from him, he's just wonderful (Interview 3).

Interaction with the seniors appears to be less of a priority for other volunteers, who gain other benefits from their time in the garden, and focus less on seniors' social isolation perhaps as a result. In addition, the garden manager and his wife may be the most consistent face for seniors, as other volunteers do not participate in weekly deliveries as frequently or for as long as the manager and his wife do. A number of students volunteer at the garden to gain extra credit in University courses, and thus do not volunteer as often. Seniors are unlikely to form primary relationships with volunteers they only meet once or twice.

Social isolation did not appear to be a large problem for the seniors who agreed to be interviewed. All but two of the seniors interviewed frequently spent time with their family members. Most seniors saw a family member at least once a week. Other seniors talk to or see their family members every day-- "I see my daughter every day, not today though because she is away this weekend" (Interview 11). Another senior speaks with her son several times a day noting, "I see him often, and he calls me about three times every day" (Interview 1). Of all of the questions asked, those about relationships with family members elicited the longest and most detailed responses. Seniors appeared to feel comfortable discussing their family members, and clearly expressed positive and healthy relationships across all eleven of the interviews. The length and detail of

response suggest that family interactions are meeting the seniors' emotional needs, as most primary group relationships do. These findings are inconsistent with work done by the Childrens' Womens' and Seniors' Health Branch (2004) that stated that seniors often have unreliable social networks due to living alone, or outliving family. The seniors that were interviewed here all had good relationships with children who lived nearby, which allowed them to maintain a feeling of social connectedness despite living alone. Strong familial connections explain the reason that the seniors did not rely on the OCG volunteer visits to decrease their social isolation because their primary relationships were meeting their needs. Many seniors indicated that they looked forward to seeing garden volunteers as one said, "[the neighbors] look forward to it, like I do" (Interview 2). While seniors may not rely on social engagement from garden volunteers, it would still be possible for seniors to expand their social networks if seniors and volunteers made connections on delivery days. Seniors and volunteers did not form primary relationships perhaps because volunteers aren't actively engaging in attempting to create strong ties between themselves and the seniors. Seniors and volunteers often do not know each other's names, and the garden manager and his wife were the only volunteers specifically referenced by the seniors. It may require more intentionality on the part of the volunteers to create bonds with the seniors.

Social engagement between residents of the housing complex is limited among the interviewed seniors receiving food from the garden. Most of the seniors do not actively socialize with their neighbors, one said, "well, I'm not socially involved with a lot of our neighbors unfortunately" (Interview 8). One of the younger women living in

the housing development doesn't socialize with her neighbors because she doesn't identify with them, as demonstrated by the following excerpt:

When I came here, I was 62, and I said to my daughters, 'I'm going to live there, but I can't guarantee I'm going to like it, because I don't think of myself as an old person.... [To socialize with other people] I keep trying these different things, like Tai-Chi... I'm pretty good at finding activities near me (Interview 10).

Many of the seniors only know a couple of other people living in the housing development. "I'm kind of a loner. I only talk to the lady that lives right next door... I don't [know very many other people], there's just a very few of them, I say 'hi' and that's about it" stated one interviewee (Interview 1). Having limited interactions with other members of the surrounding community would seem to align with much of the work on seniors and social isolation. However, many of the seniors who were interviewed do not look to their neighbors for social interaction, and find other avenues to ensure they remain socially connected. One homebound senior has a church group that comes to visit her about once a week.

All but three of the interviewed seniors lived alone, and three of the seniors indicated that it was difficult to leave their home, yet very few of them appeared to feel loneliness, which Tomaka et al. (2006) refers to as the subjective feeling of an unfavorable balance between actual and desired social contact. Seniors who wished to have additional social interaction joined other groups in town or participated in other activities, including University classes, Tai-Chi, the senior center, churches, and volunteering. Additionally, these seniors may not have indicated feeling lonely because of their strong family ties, and because of interactions with volunteers from numerous

food relief agencies, who make periodic home deliveries. It is also possible that seniors did not feel comfortable telling the researcher that they were lonely.

The garden is sometimes brought up in informal conversations between the people in the complex. Through these informal exchanges, the garden fosters a shared experience that may build a stronger sense of community between the residents who receive vegetables. Six of the eleven interviewed seniors reported discussing the garden with their neighbors. Such interactions included discussing which foods the seniors enjoyed, and swapping vegetables with each other. Seniors talked with each other to see what vegetables they could trade. Interactions between neighbors can again be seen as a secondary relationship group for the seniors, as they appear to only interact with one another on a more utilitarian level. Seniors talk with their neighbors to create networks to trade food, not to fulfill emotional needs. Thus, neighbors can fall into a secondary relationship category. One senior said “there’s a lady here that gets some of that stuff and she doesn’t care for the greens, so she... I told her, ‘don’t you dare throw them out,’ so she brings them to me and I froze some of them last year” (Interview 1).

One of the primary goals of the OCG is to increase seniors’ access to fresh produce. Three of the seniors specifically indicated in their written survey responses that the garden enabled them to eat vegetables that they couldn’t normally afford. One wrote, “I have fresh vegetables [during the garden season] that I can’t afford [normally]” (Survey13). Other seniors commented, “This is my vegetable eating period and it doesn’t last long enough, gosh it is wonderful” (Survey 14) and “my doctor asked me to please continue eating veggies, which can be very expensive at the store” (Survey 2). These responses indicate that the garden does indeed impact the diets of the seniors who receive

food from the garden. Additional comments from the manager and the garden volunteers further support the notion that garden drop offs positively impact the recipients' quality of food, by providing them with fresh, ripe, organic, and healthy food, at no additional cost. In addition to the health benefits the fresh produce offers, the deliveries can assist with food security as one of the volunteers shared. "There's one woman who we found out didn't have enough food, and we added her to the deliveries" stated one volunteer (Interview 14). One garden volunteer specifically spoke to this issue, indicating that a number of seniors have confided in her that they struggle with food security and that the garden was a great help to them. According to the garden manager, many of the seniors receiving food from the OCG have difficulty stretching their food money to the end of the month, he states:

Food insecurity for seniors means not being sure if they can balance all their needs living on a fixed income... I know that we have lots of people in our group that we deliver food to, that have said 'this helps us in the summer to make sure we get there at the end of the month' (Interview 15).

These statements are consistent with the findings of Keller et al. (2007), who claim that fluctuating living expenses can cause seniors living on fixed incomes to experience food insecurity.

