

**Community Gardening
Motivations & Health Benefits**

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COMMUNITY GARDENING – MOTIVATIONS AND HEALTH BENEFITS.

by

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Part A

Community Gardening – Motivations and Health Benefits

Literature Review

A.1 INTRODUCTION

Community gardens have been described as locally organized initiatives where land is used to produce food, flowers or both in an urban environment (Glover, 2003). Community gardens are diverse and may vary enormously in what they offer, according to local needs and circumstance (Ferris, Norman & Sempik, 2001).

Garden size is dependant on many factors, including location, land available for gardening, demand, physical and time limitations of the gardeners and thus no standard community garden size exists.

Community gardening is widespread in Britain and the United States. In Britain, the Federation of City Farms and Community Gardens is the representative organization for 59 city farms and almost 1,000 community gardens. It is estimated that almost 18,000 community gardens exist across the US and Canada.

It is difficult to estimate how many community gardens there are in Ireland as statistics are not widely available but numbers are increasing all the time. In Dublin community gardens are a relatively recent development. Some of the first examples of community garden projects within Dublin appeared only in the last decade. Dolphins Barn 2007, Cherry orchard 2010 and Robert Emmet Community garden Bridge Foot Street 2008.

Individuals and communities benefit from urban agriculture. The benefits of food production transcend the physical, mental and emotional health of the individual to leave lasting change on others and on the physical and social space of the community (Shoemaker & Diehl, 2002; Littman, 1996). Thus used effectively gardening can be a key element in successful health intervention programs.

Although a great deal of anecdotal literature demonstrating the health benefits of gardening exists, literature employing rigorous research methodologies is relatively sparse. However, in recent years researchers have more frequently utilized more sound investigative methods and the state of the literature base has begun to improve.

A.2 HEALTH BENEFITS OF COMMUNITY GARDENING

The concept of wellbeing has emerged as an important indicator of the growing acceptance of a broad definition of health (Germov, 1999; Grbich, 2004). According to the World Health Organization (1946), health incorporates a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity (WHO, 1946). Numerous studies have explored the abundant and diverse health and wellbeing benefits of community gardening. The literature exploring the physical, mental, nutritional and social benefits community gardening offers are examined in the following sections.

Wakefield *et al*, (2007) investigated the direct experience of community gardeners, and the health impacts and benefits of community gardening, using Toronto, Ontario as a case study. This was a community-based study that used participant observation, focus groups and in-depth interviews to examine the perceived health impacts of community gardening. The primary benefits reported were: improved mental and physical health, improved access to fresh wholesome food and improved nutrition, contribution to healthy living, interaction with nature, and relationship building. Much of the existing literature similarly reported that community gardening could lead to positive health outcomes.

A.2.1 Physical Activity

Physical activity and exercise were frequently reported as benefits of community gardening. The National Guidelines on physical activity for Ireland recommend that adults aged 18 to 65 should engage in moderate intensity physical activity for at least 30 minutes five days per week or 20 minutes of vigorous intensity activity three days per week. Irish Guidelines list digging in the garden and general gardening as examples of moderate aerobic activity for adults while continuous digging or hoeing are categorized as vigorous aerobic activity. Research by Wakefield *et al*, (2007) and Twiss *et al*, (2003) showed that community gardening offered opportunities for increased physical activity and exercise. Lawson (2006) and Kingsley *et al*, (2009) also reported that community gardening promoted physical fitness and recreation. The research showed that gardening is one of the most commonly practiced types of exercise (Crespo *et al*, 1996; Magnus *et al*, 1979; Yusuf *et al*, 1996) and is a recommended form of physical exercise (Pate *et al*, 1995). Research by Nieman (2003) showed that people gain significant health benefits by undertaking as little as 30 minutes of gardening daily. People who walk or community garden on a regular basis generally have a change in total cholesterol, systolic blood pressure and HDL levels (Armstrong, 2000). In one study a significant reduction in total cholesterol, HDL cholesterol and systolic blood pressure was associated with either walking or gardening, after controlling for confounders (Caspersen *et al*, 1991). Furthermore, participants spent a greater amount of time per week doing gardening (225 minutes/wk.) compared with other leading activities, such as walking (160 min/wk.) and bicycling (170 min/wk.) (Caspersen *et al*, 1991).

A.2.2 Nutritional Benefits

The nutritional benefits of community gardening are related to increased access to fresh food and increased dietary intake of fruits and vegetables (Alaimo *et al*, 2008; Armstrong, 2000; Blair *et al*, 1991; Dickinson *et al*, 2003; Irvine *et al*, 1999; Kantor, 2001; Kingsley *et al*, 2009; Lackey *et al*, 2009).

A.2.3 Mental Health Benefits

Mental health benefits were also attributed to community gardening. Wakefield (2007) reported that many of her research participants believed that being part of a community garden was stress relieving, and was thought to contribute to improved mental health. She reported that one component of this feeling of improved mental health seemed to be that participants found the opportunity to interact with nature relaxing and calming (Wakefield, 2007). This is consistent with research by Milligan *et al*, (2004) on community gardens as therapeutic landscapes, which reports that the interaction with nature is an implicit component of the mental health benefits derived from community gardening. McBey (1985), Armstrong (2000) and Alaimo *et al*, (2010) also reported of the psychological benefits of community gardening. Research has shown that gardening may help to prevent the development of dementia and other similar disorders (Fabrigoule, Letenneur, Dartigues, Zarrouk, Commenges, & Barberger-Gateau, 1995; Simons, McCallum, & Friedlander, 2006). For example, longitudinal data collected by Simons *et al*, (2006) revealed that daily gardening had a substantial protective effect against the onset of dementia in an Australian sample of 2805 men and women aged 60 years and older. The study also revealed that daily gardening was associated with a 36% lower risk of dementia onset. There is evidence that suggests that gardening helps to alleviate depression. Gonzalez *et al*, (2009) investigated the use of horticultural therapy in the treatment of a sample of clinically

depressed individuals. Depression and attention functioning data were collected during a 12-week horticultural therapy program. The treatment resulted in rapid and significant reductions in depression symptoms and improved attentional functioning. Furthermore, these changes persisted to a significant degree three months after the intervention ended. The authors proposed that directing attention away from negative thought patterns (an activity that is cognitively demanding) and onto more “effortless” engagement in restorative activity (gardening) is instrumental in improving mood and attentional functioning. Evidence has also emerged that points to the possibility that contact with soil may have an impact on mood at a neurochemical level. Lowry *et al*, (2007) investigated whether a type of benign, non-pathogenic bacterium found in soil has an effect on regulating emotional behavior. This study showed that mycobacterium vaccae was shown to activate immune functioning and production of serotonin in mice. This was followed by reductions in immobility during a forced swim test, used here as an example of stress-related emotional behavior. The results of this study may have implications on emotional regulation during healthy and physically ill states. Mycobacterium vaccae is ubiquitously found in garden soil and may enter our bodies through the inhalation of particles in the air or ingestion from particles on plant products that have been harvested.

A.2.4 Benefits to the Elderly

Milligan *et al*, (2004) investigated the potential benefits of gardening activity for older people, and the extent to which communal gardening activity on allotment sites may be beneficial to the health and mental wellbeing of older people. The research explored the factors that appeared to affect participants’ health and wellbeing, including the extent of their physical and mental activities, their social networks, and the extent to which nature, natural landscapes and the local environment affected their

everyday lives. The data revealed that the gardeners experienced numerous benefits from community gardening, including: physical and mental benefits, psychological benefits from their passive involvement with nature, improved social networks and supports, and increased social inclusion. They found that communal gardening on allotment sites creates inclusionary spaces in which older people benefit from gardening activity in a mutually supportive environment that combats social isolation and contributes to the development of their social networks (Milligan *et al*, 2004).

A.2.5 Social Benefits

Numerous studies also investigated the social benefits of community gardening. Social engagement is positively correlated with personal attention to health care and wellness. (Greenberg & Schneider, 1996). Several studies have examined the influence of social relations on health demonstrating a protective effect of strong social ties on survival as well as on general physical and mental health. (Berkman, 1995; Seeman, 1996; Berkman & Glass, 2000).

Among these benefits to overall well-being, community gardens were reported to build friendships, reduce crime and beautify neighborhoods (Patel, 1991; Curran, 1993; Alaimo *et al*, 2010). Research by Patel (1991) and Baker (2004) showed that community gardens become places for social interaction and community building, and that gardening promotes a community atmosphere that gives people an opportunity to meet others, share concerns, and problem-solve together. Gardening also serves as a way to break down some of the social barriers existing between neighbors.

Community gardens were shown to increase social capital through the development of social ties and an increased appreciation of social diversity (White & Lake, 1973; McBey, 1985; Baker, 2004; Kingsley *et al*, 2009). Measures of social capital have

been associated with various measures of health (Lochner *et al*, 1999; Gold *et al*, 2002). Kingsley and Townsend (2006) used a case study at the “Dig In” community garden in Melbourne, Australia to explore the extent to which a community garden provides opportunities for enhancing social capital. Benefits reported in this study include increased social cohesion, which they described as the sharing of values that enable identification of common aims. Social support and social connections were also cited as important social benefits of community gardening in this research.

