

Masters of Applied Nutrition

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**ACCESS TO FRESH FRUITS AND VEGETABLES THROUGH THE GARDEN FRESH
BOX PROGRAM**

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Abstract

Access to Fresh Fruits and Vegetables through the Garden Fresh Box Program

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Abstract

Introduction: The Garden Fresh Box (GFB) program aims to alleviate food insecurity, defined as inability to acquire or consume a diet of adequate quality or quantity in a socially acceptable manner. A survey assessed impact of the GFB on physical and financial access to fresh fruits and vegetables.

Methods: GFB users completed an anonymous 26 item survey March 16, 2016 with local GFB volunteers, while picking up their boxes. Descriptive statistics were generated for quantitative data, and inductive content analysis by two separate researchers was used to analyze qualitative data.

Results: 65 GFB users reported average scores of 1.48 and 1.55 for questions pertaining to physical access to produce, based on a Likert scale of 1 (very easy) to 6 (very difficult). Most users (75.8%) reported the GFB makes produce more affordable. There was no difference in self-reported access between those who receive, and those who do not receive a subsidized GFB. Most common suggestions to increase access included more advertising (13.3%), delivery of the GFB (13.3%), and extended collection hours (13.3%). Most common themes as favourite components of the program were variety (38.6%), good quality (26.3%) and good value (24.6%). Most common themes reported as least favourite components of the program were excess potatoes (13.2%), not frequent enough (10.5%), and excess beets (7.9%).

Conclusions: Overall, users were satisfied with the current functioning of the GFB program, and fresh fruits and vegetables were both physically and financially accessible.

Introduction

Food insecurity has been acknowledged as a critical issue affecting many individuals in Canada (Tarasuk, Mitchell & Dachner, 2013). It is considered the inability to acquire or consume a diet of adequate quality or quantity in a socially acceptable manner, or the uncertainty that this will occur (Collins et al., 2014). Food insecurity persists as a public health issue, and as reported in 2014, household food insecurity affects 3.8 million Canadians (Collins et al., 2014). Severe food insecurity prevalence has increased from 2.5% of the population in 2011 (Tarasuk, Mitchell & Dachner, 2011) to 2.7% in 2013 (Tarasuk, Mitchell & Dachner, 2013). Furthermore, within Guelph alone, 16.4% of households were food insecure to some degree in 2013, which was increased from 10.8% in 2008 (Daw, 2014).

It has been acknowledged that income is the most influential social determinant of health that impacts food insecurity (Dietitians of Canada, 2005). Additionally, it has been recognized that physical access to food, defined as distance to the nearest location to purchase food, having a vehicle to drive to food outlets, or the availability of healthy food in the neighbourhood (Tolzman, Rooney, Duquette & Rees, 2014), is also an important factor in food insecurity. As consequences of food insecurity, research has found food insecure individuals to have poorer physical and mental health, and higher rates of many chronic diseases (Gucciardi, Vogt, DeMelo & Stewart, 2009).

As a result of the widespread prevalence of food insecurity and its negative impact on health, the Garden Fresh Box (GFB) program in Guelph, Ontario, was developed. This non-profit service operated by the Guelph Community Health Centre (CHC), offers fresh, affordable local produce available for purchase at 17 different locations throughout the Guelph area. The GFB program provides reasonably priced items to its customers, as produce is purchased in bulk

largely from local farmers (Guelph CHC, 2011). To further increase financial access to produce, the GFB program also offers a subsidy for clients with lower income. Additionally, the program provides a monthly newsletter with each box, containing nutrition information and nutritious recipes, in an attempt to promote healthy eating habits.

One of the outcomes of the GFB program is “Community members will have greater access to low-cost healthful fruits and vegetables.” As a result, our project aimed to specifically investigate the impact of the GFB program on its customers’ physical and financial access to fresh fruits and vegetables. We also examined whether or not customers with a subsidy had greater access to fresh fruits and vegetables as compared to those without a subsidy. Furthermore, we explored possible suggestions for improvement of the program, and assessed customer satisfaction with the current operation of the GFB program.

Literature Review

Food insecurity persists as a public health issue in Canada, as evidenced by its increasing prevalence (Tarasuk, Mitchell & Dachner, 2011). Some experiences of food insecurity can include the depletion of food before having money to purchase more, having insufficient money to afford a balanced diet, being hungry without having money to purchase food, and skipping meals due to lack of food and money (Tarasuk, Mitchell & Dachner, 2012). On the other hand, it was specified by the Food and Agriculture Organization of the United Nations (1996), that food security exists when “all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life”. As a result, it is recognized that food insecurity, or the absence of food security, is strongly dependent on both financial and physical access to adequate nutritious food.