All the seniors interviewed indicated that they were currently food secure. This finding would appear to contradict much of the literature on seniors and food security. According to Feeding America (2014), 5.4 American seniors are food insecure, and in Maine, senior hunger increased by 50% between the years of 2008 and 2013 (Senior Hunger, 2013; Wright et al. 2015). With such high numbers for senior food insecurity, one would expect to find some food insecurity among the seniors receiving food from the garden. Additionally, statements made by the garden manager and one of the volunteers

give the impression that some of the seniors who receive food from the garden are food insecure. Yet, none of the interview participants claimed to be food insecure. However, when examining the interviews as a whole, a different picture of food security emerges. Seniors who claim to be food secure also rely on a number of programs including food stamps one senior stated, “I get food stamps because my social security is low... [participating in the garden] allows me to buy some extra things that I normally couldn’t buy... The food stamps are good, but fresh vegetables are expensive” (Interview 10).

Many of the seniors utilize food stamps, as well as a number of other local food relief programs, with most of the seniors utilizing several food relief programs at once. The following remark exemplifies the number of agencies this senior population utilizes:

Well, I know there are food pantries, and I did go before, but I don’t have a vehicle so I have to get transportation. But since I’ve got the food stamps, I have enough money and food, so I don’t go to pantries anymore...I have [Parker dining meals] delivered four times a week. I have the food pals...Produce is expensive at the store (Interview 5).

Although seniors reported that they were food secure, nine of the seniors interviewed rely on multiple food relief programs. Without such networks in place, many of these seniors could very well be food insecure. The Orono senior population has a number of different food relief services available to them, which may not be available to Maine seniors living in more remote locations. While this senior population may share the challenges of seniors reported in the literature, the statistics and conclusions in the literature do not pertain to them, because there are multiple agencies and programs helping to ensure they maintain food security. One solution for seniors who may experience food insecurity isn’t enough. Seniors who can take advantage of multiple programs seem to be better off.

Utilizing multiple food relief networks allows this senior population to perceive themselves as being food secure. This use of multiple food relief networks is in contrast to findings in the current literature. Keller (2007) and Graham (2014) reported that older adults are hesitant to use assistance programs. Many of the seniors utilized multiple programs simultaneously to ensure they had sufficient food. Dean et al. (2011) noted that seniors often have limited knowledge of food relief programs, which again was not supported by this research. All but two of the seniors had knowledge of multiple food relief networks. One senior utilized food stamps, the OCG, the Parker dining program, and the Food Pals program. Several of the other seniors utilized the Senior Farmshare program, as well as the Food Pals and the dining program. Many of the seniors also reported being aware of local food pantries, but denied needing to use them. According to Graham (2014), seniors are often embarrassed to utilize food pantries because it seems like begging.

One of the unanticipated outcomes of the garden is it seems to reduce the stigma associated with utilizing food relief programs. Many of the interview participants gave very limited responses when asked about their food security, indicating discomfort or embarrassment concerning their food security status. The following excerpt shows a typical length of response for questions about food security:

I: Have you ever used food pantries?

S: No.

I: Were you embarrassed to do that?

S: Yes

I: Okay, since then you've been fine? You haven't had any other problems with getting food?

S: No.

I: Do you use food stamps or anything now?

S: Yes, I do

I: Do you use any other programs like the garden?

S: Yes, I do Farmshares.
I: What does food insecurity mean to you?
S: Not having enough to eat (Interview 12).

Limited responses such as the one outlined above were consistent throughout many of the interviews. Some seniors were more open with their discussion of the stigma surrounding utilizing assistance programs. When asked about utilizing a food cupboard, one senior said it was “not pleasant, and embarrassing” (Interview 8).

Despite the hesitancy to discuss relief programs, and the disdain for using food cupboards, seniors were open about their experiences with programs like the OCG and Food Pals, which effectively decrease the stigmas associated with accepting or seeking help to maintain food security. The OCG was conceptualized differently than other food relief programs by the seniors receiving weekly deliveries. Seniors felt comfortable asking to enroll in the OCG, and discussing their involvement in the garden, perhaps because seniors viewed it as a social program. In the following excerpt, the garden manager explains how seniors use the social aspect of the garden to mask their food security issues:

A lot of people like meeting with us, they like the regular visits, the social component of it, but not as many people have said that we help in the food insecurity game as much as they’ve said they love just seeing the volunteers and seeing the garden here. But I can say for sure that a few people have told me that [it helps with food security]... It’s a lot easier to say ‘I really like the interaction’ than it is to say that they need the food (Interview 15).

Seniors can downplay their need for food assistance by saying they participate in the OCG program because they enjoy seeing volunteers. The OCG can be looked at as a community-building program rather than a food relief program. Seniors get weekly visits from volunteers, which fosters a sense of community. Additionally, deliveries are

offered to all of the seniors living in the senior housing, which makes it feel less like charity and more like a perk of living within the community.

Seniors in the Orono community appear to have strategies in place, which allow them to tap into social networks to maintain food security. Dean et al. (2011) suggests a framing that describes all of the different connections and resources that seniors use. They define these connections and resources as a seniors' social capital, which augments their use of real capital. For these seniors, social capital is important because public transportation is limited, and it can be difficult to access for seniors with limited mobility, or other physical handicaps. Social capital is also important for this population because it enables them to access programs available within the community. Tomaka et al. (2006) claimed that rural seniors often have difficulty accessing resources because they are socially isolated and thus have limited social capital. This did not appear to be the case for the seniors interviewed in this study. One woman discussed how her sons helped her prepare her meals by writing directions for food preparation in font big enough for her to read. Interaction with the housing development social worker also appeared to increase the seniors' social capital, as many of them learn about other food relief programs through her. Seniors who identified as being more social, mentioned asking neighbors to take them to the grocery store. As such, having high levels of social capital was very important for the seniors in this area, and can be considered as one of the reasons the seniors reported a low incidence of food insecurity.

Dean et al. (2011) found that seniors with higher levels of social capital tend to be more food secure than seniors with low levels of social capital. These findings are corroborated by this research, where interviewed seniors had high levels of social capital,

and reported being food secure. However, it would appear that many of the seniors were at risk for food insecurity, and would perhaps be food insecure if they did not have such high levels of social capital. Some of the seniors relied on their social capital to discover different food relief programs, and others used social connections to ensure they had transportation to the grocery store, or to get help with food preparation.

As discussed earlier, making connections is an important aspect of social capital for senior populations. Within the context of the OCG program, the garden manager intentionally tried to involve seniors in decision making, by sending out yearly surveys that asked for their perceptions of the garden, and their suggestions for change. In our interviews, seniors were asked if they would like more input about what gets grown in the garden, and all of the seniors indicated that they didn't want or need to be engaged at this level. This population did not wish to utilize connection as a form of social capital within the garden, as they all indicated they did not want to give input about what is grown in the garden, giving responses like "I think they do a great job" (Interview 10) and "I think they do a pretty good job themselves" (Interview 1). Seniors did not want to engage with the garden on a deeper level, which would allow them to have a more democratic say in what is grown in the garden. According to the garden manager's partner, seniors were given the opportunity to come to the garden to pick up their food during the first two years of the program. She said, "We encouraged the recipients to come on Saturdays, to have those who were mobile to come here, see the garden, and be a part of it. We didn't get much enthusiasm so we stopped that in the second year" (Interview 16). Seniors did not show interest in participating in the garden, and were happy instead to be passive consumers of the garden produce.

