



University of Essex

## Sharing the Harvest: Interim Report

The Health and Wellbeing Benefits of Community Gardens for Vulnerable Adults

Brighton & Hove



An independent University of Essex  
report for Brighton & Hove Food  
Partnership

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*Brighton and Hove Food Partnership's Sharing the Harvest Interim Report*

Brighton and Hove Food Partnership is a non-profit organisation that helps people learn to cook, to eat a healthy diet, to grow their own food and to waste less food.

Since October 2014 The Food Partnership has been delivering, 'Sharing the Harvest', a project funded by Big Lottery Fund's 'Reaching Communities', which aims to help more vulnerable adults access community gardens to improve their health and wellbeing.

For the purpose of this report, the term vulnerable adults refers to individuals who are living with or have experienced one or more of a range of the following conditions or situations: physical disability, sensory impairment, long-term illness and/or unemployment, autistic spectrum disorder, mental health conditions, abuse, dementia, alcohol and / or substance misuse, homelessness, being vulnerably housed.

This interim progress report is an independent evaluation by the University of Essex highlighting the impact that the project has had on vulnerable adults from October 2014-September 2016.

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national strategic health and wellbeing priorities.

## Executive Summary

### Overview

This report presents the University of Essex's independent evaluation of Brighton and Hove Food Partnership's citywide 'Sharing the Harvest' community gardening project.

Key findings indicate that the Sharing the Harvest project delivers significant benefits and improvements in mental health and wellbeing, physical health and activity, and skills and confidence for vulnerable adults in support of local and national strategic health priorities,

### Purpose of this report

This report seeks to:

- Describe the Sharing The Harvest project, and its unique service as a coordinator of city wide community gardening projects for vulnerable adults;
- Support the significant body of national evidence that now exists to demonstrate the positive impact of community gardening on physical activity and mental health and wellbeing;
- Outline the robust evaluation methods adopted by nationally recognised Green Exercise Research Team of the University of Essex to demonstrate the impacts of Sharing The Harvest;
- Report quantitative and qualitative research findings regarding the impacts of the Sharing The Harvest project.
- Suggest recommendations emanating from the reports' key findings, including promoting further integration of community gardening into mainstream health policy, practice and commissioning, in support of local and

### Sharing The Harvest

Brighton and Hove Food Partnership's 3-year 'Sharing the Harvest' project aims to improve the physical health and mental wellbeing of vulnerable adults within in the city through community gardening.

The project stems from the Food Partnership's successful 'Harvest Community Food Growing' project which was funded by the Big Lottery Local Food Fund from 2009-2013 to increase the amount of fresh fruit and vegetables that were grown within the city.

An independent evaluation, by the University of Brighton, of Harvest's first four years found the project contributed to a tripling of the number of community gardens in Brighton and Hove from 25 to 75, and helped thousands of new people take part in growing through volunteering, training and events.

The evaluation also showed involvement in community gardens led to improved mental wellbeing from spending time outdoors, making new friends and increasing skills and confidence and improved physical health from gardening or eating shared meals on site.

A key finding of the Harvest evaluation was the degree to which vulnerable adults in particular were found to benefit from being involved in community gardens, relative to the general population. In October 2014 The Food Partnership was awarded a £500,000 Big Lottery Reaching Communities grant to deliver 'Sharing the Harvest' to help more vulnerable adults (those with learning disabilities, autism or those with experience of homelessness, mental health issues, abuse

and addiction) access community gardens to improve their health and wellbeing.

Brighton and Hove Food Partnership coordinate and manage this unique city wide community gardening programme, which now involves over 14 community-based organisations, including existing community garden groups that are open to all; and gardens run for specific groups of vulnerable adults, e.g. via homeless hostels or mental health support services.

From September 2014 – end of September 2016, the project has engaged 1300 vulnerable adults, of which, almost 350 are individuals with learning disabilities or autism. The project estimates that at least 900 people attended a community garden; other received volunteering advice but may not have progressed.

The project has provided a unique and bespoke community garden referral service (a personalised advice service to help individuals to find an appropriate community garden experience) for individuals. 330 vulnerable adults received one-to-one advice, and 300 more attended talks about volunteering. The project delivered 35 training events, visits and workshops, together reaching over 300 people. These actions have supported community gardening groups within the city, and enabled more vulnerable adults to have access to and benefit from community gardens.