Income was deemed by Dietitians of Canada (2005) to be the most influential social determinant of health that impacts food insecurity. Those in low income groups often include single parent families, individuals receiving social assistance, those living in rented dwellings, homeless or under-housed individuals, unemployed persons, unskilled workers, individuals with poor literacy skills, those with mental illness and addictions, those with disabilities, and teenage parents (Dietitians of Canada, 2005). Additionally, it was found that in Ontario, 47.2% of households that earn less than \$10,000 annually were found to be food insecure, compared to only 1.8%, 5.2% and 14.4% of households in the highest, upper middle and middle income classes respectively (Vogt & Tarasuk, 2007).

Research has also found that individuals living with food insecurity are more likely to have limited control over their living environments, which can consequently impact their access to nutritious food (Gucciardi et al., 2014). Access can be defined as distance to the nearest location to purchase food, having a vehicle to drive to food outlets, or the availability of healthy and affordable food in the neighbourhood (Lutz, Swisher & Brennan, 2010). In many low-income neighbourhoods, the only stores are convenience stores, where food is often of low nutritional value and of high cost (Gucciardi et al., 2014), thus compounding the issue of food insecurity.

Food security is known as a significant determinant of health, and research has found food insecure individuals to have poorer physical and mental health, and higher rates of many chronic diseases (Gucciardi, Vogt, DeMelo & Stewart, 2009). Oftentimes, as a result of limited budgets, those who are food insecure purchase cheaper, higher-calorie foods, that contribute to excess weight gain and greater susceptibility to chronic diseases such as type 2 diabetes (Gucciardi et al., 2014). Furthermore, poor access to food prevents individuals from properly

managing such health conditions that may require specific dietary regimens (Gucciardi et al., 2014).

Although social support through funding from social assistance and charity may be provided to individuals, policies are not specifically designed to target hunger (Tarasuk et al., n.d). Additionally, food banks and charities that are designed to target hunger cannot currently compensate for the food deprivation caused by poverty and income deficits (Vogt & Tarasuk, 2007). It has also been suggested that less than one-quarter of food insecure houses actually utilize food banks (Kirkpatrick & Tarasuk, 2009). This is particularly concerning as Food Banks Canada (2014), reported that use has rapidly increased by 28% in the past three years. Presently, more than 850,000 Canadians are making use of a food bank in a typical month (Food Banks Canada, 2014). Although intended to help individuals, typical food products offered by food banks include less nutritious options, such as pre-packaged, shelf stable, energy dense food products, considered to be high in sugar, fat and salt (OHCC, 2012).

As a result, programs that offer fresh fruits and vegetables for purchase, commonly known as “Good Food Box” programs, have been developed as a means to provide nutritious food, in an attempt to combat food insecurity. The GFB is an example of such a program, and is intended to increase physical and financial access to fresh fruits and vegetables to residents in the Guelph area. A first step in assessing the value of a service is to evaluate if it is meeting its purpose among consumers. A cross-sectional survey was developed to assess the following objectives.

Study Objectives

- 1) To determine whether the GFB program provides easy access for its users to fresh fruits and vegetables.

- 2) To determine whether customers with a subsidized box have greater access to fresh fruits and vegetables than GFB those without a subsidized box.
- 3) To explore strategies to improve access to the GFB program.
- 4) To assess customer satisfaction with the current GFB program.

Methods

Study Design and Participants

A cross sectional study design was utilized through an anonymous questionnaire with GFB users. Convenience sampling was used to target all individuals collecting boxes from collection sites in March 2016. A brief article was included in the February 2016 GFB newsletter to make users aware of the upcoming research study. Research assistants (upper year food and nutrition undergraduate students) and MAN graduate student investigators, Tarini Bidaisee and Julia Huber, administered surveys at 11 GFB collection sites, and letters of information (see Appendix A) and surveys with pre-addressed and pre-stamped envelopes were provided to 4 other GFB collection sites to be returned within two weeks of data collection. Prior to data collection, research assistants were given a one-hour training session on administration procedures. These included discussing the letter of information with the participant (see Appendix A), obtaining a signed consent form (see Appendix B), and administering the questionnaire to GFB users with poor vision and/or low literacy skills. Questionnaires were self-administered by capable GFB users. The consent form was also used to recruit participants for a follow-up study performed by additional MAN graduate student researchers (see Appendix C). Exclusion criteria were GFB users under the age of 18. Surveys completed on the data collection day and surveys mailed in within the two-week deadline were collected by the MAN graduate student investigators. Individuals who completed the survey were entered into a draw to win an

honorarium of one out of ten small GFB. This research protocol was approved by University of Guelph's Research Ethics Board, and all participants provided informed consent.