Research on senior food insecurity discusses how seniors may have difficulty obtaining food due to mobility constraints or a lack of transportation (Keller et al. 2007; Quandt and Rao, 1999; Bowman, 2007; Wolfe et al. 2003). While only three of the seniors interviewed reported difficulty with leaving the house, several seniors discussed their strategies for overcoming obstacles with getting groceries. Five of the interviewed seniors mentioned that the social worker in the housing development ensured they had transportation to the grocery store. Taking advantage of the social worker can be seen as seniors utilizing their social capital to obtain groceries. One senior noted, “she takes us grocery shopping and things like that. She more or less takes care of making sure we eat... She’s involved with food and health” (Interview 2). However, it appeared to be difficult for the social worker to help seniors with disabilities to do their grocery shopping. Those seniors either provided the social worker with a grocery list, or relied on their children to assist them with getting to the grocery store. “So I have my children take me to the grocery store a couple times a month, and they’re my eyes. I give them the grocery list and then I go with them, but they’re my eyes and they do the shopping for me,” said one the interviewees (Interview 2). Another senior had difficulty cooking or leaving the house because of a physical ailment, and she relied on the home delivered Parker Dining Hall meals on many days of the week.

Most seniors did not have a difficult time preparing the vegetables that were included in the weekly deliveries. One senior mentioned that she thought unique vegetables confused some of the other seniors:

I think they have a good variety. Some of the people in here get a little confused because [the garden manager] will try a new vegetable, like a beet that has white rings in it, and they have no idea what it is. Or if it’s a

yellow beet, they wouldn't think to smell it and say 'oh yeah, that smells like a beet' But it's fine for me (Interview 8).

To alleviate some of the difficulty with accessing unfamiliar vegetables, the garden manager includes an informational sheet explaining all the vegetables that will be grown that year in the first delivery bag. Recipes which include vegetables from that week's delivery are also included in each bag. Only one of the seniors indicated that they had difficulty preparing the vegetables, or that they wanted different vegetables to be used in deliveries. This senior population has a skill set that enables them to utilize unfamiliar foods. In the excerpt above, the senior said she is fine with eating unique beets, and that she enjoys the variety of foods included in the bags. Many of the seniors cooked, and had no difficulty using the foods that were included in the weekly deliveries. This may not be true of other populations that could potentially be food insecure. Seniors are in a position that enables them to utilize unfamiliar foods because many of them have a cooking skill set. Other demographics may find the foods included in delivery bags to be inaccessible, but that was not the case for the interviewed seniors in this study.

When the garden was created, the garden manager wanted not only to have an impact on the seniors receiving the food, but also on the volunteers who were helping to grow it. Two of the volunteers who were interviewed also received food from the garden themselves. These two volunteers reported also experiencing food insecurity in the past. When asked about her experience with food insecurity, one volunteer stated, "I mean, I never started, it's just... you learn to be creative with what little you have" (Interview 14). Community gardens have been shown to increase food access and to improve the diets of gardeners (Drake and Lawson, 2015; D'Abundo and Carden, 2008). This was true both for the senior population, who received weekly deliveries, and for some of the

garden volunteers, who were able to take food from the garden throughout the growing season. One volunteer mentioned that her husband was “embarrassed to use food pantries” (Interview 16), and so taking food from the garden where she volunteered enabled her to increase their food security without utilizing programs that her husband deemed socially unacceptable. Taking food from the garden was conceptualized differently than taking food from other food assistance programs. Another volunteer spoke about how pricey food could be at the farmers market in the following excerpt:

I: Does the food from the garden have a big impact on your eating habits?

S: Yes, it’s nice having fresh produce. I’m able to grow a few things here, but it’s nice to have that access.

I: Does that have a large impact on your grocery bill during that season?

S: I’m sure it does, because if I go to the farmer’s market, it’s pricey (Interview 14).

Working in the OCG allowed these volunteers to access healthy, local produce without the expense. Taking extra food home at the end of the night is a typical perk for the garden volunteers, but even while working on site, the volunteers enjoy the freshly harvested produce. On one occasion during the research, the volunteers in the garden all shared a fresh watermelon just picked from the garden, and after were able to take a number of vegetables home for themselves.

Garden volunteers mentioned knowing more about their communities since becoming involved in the garden, and research indicates community gardens create social ties and a sense of community within neighborhoods in which they are located (Obach and Tobin, 2014; Drake and Lawson, 2015; D’Abundo and Carden, 2008; Walter, 2013; Teig et al. 2009). This was true for garden volunteers, one of whom said, “I like the fun of the group, second to that would be the community it builds, both inside and outside of

the garden. I think it gives people a sense of pride” (Interview 13). Volunteers enjoyed sharing a collective space with others in the community as they worked toward a common goal. One volunteer said, “It’s nice to work with other people, it keeps the momentum up” (Interview 14). All of the interviewed volunteers were involved in other groups around town. One of the volunteers was a member of the Methodist church and while on deliveries she was able to discuss the church with some of the seniors who also attended services there. One of the other volunteers had worked with a perma-culture group in town. “There are other people that are into different types of [groups]... like the perma-culture crowd... I help on different projects [with them]” stated a volunteer (Interview 14).

The garden provides a space for volunteers to connect to their communities through food production. Cross-generational and cross-cultural exchanges took place in the garden, where volunteers from many different backgrounds could come together to work toward a common goal. University students, professors, children, and general community members all worked together during volunteer sessions. One garden volunteer was inspired to begin her own civic agriculture project, the Food Pals, which brings elementary school children and seniors together through the production, processing, and procurement of food. She discusses the gardens’ impact on community:

The Orono garden, for me, is like this: The garden itself is a dandelion, and it starts a whole lot of seeds that puff off and plant elsewhere. That’s what inspires me to stay involved... I’ve learned that it’s possible to learn all of these different things to help with what I do outside. And this is where the inspiration for the Food Pals program comes from. I wanted to pick up where the OCG left off, and leave off where it starts back up (Interview 13).

The OCG has inspired volunteers to make sure that the community is being served even when the OCG isn't in season.

The garden is also space for public pedagogy, in which volunteers can undergo informal learning. "I've learned all kinds of things... How to prepare beds, and the soil, and a lot of stuff about how to sow the seeds and stuff like that, it's nice to have a mentor" said one volunteer (Interview 14). Gardens naturally provide a space for volunteers to learn, and the manager seeks to reinforce the learning environment. He discusses how he teaches in the garden below:

That's what I strive to do. And occasionally there are failures, and people will overplant something, but the goal is to [teach]... The way I pitch it to [volunteers] is that, I can teach you all this stuff, and master gardeners can teach you all this stuff, but then you go out and look at your garden and start to think 'I don't remember what the spacing is, I don't know how I really want to work this, how high of a bed does it need to be?' So, we can provide that to the volunteers, and that's what they get out of it is improved gardening skills, and they can learn how to use organic products to keep pests away and things like that (Interview 15).