### **Community Gardens for Health and Wellbeing**

Community Gardens are areas of land gardened collectively by a group of people. They vary considerably in size and location, in the scope of gardening activities carried out within them, in their overall purpose or focus and in the range of people who are involved

in them. This diversity is one of their key attributes in that they appeal to all kinds of different people for different reasons. One of the unifying qualities of community gardens is that they are found to provide physical health, mental wellbeing and social benefits to participants.

There is now a significant body of research evidence that demonstrates that nature-based interventions can help deliver against each of the New Economic Foundations' Five Ways To Wellbeing (a set of government commissioned evidence-based actions which promote people's wellbeing which include Connect; Be Active; Take Notice; Keep Learning; Give), which also forms an integral part of Brighton and Hove City Council's Mental Health and Wellbeing Strategy 2014-2017.

Community gardening activities specifically have been shown to improve mental, physical and social health, as evidenced in the recently published Kings' Fund Report on Gardens and Health (Buck, 2016).

These findings are particularly pertinent to Brighton and Hove, where the number of people with mental health needs is higher than the national average, and wellbeing projects commonly say that they lack capacity to support people with extra needs. The Brighton and Hove NHS Clinical Commissioning Group and Brighton and Hove City Council's Mental Health and Wellbeing Strategy 2014-2017 stated the need to improve mental wellbeing and emotional resilience in the city for all residents, but especially those with vulnerability to mental health problems. The Brighton and Hove Health and Wellbeing Board strategy published in 2013 identified mental health and wellbeing, and good nutrition as priority areas where it could make the greatest

impact. The Sharing The Harvest project is thus well placed to contribute to the delivery of some of these priorities.

### **The University of Essex's Evaluation of Sharing The Harvest**

Brighton and Hove Food Partnership commissioned the Green Exercise Research Team at the University of Essex to carry out an independent, academic evaluation of Sharing The Harvest, to examine how participation in community gardens impacted the physical and mental health of vulnerable adults in Brighton and Hove.

This evaluation focused on four main themes:

- (i) Mental Health and Wellbeing
- (ii) Physical Health and Activity
- (iii) Skills and Confidence
- (iv) Connection to Nature

### **Methods**

The University of Essex's evaluation of Sharing The Harvest was predominantly questionnaire based, with Brighton and Hove Food Partnership providing a range of complimentary monitoring data to demonstrate the scale and breadth of the project.

Five composite questionnaires were developed, comprising a mixture of internationally recognised, standardised measures (single-item physical activity measure, Brief Resilience Scale, life satisfaction, happiness), bespoke questions and free text questions. Questionnaires were used to collect data both from individual participants and from groups of attendees, across a range of time periods within the project, in order to investigate both short-term (start to end of single sessions) and longer-term (3 - 6 months) impacts of community gardening on health and wellbeing. Using discussion based group

questionnaires as well as individual questionnaires ensured that those with learning disabilities or those who might not be otherwise able or willing to complete the individual questionnaires could also be part of the evaluation.

Data included in this interim report was collected across Years 1 and 2 of the Sharing the Harvest project (with funding being granted in September 2014, and data being collected from January 2015 to September 2016). Of all participants to complete or contribute to any questionnaire, a pooled sample of 498 was achieved. Of this sample, 173 participants were vulnerable adults, with 141 being recorded as non-vulnerable and 184 were not classified both due to participants' reporting and for methodological reasons.

A total sample of 265 participants (128 males, 137 females) contributed to the **Group questionnaires**. Of those sampled during Year 2 (sample size = 140), 60 participants were identified as vulnerable adults, 8 participants were non-vulnerable adults, and 72 participants were unclassified in relation to vulnerability (this breakdown was not enabled via Year 1 Group questionnaire methodology; the Group questionnaire was redesigned to enable this data capture for Year 2).

There was a total of 68 **matched Start and End of a single session Snapshot questionnaires**. Of this sample, 36 participants were classified as being vulnerable adults.

A total of 165 Initial long-term questionnaires were completed, and a total of 63 Follow-up Long-term questionnaires were completed. There was a total of 47 **matched Initial and Follow-up long-term questionnaires**. Of this sample, 29 participants were classified as being vulnerable adults.