Data Collection Tool

The questionnaire included 22 questions containing a total of 26 items, 8 of which pertained to qualitative data (see Appendix D). Survey items were based on a review of related literature and expert opinion. The survey included multiple choice questions to gather information on demographics of the participants and to determine information based on their current use of the GFB. A 6-point Likert scale (from "very easy" to "very difficult") was used to measure access to the GFB, as it has been used in research to measure attitudes, opinion level, and satisfaction (Chomeya, 2010). Furthermore, a 6-point Likert scale has been shown to increase reliability and reduce deviation compared to a 5-point Likert scale (Chomeya, 2010). Qualitative questions were used to gather information on GFB users' suggestions for improvement of the program, in order to avoid placing limits on the responses (Sandelowski, 2004).

Statistical Analyses

Statistical analyses were performed using Statistical Package for Social Sciences (SPSS) (IBM Corp. Released 2015, Version 23.0, Armonk, NY). Descriptive statistics were generated for demographic data and all outcome variables. Means reported by those who did receive a subsidized box were compared to means reported by those who did not receive a subsidized box, using an independent samples t-test. The categorical variables were analyzed using chi-square. For cell counts in chi-square less than 5, a Fisher's exact value was used. Statistical significance is reported at levels <0.05 .

Open ended questions were analyzed using inductive content analysis. Two researchers independently reviewed the data and identified common themes among the answers based on relevance. The themes were then compared by the two researchers to ensure reliability (Vaismoradi, Turunen & Bondas, 2013). Themes were merged and coded to determine frequencies of each theme.

Results

Of the 169 GFB users who ordered boxes in March 2016, 65 GFB users completed the survey, representing a 38.5% response rate. Of the 16 GFB collection sites involved in the study, individuals from 13 sites completed the survey. The majority of respondents were female, 50-59 years of age, and earned a household income of < \$25,000 per year. Demographic information on the GFB users can be found in Table 1.

Table 1: Demographic information on respondents

Characteristic	GFB Users (n= 65)
Host site location	
Auden Road	3.3%
Dublin Street	4.9%
Evergreen Senior's Centre	4.9%
Fergus	8.2%
Guelph Community Health Centre	14.7%
Kortright Hill Neighbourhood Group	11.5%
Parkwood Garden Neighbourhood Group	1.7%
New Life Church	9.8%
Shelldale	3.3%
St. Mathias Anglican Church	18.0%
Two Rivers Neighbourhood Group	3.3%
University of Guelph Food Bank	9.8%
West Willow Village	6.6%
Sex	
Male	16.9%
Female	83.1%
Age	
10-19 years	1.6%
20-29 years	6.2%
30-39 years	14.1%
40-49 years	18.7%

50-59 years	29.7%
60-69 years	20.3%
70-79 years	9.4%
Income	
Less than \$25,000	45.1%
\$25,000 to \$49,999	23.5%
\$50,000 to \$74,999	11.8%
\$75,000 to \$99,999	7.8%
\$100,000 and over	11.8%
Families with children, prenatal to 6 years of age	10.9%
Homeless/under-housed	0%
New immigrants (less than 5 years)	3.1%
Receiving social assistance	28.1%
Single parent	15.6%
Unemployed	3.1%
Disabilities (physical or mental)	18.8%
Size of box	
Small	23.4%
Large	76.6%
Subsidized box (% who responded yes)	27.8%
Frequency of GFB per year	
1-2	1.5%
3-5	7.7%
6-8	10.8%
9-11	6.2%
Every month	64.6%
This is my first time	9.2%
# of people sharing GFB	
1	3.1%
2	18.5%
3	38.5%
4	12.3%
5	18.5%
6	4.6%
7	4.6%

Physical access to fresh produce through the GFB program

On a Likert scale of 1 to 6, with 1 being “very easy” and 6 being “very difficult”, the average rating by respondents for effort required to collect their GFB was 1.48 (n=64). There

was no significant difference in self-reported effort to collect the GFB between those who received a subsidized GFB (n=17) and those who did not receive a subsidized GFB (n=44) (p=0.215). There was also no association between self-reported effort to collect the GFB, and gender, age, income, or collection site. Table 2 summarizes the major themes identified by GFB users when asked to qualitatively explain their self-reported rating on the effort required to retrieve the GFB. Themes were identified as positive or negative to classify the opinion expressed by the GFB user. The most common theme was close proximity of the GFB user’s home to the collection site.