Gardens not only provide a space to learn about food production, but are also a place where volunteers can “develop strong civic virtues... and [it] has [the] ability to increase the confidence, political efficacy, knowledge, and skills of those involved” (Levkoe, 2006). Garden volunteers not only learned how to garden while working in the OCG, but also how to model civic agriculture projects similar to the OCG (The Food Pals program). The garden encourages volunteers to become more engaged in their community, and teaches them how to build programs that can improve their neighborhoods.

Conclusions

Community gardens have often been created in response to a need: as a way to feed people, to teach people, or to foster greater engagement within a community. In this paper we examined the impacts of the OCG on the seniors who receive food from it, specifically in terms of food security and social engagement. The questions this research worked to answer were: In what ways does produce from the OCG impact the seniors’ food security? In what ways does the OCG decrease the social isolation of the seniors who receive food from it? And, what benefits do the OCG volunteers gain from working in the garden?

Data from surveys and interviews demonstrated that food from the OCG impacted seniors’ food security by providing them with fresh, healthy vegetables that they did not have to purchase themselves. We also discovered that food from the OCG was only one tool that this senior population used to maintain food security. While all of the seniors self-identified as food secure, interview data suggests that without numerous food relief

programs, many of the seniors who receive food from the OCG had the potential to be food insecure. This group of seniors is adept at taking advantage of the programs available to them.

There was a large demand to participate in the garden program when it was first created. As a result, the garden manager had to begin taking food donations from other farmers to feed all of the seniors who signed up for the program. The tremendous interest in participating in the garden further supports the idea that this population lives on the edge of food insecurity.

The notion that this senior population is only food secure because of a large safety net of programs raises concerns about the ways in which we measure food security and define food security. Food security is a broad term. It is important to recognize that alternative food security definitions are relevant in ensuring that all demographics have enough to eat. Populations may be marginally food secure, and could be dependent on a number of food relief programs. It is difficult to assess how dependent this group is on the programs that they utilize.

One of the primary goals of the OCG was to increase seniors' levels of social engagement. Much of the literature on seniors and social engagement suggests that seniors tend to be socially isolated, especially seniors living in rural areas, or seniors who live alone. This was not the case for the seniors who were interviewed about their experience with the OCG. This senior population had strong family ties, and did not look to interactions with volunteers to meet their primary social needs. Many of the more social seniors were involved in other clubs and activities that met their social needs as well.

When seniors discussed their relationships with volunteers, it appeared as though their relationships were secondary relationships and had no meaning beyond the utilitarian purpose of dropping off food. The goal of decreasing seniors' social isolation was based on the garden manager's perception of this being a need in the seniors' lives. There may be seniors receiving food from the garden who are indeed lonely and in need of additional social interaction who did not participate in this study. If the manager is to maintain the goal of decreasing senior's social isolation, then he will need to be more intentional about ensuring that volunteers foster more meaningful relationships with volunteers. Additional volunteer training to emphasize this goal may be enough to help foster more meaningful relationships between seniors and volunteers. The strength of these relationships could also be increased by ensuring the same volunteer delivered to the same set of seniors consistently, in order to foster familiarity between specific individuals. Meaningful relationships do not just happen, and additional work will be needed to help the garden meet this goal.

Community gardens have been seen as a place for volunteers to learn, and to engage with others in their community. The OCG seeks to teach volunteers about organic gardening, while also providing them with a space to increase their community involvement. These goals appear to be addressed within the volunteer group at the OCG. Interviews with the volunteers revealed that they have learned a great deal about gardening from their time within the garden, and that they have gained a greater sense of community from their time there as well. Some OCG volunteers are also able to increase their food security from their time in the garden, as volunteers are able to take produce home with them on delivery nights.

This research uncovered additional questions of interest. It is unclear from this preliminary research if the results on senior sociability are indicative of the entire population of OCG recipients. The seniors who were interviewed in this research were self-selecting, and happened to be the seniors who answered their doors on the night of delivery. This could mean that the seniors in this study happened to be the more social seniors, and thus didn't rely on the volunteers for social engagement. More extensive interviews with the entire senior population may reveal different results.

Work could also be done to examine the range of food relief networks utilized by this senior population. An examination of the food network could reveal interesting results. Orono appears to have an effective food insecurity relief system. Is this network an intentionally coordinated system, or did it just happen by chance? How do the various food aid networks work together, especially those with low negative stigmas? A more in depth analysis of how this community is achieving this could aid other communities in implementing a similar network.

Figures

Figure 1.

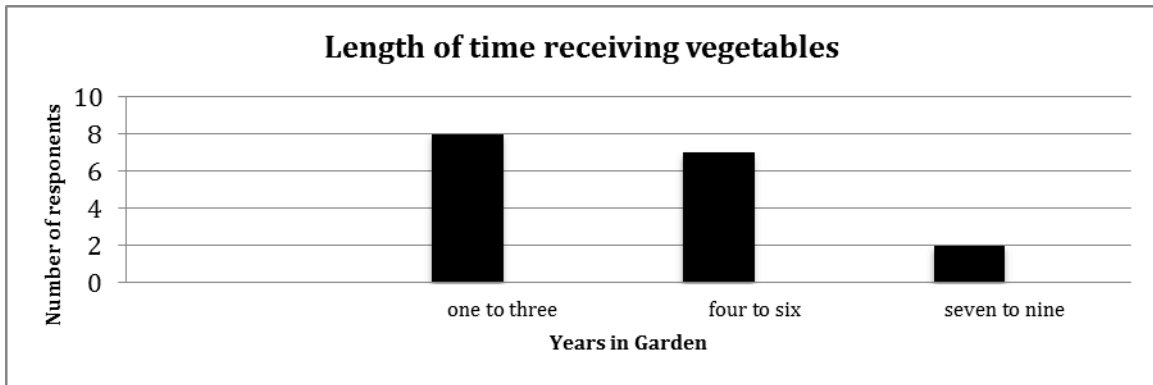


Figure 1: The above chart represents the number of years seniors had been receiving vegetables from the garden. Responses were taken from the 19 surveys which were returned by seniors receiving food from the garden. The survey question was multiple choice.

Figure 2.