### Key Findings

Key findings of the University of Essex evaluation indicate that the Sharing the Harvest project promotes improvements in mental health and wellbeing, physical health and activity, and skills and confidence, as well as elements of social wellbeing.

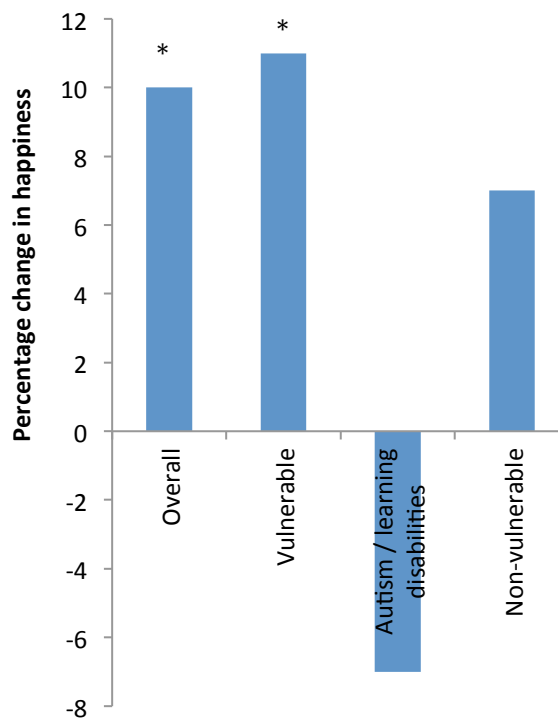
100% of all respondents to an item about long-term impacts, within the Long-term Questionnaires reported feeling that their participation in community gardens would lead to positive long-term impacts.

Of participants who responded to a question on long-term impact via the group questionnaire (sample size = 62), 80% of responding individuals reported that they felt their coming to the garden would have a positive impact on them in the future (through greater physical activity, greater sense of purpose and improved food growing/eating behaviours).

#### **(i) Mental Health and Wellbeing**

- Of participants who responded to the question on mental health via the group questionnaire (sample size = 232), 96% of participants reported that attending the community gardening sessions had improved their happiness, mood or wellbeing.
- Questionnaire data found that single gardening sessions resulted in a statistically significant 10% increase in reported happiness for the overall sample and a statistically significant 11% increase for vulnerable adults, from the start to the end of a single community gardening session (Figure 5).

**Figure 5. Percentage change in happiness scores reported at start and end of single sessions** (\* indicates statistical significance at an alpha level of 0.05)



- Community gardening was also associated with long-term (3–6 month) enhancement of life satisfaction, although not statistically significant.
- The key themes identified in relation to mental health and wellbeing improvements were the enhancing of individuals' sense of purpose, emotional relaxation associated with time spent in green spaces, and community gardening functioning as important time away from daily life stresses.

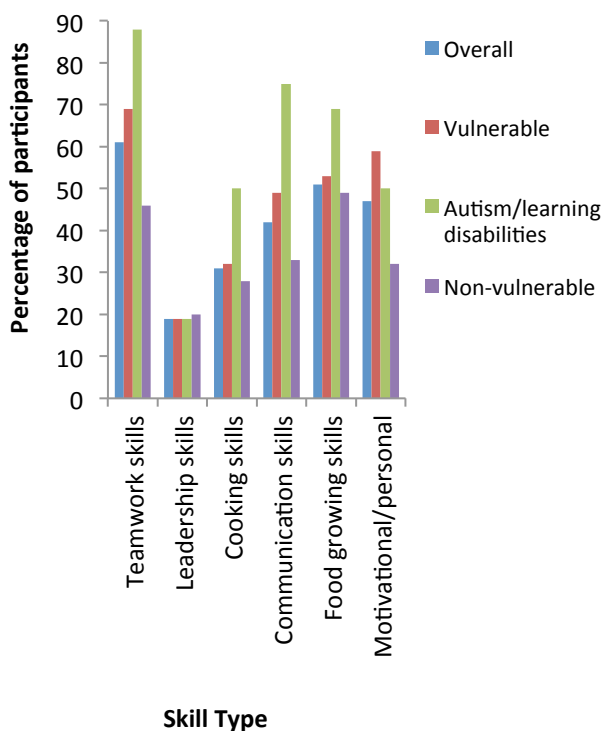
#### **(ii) Physical health and activity**

- Of participants who responded to a question on physical health via the group questionnaire (sample size = 160), 86% of participants reported that attending the community gardening sessions had improved their physical health.