Similarly, Glover (2004) found that a community garden could be both a consequence and a source of social capital. As a consequence, it was the end product of a persistent network of individuals who formed a garden network committed to its development. As a source of social capital, it strengthened social ties and facilitated further social connections among neighbours. Research by Alaimo *et al*, (2010) also suggested that organizing neighborhoods for gardening and beautification could improve perceptions of social capital among those who participated.

The existing literature demonstrates the profuse benefits community gardening offers including physical, nutritional, mental and social benefits.

A.3 MOTIVATIONS

A literature review revealed few studies that explicitly explored the motivations of community gardeners for participation in community gardening programs. Only two of these studies make reference to motivational theories.

Research showed that presumed benefits obtained from gardening provided a powerful motivator to participate in community gardening (Curran, 1993; Gelsi, 1999).

In contrast to the previously mentioned research the few additional studies that explored motivation(s) of community gardeners focused on broader influences for participation, rather than individual motivations. One of the first studies to make an investigation into the reasons for community garden participation showed that the degree to which a person cared about and was sensitive to his or her environment may have played a role in their willingness to participate in a community garden.

Armstrong (2000) surveyed 20 community gardening programs in upstate New York in an attempt to identify characteristics that may be useful to facilitate neighborhood development and health promotion. Motivations for participation were also revealed. The most commonly expressed reasons for participating in gardens were access to fresh/better tasting foods, enjoyment of nature, and health benefits, including mental health. In the gardens assessed in urban areas, the enjoyment of nature/open spaces, benefits to mental health, and improved access to a food source for low-income households were cited more frequently than in gardens in rural areas, whereas the practice of traditional culture was more commonly cited for reasons to join the garden. One of the limitations cited in the paper was the limited resources of the study. As a result individual gardeners did not participate in the interviews. The results were the views of the garden coordinators which may not accurately reflect the views of all gardeners.

Kingsley *et al*, (2009) also explored community gardener motivations using gardener interview data from Kingsley and Townsend (2006), who conducted a case study of a community garden in Melbourne, Australia. The 2006 study investigated how community gardening may facilitate social capital in its members. Specifically, they investigated how the community garden contributed to the enhancement of health,

wellbeing, and contact with nature for urban dwellers. Gardener motivations cited in the study included the desire to be more socially connected with the community, a love of gardening, the desire to be involved in an environmentally sustainable program, and to eat self-grown organic vegetables.

Consistent with other studies that explored motivations to garden, research conducted by Van den Berg *et al*, (2010) on allotment gardeners reported similar reasons for gardening. Stress relief was the most significant reason, followed by staying active and staying healthy. Social contacts were rated as very important by only 17 percent of the gardeners.

The limited research on motivation shows that community gardening motivations were based on desires to access nature (Armstrong, 2000), to be more socially connected with community (Kingsley *et al*, 2009), to improve access to healthy food (Armstrong, 2000; Kingsley *et al*, 2009), to be involved with a more environmentally sustainable program (Kingsley *et al*, 2009), to access health benefits (Curren, 1993; Gelsi, 1999; Armstrong, 2000) and for a love of gardening (Kingsley *et al*, 2009).

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Research Project

Part B

Community Gardening – Motivations and Health Benefits

Research Project

B.1 ABSTRACT

Background: Community gardening has gained popularity in Ireland over the past decade. Insufficient research exploring the reasons why people participate in community gardening programs exists. There is abundant research exploring the benefits of community gardening, however this research focused largely on the experience of community garden coordinators which does not accurately reflect the true experience of the community gardeners themselves (Curran, 1993).

Aims: To: **1.** Determine the demographics of those involved in community gardening. **2.** Determine the lifestyle behaviours of community gardeners. **3.** Determine the characteristics of Dublin Urban gardens. **4.** Determine motivations for participation in community gardening programs. **5.** Investigate gardener perceptions of health, well-being and quality of life.

Subjects: Community gardeners from urban gardens in Dublin (n=52). Non gardener subjects as a comparison group (n=50).

Design: Interviewer assisted questionnaire.

Methods: Interviewer assisted questionnaire carried out face to face.

Results: The top four motives for joining a community garden were "interest in gardening", "garden access", "access to fresh food" and "social interaction". The majority of gardeners (19/45) reported feeling happy most of the time. The majority of gardeners rated their health as very good. No significant differences were found between groups regarding smoking habits, alcohol intake, physical activity levels and fruit and vegetable intake.

Conclusion: This study provides a useful insight into the increasingly popular activity of urban gardening. Further studies investigating the direct benefits of participation are warranted to support the concept of health promotion through community gardening.

B.2 INTRODUCTION

Although community gardening has seen a surge in popularity, and the diverse benefits offered are well recognized, research exploring the reasons why people participate in community gardening remains sparse.

Abundant research exists exploring the benefits community gardening offers, however much of the existent research focused on the experience of garden coordinators, which does not accurately reflect the true experience of the community gardeners themselves (Curran, 1993).

Due to the increasing popularity of urban community gardening, research exploring factors that motivate individuals to join a community garden and direct benefits derived from participation is warranted.

The current study aims to explore the direct experience of urban community gardeners with specific research questions in mind:

1. What are the demographics of those involved in community gardening?
2. What are the lifestyle behaviours of community gardeners?
3. What are the characteristics of the gardens?
4. What motivates an individual to engage in community gardening?
5. How do community gardeners perceive their general health, well-being and quality of life?

B.3 METHODS

B.3.1 Research Method

The current study employed an interviewer assisted questionnaire research method.

This research approach was chosen for several reasons. Face-to-face interviews require the respondent to speak the same language in which the questions are asked, and to have basic verbal and listening skills. Since the current research is the first of its kind in this particular group in Ireland, literacy levels amongst subjects was unclear and therefore this method of data collection was identified as the most suitable. Other advantages of this type of research method include higher response rates compared to postal and other types of surveys (Sykes and Collins, 1988), higher item response (De Leeuw & van der Zouwen, 1988), greater amounts of information given by respondents to open questions and checklists (De Leeuw & van der Zouwen, 1988) and opportunities for the interviewer to probe to elicit relevant information, and utilize a range of techniques to prompt memory (Bowling, 2001).

B.3.2 Research Tool

Three questionnaires were developed to gather information on 3 specific groups – gardeners, non – gardeners and garden coordinators. (Appendix I, II, III)

Gardener Questionnaire (Appendix I)

The questionnaire was divided into six sections with a number of questions explored in each section such as personal background, personal diet and dietary habits, personal health, community involvement, additional garden information and subjective well being.

Non – Gardener Questionnaire (Appendix II)

Questionnaire layout and content was identical to the gardener questionnaire with the exception of Section 5, which enquired about length of time involved in gardening, motivations for participation and perceived benefits of gardening.

Co-ordinator questionnaire (Appendix III)

This questionnaire was developed in conjunction with a community partner to gain an insight into community garden characteristics. Questions regarding garden age, number of gardeners involved, reasons for setting up the garden, work and produce distribution were included in this questionnaire.

B.3.3 Development of Research Tool

No validated questionnaire for measuring motivation and health status in community gardeners exists within the literature. Question development was guided by a literature review and modification of questions in National and Local surveys (Slan, 2007; Fahy & Ó Cinnéide, 2006). Questions on physical activity, perceptions of health, quality of life and long term medical conditions were modified from The National Survey of Health and Lifestyles in Ireland (Slan, 2007). Questions regarding community involvement were derived from the EPA Strive 17, End of Project Report, on Quality of Life in Galway City: Questionnaire Survey Results by Electoral Division (Fahy & Ó Cinnéide, 2006). The question on motivation was developed after literature review and the subjective well-being section is derived from the Quarterly National Household Survey Quarter 3 2010 CSO Ireland (CSO, 2011).

Questionnaires were discussed and reviewed with community partner and supervisor.

Following the fifth draft the questionnaire was finalized. The tool was then piloted on 2 members of the general public. Following the first garden visit the questionnaire was modified to incorporate subjective well - being and eliminate one repetitive question.

B.3.4 Sample Selection

Community garden coordinator contacts were derived from 'The Dublin City Guide to Community Gardening' published by the Environmental Focus Group of Dublin City Community Forum (Environmental Focus Group, 2011).

Initially 8 garden coordinators were contacted either by phone or by email. From these initial contacts a further 4 suitable gardens were identified.

The garden coordinators approached the individual gardeners while gardening or at garden meetings and determined if they would be interested in participating.

The non-gardeners were recruited from 2 community centres, 1 equine centre and 1 college staff canteen.

B.3.5 Data collection period, interview length and location

Throughout the period beginning Sat 24th Sept 2011 to Sunday the 9th of October data was collected for 52 subjects, 50 non-gardeners and 12 garden coordinators. Interviewer assisted questionnaires were employed by the researchers and varied in length from 10-15 minutes. The majority of interviews took place in the gardens (44) subject's houses (3) and meetings (5). Venues for non-gardener data collection included – 2 community centres, 1 equine centre and 1 college staff canteen.