Table 2: GFB user perceptions of effort to collect GFB from host site

Themes Identified*	n=35	GFB User Quotes
Close proximity: positive	54.3%	<i>“I live close to the host site.”</i>
No issues: positive	11.4%	<i>“GF Box is good value and convenient.”</i>
Transportation: positive	11.4%	<i>“I have my own transportation.”</i>
Physical disability: negative	8.6%	<i>“GF Box is good value and convenient.”</i>
Accessible location: positive	5.7%	<i>“Very easy to access the community room.”</i>
Frequently visited location: positive	5.7%	<i>“It’s my church.”</i>
Limited collection hours: negative	5.7%	<i>“Hours are limited – earlier pick-up would be convenient.”</i>
Parking issues: negative	2.9%	<i>“Parking is occasionally an issue.”</i>
Weather: negative	2.9%	<i>“Weather causes it to be harder at times.”</i>

* Some responses fit into >1 theme (therefore total % does not equal 100)

Using the same Likert scale, respondents rated the effort required to transport their GFB home as an average of 1.55 (n=65). There was no significant difference in self-reported effort to transport GFB home between those who did receive a subsidized GFB (n=17) and those who did not receive a subsidized GFB (n=43) (p=0.307). There was also no association between self-

reported effort to transport the GFB home and gender, age, income, or collection site. Table 3 summarizes the major themes identified by GFB users when asked to qualitatively explain their self-reported rating on effort to transport the GFB home, with answers categorized as positive and negative. The most common theme was use of transportation to bring the GFB home.

Table 3: GFB user perceptions of effort to bring GFB home

Themes Identified*	n=34	GFB User Quotes
Transportation: positive	35.3%	<i>"I have a vehicle."</i>
Close proximity: positive	26.5%	<i>"I don't live far. It's a five min. walk."</i>
Proper equipment to transport box: positive	14.7%	<i>"I use a green shopping bin and sometimes a wagon."</i>
No issues: positive	8.8%	<i>"It is easy to be able to transport it home."</i>
Heavy: negative	5.9%	<i>"Sometimes a bit heavy or bulky."</i>
Lack of transportation: negative	5.9%	<i>"Need someone to drive me to and from pick-up."</i>
Physical disability: negative	5.9%	<i>"I am not supposed to lift or carry heavy things."</i>
Weather: negative	2.9%	<i>"Even though I live close, winter time is a bit harder."</i>

* Some responses fit into >1 theme (therefore total % does not equal 100)

The relative majority of respondents (48.4%) reported that their GFB collection site was closer to their home than the nearest grocery store; 33.9% responded that their collection site was not closer to their home than the nearest grocery store, and 17.7% reported the distance was approximately the same. There was no significant difference in responses between those receiving (n=16), and not receiving a subsidized box (n=42) respectively; (p=0.379). There was also no association between distance to collection site and gender, age or income.

Financial access to fresh produce through the GFB program

The majority of respondents (75.8%) reported that they always consider the GFB as allowing produce to be more affordable to them; 25.6% reported sometimes and 1.6% reported never. There was no significant difference in responses between those receiving a subsidized box (n=16) and those not receiving a subsidized box (n=42), (p=0.724). There was also no association between self-reported affordability and gender, age, income, or collection site.

Improving access to fresh produce through the GFB program

Table 4 summarizes the major themes identified by GFB users when asked qualitatively about improving access to fresh fruits and vegetables through the GFB program. The most common theme was no issues with access.

Table 4: Respondents’ perceptions on increasing access to fresh produce through GFB

Themes Identified*	n=15	GFB User Quotes
No issues with access	40.0%	<i>“I don’t have any suggestions.”</i>
Advertising	13.3%	<i>“No, just more advertising so more people know about it.”</i>
Delivery	13.3%	<i>“No, unless it can be delivered.”</i>
Extended collection hours	13.3%	<i>“Extended pick-up hours – not currently available to working people.”</i>
Increased host sites	6.7%	<i>“Try to find ways to visit other community organizations, offices, and churches to promote uptake and sponsoring or hosting of boxes.”</i>
Larger produce	6.7%	<i>“Bigger potatoes, Spanish and sweet onions.”</i>
Ordering additional items	6.7%	<i>“It would be helpful if we could order additional items in season.”</i>

* Some responses fit into >1 theme (therefore total % does not equal 100)

Satisfaction with the GFB program

The majority of respondents (87.7%) reported that they feel the amount of produce in the GFB is ‘just right’. No GFB users reported that there was ‘too much’ produce in the GFB. On the contrary, 6.1% reported there was ‘too little’ and 4.6% reported that they ‘don’t know’ how they feel about the amount of produce in the GFB.

The majority of GFB users (90.3%) reported that they ‘usually’ use all of the GFB contents in a month, 3.2% reported ‘sometimes’, and 6.5% reported ‘no’. Those that answered ‘sometimes’ or ‘no’ were asked to qualitatively explain what they do not use and their associated reason. Table 5 summarizes the major themes identified. The most common theme identified was excess potatoes.