- Average perceived physical health improvement reported via long-term questionnaires was 12%, with vulnerable individuals reporting highest improvements of 18%.
- For the sample overall there was a long-term increase in the number of portions of fruit and vegetables consumed per week (11%).

**(iii) Skills and confidence**

**Figure 8. Percentage of participants who reported gaining different skill types, by subgroup**



- Community gardening sessions were evidenced to improve social skills and confidence, and confidence to cook, and offer opportunity for learning new skills including specific food-growing skills.
- Within the group questionnaire, 88% of respondents reported that attending the community gardening sessions had

functioned to improve their skills or confidence (sample size = 236).

- 61% of all attendees, 69% of the vulnerable adults, and 88% of the autism and learning disabilities subsample reported gaining teamwork skills via the long-term questionnaires.
- 42% of the overall sample, 49% of vulnerable adults, and 75% of the autism and learning disabilities subsample reported that they gained communication skills through their attendance at the community gardens.
- 47% of the overall sample, 59% of vulnerable adults, and 50% of the autism and learning disabilities subsample reported that they had gained motivation or personal development skills through their attendance at the community gardens.
- 22% of vulnerable individuals, 29% individuals with learning disabilities or autism, and 25% non-vulnerable individuals respectively felt more confident cooking and preparing their own meals at the follow-up time point compared to the initial time point.
- 42% of vulnerable adults and those with a learning disability or autism increased the frequency with which they cooked home cooked meals at the follow-up time point compared to the initial time point.
- Attendance enhanced the extent that individuals felt that ‘there are people in my life who really care about me’, with greatest percentage increase reported by the autism and learning disabilities subgroup (24%).

**(iv) Connection to Nature**

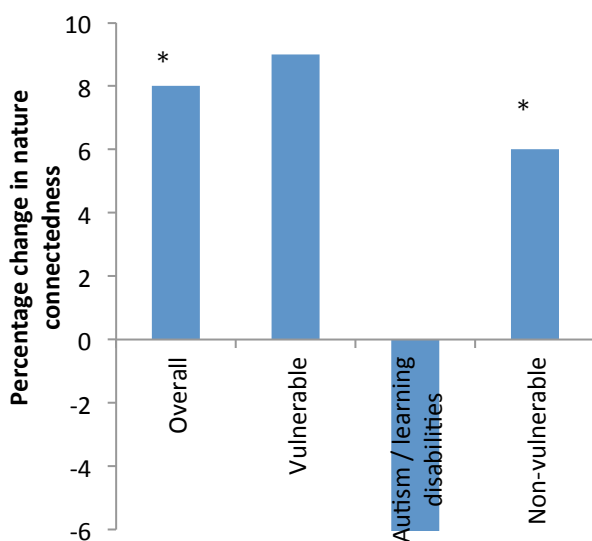
As indicated in the Introduction of this report, research shows that nature connection improves health and wellbeing).

- Single community gardening sessions resulted in a statistically significant 8%

increase in reported connection to nature, with vulnerable adults reporting a significant 11% increase (Figure 10).

- Sharing the Harvest gardening activities functioned to maintain or increase frequency of contact with greenspaces for 85% of respondents.

**Figure 10. Percentage change in mean nature connectedness scores reported at start and end of single sessions (\* indicates statistical significance at an alpha level of 0.05)**



### Concluding comments and recommendations

With over 75 community garden projects within Brighton and Hove, the Food Partnership has a critical role as coordinator and voice for this sector - promoting and supporting garden projects and helping new people to find the most appropriate garden for them.

The findings presented in this report suggest that the **Sharing the Harvest community gardening project significantly benefits the health and wellbeing** of both the Brighton and Hove community as a whole, and specific vulnerable adult groups.

This evaluation concludes that community gardening, **such as that afforded by Sharing the Harvest, can positively impact upon the physical health, mental wellbeing, skills, confidence and social support of vulnerable adults on a citywide scale, thus contributing to Brighton and Hove NHS Clinical Commissioning Group and Brighton and Hove City Council’s Mental Health and Wellbeing Strategy.**

Echoing the key recommendations of the Kings’ Fund Report, the findings of this evaluative report supports the notion for the **further integration of community gardens into mainstream health policy, practice and commissioning**, in support of local and national strategic priorities.