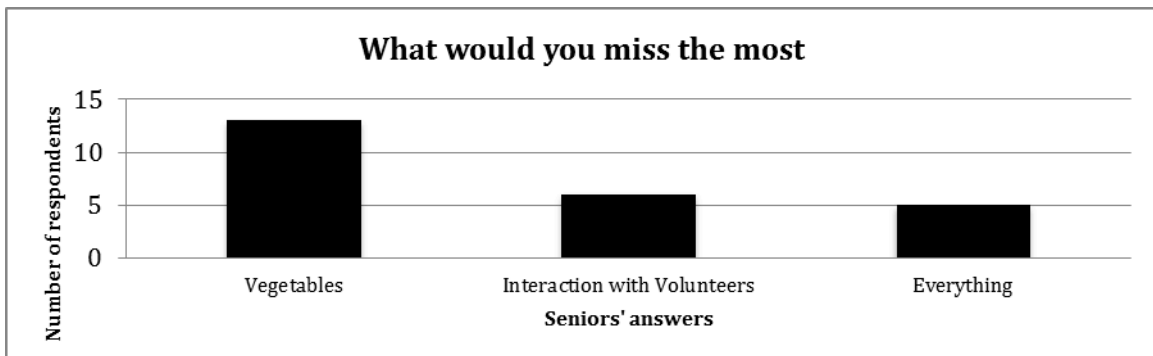


Figure 2. The above chart shows the frequency of answers from the second survey question, which asked seniors what they would miss most of the garden were to end. This question was open ended. Some seniors responded with multiple answers, which accounts for more than 19 responses.

Figure 3.

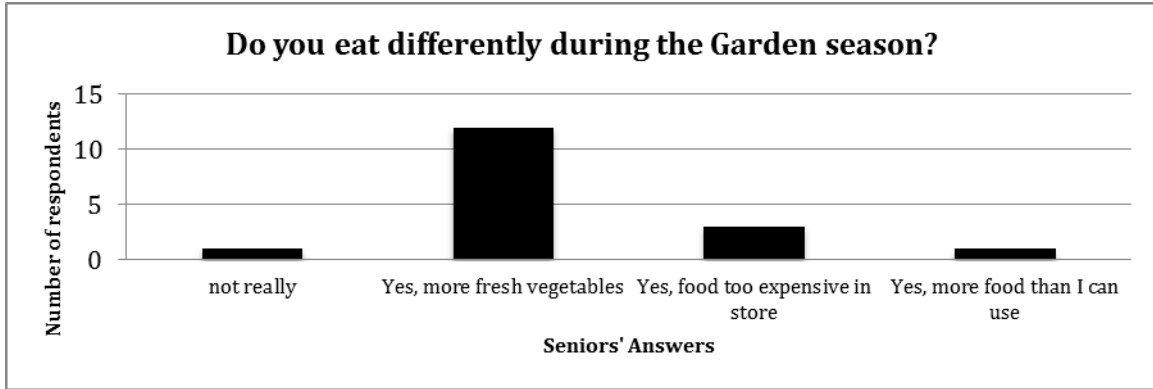


Figure 3. The above graph shows seniors responses to the third survey question, which was open ended and asked if seniors ate differently while the garden was in season. Four responses were indicative of all of the seniors' responses.

Figure 4:

Category	Int. 1	Int. 2	Int. 3	Int. 4	Int. 5	Int. 6	Int. 7	Int. 8	Int. 10	Int. 11	Int. 12
Food Security											
Currently food secure	x	x	x	x	x	x	x	x	x	x	x
Past food insecurity	x	x			x			x	x		x
Being thrifty with food money	x				x				x		x
Knowledge of food relief programs	x	x		x	x			x	x	x	x
Participates in multiple food relief programs	x	x		x	x		x	x	x	x	x
Thinks hunger is a problem in Maine	x	x		x			x	x			x
Garden food is a substitution	x	x	x	x	x		x		x	x	x
Easy to get to grocery store	x			x					x	x	
Looks forward to fresh food		x			x	x					
Houseing devlopment makes sure they have food		x			x		x		x		
Garden food is an addition						x	x	x	x	x	
Preserves garden food		x	x		x		x				x
Nothing goes to waste	x					x	x				
Social engagement											
Shares/swaps food with neighbors	x			x	x	x	x	x	x	x	
Likes to keep to themselves	x		x			x					x
Socializes with family	x	x	x	x	x	x			x	x	x
Looks forward to seeing volunteers	x	x	x	x	x	x	x	x	x	x	x
Doesn't want input in garden	x	x	x	x	x		x	x	x	x	x
Talks with neighbors about garden		x	x	x			x		x	x	
Doesn't talk to neighbors about garden			x					x			x
Wishes they had more social engagement					x		x				

Figure 1. The above table shows all of the codes that emerged from the transcribed interviews with the twelve senior participants. Codes corresponded to the themes of either food security, or social isolation.

*Interview 9 was omitted due to inconsistencies in response, it was clear that the interview subject did not understand the questions.

Bibliography

- “About Meals on Wheels.” 2016. Meals on Wheels of America. Web. 10 Apr. 2016.
- Alaimo, Katherine, Elizabeth Packnett, Richard Miles, and Daniel Kruger. 2008. “Fruit and Vegetable Intake Among Urban Community Gardeners.” *Journal of Nutrition Education and Behavior* 40(2): 95-101.
- Allen, Patricia. 1999. "Reweaving the Food Security Safety Net: Mediating Entitlement and Entrepreneurship." *Agriculture and Human Values* 16 117-29.
- Armstrong, Donna. 2000. "A Survey Of Community Gardens in Upstate New York: Implications for Health Promotion and Community Development." *Health and Place* 6: 319-27. Web.
- Bassett, T.J. 1979. “Vacant Lot Cultivation: Community Gardening in America, 1893-1978. *Unpublished Master’s Thesis, University of California, Berkeley.*
- Bowman, S. 2007. “Low Economic Status is Associated with Suboptimal Intakes of Nutritious Foods by Adults in the National Health and Nutrition Examination Study 1999–2002. *Nutr. Res.* 27:515–523.
- Burnett, Paula, and Andrew Matlins. 2006. “Civic Engagement.” *Edward S. Muskie School and Maine Department of Health and Human Services.*
- Clifford Wood, Robin. 2015 "Orono Community Garden, a Model to Emulate." *Bangor Daily News.*
- D'Abundo, Michelle, and Andrea M. Carden. 2008. “Growing Wellness”: The Possibility of Promoting Collective Wellness through Community Garden Education Programs." *Community Development* 39.4: 83-94.