Table 5: Qualitative responses regarding what and why GFB produce is not used

Themes Identified*	n=12
Excess potatoes	50%
Spoilage	16.7%
First time getting box	8.3%
Excess beets	8.3%
Excess onions	8.3%
Limited storage room	8.3%
Use all	8.3%

* Some responses fit into >1 theme (therefore total % does not equal 100)

The GFB users were asked to qualitatively indicate the fruits or vegetables that they would like to see an increase or decrease of in the boxes. Table 6 summarizes these responses.

Table 6: Fruits and vegetables GFB users identified as desiring to have more or less

More*	n=30	Less*	n=26
Fruit	43.3%	Potatoes	50%
Strawberries	10%	Lettuce	15.4%
Apples	6.7%	Onions	15.4%
Variety in winter	6.7%	Kale	11.5%
Vegetables	6.7%	Apples	7.7%
Avocado	3.3%	Beets	7.7%
Banana	3.3%	Avocado	3.8%
Berries	3.3%	Eggplant	3.8%
Cabbage	3.3%	Garlic capes	3.8%
Cauliflower	3.3%	Oranges	3.8%
Cherries	3.3%	Parsnips	3.8%
Cucumber	3.3%		
Grapes	3.3%		
Leeks	3.3%		
Melons	3.3%		
Okra	3.3%		
Peaches	3.3%		
Pears	3.3%		
Peppers	3.3%		
Pineapple	3.3%		
Potatoes	3.3%		
Romaine lettuce	3.3%		
Spinach	3.3%		
Squash	3.3%		
Sweet potato	3.3%		
Watermelon	3.3%		
Zucchini	3.3%		

* Some responses fit into >1 theme (therefore total % does not equal 100)

The most common location reported at which fruits and vegetables were purchased during the weeks the boxes are not offered was the grocery store (89.2%). The next most common location was farmers' markets (43.1%), followed by the Guelph Food Bank (6.2%), neighbourhood food pantries (6.2%), community gardens (4.6%) and convenience stores (1.5%).

The majority of respondents (51.5%) reported that they always read the newsletter provided in the GFB; 23.4% usually read the newsletter, 12.5% sometimes read the newsletter, and 12.5% rarely read the newsletter.

Table 7 summarizes the major themes acknowledged by GFB users when asked to identify their favourite components of the GFB program and Table 8 summarizes the major themes identified as the GFB users' least favourite components of the program. The most common theme reported for the favourite component was 'Variety', and the most common theme reported for the least favourite component of the GFB was 'No Issues with Program'.

Table 7: GFB users' favourite components of the GFB program

Themes Identified*	n=57	GFB User Quotes
Variety	38.6%	<i>"The assortment of fruit and vegetables."</i>
Good quality	26.3%	<i>"I like that the fruits and vegetables are fresh."</i>
Good value	24.6%	<i>"I get good food that costs less than that at the grocery store."</i>
Local	19.3%	<i>"Local produce when available."</i>
New fruit or vegetable	14.0%	<i>"Frequently items I would not have purchased."</i>
Newsletter	12.3%	<i>"Recipes on how to use what is in the box."</i>
Accessible	10.5%	<i>"It comes to my building."</i>
Convenient	5.3%	<i>"Easy."</i>
Healthy	5.3%	<i>"It forces me to eat better!"</i>
Surprise	5.3%	<i>"It's fun! A surprising box!"</i>
Amount of food	3.5%	<i>"Love the amount in box for our size of family."</i>
No commitment	1.7%	<i>"I really like that I don't have to commit to the whole year because we have a large garden in the summer/early fall."</i>
No issues with program	1.7%	<i>"Everything."</i>
Payment schedule	1.7%	<i>"I pay when I have money and pick up when I'm running out of money."</i>
Volunteers	1.7%	<i>"Utilizes and gives experience to volunteers."</i>

* Some responses fit into >1 theme (therefore total % does not equal 100)

Table 8: GFB users' least favourite components of the GFB program

Themes Identified*	n=38	GFB User Quotes
No issues with program	36.8%	<i>"Nothing, I like it all very much."</i>
Excess potatoes	13.2%	<i>"Too many potatoes."</i>
Not frequent enough	10.5%	<i>"That it is only monthly (would love it bi-weekly)."</i>
Excess beets	7.9%	<i>"Beets. Just not my favourite. I share them with neighbours that do like them."</i>
Poor quality	7.9%	<i>"Some produce not always fresh."</i>
No cost savings	5.3%	<i>"Sometimes I wonder if it is a savings."</i>
Not organic	5.3%	<i>"I wish it was organic...I'm trying got buy more organic food – especially for my kids."</i>
Allergies	2.6%	<i>"I am allergic to kale and spinach so not happy about that."</i>
Amount of item	2.6%	<i>"The amount of item (i.e. 2 red beets – cannot make a serving)."</i>
Excess zucchini	2.6%	<i>"The zucchini...is my least favourite."</i>
Inadequate fruit	2.6%	<i>"Does not have enough fruit."</i>
Inadequate local food	2.6%	<i>"More local vegetables would be nice."</i>
Loose produce	2.6%	<i>"Loose produce."</i>
No purple potatoes	2.6%	<i>"No purple potatoes."</i>
No "swap box"	2.6%	<i>"It would be nice to see some sort of swap box at each location. My family doesn't eat potatoes and they are in the bin every time. Would use carrots."</i>
Repetition	2.6%	<i>"The repetition of produce in some months."</i>