This interim report recommends that the **beneficial outcomes offered by community gardening should be harnessed and promoted by local and national authorities, for public health and wellbeing improvements.**

A further recommendation is the **continued gathering of robust evidence** to further demonstrate and understand the efficacy of community gardening for health and wellbeing (specifically for “hard to reach” groups such as those with learning disabilities and autism spectrum disorders where recognised and appropriate evaluation methods are less well developed).

With particular reference to the final year of the Sharing the Harvest Project, further efforts should be made to ensure that questionnaire methods used for those with a learning disability, autism and other hard to reach groups are appropriate and fit for purpose to allow more robust and reliable results for this beneficiary group.

## **Introduction**

### **Sharing the Harvest Community Gardening project**

Brighton and Hove Food Partnership's 3-year 'Sharing the Harvest' project aims to help vulnerable adults in the city, as well as local residents at large, to attain the mental and physical health benefits offered by community gardening. For the purpose of this report, the term vulnerable adults refers to individuals who are living with or have experienced one or more of a range of the following conditions or situations: physical disability, sensory impairment, long-term illness and / or unemployment, autistic spectrum disorder, mental health conditions, abuse, dementia, alcohol and / or substance misuse, homelessness, vulnerably housed.

Brighton & Hove has over 75 independent community garden projects, which range in location, size & focus - many are run by volunteers, though some are linked to professional organisations, e.g. homeless hostels or recovery centers. The Food Partnership acts as a coordinator and voice for this vibrant sector - promoting and supporting garden projects and helping new people to find the most appropriate garden for them. 'The Food Partnership's work is open to all local residents, but the Sharing the Harvest project provides focused resources to support vulnerable adults that experience the largest barriers to participation

Sharing the Harvest is a partnership-based project, and involves over 14 community-based organisations, including community garden groups that are open to all and gardens run for specific groups of vulnerable adults. Sharing the Harvest also aims to help gardens to improve their accessibility to vulnerable groups and their sustainability for the future through the provision of a wide range of personalised training, advice, and support for projects. The focus of all Sharing the Harvest community gardening groups is food growing, but activities range in scale and scope and include activities such as allotment gardening and food growing, cooking and sharing communal meals using produce grown in the garden, development of community greenspaces for relaxation, and nature connection courses for people with experience of various mental health issues to improve wellbeing.

Research shows that adults with mental health issues often need help in accessing programmes which fit their needs, to enable them to live and be active in their local communities (World Health

Organisation, 2016). Here, a key component of the Sharing the Harvest project is that Food Partnership staff provide advice, workshops, courses and taster sessions for individuals, volunteer coordinators, and community groups (of vulnerable and non-vulnerable adults) interested to try gardening or setup a new garden within the city. They uniquely also offer one-to-one advice and support for people who want to find an appropriate community garden project to attend. The Food Partnership gives advice about gardens to over 400 people each year; in Year 1 of Sharing the Harvest, 43% of these enquiries were from vulnerable adults and in Year 2 this rose to 68%. At the time of finalising this report, 64% of the vulnerable adults had come via referrals from local services (such as mental health services), community groups support staff workers, recovery projects, hostel settings and mental health services. Detail of specific projects are given in the Appendix of this report.

## **Background**

Sharing the Harvest is timely and of relevance to recent policy and strategic recognition of the importance of gardening for mental and physical health at both national and local levels. The NHS' 5 Year Forward View outlines that the role of gardening in supporting health should be considered as part of three of its key programmes (New Models of Care; Healthy New Towns; and Social Movements for Health) (NHS England, 2014, Buck, 2016), and a recent Kings Fund's report recommended that clinical commissioning groups should include gardening as one of many opportunities for patients in social prescribing projects (Buck, 2016). The World Health Organisation's Mental Health Action Plan 2013-2020 highlights the critical importance of the provision of comprehensive, integrated mental health and social care services in community-based settings, and the implementation of strategies for promotion and upstream prevention (World Health Organisation, 2016). This is particularly pertinent when it is considered that only about a quarter of people with a mental health issue receive on-going treatment, the majority of people are currently experiencing mental health issues on their own, dependent on the informal support of family, friends or colleagues (McManus et al., 2009, Mental Health Foundation, 2015). There is now substantial and consistent evidence that nature-based activities such as community gardening promote a range of beneficial physical and mental health outcomes. By being brought into the mainstream, gardening can be an important mechanism for reaching health policy goals, nationally and locally (Buck, 2016).