B.3.6 Statistical Analysis

SPSS Version 19 MAC was used to conduct analysis of the data. The data was non-normally distributed. Mann-Whitney U test was used to determine whether Gardeners and Non Gardeners differed in terms of demographics, lifestyle behaviours and perceptions of general health, well-being and quality of life. Multiple Response Frequency was used to analyze data from questions regarding motivations and perceived health benefits.

B.4 RESULTS

Table 1. Demographics of Gardeners and Non Gardeners

DEMOGRAPHICS	TOTAL n= 102	GARDENER (n=52)	NON GARDENER (n=50)	P-VALUE
Age (years)				
18-29	7	3 (5.8%)	4 (8.0%)	0.839 ^{ns}
30-44	33	19 (36.5%)	14 (28%)	
45-64	50	23 (44.2%)	27 (54%)	
65+	12	7 (13.5%)	5 (10%)	
Gender				0.156 ^{ns}
Female	48	26 (50%)	32 (64%)	
Male	44	26 (50%)	18 (36%)	
Nationality				
Irish	87	40 (76.9%)	47 (94%)	0.015 [*]
Other	15	12 (23.1%)	3 (6%)	
Access to own garden				0.181 ^{ns}
Yes	69	32 (61.5%)	37 (74%)	
No	33	20 (38.5%)	13 (26%)	
Employment Status				0.636 ^{ns}
Employed	54	25 (48.1%)	29 (58%)	
Self employed	10	6 (11.5%)	4 (8%)	
Unemployed	15	10 (19.2%)	5 (10%)	
Retired	13	6 (11.5%)	7 (14%)	
Home Duties	3	1 (1.9%)	2 (4%)	
State Training	3	1 (1.9%)	2 (4%)	
Student	4	3 (5.8%)	1 (2%)	

* = Significant difference identifiable with a Mann Whitney U test.

ns = no significant difference identifiable with a Mann Whitney U test.

B.4.1 Demographics

Table 1 presents the findings from both gardener and non-gardener surveys on age, sex, nationality, garden access at home and employment status. The groups were similar in terms of age, gender, garden access at home and employment status however there was a significant difference (0.015) in terms of nationality of both groups.

Table 2. Lifestyle Behaviours of Gardeners and Non Gardeners

LIFESTYLE BEHAVIOUR	TOTAL n= 102	GARDENER (n=52)	NON GARDENER (n=50)	P-VALUE
Smoking				0.070 ^{ns}
Non smoker	80	37 (71.2%)	43 (86%)	
Smoker	22	15 (28.8%)	7 (14%)	
Alcohol				0.866 ^{ns}
Non drinker	24	11 (21.2%)	13 (26%)	0.566 ^{ns}
Within the guidelines	65	32 (61.5%)	33 (66%)	0.190 ^{ns}
Exceeding the guidelines	13	9 (17.3%)	4 (8%)	0.161 ^{ns}
Physical Activity per week (minutes)				0.981 ^{ns}
Less than 150	45 (44.1%)	23 (44.2%)	22 (44%)	
More than 150	57 (55.9%)	29 (55.8%)	28 (56%)	
Fruit and vegetable (mean portions per day)				
Less than 5	47 (46%)	20 (38.5%)	27 (54%)	0.117 ^{ns}
5	22(21.6%)	11 (21.2%)	11 (22%)	0.918 ^{ns}
More than 5	33 (32.4%)	21 (40.4%)	12 (24%)	0.078 ^{ns}
Community Group Involvement				0.02 [*]
No	66	28 (53.8%)	38 (76%)	
Yes	36	24 (46.2%)	12 (24%)	
All 4 Positive Lifestyle Behaviours •				0.736 ^{ns}
Yes	26(25.5%)	14 (26.9%)	12 (24%)	
No	76(74.5%)	38 (73%)	38 (76%)	
Happy Most of the Time ♦				0.537 ^{ns}
Yes	37(38.9%)	19/45(42.2%)	18 (36%)	
No	58(61.1%)	26/45(57.8%)	32 (64%)	

•Positive Lifestyle Behaviours = non-smoker, alcohol intake within recommendations, meeting physical activity recommendations, meeting fruit and vegetable recommendations.

♦ Subjective Well-Being questions added after initial garden visit. n = 45 gardeners.

* = Significant difference identifiable with a Mann Whitney U test.

ns = no significant difference identifiable with a Mann Whitney U test.

B.4.2 Lifestyle Behaviours

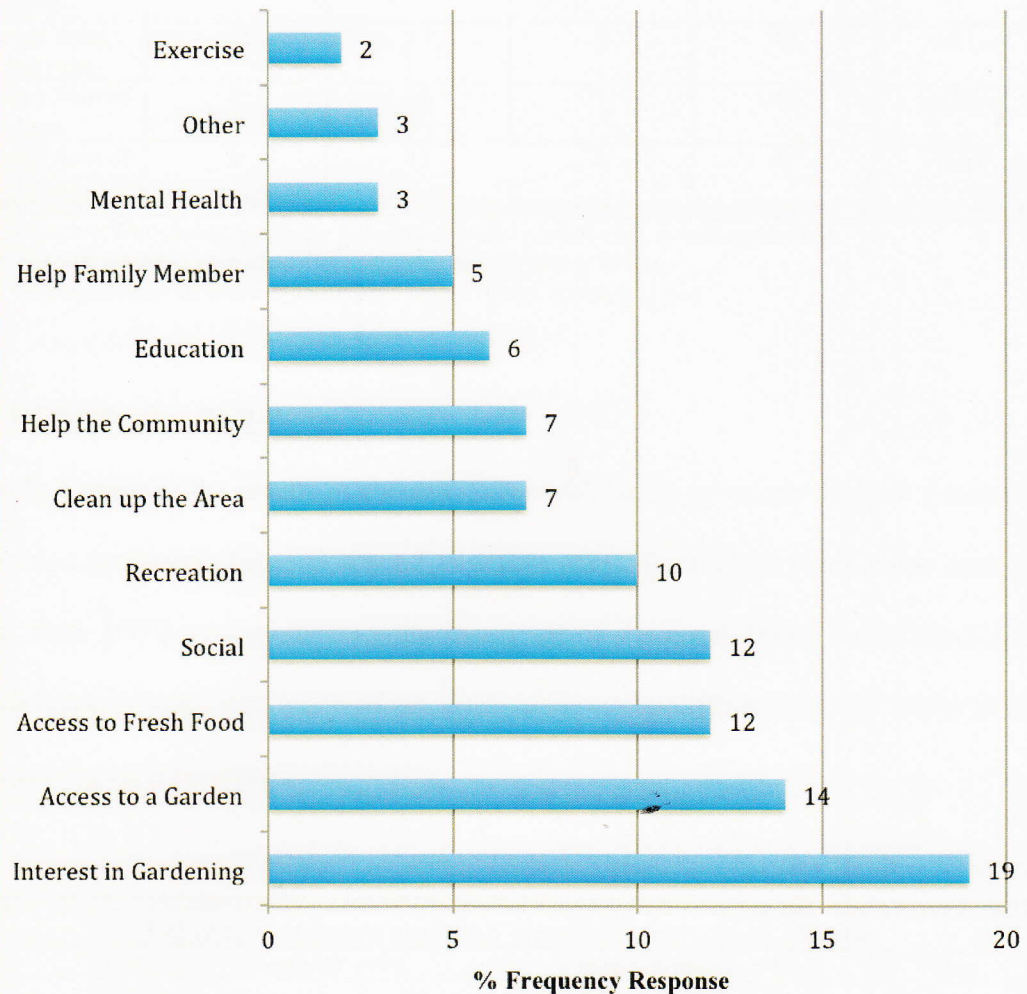
Table 2 presents the lifestyle behaviours of both gardeners and non-gardeners. No differences were found between the groups regarding smoking habits, alcohol intake, physical activity levels, fruit and vegetable consumption, practicing all four positive lifestyle behaviours and happiness. There was a significant difference in community group involvement between both groups.

Table 3. Garden Characteristics			
GARDEN NAME	NUMBER OF YEARS ESTABLISHED	GARDEN TYPE	NUMBER OF GARDENERS INVOLVED
Robert Emmet community garden (Bridgefoot street)	3	Allotments	37 individual gardeners 7 groups with approx. 2-7 members in each
Stiric Compost Garden (Stoneybatter)	6	Communal Garden	8
Cherry orchard	1	Communal Garden & Allotments	10 adults 5 children 1 older persons group
South Circular Road Dolphins Barn	4	Communal Garden	5-6
Greenhills	3	Allotments	20
Serenity Community Garden (Phibsborough)	2	Communal Garden	3-10
Santry (within the victorian walled garden in Santry Demesne)	1	Communal Garden	160 members of which 30 are regular gardeners
De Courcey square (Glasnevin)	2	Mostly Allotments but there are some communal plots	22
Weaver square (The Liberties)	April 2011	Allotments & a community garden	28 allotment holders. 10 community gardeners
Summerrow (North Circular Road)	2	Communal Garden	10-15
Sean Mcdermott street	2011	Communal Garden	15

B.4.3 Garden Characteristics

Table 3 presents the community garden characteristics. Community garden coordinators provided information about their respective community gardens. Coordinators described their gardens in terms of age, type (allotment versus community garden), number of plots, number of gardeners and also provided information on the reasons for setting up the garden. 6/11 community gardens were located on the Northside of Dublin with 5 gardens residing on the Southside. See Appendix IV and V for locations and further details on garden characteristics.