- Dean, Wesley, Joseph Sharkey, and Cassandra Johnson. 2011. "Food Insecurity is Associated with Social Capital, Perceived Personal Disparity, and Partnership Status Among Older and Senior Adults in a Largely Rural Area of Central Texas." *Journal of Nutrition in Gerontology and Geriatrics* 30.2: 169-86.
- Drake, Luke, and Laura Lawson. 2015. "Results of a US and Canada Community Garden Survey: Shared Challenges in Garden Management amid Diverse Geographical and Organizational Contexts." *Agriculture and Human Values*. 32: 241-54.
- Journal of Nutrition in Gerontology and Geriatrics. 2011. 30.2:169-186
- Feulner, Natalie. 2015 "Garden Plots in Maine Cultivate Sense of Community." *Bangor Daily News*.
- "Food Security in the U.S.: Measurement."2015. *USDA Economic Research Service, United States Dept. of Agriculture*.
- Gerster-Bentaya, Maria. 2013. "Nutrition-Sensitive Urban Agriculture." *Food Security* 5: 723-37.
- Graham, Gillian. 2014 "Swallowing Their Pride to Avoid Going Hungry." *Special report: The Challenge of Our Age, Portland Press Herald*.
- Guitart, Dabueka, Catherine Pickering, and Jason Byrne. 2012 "Past Results and Future Directions in Urban Community Gardens Research." *Urban Forestry and Urban Greening* 11.4: 364-73.
- Gunderson C, Ziliak JP. 2014. "Spotlight on Senior Health: Adverse Health Outcomes of Food Insecure Older Americans: Executive Summary." *The National Foundation to End Senior Hunger, Feeding America*.

Hayes-Conroy, Allison, and Elizabeth Sweet 2015. "Who's Adequacy? (Re)imagining Food Security in Women in Medellin, Colombia." *Agriculture and Human Values* 32: 373-84.

Hunger in Maine. 2013. "Good Shepherd Food Bank. *Good Shepherd Food Bank*

Hunger in Maine. 2015. "Good Shepherd Food Bank. *Good Shepherd Food Bank*

Interview 1. 2016

Interview 2. 2016

Interview 3. 2016

Interview 4. 2016

Interview 5. 2016

Interview 6. 2016

Interview 7. 2016

Interview 8. 2016

Interview 9. 2016

Interview 10. 2016

Interview 11. 2016

Interview 12. 2016

Interview 13. 2016

Interview 14. 2016

Interview 15. 2016

Interview 16. 2016

- Keller, Heather H., John J. M. Dwyer, Vicki Edwards, Christine Senson, and Gayle Edward. 2007. "Food Security in Older Adults: Service Provider Perceptions of Their Roles." *Canadian Journal on Aging* 26.4: 317-28.
- Kurtz, Hilda. 2001. "Differentiating Multiple Meanings of Garden and Community." *Urban Geography* 22.7: 656-70.
- Levkoe, Charles. 2006. "Learning Democracy through Food Justice Movements." *Agriculture and Human Values* 23.1: 89-98.
- "Maine Senior Farm Share Program." 2016. *Get Real Get Maine. Maine Department of Agriculture*
<<http://www.getrealmaine.com/index.cfm/fuseaction/home.showpage/pageID/77/index.htm>>.
- "Maine Senior Farmshare Program Enrollment Begins." 2016. *Bangor Daily News*.
<<http://bangordailynews.com/pressrelease/maine-senior-farmshare-enrollment-begins/>>.
- McFarland, Amy, Tina Waliczek, Jayne Zajicek, and R. Dan Lineberger. 2013. "Eating Habits and Knowledge of Nutrition in Older Adults: a Comparison of Gardeners and Nongardeners." *Horttechnology* 23.6: 843-848.
- "Meals on Wheels." 2016. *Southern Maine Agency on Aging*. Web.
<<http://www.smaaa.org/meals.html>>.
- "Meals on Wheels." 2015. *Spectrum Generations, Central Maine's Agency on Aging*, Web. <<http://www.spectrumgenerations.org/meals-wheels>>.

- "Nutrition Programs." 2015. *Support in the Community: Office of Aging And Disability Services. Department of Health and Human Services.* Web. <<http://www.maine.gov/dhhs/oads/community-support/nutrition-programs.html>>.
- Obach, Brian, and Kathleen Tobin. 2014. "Civic Agriculture and Community Engagement." *Agriculture and Human Values*. 31: 307-22.
- Okvat, Heather, and Alex Zautra. 2011. "Community Gardening: A Parsimonious Path to Individual, Community, and Environmental Resilience." *American Journal of Community Psychology*. 47
- "Orono Community Garden Produces More Than Just Vegetables." 2008. *UMaine Today*. Web. <<https://umaine.edu/news/blog/2008/07/22/orono-community-garden-produces-more-than-just-vegetables/>>.
- Ortman, Jennifer, Victoria Velkoff, and Howard Hogan. 2014. "An Aging Nation: The Older Population in the United States." *Current Population Reports United States Census Bureau*.
- Pudup, Mary Beth. 2008. "It Takes a Garden: Cultivating Citizen-Subjects in Organized Garden Projects." *Geoforum* 39: 1228-240.
- Quandt, Sara A., and Pamela Rao. 1999. "Hunger and Food Security among Older Adults in a Rural Community." *Human Organization* 58.1: 28-35.
- "Rogers Farm." 2016. *The University of Maine*. Web. <<https://umaine.edu/rogersfarm/>>.
- "Senior Hunger: AARP Combats Elder Hunger - Maine Senior Guide." 2013 *Maine Senior Guide*. AARP.
- "Senior Hunger." 2014. *Feeding America*.

- “Social Isolation Among Seniors: An Emerging Issue.” 2004. *Children's, Women's, and Seniors' Health Branch, British Columbia's Ministry of Health*.
- "Spotlight on Senior Hunger." 2011. *Feeding America* Web. <Feedingamerica.org>
- Tate, Rhonda. 2007. "John Jemison: Creating Community Around Food." *Maine Organic Farmers and Gardeners Association*.
- Teig, Ellen, Joy Amulya, Lisa Bardwell, Michael Buchenau, Julie Marshall, and Jill Litt. 2009. "Collective Efficacy in Denver, Colorado: Strengthening Neighborhoods and Health through Community Gardens." *Health and Place* 15: 1115-122.
- Tomaka, Joe, Sharon Thompson, and Rebecca Palacios. 2006. "The Relation of Social Isolation, Loneliness, and Social Support to Disease Outcomes among the Elderly." *Journal of Aging and Health*. 18.3: 359-384.
- Twiss, Joan, Joy Dickinson, Shirley Duma, Tanya Kleinman, Heather Paulsen, and Liz Rilveria. 2003. "Community Gardens: Lessons Learned from California Health Cities and Communities." *American Journal of Public Health*. 93.9
- Jemison, John. 2014 "Orono Community Garden". *University of Maine Cooperative Extension*.
- Walter, Pierre. 2013. "Theorizing Community Gardens as Pedagogical Sites in the Food Movement." *Environmental Education Research* 19.4: 521-39.
- Wolfe, Wendy S., Edward A. Frongillo, and Pascale Valois. 2003. "Understanding the Experience of Food Insecurity by Elders Suggests Ways to Improve Its Measurement." *The American Society for Nutritional Sciences*. 133.9: 2762-769.
- Wright, Lauri, Lauren Vance, Christina Sudduth, and James Epps. 2015. "The Impact of a Home-Delivered Meal Program on Nutritional Risk, Dietary Intake, Food

Security, Loneliness, and Social Well-Being." *Journal of Nutrition in Gerontology and Geriatrics*. 34: 218-27.