Discussion

Our study showed that overall, the Garden Fresh Box (GFB) program provides its customers with easy physical and financial access to fresh fruits and vegetables. Results also indicated that there was no difference in physical or financial access to produce between those who receive, and those who do not receive a subsidized box. Suggestions were obtained from customers regarding improvement of access to produce through the program. In addition, the majority of customers reported satisfaction with the current operation of the GFB program.

Based on the demographic data collected, an interesting finding was that most respondents reported receiving social assistance. However, the majority of respondents also reported receiving non-subsidized boxes from the GFB program, thus indicating that regardless of requiring the need for social assistance, the program was considered affordable, and did not warrant a subsidy by some users. The agreement by the large majority of respondents that the GFB always makes produce more affordable, is a strong indicator that it serves as an enabler of financial access to fresh, nutritious food. The fact that the majority of orders were for the more costly large boxes, also confirmed the affordability of the GFB program. In addition, one study previously undertaken by a researcher from the University of Guelph, found that use of the GFB resulted in saving 24% on produce compared to grocery store cost (Abutalib, 2014). This demonstrates the success of the GFB as a “good food box” program, where such programs are intended to facilitate financial access to nutritious foods (Government of British Columbia, 2013). Furthermore, since food security encompasses having financial access to safe, nutritious food (Tarasuk, Mitchell & Dachner, 2012), our results demonstrate that the GFB aids in creating easy financial access to nutritious produce on a regular basis, thus promoting food security.

Responses received for survey items regarding collection and transportation of produce boxes, indicated that the GFB program does provide easy physical access to fresh fruits and vegetables to its customers. Our qualitative findings indicate that close proximity of respective host site location to participants' dwellings was an important factor in this consensus. A relative majority of individuals also reported the GFB collection sites to be closer to their homes than, or equal distance to the nearest grocery store, indicating the physical convenience of the GFB collection sites. This is largely a reflection of the GFB's multiple collection sites throughout the Guelph area.

Despite being considered as physically heavy to carry by a minority of respondents, overall, transportation of boxes was considered easy, as indicated by the majority of respondents. Not surprisingly, mode of transportation, for example having a vehicle to drive to the collection site, was also a strong contributor to this agreement. A marginal proportion of individuals also specified limited collection hours and parking issues at collection sites impeding physical access. Nevertheless, based on the majority of responses, our results demonstrated that the GFB program provides easy physical access to fresh fruits and vegetables. Consistent with previous research, since food environment and physical access to nutritious food strongly impact food insecurity (Lutz, Swisher & Brennan, 2010), our results illustrate that the GFB program helps to promote food security among its users.

Since our findings also indicated that there was no difference in affordability or physical collection and transport of boxes between those who receive and those who do not receive a subsidy, we established that both groups benefit equally from the GFB service. Regardless of receiving a subsidy, individuals consider the program to be easily accessible. Interestingly, there were also no differences in physical or financial access irrespective of gender, age, income or

collection site. These findings emphasize the inclusive nature of the program. Thus, it was concluded that all participants have equal physical and financial access to fresh fruits and vegetables through the GFB program. Additionally, this can be considered a unique characteristic of the GFB program, as other good food box programs have typically found low-income individuals being deterred from such programs, for fear of financial status being revealed (Brownlee & Cammer, 2004).

The lack of suggestions for improvement regarding access to produce further emphasized the GFB's efficiency with respect to physical and financial access. However, based on the few suggestions that were offered, it was understood that the major concerns involved physical access, and included publicity of the program, delivery of produce and collection hours. This was also reminiscent of a study done in Saskatoon, Saskatchewan, where suggestions regarding increasing access to a good food box program involved physical access. Suggestions included offering more flexibility in order, collection and delivery dates, providing an order and collection reminder email or phone call, and having a central location available to purchase pre-assembled fresh produce boxes every day (Brownlee & Cammer, 2004).

Overall, the majority of users appeared to be satisfied with the current functioning of the GFB program. This was largely indicated by the satisfaction with the amount of produce that is provided, and the full usage of items provided in the box each month. However, some users reported anticipating more fruit, and specified that more potatoes and less strawberries were being provided than desired.