**Table 4. Motivations for Gardening Multiple Response Frequency. N = 52
Gardeners**



B.4.4 Gardener Motivations

Table 3 represents gardener's motivations for joining a community garden. Community gardeners were asked "Why did you get involved in community gardening?". Gardeners gave multiple answers and the response frequency is presented in Table 3. The top 4 motives for joining a community garden were interest in gardening, access to a garden, access to fresh food and social interaction. Mental health issues and exercise were the least frequently cited response

Table 5. Gardener and Non Gardener Subjective Well-Being					
	Gardener n=45•		Non Gardener n=50		P- Value
	Yes	No	Yes	No	
Happy all of the time	11	33	19	31	0.28ns
Happy most of the time	19	26	18	32	0.54ns
Happy some of the time	12	33	8	42	0.21ns
Happy little of the time	3	42	1	49	0.26ns
Happy none of the time	0	45	4	46	0.05*

• Subjective Well-Being questions added after initial garden visit. n = 45 gardeners.

* = Significant difference identifiable with a Mann Whitney U test.

ns = no significant difference identifiable with a Mann Whitney U test.

B.4.5 Subjective Well-Being

Table 6 presents the results of the subjective well-being questions for both gardeners and non gardeners. The majority of gardeners (19/45) gardeners were happy most of the time. 19/50 non gardeners were happy all of the time. There was a significant difference in happiness “none of the time” however no differences were found in the other happiness parameters.

Table 6. Gardener and Non Gardener Perceived Health					
	Gardener n=52		Non Gardener n=50		P- Value
	Yes	No	Yes	No	
Excellent	5	47	3	47	0.50ns
Very Good	19	33	16	34	0.48ns
Good	16	36	26	24	0.03*
Fair	9	43	3	47	0.08ns
Poor	3	49	2	48	0.68ns

B.4.6 Perceived Health

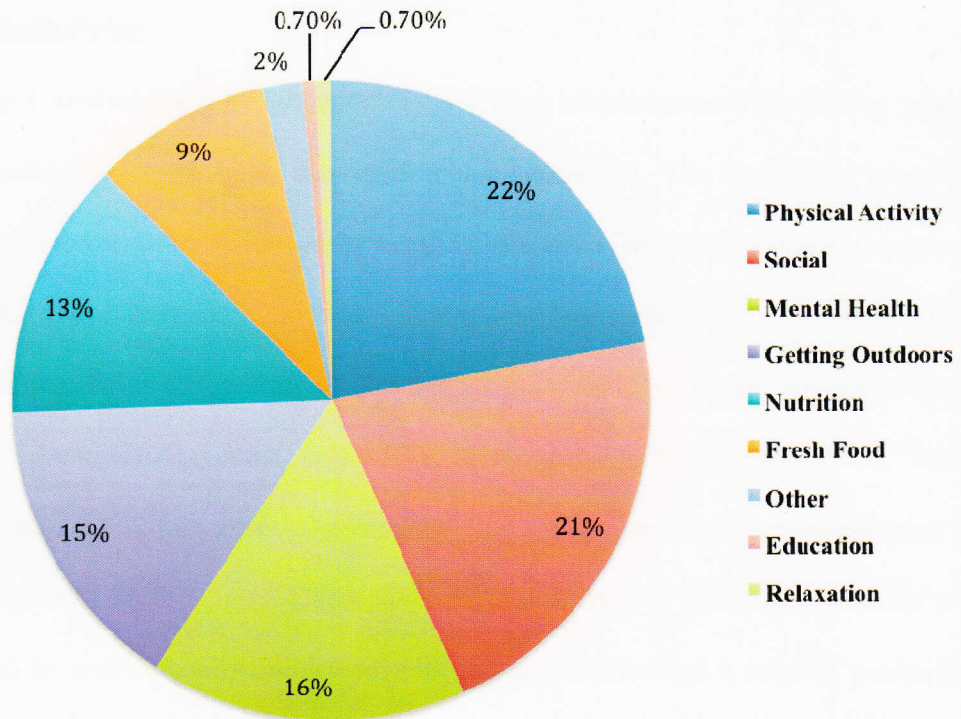
Table 7 represents the perception of general health amongst gardeners and non gardeners. The majority of gardeners (19/52) rated their health as “Very Good”. Most non gardeners (26/50) reported “Good” health. 26/50 non gardeners felt their health was good compared to 16/52 gardeners.

Table 7. Gardener and Non Gardener Quality of Life					
	Gardener n=52		Non Gardener n=50		P- Value
	Yes	No	Yes	No	
Do you know many people in the community?	43	9	34	16	0.09ns
Is it easy to get help in the community?	43	8	40	10	0.57ns
Do you feel your area is a suitable place to live?	46	6	47	3	0.33ns
Do you feel safe in your area?	48	4	48	2	0.43ns
Do you feel the neighbourhood has improved in the last 2-3 years?	26	24	20	30	0.17ns
Is there enough green space in your area?	23	29	43	7	0.00*

B.4.7 Quality of Life

Various questions were asked in an effort to measure quality of life amongst gardeners and non gardeners. The two groups differed in opinion on the issue of green space in the area. 43/50 non gardeners felt there was enough green space in their area compared to 23/52 gardeners. The majority of gardeners felt safe in their area, regarded their area as a suitable place to live, found it easy to get help and felt they knew many people in their community.

**Perceived Health Benefits of Gardening. Multiple Response Frequency. N = 52
Gardeners**



B.4.8 Perceived Health Benefits of Community Gardening

Table 5 displays the health benefits of community gardening as perceived by the gardeners. Physical activity, social interaction, mental health benefits and getting outdoors were among the top 4 most frequently reported health benefits.

B.5 DISCUSSION

This study of community gardening and health benefits is the first of its kind in Ireland and provides a useful insight into this developing urban activity.

B.5.1 Motivations

The top 4 motives for joining a community garden were interest in gardening, access to a garden, access to fresh food and social interaction. The next most common response was recreation followed by clean up the area. Other motivations mentioned were help the community, education, help a family member in the garden. Mental health issues and exercise were the least frequently cited responses. Access to fresh food was one of the most commonly mentioned motivations in a US study (Armstrong, 2000). Interest in gardening and social interaction as motivators is consistent with the literature. Gardener motivations cited in one study included the desire to be more socially connected with the community and a love of gardening (Kingsley *et al*, 2009). 20/52 (38.5%) gardeners did not have access to a garden at home, which may explain why garden access was the second most common motive to join a community garden. Motivations reported in the literature that did not appear in the current study include care about the environment (Clark and Manzo, 1988) and to be apart of an environmentally sustainable program (Kingsley *et al*, 2009). The absence of these motivator may be explained by the length of time the gardeners were involved with the garden. Initially care for the environment may not be a motive however after engagement in gardening and witnessing the impact on the environment this may hold resonance for the gardeners. The majority of gardeners 20/52 (38.5%) were involved in community gardening for less than a year and thus may not have initially been motivated to join for environmental reasons. Motivations also absent

from the current study that featured in the literature include food source for low-income families and to practice traditional culture (Armstrong, 2000). As highlighted in the garden characteristics section food distribution was informal in all gardens. As previously mentioned this informal distribution of produce indicates a lack of dependence on the produce as a food source. Generally, produce from the community gardens in urban Dublin is used as a supplement to purchased fruits and vegetables. Thus gardeners were not motivated to join community gardens for food source. The practice of traditional culture was cited as a motivation for community gardening in rural gardens. All gardens in the current study were urban gardens and this may explain the absence of this motivator. Surprisingly mental health benefits was one of the least frequently mentioned motivations in the current study in comparison to a US study where it was one of the most commonly expressed reasons for participation (Armstrong, 2000). This finding is interesting as mental health benefits featured in the most frequently reported health benefits. This suggests that gardeners are aware of the mental health benefits gardening offers however they were not motivated to join a community garden to gain such benefits.

B.5.2 Perceived Health Benefits.

Consistent with the literature physical activity, social interaction and mental health benefits were among the top 3 most frequently mentioned health benefits of community gardening. (Wakefield, 2007; Armstrong, 2000; Dickinson et al., 2003). Access to fresh food and improved nutrition were also cited as perceived health benefits in agreement with the literature (Patel, 1991; Irvine et al., 1999; Dickinson et al., 2003). Interestingly getting outdoors was among the most frequently reported health benefits of community gardening. Further exploration of this response may have lead to responses that would fall into other categories such as increased physical

activity or mental health benefits. Education was also mentioned as a perceived health benefit. Gardeners often mentioned the importance that both adults and children know how food is grown.