Ziliak, J.P. and C. Gundersen. 2015. "State of Senior Hunger in America 2013: An Annual Report. *National Foundation to End Senior Hunger*

Appendices

Appendix A.

Interview Questions

Each interview question may include follow up questions and clarifying questions depending on responses.

Senior Interviews

Food Security

- How long have you been receiving food from the garden?
- How did you hear about the garden program and first become involved?

- Was there ever a time in your life when you didn't have enough food? What was that like?
 - Do you have enough food now, or do you ever feel worried about food?
Do you know of any programs available to seniors who don't have enough food?
 - Do you participate in any other programs besides the garden?
 - What does food insecurity mean to you?
 - Do you think most people in Maine have enough to eat?
 - Does the amount of money you spend on groceries change at all while you receive food from the garden?
 - Is the food from the garden an addition to what you buy or a substitution?
 - Is it difficult for you to get to the grocery store?
 - What do you do with the food you get from the garden?
 - Do you typically eat all of the food dropped off each week?
 - Do you always like the food that is brought to you?
 - Is it normally difficult for you to get fresh produce?

Social Connectedness

- What does your day look like? Do you have a typical daily routine?
 - Do garden drop offs ever interfere with your normal activities?

- Since becoming involved in the garden program, have you started talking with other people in your housing development who also receive food?
- Do you wish you had more opportunities to socialize with other people?
- Do you live alone?
- Do you have family nearby?
- Are you involved in any other groups or organizations in town?
- Do you look forward to seeing volunteers each week? Why?

- How much time do volunteers spend talking to you each week?
- Do you talk about recipes with volunteers?
- What do you really look forward to on days the food is delivered?
- Do you share food from the garden with other people? With who?
- Do you wish you had more input as to what gets grown in the garden?
- Is there anything else you would like to say about the garden?

Volunteer Interviews

Food security

- Do you take food from the garden?
 - What do you do with the food?
 - Does the food have a big impact on your eating habits?
- What does food insecurity mean to you?
- Do you think people in Maine have enough to eat?
- Was there ever a time in your life when you didn't have enough food? What was that like?
- Do you have enough food now, or do you ever feel worried about food?

Social Connectedness

- How long have you been volunteering at the garden?
 - What are your favorite aspects of volunteering at the garden?
 - What motivated you to first start volunteering at the garden?
 - What about the garden makes you continue to volunteer?
 - Do you socialize a lot with other garden volunteers?
 - Do you have a better awareness of your community because of spending time in the garden?
 - Do you hear about other things going on in the community through discussion at the garden
 - Do you know more about other people in your community because of time spent in the garden?
- Do you see any of the other volunteers outside of the garden?
- Do you have any say in what gets planted and in the planning of the garden?
- Do you feel that the garden provides you with a sense of community? Please explain.
- How long do you spend with each senior when dropping off the produce?
- What do you talk about with them?
- Do you find that the seniors normally answer the door, or do you frequently leave bags at doors?
- Do you look forward to seeing any particular individuals each week? And why?
- Have you learned any specific gardening skills?
 - Do any of these skills help you outside of the garden?
- What do you think would happen to the garden if John could not continue to work on it?
- Do you feel that the garden makes a large impact on people?

- What impacts have you observed yourself?
How would you change the garden?

Interview with Garden Director

- What does food insecurity mean to you?
 - Do you think people in Maine have enough to eat?
Was there ever a time in your life when you didn't have enough food? What was that like?
 - Do you have enough food now, or do you ever feel worried about food?
What gave you the idea to start this garden?
How did you recruit volunteers for the garden?
Have you had any difficulty keeping the program running?
Could you give me a history of the garden?
What kind of reactions have you had from seniors, volunteers, or people in the Orono Community?
When you started the program did you anticipate it lasting this long?
What were your goals when starting this project?
Do you feel that the goals of the project have been met?
 - Any particular examples of why or why not?
 Have the goals of the garden changed over time?
Where there any unexpected outcomes that you have observed from the garden?
Where do you see the garden project going in the future?
What do you try to teach volunteers at the garden?
What are the challenges and successes of the garden?
What do you think would happen if you left?
How has this impacted your sense of community?

Appendix B

IRB Approval

MEMORANDUM

TO: Sarah Mullis

FROM: Gayle Jones

17 High Street, Apt. #3

Old Town, ME 04468

Assistant to the Institutional Review Board for the Protection of Human Subjects (IRB)

Gardening: How the Orono Community Garden Impacts Seniors,” #2015-11-08

SUBJECT: “Alleviating Social Isolation and Food Insecurity Through Community

DATE: December 8, 2015

The above referenced project was approved by the University of Maine’s Institutional Review Board for the Protection of Human Subjects (IRB) in an expedited review. The approval period is 11/20/2015 through 11/19/2016. A continuing review of this project must be conducted by the IRB before the end of the approval period. Although you will receive a request for this information approximately 6-8 weeks before that date, it is your responsibility to submit the information in sufficient time to allow for review before the approval period expires.

Enclosed are approved copies of the consent documents for this project. The approval for these consents expires on 11/19/2016. These approved copies must be duplicated and used when enrolling subjects during the approval period. Please remember that each subject must be given a copy of the consent document. Any unanticipated problems or harm to the subject must be reported to the IRB immediately. Any proposed changes to the research must be approved by the IRB prior to implementation. If you have questions, please contact me at 1-1498. Thank you.

pc: Melissa Ladenheim

Appendix C

GARDEN MANAGER INFORMED CONSENT FORM

You are invited to participate in a research project being conducted by Sarah Mullis, a undergraduate student in the Department of Sociology and the Honors College at the University of Maine. Sarah is being advised by Melissa Ladenheim, and Mark Haggerty, both associates of the Honors College. The purpose of the research is to assess the impact of the Orono Community Garden on the seniors it serves and on the volunteers working in it.

What Will You Be Asked to Do?

If you decide to participate, you will be asked to answer interview questions. A few examples of questions that may be asked include: What kind of reactions have you gotten from members of the community about the garden? Can you give me a brief history of the garden? Do you eat more fresh vegetables while the garden is in season than during the rest of the year, etc.

Interviews will be recorded using an audio recorder. It may take approximately one hour to participate. Interviews will be conducted in your home.

- There is the possibility that you may become uncomfortable answering the questions.

You may skip any questions that make you uncomfortable.