Furthermore, the substantial variety in produce provided by the GFB was the strongest contributor to customer satisfaction with the program. Such variety indicates that the GFB can encourage healthy eating patterns and can promote the overall health of its customers. This was

recognized since regular intake of a variety of fruits and vegetables are known to be beneficial to health, and can prevent the risk of development of many chronic diseases (Haynes-Maslow et al., 2011).

Strengths and Limitations

Our study included both strengths and limitations. Some strengths include coding surveys to avoid experimenter bias, non-selective opportunity for participation by customers through public advertisement in the GFB newsletter, providing notice and reminder of survey administration to maximize number of participants, and allowing participants to mail responses when they were unable to complete the survey on site. On the other hand, limitations included small sample size of participants, greater representation of non-subsidized than subsidized participants in the survey, cross-sectional design of the study, and participant bias.

Future Recommendations

Based on feedback provided from respondents, it may be beneficial for the GFB to extend collection hours and consider delivery of boxes to accommodate for more participants. Using less heavy packaging material, using carts with wheels, or providing volunteer assistance to transport produce to users' vehicles, can also be considered to address the complaints received regarding the heavy weight of boxes. In addition, including less potatoes and more fruit, such as strawberries, can be trialed since these were also prominent concerns by users who suggested improvements. Finally, it was also recognized that greater advertising of the program could be beneficial to potential customers, as well as to the program, to encourage the use of the GFB.

Conclusion

Users find that the GFB program makes fresh fruits and vegetables easily accessible, both physically and financially. There was no difference in self-reported access between those who receive a subsidized GFB and those who did not receive a subsidized GFB. The most common suggestions reported to increase physical and financial access to fresh produce through the GFB program included increased advertising, home delivery of boxes, and extended hours for collection. Overall, users were satisfied with the current functioning of the GFB program.

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Letter of Information

Project Title: Garden Fresh Box Customer Survey – Spring 2016

Principal Investigator:

Dr. Paula Brauer, PhD, RD, Associate Professor in Family Relations and Applied Nutrition, University of Guelph

Why are we doing this study?

The purpose of this study is to determine if the Garden Fresh Box program users believe the Garden Fresh Box provides easy access to fruits and vegetables and to what extent. As a secondary objective, we aim to measure whether access to fresh fruits and vegetables would change for clients on a subsidized box in the absence of the subsidy program. The findings of the study will be used to improve the Garden Fresh Box. The Guelph Community Health Centre, who organizes the Garden Fresh Box program, is in complete support of this research.

What will happen during the study?

You will be asked to complete a short survey, which will take between 5 and 10 minutes. We will be asking you about your opinions of the Garden Fresh Box, with a specific focus on physical and economic access to the Box, and some questions about yourself. There will also be a question regarding your interest in being contacted for a second study doing in-person interviews to learn more about your experience with the Garden Fresh Box.

Will anything bad happen during the study?

It is not likely that there will be any harms or discomforts associated with taking the survey. You do not need to answer questions that make you uncomfortable or that you do not want to answer. Any problems should be immediately reported to the investigators.

What good things could happen if I participate?

Your opinion and input will help the Guelph Community Health Centre to improve the effectiveness of the Garden Fresh Box program, specifically in regards to accessing the Box.

Will I be compensated for my participation?

You will be compensated by being entered in a draw to receive one of ten small Garden Fresh Box's for your participation in the study. You have a predicted 1 in 20 chance of winning.

Who will know what I said or did in the study?

All data collected will remain confidential and accessible only to the student research team. The managers of the Garden Fresh Box will only see the final report. All Garden Fresh Box users will see a summary of the results from this study in the monthly Garden Fresh Box newsletter that is distributed. If the results are published, statements and opinions that you give in your survey may be directly quoted in the manuscript, but your name and any identifying factors will not. We will do our best to protect your information by using an encrypted hard drive and storing our data in locked cabinets in a secure office. Fellow student researchers will contact only those of you that identified on the questionnaire that you wish to be contacted for a follow-up interview. All consent forms and questionnaires will be stored at the University of Guelph for five years after the project is complete by Dr. Brauer. All ballots will be destroyed immediately after the draw for honorariums is complete.

What if I change my mind about participating in the study?

Your participation in this study is voluntary. It is your choice to be part of the study or not. If you decide to participate, you can decide to stop at any time, even after acknowledging your consent to participate or part way through the study. If you decide to stop participating, there will be no consequences to you or to the student researchers. If you do not want to answer some of the questions you do not have to, but you can still be in the study. We will, however, remove any data from respondents who have left a large number of sequential questions unanswered.