B.5.3 Subjective Well-Being

Four non gardeners reported being happy “none of the time”. Interestingly none of the gardeners reported this statement. Overall the majority of gardeners (19/45) were happy most of the time while most non gardeners (19/50) were happy all of the time. The question relating to happiness was based on happiness over the preceding four weeks. The four non gardeners who reported happiness “none of the time” may have experienced events within those four weeks which lead to their negative response. Seven types of evidence are reviewed that indicate that high subjective well being (such as life satisfaction, absence of negative emotions, optimism, and positive emotions) causes better health and longevity (Diener & Chan, 2011). Positive feelings predict longevity and health beyond negative feelings (Diener & Chan, 2011).

B.5.4 Perceived Health

The majority of gardeners (19/52) rated their health as “Very Good”. Most non gardeners (26/50) reported “Good” health. Empirical research supports the belief that the way a person views his health is importantly related to subsequent health outcomes (Mossey & Shapiro, 1982).

B.5.5 Quality of Life

Within Ireland quality of life indicators have been locally developed in order to create a quality of life survey, which was conducted in Galway City in 2006. The majority of non gardeners (43/50) felt there was enough green space in their area compared to only 23/52 gardeners. Many gardeners reported that they felt green space was available in the area however it was not utilized properly.

16/50 non gardeners compared to 9/52 gardeners responded negatively to the question "Do you know many people in the community?." A significant difference was found for community involvement between both groups (46.2% gardeners versus 24% non gardeners). This may explain the trend towards significance in the amount of people known in the community by each group.

The majority of gardeners felt safe in their area, regarded their area as a suitable place to live, found it easy to get help and felt they knew many people in their community.

B.5.6 Demographics.

Gardeners Compared to the Literature.

Regarding age, most research has reported that community gardeners are generally more than at least 50 years old (Thompson et al., 2007; Roy, 2001; Hanna and Oh, 2000). The majority of gardeners in the current study (23/52) were aged between 45-60 years. This age demographic may be a result of various issues. Many gardeners were parents to grown children, which may have presented more free time in comparison to individuals in full time education or individuals with young family. Individuals aged between 45-64 years may be more equipped to meet the physical demands of community gardening in comparison to individuals aged 65+.

In the current study gardener gender was equal unlike the majority of studies where women are the predominate sex among community gardeners. (Hanna and Oh 2000, Kingsley et al., 2009; Teig et al., 2009; Thompson et al., 2007). An exception was found in one study of Latino-dominated gardens in New York where despite even sex distribution, men gardened more than women (Saldivar-Tanaka & Krasny, 2004). However the gender ratio of the current study is in line with one study in the literature that found men and women equally represented in a community gardening neighbourhood association (Glover, 2004). A factor that may have effected the gender distribution was the inclusion of a community garden for unemployed men.

In the current study 6/52 (11.5%) gardeners were retired and 25/52 (48.1%) were employed. This may be due to the age group of the gardeners. 23/52 (44.2%) gardeners were aged between 45-64 years while only 7/52 (13.5%) were aged 65+. In Ireland the average age of retirement is above 66 years (SHARE, 2008). A study in 2001 reported that nearly half of community gardeners were retired, whereas 34% were employed on a full-time basis and 18% were classified as part-time or stay-at-home (Roy, 2001). 10/52 (19.2%) gardeners reported unemployment in the current study. The unemployment rate in Ireland currently stands at 14.4% (CSO , October 2011). Although the unemployment rate amongst gardeners is higher than the national average there was no significant difference in unemployment rate between subject types (0.286).

The current study presents an atypical gardener profile.

Comparison of Gardeners and Non-Gardeners.

There were no significant differences in terms of age, gender and employment status between the 2 groups. There was a significant association (0.015) between subject type and nationality. 12/52 (23.1%) gardeners were non-nationals compared to just 3/50 (6%) non-gardeners. This finding may be reflective of the literature that supports the idea that community gardens offer opportunities for interracial interaction (Shinew, Glover & Parry, 2004). This finding warrants further investigation.

There was no significant difference regarding smoking habits, alcohol intake, physical activity levels, fruit and vegetable consumption, positive lifestyle behaviours and subjective well-being. Similarities between the two groups could be explained by various reasons. These reasons are explored under the limitations section.

There is evidence that 4 major positive lifestyle behaviours exert a profound impact on health (Slan, 2007). These behaviours incorporate eating 5 or more daily servings of fruit and vegetables; being a non-smoker; being a moderate drinker; and being physically active. There is an estimated 14-year difference in life expectancy between individuals practicing none of these behaviours relative to those practicing all of these behaviours (Slan, 2007). For this current study meeting fruit and vegetable recommendations, being a non-smoker, being within alcohol recommendations and meeting physical activity recommendations were used as the 4 positive lifestyle behaviours. 12/50(24%) non-gardeners practiced all 4 PLBs compared to 14/52(26.9%) gardeners. With regard to practicing none of the positive lifestyle behaviours 1/50 (2%) non-gardeners and 1/52 (1.9%) gardeners reported this. There was no association between subject type and practicing all 4 PLBs or practicing none of the behaviours.

Gardener involvement in other community groups was greater than non-gardener involvement. ($p=0.02$). This finding may indicate that gardeners are more involved in the community thus more socially interactive. Many gardeners reported membership of residents associations. Social engagement is positively correlated with personal attention to health care and wellness. (Greenberg & Schneider, 1996). Several studies have examined the influence of social relations on health demonstrating a protective effect of strong social ties on survival as well as on general physical and mental health. (Berkman, 1995; Seeman, 1996; Berkman & Glass, 2000).

B.5.7 Garden Characteristics

6/11 community gardens were located in Northside Dublin with 5 gardens residing in the southside.

All community gardens were less than 6 years old. Two of the gardens had just been established earlier this year. This age demographic represents the recent phenomena of community gardening in Urban Dublin. One study reported 55% of gardens were found to be less than 10 years old and 32% at least 10 years old (Armstrong, 2000a), whereas in another study, an age range of five to 25 years was reported (Saldivar-Tanaka & Krasny, 2004). It is worth noting that these two studies included gardens in New York City where community gardening is well established.

In terms of garden type, six of the gardens are communal community gardens, 2 are allotments only while 3 consist of allotments and a communal garden. The reason for inclusion of allotment gardeners was to increase sample size.

Numbers of gardeners varied from 3 – 160. Co coordinators reported difficulty in measuring gardener numbers as all gardeners were volunteers and thus their presence in the garden fluctuated. Interestingly the garden with the greatest numbers was established in 2010 (Santry, 160 members). Dolphins Barn, which was established 4 years ago, has 5-6 gardeners, which may indicate decreasing participation with time.

Reasons for setting up a community garden varied. Four garden coordinators mentioned improvement of the land as a reason for starting up – “to improve disused land”, “landscape improvement”, “clean up a dump”, “maintenance of a walled garden”. Three garden co coordinators mentioned community engagement as a reason for setup. “to engage members of the local community”, “Bring the local community together”, “Community improvement”. Two gardens were established to create space for community events. One garden was specifically started to support unemployed men in the community. In terms of work distribution 3 gardens divided the work evenly. Work at 2 of the gardens is undertaken by whoever attends. One garden divides the work through gardener experience and knowledge. Gardeners in one garden volunteer to undertake work appropriate to their ability. One garden has a Head Gardener and two senior gardeners who allocate the workload. Work in the allotments is individual. Produce distribution is similar in most gardens. Distribution is generally informal. Food is taken by whoever is present when harvested or left on tables for other gardeners or locals. This distribution of food may reflect the lack of gardener’s dependence on the produce as a food source. One garden used its produce during street parties another sold the produce at fetes to raise money for the garden. One garden donated some produce to a local soup kitchen.

B.5.8 Limitations

Recruitment

This study adopted a recruitment strategy that resulted in a convenience sample of study subjects. Recruitment was based on consent from willing coordinators, gardeners and members of the public. People with more involvement with a survey topic respond at higher levels than those with less involvement (Goyder 1987) thus an element of participation bias may be present in this study. In future studies random sampling would be recommended.

Comparison Group

The comparison group was similar in terms of age, gender and employment status however there was no question on the non-gardener questionnaire that addressed levels of gardening activity amongst this group. Many of the comparison group may have engaged in gardening of some form, which may have affected the results.

Absence of Defined Time Period

Due to a lack of a defined time period in the questions featured in the gardener questionnaire it is difficult to interpret whether the positive lifestyle behaviours are a result of participation in community gardening or whether the gardeners were in fact practicing these behaviours prior to community garden engagement. In future studies it would be recommended to capture behaviours prior to commencing community gardening and after a defined period of involvement with a community garden.

Data Collection Method

Face-to-Face questionnaires involve interaction with another individual. Such social interaction may result in social desirability bias (the desire of respondents to present themselves in the best possible light), resulting in the over-reporting of desirable behaviours, and under-reporting of undesirable behaviours (Bowling, 2005)

Respondents have been shown to give more positive and socially desirable responses in interview (face-to-face and telephone) surveys than in self-administration (e.g. postal) surveys (Tourangeau, Rasinski, Jobe *et al.*, 1997; Tourangeau & Smith 1996; Presser & Stinson 1998).