Brighton and Hove NHS Clinical Commissioning Group and Brighton and Hove City Council's Mental

Health and Wellbeing Strategy 2014-2017 stated the need to improve mental wellbeing and emotional resilience in the city for all residents, but especially those with vulnerability to mental health problems (Brighton & Hove NHS CCG and Brighton & Hove City Council, 2014). In Brighton and Hove, the number of people with mental health needs is higher than the national average. Brighton and Hove has a large number of vulnerable adults including high levels of dual diagnosis, homelessness, rising levels of dementia and 36,000 people identified as having anxiety / depression.

In Brighton and Hove, the few specialist projects that support mental health clients are oversubscribed, whilst many 'generic' projects say they lack capacity to support people with extra needs. The Brighton and Hove Health and Wellbeing Board strategy published in 2013 identified mental health and wellbeing, and good nutrition as priority areas where it could make the greatest impact, and both Brighton and Hove NHS CCG and Brighton and Hove City Council have expressed an intention to move from an illness and treatment model to a holistic approach of promoting wellbeing and resilience (Brighton & Hove NHS CCG and Brighton & Hove City Council, 2014).

## Evidencing the benefits of community gardening for physical health and mental health and wellbeing

Community gardening is the use of an area of land for any kind of gardening activity by community groups. The focus of the gardening activity can be that of horticulture, agriculture or creating, improving or maintaining a community space to be enjoyed by gardeners and / or others. Community gardens are often owned by government bodies, trusts or other non-profit organisations, and whereas gardening per se is often an activity performed in isolation, a key component of community gardening is that it is organised to be a group activity, facilitating social interaction.

The efficacy of community gardening as an intervention for health and wellbeing is increasingly being recognised (Buck, 2016), with existing literature also highlighting the benefits of human interaction with greenspaces more generally. And whilst the various health benefits now recognised are important in their own right, mental and physical health are complexly interrelated (British Medical Association, 2014); indeed, “mental and physical wellbeing are intertwined; there really can be no health without mental health”, and vice versa (Brighton & Hove NHS CCG and Brighton & Hove City Council, 2015).

Contact with natural environments can provide multiple benefits for human health and wellbeing, and sense of community. These benefits occur via numerous mechanisms, such as physical activity, reduction in stress and anxiety, increased positive mood, self-esteem and resilience and improvements in social functioning and inclusion (Hanna and Oh, 2000, Pretty et al., 2004, Pretty et al., 2005, Maller et al., 2008, Barton et al., 2009, Thompson Coon et al., 2011, Brown et al., 2013, Gladwell et al., 2013, White et al., 2013, Bragg et al., 2014, Lovell et al., 2014, Wood et al., 2014, Buck, 2016). Indeed, nature-based interventions such as community gardening can facilitate each of New Economic Foundations’ Five Ways to Wellbeing (Aked et al., 2009, Bragg et al., 2015):

- (i) **Connect-** by promoting connections with nature and other people, thus increasing social inclusion;
- (ii) **Be active-** by enabling people to take part in exercise and activities in natural environments, thereby gaining physical and mental health benefits;
- (iii) **Take notice-** by encouraging people to take notice of nature and the green environment and gaining the associated mental health benefits and an increased connectedness to nature;

- (iv) **Keep learning-** by promoting skill development and learning about the self;
- (v) **Give-** By allowing people to give through sharing and supporting each other, working as a team, volunteering their time and giving back to nature through the restoration of natural environments.

As outlined in Figure 1, engagement with green environments can benefit all (Gladwell et al., 2013), and activities in nature can be harnessed as therapeutic applications for vulnerable groups in society; such applications have been collectively termed ‘Green Care’, or ‘Ecotherapy’ (Bragg R. et al., 2013, Sempik and Bragg, 2013). Given the growing concerns about poor physical and mental health, health inequalities and the increasing costs of maintaining good public health; the natural environment is likely to be a valuable tool for combatting these issues (Bragg et al., 2015). In the paragraphs that follow, evidence as to the specific physical health and mental wellbeing benefits of community gardening are outlined.