Contacts for Further Information:

If you require any further information regarding this research project or your participation in the study you may contact:

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This project has been reviewed by the Research Ethics Board for compliance with federal guidelines for research involving human participants. If you have any questions regarding your rights and welfare as a research participant in this study (REB #16JA041), please contact: Director of Research Ethics; University of Guelph; reb@uoguelph.ca; 519-824-4120 ext. 56606. You do not waive any legal rights by agreeing to take part in this study.

This letter is for you to keep.



Consent Form

Project Title: The impact of the Garden Fresh Box on physical and economic access to fresh fruits and vegetables.

Principal Investigator:

Dr. Paula Brauer, PhD, RD, Associate Professor in Family Relations and Applied Nutrition, University of Guelph

This project is being done as a Master's research project by graduate students of the University of Guelph, and the findings will be used for a class presentation and written report. Your decision to participate or not participate will not affect your participation in the Fresh Box Program.

I have read the Letter of Information, have had the nature of the study explained to me and I agree to participate. All questions have been answered to my satisfaction.

Participant's Name (please print): _____

Participant's Signature: _____

Witness's Signature: _____

Date: _____

This form must be collected by the researcher in order to complete the survey.

Appendix C: Question to Recruit for Follow-up Study

We are going to be doing a one-on-one interview with a follow-up telephone interview at the time of Garden Fresh Box pick up to discuss your experience with the Garden Fresh Box. You will receive a coupon that will cover half of the price of a small Garden Fresh Box for your participation in both interviews. Would you be interested in participating in these interviews?

If you select yes, you will be randomly selected to participate and we will phone you to set up times. Unfortunately, not all individuals who are interested in participating will be guaranteed to participate.

Yes

No

If you are interested in participating in the interviews, please complete the information below and select all of the times you are available from any Wednesday to Friday on the following page.

Name: _____

Phone number: _____

Email: _____

Host site: _____

	Wednesday	Thursday	Friday
8:00-9:00am			
9:00 – 10:00am			
10:00- 11:00am			
12:00 – 1:00pm			
1:00 – 2:00pm			
2:00-3:00pm			
3:00 – 4:00pm			
4:00 – 5:00pm			
5:00 – 6:00pm			
6:00 – 7:00pm			

Appendix D: Survey

Garden Fresh Box Survey

ID number: _____

The following information will be used to help improve the Garden Fresh Box program. You may choose to skip any questions you do not feel comfortable answering. All information will be kept confidential. You will be put in a draw to win 1 of 5 small Garden Fresh Boxes for your participation. Your time and input is greatly appreciated – thank you!

Host site location: _____

First 3 digits of your postal code: _____

1. What is your age? _____

2. Please indicate your gender. Male Female Other

3. What size of box do you usually order?

- a. Small (\$15)
- b. Large (\$20)

4. Do you receive a subsidized Garden Fresh Box (available only to applicable Guelph CHC clients)?

- a. Yes
- b. No

5. How do you feel about the current amount of produce provided in the Garden Fresh Box?

- a. Too little
- b. Just right
- c. Too much
- d. Don't know

6. About how many times per year do you purchase a Garden Fresh Box?

- a. 1-2
- b. 3-5
- c. 6-8
- d. 9-11
- e. Every month
- f. This is my first time
- g. Don't know

7. How many people within your household share the Box contents? _____

8. In a typical month, do you use all of the box's contents?

- a. Usually
- b. Sometimes
- c. No

If sometimes or no, what do you typically not use and why?

9. Would you like to see any changes in the types of vegetables and fruits in the box?

Yes – go to next question.

No – go to Question 11.

10. Please indicate what fruits or vegetables you would like to see more or less of.

a. More: _____

b. Less: _____

11. Do you usually buy/get fruits/vegetables during the weeks the Garden Fresh Box is not delivered?

Yes – go to next question.

Sometimes – go to next question.

No – go to Question 13.

12. Where do you buy/get fruits and vegetables during the weeks the Garden Fresh Box is not delivered (circle all that apply)?

- a. Grocery store
- b. Farmer's market
- c. Convenience store
- d. Community garden
- e. Neighbourhood food pantry
- f. Guelph Food Bank

13. Do you read the newsletter?

- a. Always
- b. Usually
- c. Sometimes
- d. Rarely

14. a) In general, rate on a scale of 1 to 6 how easy or difficult it is to get to the place to pay for and pick up your Garden Fresh Box.

1
2
3
4
5
6
Very easy **Very difficult**

20. Do any of the following apply to you?

- a. Families with children, prenatal to 6 years of age
- b. Homeless/under-housed
- c. New immigrants (less than 5 years)
- d. Receiving social assistance (EI, CPP, OW, ODSP)
- e. Single parent
- f. Unemployed
- g. Disabilities (physical or mental)
- h. None of the above

21. Overall, what do you like best about Garden Fresh Box?

22. Overall, what do you like the least about Garden Fresh Box?