Research has shown that positive health status, health related quality of life, engaging in desirable behaviours and activities appear to be exaggerated when based on face-to-face interviews and socially undesirable behaviours (e.g. smoking) are likely to be under-estimated (Bowling, Bond, Jenkinson, Lamping, 1999; Lyons, Wareham, Lucas *et al.*, 1999; Vuillemin, Oppert, Guillemin *et al.*, 2000; Tomlin, Pinney, Buncher *et al.*, 1998; Brambilla & McKinlay, 1987; McHorney, Kosinski, Ware, 1994; Perkins & Sanson-Fisher, 1998; Weinberger, Oddone, Samsa, Landsman, 1996).

Participants may have been reluctant to disclose beliefs or behaviours unlikely to be endorsed by the interviewer.

As previously mentioned a face to face questionnaire was chosen as the preferred research method for several reason however a self-administered questionnaire may be more appropriate in future studies.

B.5.9 Conclusion

This study was a novel investigation into urban community gardening in Dublin. It gives an insight into the gardens that currently exist in Urban Dublin and also the individuals who participate in the gardening programs. In addition gardener motivations and perceptions of health, well-being and quality of life are explored. The majority of gardeners (19/45) reported feeling happy most of the time. The majority of gardeners rated their health as very good. The top 4 motives for joining a community garden were interest in gardening, access to a garden, access to fresh food and social interaction. Physical activity, social interaction and mental health benefits were among the top 3 most frequently mentioned health benefits of community gardening. Overall gardeners felt safe in their area, regarded their area as a suitable place to live, found it easy to get help in their area.

B.6 RECOMMENDATIONS

B.6.1 Recommendations for Future Research

Additional research on the potential benefits of community gardens to promote and improve public health is needed. This study focused on the experience of gardeners as a mechanism to reveal the health benefits associated with community gardening. Further research that provides quantitative assessments of these health benefits is needed.

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Appendix I

Subject ID:

Gardener Questionnaire.

Personal Background

As part of the project we would also like to get some general information about the group. If that is ok with you?

What is your nationality?

Irish ☐

Other ☐

Gender

Female ☐

Male ☐

Age

18-29 ☐

30-44 ☐

45-59 ☐

60+ ☐

Do you have access to your own garden?

Yes ☐

No ☐

Dublin Urban Gardening

Subject ID

Personal Background

As part of this project we would also like to get some general information about the group, if that is ok with you?

What is your nationality?

Irish ☐

Other ☐

Irish 1

Other 2

Gender

Female ☐

Male ☐

F 1

M 2

Age

18-29 ☐

30-44 ☐

45-64 ☐

65+ ☐

1

2

3

4

Do you have access to your own garden?

Yes ☐

No ☐

1

2

Smoker ☐
Non-Smoker ☐

S 1

NS 2

Alcohol
Do you take a drink?

Yes ☐
No ☐

Y 1

N 2

If yes, during a typical week, how much would you drink?

<14 units 3

14+ 4

<21 units 5

>21 units 6

What is your current situation in relation to work?

Employee 1

Self Emp 2

Student 3

Unemployed 4

Retired 5

State Training 6

Home duties 7

Other 8

Personal Diet and Habits

Now, we are going to ask you some questions about your garden
What do you grow in the community garden?

Fruit ☐

Vegetables ☐

Herbs ☐

1

2

3

Apples 1
Pears 2
Strawberries 3
Blueberries 4
Blackcurrants 5
Raspberries 6
Rhubarb 7
Gooseberries 8
Plums 9
Other fruits 10
Potatoes 11
Cabbage 12
Carrots 13
Turnips 14
Parsnips 15
Brocoli 16
Lettuce 17
Spinach 18
Lettuce 19
Tomato 20
Onions 21
Garlic 22
Peas 23
Leeks 24
Peppers 25
Beetroot 26
Other vegetables 27
Herbs 28

Do you eat what you grow in the community garden?

Yes ☐

No ☐

Y 1

N 2

In general, is the food produced in the community garden

Eaten at home ☐

Shared with friends / neighbours ☐

Sold to local shops/ businesses ☐

Other

Home 1

Shared 2

Shops 3

Other 4

How is the food produced in the garden divided up?

Equally among community 1

Use as you grow 2

Other 3

Now we are going to take a look at your fruit and vegetable intake.

Do you like to eat fruit?

Yes ☐

No ☐

2

What type of fruit do you eat most of?

- Apples 1
- Oranges 2
- Bananas 3
- Kiwi 4
- Pears 5
- Strawberries 6
- Blueberries 7
- Blackcurrants 8
- Raspberries 9
- Rhubarb 10
- Gooseberries 11
- Plums 12
- Dried 13
- Frozen 14
- Tinned 15
- Other fruits 16

As part of your usual diet, if you think of a portion of fruit being 1 medium sized piece of fruit for example 1 apple, orange, medium sized banana or a small handful of berries or a glass of juice – On average how often would you eat a portion of fruit?

	Never or less than once a month	1 – 3 per month	Once a week	2-4 times per week	5-6 per week	Once a day	2-3 per day	4-5 per day	6+ per day
1 Medium Portion									

1
2
3
4
5
6
7
8
9

In terms of the fruit in your diet do you feel that the time of year affects how much fruit you eat?

Yes ☐

No ☐

1

2

If yes, how does your intake change?

More in summer ☐

More in winter ☐

Other ☐

3

4

5

Now we will have a look at your vegetable intake
Do you like to eat vegetables?

Yes ☐

No ☐

1

2

What type of vegetables do you eat most of?

- Potatoes 1
- Cabbage 2
- Carrots 3
- Turnips 4
- Parsnips 5
- Broccoli 6
- Spinach 8
- Lettuce 9
- Tomato 10
- Onions 11
- Garlic 12
- Peas 13
- Leeks 14
- Peppers 15
- Beetroot 16
- Beans 17
- Frozen 18
- Tinned 19
- Other 20

As part of your usual diet, If you to think of a medium portion of vegetables as being 2 tablespoons of cooked or frozen veg or salad - On average how often would you eat a portion of vegetables?

	Never or less than once a month	1 – 3 per month	Once a week	2-4 times per week	5-6 per week	Once a day	2-3 per day	4-5 per day	6+ per day
1 Medium Portion									

1
2
3
4
5
6
7
8
9

In terms of the vegetables do you feel that the time of year affects How much vegetables you eat?

Yes ☐
No ☐

If yes, how does your intake change?

More in summer
More in winter
Other

1

2

3

4

5

Do you know how many portions of fruit and vegetables are recommended per day?

Now I am going to ask you a few quick questions about some other foods in your diet?

If we look at Breads, cereals, rice, pasta and potatoes first. In terms of a portion, if you were to think of a 1 portion as 1 medium slice of bread, 1 medium potato, 1 medium bowl of cereal, 3 desertspoons of cooked rice or pasta – in a usual day how many portions would you have?

- 1 ☐
- 2 ☐
- 3 ☐
- 4 ☐
- 5 ☐
- 6 ☐
- >6 ☐

1	1
2	2
3	3
4	4
5	5
6	6
>6	7

If we look at Milk, cheese, yogurts now. If you consider 1 portion as 1 medium glass of milk (200mls) or 1 medium carton of yogurt or 1 oz of of cheese – a matchbox portion of cheese – in a usual day how many portions would you have?

- 1 ☐
- 2 ☐
- 3 ☐
- >3 ☐

1	1
2	2
3	3
>3	4

If we look at Red meat, fish, poultry and eggs now. If you were to think of a portion as 2 oz of meat or 3oz of fish or 2 eggs in a usual day how many portions would you have?

<2 ☐

2 ☐

>2 ☐

Do you use butter / spreads

Yes ☐

No ☐

Butter ☐

Spreads ☐

Now if we look at sugar, jam, chocolate, biscuits, cakes, sweets, in a usual day would you eat these foods and if you think of a portion as 1 biscuit, 1 medium piece of cake, 1 small bar, how many portions would you have in a day?

1 ☐

2 ☐

3 ☐

>3 ☐

< 2 1

2 2

> 2 3

4

1

2

Butter 3

Spread 4

1 1

2 2

3 3

>3 4

Salt

Do you use salt?

In cooking

☐

At the table

☐

In cooking and at the table

☐

Never

☐

In a usual day would you drink fizzy drinks?

Yes ☐

No ☐

Do you feel that your diet is

Very healthy

☐

Healthy

☐

Ok

☐

Ok but could be better

☐

Not very healthy

☐

Since you have become involved in community gardening

Do you feel that your diet has changed?

Yes ☐

No ☐

If yes, in what way has it changed?

1

2

3

4

1

2

1

2

3

4

5

1

2

More fruit 3

More Veg 4

Other 5

Have you tried new foods?

Yes ☐

No ☐

1

2

What new foods have you tried?

Fruit 3

Veg 3

Meat 4

Dairy 5

Other 6

Do you feel that you are more willing to try new foods?

Yes ☐

No ☐

1

2

Do you feel that your preferences for fruit and vegetables have changed?