- There is a possibility that your responses may make it possible for readers to identify you. You may skip any questions that you feel could cause others to know your identity, and the report will be written in a way that reduces this risk.
- Time and inconvenience. The interview will be kept to around an hour.
- While this study will have no direct benefit to you, this research may help us learn more about how to better assist seniors within the community, and what the impacts of the Orono Community Garden have been on seniors and volunteers.

Confidentiality

Data will be kept on Sarah Mullis' password protected personal computer until May 2016, when it will be deleted from her computer, and given to Melissa Ladenheim, who will hold the interviews indefinitely. A transcriptionist may also have limited access to your interview responses. Your name will not be reported in any publications.

Voluntary

Participation is voluntary. If you choose to take part in this study, you may stop at any time. You may skip any questions you do not wish to answer.

University of Maine Institutional Review Board Approved for Use Through 11/19/2016

Contact Information

If you have any questions about this study, please contact me at 207-341-3437 or sarah.mullis@maine.edu. You may also reach the faculty advisor on this study, Melissa Ladenheim at (207) 581-3264, or by email at Melissa.ladenheim@maine.edu. Or Mark Haggerty at mark.haggerty@maine.edu. If you have any questions about your rights as a research participant, please contact Gayle Jones, Assistant to the University of Maine's

Protection of Human Subjects Review Board, at 581-1498 (or e-mail
gayle.jones@umit.maine.edu).

Your signature below indicates that you have read the above information and agree to
participate. You will receive a copy of this form.

Signature Date

University of Maine Institutional Review Board Approved for Use Through 11/19/2016

VOLUNTEER INFORMED CONSENT FORM

You are invited to participate in a research project being conducted by Sarah Mullis, a
undergraduate student in the Department of Sociology and the Honors College at the
University of Maine. Sarah is being advised by Melissa Ladenheim, and Mark Haggerty,
both associates of the Honors College. The purpose of the research is to assess the impact
of the Orono Community Garden on the seniors it serves and on the volunteers working
in it.

What Will You Be Asked to Do?

If you decide to participate, you will be asked to answer interview questions. A few
examples of questions that may be asked include: How long have you volunteered at the
garden? How long do you talk with seniors when dropping off vegetables? Do you have
any control over what gets planted in the garden? Etc. Interviews will be recorded using

an audio recorder. It may take approximately one hour to participate. Interviews will be conducted in your home or at another suitable location in the community.

- There is the possibility that you may become uncomfortable answering the questions.

You may skip any questions that make you uncomfortable.

- There is a possibility that your responses may make it possible for readers to identify you. You may skip any questions that you feel could cause others to know your identity, and the report will be written in a way that reduces this risk.

- Time and inconvenience. The interview will be kept to around an hour.

- While this study will have no direct benefit to you, this research may help us learn more about how to better assist seniors within the community, and what the impacts of the Orono Community Garden have been on seniors and volunteers.

Confidentiality

Data will be kept on Sarah Mullis' password protected personal computer until May 2016, when it will be deleted from her computer, and given to Melissa Ladenheim, who will hold the interviews indefinitely. A transcriptionist may also have limited access to your interview responses. Your name will not be reported in any publications.

Voluntary

Participation is voluntary. If you choose to take part in this study, you may stop at any time. You may skip any questions you do not wish to answer.

Contact Information

If you have any questions about this study, please contact me at 207-341-3437 or

sarah.mullis@maine.edu. You may also reach the faculty advisor on this study, Melissa Ladenheim at (207) 581-3264, or by email at Melissa.ladenheim@maine.edu. Or Mark Haggerty at mark.haggerty@maine.edu. If you have any questions about your rights as a research participant, please contact Gayle Jones, Assistant to the University of Maine's Protection of Human Subjects Review Board, at 581-1498 (or e-mail gayle.jones@umit.maine.edu).

Your signature below indicates that you have read the above information and agree to participate. You will receive a copy of this form.

Signature _____
Date _____

University of Maine Institutional Review Board Approved for Use Through 11/19/2016

SENIOR INFORMED CONSENT FORM

You are invited to participate in a research project being conducted by Sarah Mullis, a undergraduate student in the Department of Sociology and the Honors College at the University of Maine. Sarah is being advised by Melissa Ladenheim, and Mark Haggerty, both associates of the Honors College. The purpose of the research is to assess the impact of the Orono Community Garden on the seniors it serves and on the volunteers working in it.

What Will You Be Asked to Do?

If you decide to participate, you will be asked to answer interview questions. A few

examples of questions that may be asked include: How long have you received food from the Garden? Do you live alone? Do you eat more fresh vegetables while the garden is in season than during the rest of the year, etc. Interviews will be recorded using an audio recorder. It may take approximately one hour to participate. Interviews will be conducted in your home.

- There is the possibility that you may become uncomfortable answering the questions.

You may skip any questions that make you uncomfortable.

- There is a possibility that your responses may make it possible for readers to identify you. You may skip any questions that you feel could cause others to know your identity, and the report will be written in a way that reduces this risk.

- Time and inconvenience. The interview will be kept to around an hour.

- While this study will have no direct benefit to you, this research may help us learn more about how to better assist seniors within the community, and what the impacts of the Orono Community Garden have been on seniors and volunteers.

Confidentiality

Data will be kept on Sarah Mullis' password protected personal computer until May 2016, when it will be deleted from her computer, and given to Melissa Ladenheim, who will hold the interviews indefinitely. A transcriptionist may also have limited access to your interview responses. Your name will not be reported in any publications.

Voluntary

Participation is voluntary. If you choose to take part in this study, you may stop at any time. You may skip any questions you do not wish to answer.

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Contact Information

If you have any questions about this study, please contact me at 207-341-3437 or sarah.mullis@maine.edu. You may also reach the faculty advisor on this study, Melissa Ladenheim at (207) 581-3264, or by email at Melissa.ladenheim@maine.edu. Or Mark Haggerty at mark.haggerty@maine.edu. If you have any questions about your rights as a research participant, please contact Gayle Jones, Assistant to the University of Maine's Protection of Human Subjects Review Board, at 581-1498 (or e-mail gayle.jones@umit.maine.edu).

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Authors Bio

Sarah Mullis was born in Bangor, Maine on February 15, 1994. A Maine native, Mullis grew up in Corinna, and graduated from Nokomis Regional High School in 2012. Mullis graduated Magna Cum Laude from the University of Maine in May of 2016 with a bachelor's degree in Sociology, and a minor in Earth Sciences. Mullis is a member of Alpha Kappa Delta, and of Phi Beta Kappa. She was a fellow in the Sustainable Food Systems Research Collaborative in 2015. She was also the recipient of a Charlie Slavin Grant, and a CUGR grant while at the University of Maine.

Sarah hopes to pursue a career in food access, but before pursuing that path, she spent the summer following graduation working in an optometrist office in Bangor, Maine.