Yes ☐

No ☐

1

2

Do you feel that being involved in community gardening has had an impact on other diets within your household?

Yes ☐

No ☐

1

2

If yes, how have they changed

Eat more fruit 3

Eat more veg 4

Other 5

Personal Health

Now we are going to ask some questions about physical activity.

In your usual week are you physically active?

Yes ☐

No ☐

1

2

What type of exercise do you do?

Walking 1
Gardening 2
Cycling 3
Jogging 4
Running 5
Team sport 6
Dancing 7
Swimming 8
Other 9

How many days of the week do you exercise?

1-2 ☐

2-3 ☐

3-4 ☐

4-5 ☐

6+ ☐

1-2 1
2-3 2
3-4 3
4-5 4
6+ 5

On those days, how long do you spend exercising?

<20 mins

30 mins

30+

1

2

3

Now we are going to ask you some questions about your general health.

In general would you say your health is..

Excellent ☐

Very Good ☐

Good ☐

Fair ☐

Poor ☐

Excellent 1

Very Good 2

Good 3

Fair 4

Poor 5

Do you feel community gardening has any health benefits?

Yes ☐

No ☐

1

2

If yes, What are the health benefits?

Better access to food ☐

Improved nutrition ☐

Inc. Physical activity ☐

Improved mental health ☐

Food 3

Nutrition 4

Activity 5

Mental Health 6

Other 7

How would you rate your quality of life?

Excellent ☐

Very Good ☐

Good ☐

Neither good nor poor ☐

Poor ☐

Very Poor ☐

Very Poor 1

Poor 2

Neither 3

Good 4

Very Good 5

Excellent 6

Have you any long term medical condition?

Yes ☐

No ☐

1

2

If yes, what is the condition?

Diabetes 3

Heart Disease 4

Renal Disease 5

Arthritis 6

Hypertension 7

Hypercholesterol 8

Other 9

Now we are going to ask you some questions in relation to your involvement in the community.

Are you involved in any other community groups?

Yes ☐

No ☐

1

2

If yes, what group are you involved with?

Sports club 3
Env group 4
Church 5
Evening Class 6
Social Clubs 7
Other 8

Do you know many people in your community?

Yes ☐

No ☐

1

2

Do you feel that it is easy to get help in your neighbourhood if needed?

Yes ☐

No ☐

1

2

Do you feel your area is a suitable place to live?

Yes ☐

No ☐

1
2

Do you feel safe in your area?

Yes ☐

No ☐

1
2

Has your neighborhood improved in the last 2-3 years?

Yes ☐

No ☐

1
2

Is there enough public green space in your area?

Yes ☐

No ☐

1
2

Do you feel there are any benefits in gardening?

Yes ☐

No ☐

Your Community Garden / Allotment Information

How long have you been involved in community gardening?

< 1 year ☐

1-3 years ☐

3+ ☐

Other ☐

1

2

3

4

How did you get involved in community gardening?

Friend 1

Community 2

Other 3

Why did you get involved?

Recreation 1

Mental Health 2

Exercise 3

Access to fresh food 4

Health reasons 5

Other 6

Do you feel there are any benefits to gardening?

Yes ☐

1

No ☐

2

If yes, what are the benefits?

Environment 3

Community 4

Individual 5

Other 6

In your opinion could more be done to develop community gardening in Dublin?

Yes ☐

1

No ☐

2

If so what do you feel could be done?

Govt support 3

Local Support 4

Extra land 5

Increase awareness 6

Other 7

SWB Questions

During the 4 weeks preceding this survey

1. Did you feel tired

All of the time

Most of the time

Some of the time

A little of the time

None of the time

2. Did you feel worn out

All of time

Most of time

Some of time

Little of time

None of the time

3. Did you have a lot of energy

All of time

Most of time

Some of time

Little of time

None of time

4. Have you felt full of life

All of time

Most of time

Some of time

Little of time

None of time

5. Have you felt calm and peaceful

All of time

Most of time

Some of time

Little of time

None of time

6. Have you been happy

All of time

Most of time

Some of time

Little of time

None of time

Dublin Urban Diet and Health Study

Appendix II

Subject ID:

Non Gardener Questionnaire

Personal Background

As part of this project we would also like to get some general information about the group. If you are ok with this?

What is your nationality?

Irish ☐

Other ☐

Gender

Female ☐

Male ☐

Age

15-22 ☐

23-34 ☐

35-44 ☐

45-54 ☐

Do you have access to your own garden?

Yes ☐

No ☐

Dublin Urban Diet and Lifestyle

Subject ID

Personal Background

As part of this project we would also like to get some general information about the group, if that is ok with you?

What is your nationality?

Irish ☐

Other ☐

Irish 1

Other 2

Gender

Female ☐

Male ☐

F 1

M 2

Age

18-29 ☐

30-44 ☐

45-64 ☐

65+ ☐

1
2
3
4

Do you have access to your own garden?

Yes ☐

No ☐

1

2

Smoker ☐
Non-Smoker ☐

S 1

NS 2

Alcohol
Do you take a drink?

Yes ☐
No ☐

Y 1

N 2

If yes, during a typical week, how much would you drink?

<14 units 3

14+ 4

<21 units 5

>21 units 6

What is your current situation in relation to work?

Employee 1

Self Emp 2

Student 3

Unemployed 4

Retired 5

State Training 6

Home duties 7

Other 8

Now we are going to take a look at your fruit and vegetable intake.

Do you like to eat fruit?

Yes ☐

No ☐

1

2

What type of fruit do you eat most of?

- Apples 1
- Oranges 2
- Bananas 3
- Kiwi 4
- Pears 5
- Strawberries 6
- Blueberries 7
- Blackcurrants 8
- Raspberries 9
- Rhubarb 10
- Gooseberries 11
- Plums 12
- Dried 13
- Frozen 14
- Tinned 15
- Other fruits 16

As part of your usual diet, if you think of a portion of fruit being 1 medium sized piece of fruit for example 1 apple, orange, medium sized banana or a small handful of berries or a glass of juice – On average how often would you eat a portion of fruit?

	Never or less than once a month	1 – 3 per month	Once a week	2-4 times per week	5-6 per week	Once a day	2-3 per day	4-5 per day	6+ per day
1 Medium Portion									

1
2
3
4
5
6
7
8
9

In terms of the fruit in your diet do you feel that the time of year affects how much fruit you eat?

Yes ☐
No ☐

1

2

If yes, how does your intake change?

More in summer
More in winter
Other

3

4

5

Now we will have a look at your vegetable intake
Do you like to eat vegetables?

Yes ☐

No ☐

1

2

What type of vegetables do you eat most of?

Potatoes 1
Cabbage 2
Carrots 3
Turnips 4
Parsnips 5
Brocoli 6
Spinach 8
Lettuce 9
Tomato 10
Onions 11
Garlic 12
Peas 13
Leeks 14
Peppers 15
Beetroot 16
Beans 17
Frozen 18
Tinned 19
Other 20

As part of your usual diet, If you to think of a medium portion of vegetables as being 2 tablespoons of cooked or frozen veg or salad - On average how often would you eat a portion of vegetables?

	Never or less than once a month	1 – 3 per month	Once a week	2-4 times per week	5-6 per week	Once a day	2-3 per day	4-5 per day	6+ per day
1 Medium Portion									

1
2
3
4
5
6
7
8
9

In terms of the vegetables do you feel that the time of year affects How much vegetables you eat?

Yes ☐
No ☐

1

2

If yes, how does your intake change?

More in summer
More in winter

3

4

Do you know how many portions of fruit and vegetables are recommended per day?

Now I am going to ask you a few quick questions about some other foods in your diet?

If we look at Breads, cereals, rice, pasta and potatoes first. In terms of a portion, if you were to think of a 1 portion as 1 medium slice of bread, 1 medium potato, 1 medium bowl of cereal, 3 desertspoons of cooked rice or pasta – in a usual day how many portions would you have?

- 1 ☐
- 2 ☐
- 3 ☐
- 4 ☐
- 5 ☐
- 6 ☐
- >6 ☐

1
2
3
4
5
6
>6

If we look at Milk, cheese, yogurts now. If you consider 1 portion as 1 medium glass of milk (200mls) or 1 medium carton of yogurt or 1 oz of of cheese – a matchbox portion of cheese – in a usual day how many portions would you have?

- 1 ☐
- 2 ☐
- 3 ☐
- >3 ☐

Other

4 1
5 2
6 3
>3 4
5

If we look at Red meat, fish, poultry and eggs now. If you were to think of a portion as 2 oz of meat or 3oz of fish or 2 eggs in a usual day how many portions would you have?

<2 ☐

2 ☐

>2 ☐

Other

< 2 1

2 2

>2 3

Other 4

Do you use butter / spreads

Yes ☐

No ☐

Butter ☐

Spreads ☐

1

2

Butter 3

Spread 4

Now if we look at sugar, jam, chocolate, biscuits, cakes, sweets, in a usual day would you eat these foods and if you think of a portion as 1 biscuit, 1 medium piece of cake, 1 small bar, how many portions would you have in a day?

1 ☐

2 ☐

3 ☐

>3 ☐

1 1

2 2

3 3

>3 4

Salt

Do you use salt?

In cooking

☐

At the table

☐

In cooking and at the table

☐

Never

☐

1

2

3

4

In a usual day would you drink fizzy drinks?

Yes ☐

No ☐

1

2

Do you feel that your diet is

Very healthy

☐

Healthy

☐

Ok

☐

Ok but could be better

☐

Not very healthy

☐

1

2

3

4

5

Personal Health

Now we are going to ask some questions about physical activity.

In your usual week are you physically active?

Yes ☐

No ☐

What type of exercise do you do?

How many days of the week do you exercise?

1-2 ☐

2-3 ☐

3-4 ☐

4-5 ☐

6+ ☐

On those days, how long do you spend exercising?

<20 mins

30 mins

30+

1

2

Walking 1
Gardening 2
Cycling 3
Jogging 4
Running 5
Team sport 6
Dancing 7
Swimming 8
Other 9

1-2	1
2-3	2
3-4	3
4-5	4
6+	5

1

2

3

Now we are going to ask you some questions about your general health.

In general would you say your health is..

Excellent ☐

Very Good ☐

Good ☐

Fair ☐

Poor ☐

Excellent 1

Very Good 2

Good 3

Fair 4

Poor 5

How would you rate your quality of life?

Excellent ☐

Very good ☐

Good ☐

Neither good nor poor ☐

Poor ☐

Very poor ☐

Very Poor 1

Poor 2

Neither 3

Good 4

Very Good 5

Excellent 6

Have you any long term medical condition?

Yes ☐

No ☐

1

2

If yes, what is the condition?

Diabetes 3

Heart Disease 4

Renal Disease 5

Arthritis 6

Hypertension 7

Hypercholesterol 8

Other 9

Now we are going to ask you some questions in relation to your involvement in the community.

Are you involved in any other community groups?

Yes ☐

No ☐

1

2

If yes, what group are you involved with?

Sports club 3

Env group 4

Church 5

Evening Class 6

Social Clubs 7

Other 8

Do you know many people in your community?

Yes ☐

No ☐

1

2

During the 4 weeks preceding, how would you

Do you feel that it is easy to get help in your neighbourhood if needed?

Yes ☐

1

No ☐

2

Do you feel your area is a suitable place to live?

Yes ☐

1

No ☐

2

Do you feel safe in your area?

Yes ☐

1

No ☐

2

Has your neighborhood improved in the last 2-3 years?

Yes ☐

1

No ☐

2

Is there enough public green space in your area?

Yes ☐

1

No ☐

2

SWB Questions

During the 4 weeks preceding this survey

1. Did you feel tired

All of the time

Most of the time

Some of the time

A little of the time

None of the time

2. Did you feel worn out

All of time

Most of time

Some of time

Little of time

None of the time

3. Did you have a lot of energy

All of time

Most of time

Some of time

Little of time

None of time

4. Have you felt full of life

Appendix III

All of time

Most of time

Some of time

Little of time

None of time

5. Have you felt calm and peaceful

All of time

Most of time

Some of time

Little of time

None of time

6. Have you been happy

All of time

Most of time

Some of time

Little of time

None of time

Appendix III

Community Garden Survey

Coordinator Questionnaire

Community Garden Survey

1. When was this garden established?

2. For what reason(s) was this garden set up?

3. How many gardeners are involved in the garden?

4. What is the average yield of the garden?

5. How is the work in the garden distributed?

6. How is the produce distributed?

Garden Coordinator Questionnaire

Community Garden Name:

Coordinator Name:

Contact Number:

- 1. When was this garden established?**
- 2. For what reason(s) was this garden set up?**
- 3. How many gardeners are involved in the garden?**
- 4. What is the average yield of the garden?**
- 5. How is the work in the garden distributed?**
- 6. How is the produce distributed?**

Appendix IV

Locations of Community Gardens in Dublin



Appendix V

Full details of Garden Characteristics

Garden Name	Garden Type	Garden Location	Garden Size	Garden Age	Garden Description
Garden 1	Garden 1	Garden 1	Garden 1	Garden 1	Garden 1
Garden 2	Garden 2	Garden 2	Garden 2	Garden 2	Garden 2
Garden 3	Garden 3	Garden 3	Garden 3	Garden 3	Garden 3
Garden 4	Garden 4	Garden 4	Garden 4	Garden 4	Garden 4
Garden 5	Garden 5	Garden 5	Garden 5	Garden 5	Garden 5
Garden 6	Garden 6	Garden 6	Garden 6	Garden 6	Garden 6
Garden 7	Garden 7	Garden 7	Garden 7	Garden 7	Garden 7
Garden 8	Garden 8	Garden 8	Garden 8	Garden 8	Garden 8
Garden 9	Garden 9	Garden 9	Garden 9	Garden 9	Garden 9
Garden 10	Garden 10	Garden 10	Garden 10	Garden 10	Garden 10
Garden 11	Garden 11	Garden 11	Garden 11	Garden 11	Garden 11
Garden 12	Garden 12	Garden 12	Garden 12	Garden 12	Garden 12

Robert Emmet community garden (Bridgefoot street)	3	Allotments	Community development program to engage members of the local community	54	37 individual gardeners 7 groups with approx. 2-7 members in each	
Stiric Compost Garden (Stoneybatter)	6	Communal Garden	To compost kitchen waste and experiment with growing a sample range of vegetables and herbs	Shared communal garden	8	Work is distributed through monthly group work and individual spontaneous moments. The produce used for street parties and divided among gardeners.
Cherryorchard	1	Communal Garden & Allotments	As one of the community development initiatives in the Cherryorchard regeneration program	Communal garden: 14 beds 1 Poly tunnel 1 Raised Bed Allotments: 40	10 adults 5 children 1 older persons group	Work in the communal garden and produce from the garden is distributed evenly. Some produce sold during fetes to raise money for garden
South Circular Road Dolphins Barn	4	Communal Garden	Bring local community together, to forge better communication and revise antisocial behavior in area. Increase awareness about the environment and to look after it.	Shared communal garden	5-6	The work is distributed among gardeners depending on their experience and horticultural knowledge. The produce is distributed among gardeners and a local soup kitchen.
Greenhills	3	Allotments	To improve disused land.	15 allotments	20	This is a residents owned community garden – the allotments are rented out on an annual basis. There is a communal community garden, this is a flower garden and does not contain fruit or vegetables. Each allotment holder owns their own produce that they grow. They cannot sell their produce. In practice they use the produce themselves or donate to friends and neighbours.
Serenity Community Garden (Phibsborough)	2	Communal Garden	Community and landscape improvement	Shared communal garden	3-10	Gardeners take on work load voluntarily Gardeners and local residents help themselves to the produce.

Santry (within the victorian walled garden in Santry Demesne)	1	Communal Garden	<p>Development of gardening and cultivation skills.</p> <p>To allow cooperative work with local groups to promote the ethos of the club.</p> <p>Development and maintenance of the walled garden within sentry demesne, emphasizing heritage and the community garden.</p> <p>To ensure the gardens are a relevant, vibrant and useful venue for community events and initiatives and a valuable amenity for all Santry Community Garden Members, and the general public using the park facilities.</p> <p>To adhere where possible and practicable, to sustainable green practices including organic principles.</p> <p>To ensure the Garden is physically accessible and inclusive.</p>	Shared communal garden	160 members of which 30 are regular gardeners	<p>This is a structured, clearly organized community garden. There is an elected Head gardener who is responsible for drawing up planting plans and scheduling works. Two other Senior Gardeners work with the head gardener and allocate work within the garden.</p> <p>A 'To Do' list is drawn up by the head and senior gardeners on a monthly basis, posted on the website and in the garden shed – the list is updated after each gardening session.</p> <p>The produce is distributed on an informal basis all produce harvested is put on a produce table and is available to anyone in the garden.</p>
De Courcy square (Glasnevin)	2	Mostly Allotments but there are some communal plots	Residents have used the square for allotments since the 1st World War.	22	22 gardeners	<p>As plots become available they can be applied for on an annual basis.</p> <p>Produce from each plot is for private consumption however there are some communal herb plots.</p>
Weaver square (The Liberties)	April 2011	Allotments & a community garden	To create and provide a green space in the Liberties for use by local residents.	28 individual allotments 1 community garden	28 allotment holders. 10 community gardeners	<p>Times and tasks are divided up among the community gardeners. The individual allotment holders are responsible for looking after their spaces.</p> <p>People are very generous and share their produce from the allotment.</p>

Summerrow (North Circular Road)	2	Communal Garden	To clean up a dump and create a growing space suitable for children to grow flowers and vegetables. To create a space suitable for holding community events such as film screenings.	Shared communal garden	10-15	Work is carried out by whoever attends the garden and the produce can be used by those working in the garden.
Sean McDermott street	2011		To support unemployed men in the community by enabling them to participate in a purposeful activity		15 approx	Men volunteer to do tasks appropriate to their ability Produce shared among all men.