	<b>Everyday life –</b> <i>General population</i>	<b>Health promotion –</b> Nature-based activities <i>General population</i>	<b>Green Care –</b> Nature-based therapy or treatment intervention <i>People with a defined need</i>
<b>Experiencing nature</b>	View from window (at home or work)	Restorative landscapes and gardens	Green exercise (as a treatment intervention) Nature therapy; Wilderness therapy
	Green exercise	Green exercise initiatives e.g. Walking for Health	
<b>Interacting with nature</b>	Gardening/Horticulture (at home or work)	Social and Therapeutic Horticulture (STH) Community food growing Community gardening	Social and Therapeutic Horticulture (STH) Community food growing (as a treatment intervention) Horticultural Therapy (HT)
	Forestry, environmental conservation (at work or at home)	Environmental conservation groups	Environmental conservation (as a treatment intervention) Ecotherapy
	Farming	Community farming; city farms; one-off care farm visits	Care Farming
	Animal-based recreation (dog walking, fishing, horse riding)	Animal Assisted Activities (AAA)	Animal Assisted Therapy (AAT)

Source: Adapted from Haubenhofer, Bragg et al., 2010; Sempik and Bragg, 2013; Bragg 2014

**Figure 1. The different contexts in which an individual may engage with nature** (Source: Bragg and Atkins, 2015).

## **Community gardening for mental health and wellbeing**

The balance of evidence indicates conclusively that experiencing nature makes us generally happier, healthier people (Russell et al., 2013, Capaldi et al., 2015). Being outdoors, directly engaging with wildlife and voluntarily working to improve local green spaces promotes a number of benefits for wellbeing, as participants receive high levels of satisfaction from nature-based activities and experience personal autonomy (O'Brien et al., 2008, O'Brien et al., 2011). This is important because autonomy is understood to be a basic psychological need that directly impacts psychological wellbeing (Deci and Ryan, 2000). Another basic psychological need via which gardening can function to improve wellbeing is that of competence. Community garden projects provide opportunity for development of knowledge and skills; and individuals' perceived increases in their own competence impacts positively on wellbeing. Gardening per se, and allotment gardening more specifically promote neuroendocrine and emotional restoration from stress, and improvements in mood and self-esteem (Van Den Berg and Custers, 2010, Wood et al., 2015), and resilience can also benefit from participation in community gardens (Okvat and Zautra, 2011, Buck, 2016). Brighton and Hove City Council and CCG's wellbeing strategy considers resilience to be an important facet of wellbeing, defining it as the ability 'to cope with upsetting or difficult life events, to learn from mistakes and bad experiences and then be able to leave them behind' (Brighton & Hove NHS CCG and Brighton & Hove City Council, 2014). This strategy suggests that feeling connected and able to contribute to the community is an important aspect of resilience. Community gardens enhance space for communication, information-sharing, and deliberate co-learning, especially among diverse garden members (King, 2008).

## **Community gardening for physical health**

In the UK 26% of women and 19% of men are currently classed as physically inactive (Health and Social Care Information Centre, 2015). Here, nature-based activities such as community gardening serve as opportunities for physical activity, which is important because physical activity are associated with quality of life and a range of mental and physical health outcomes such as type-2 diabetes, heart disease, obesity and some cancers positive affect, mood states, and emotional, functional and spiritual elements of wellbeing (Lane and Lovejoy, 2001, Penedo and Dahn, 2005, Warburton et al., 2006, Reed and Buck, 2009, Pasco et al., 2011); indeed, the evidence that regular physical activity has important and wide-ranging health benefits is overwhelming (Blair, 2009). Gardening is related to health across the life-course; in older adulthood, gardens become much more important to us as a source of physical activity, with gardening being one of the most common

activities that older adults engage in (Department for Culture, 2015, Buck, 2016). This is partly because it provides the opportunity for exercise at a range of activity levels as desired by the individual, for example, gentle, light touch exercise, or more rigorous digging. Many participants at community gardens also walk to and from their home to the garden site, gain cookery skills, improve their diet and cook more meals from scratch, offering additional physical health benefits. The UK government's Eat Well Guide suggests individuals should eat five portions of fruit and vegetables per day (Public Health England, 2016). However, in the financial year of 2015/2016, on average, 45% of men, and 41% of women ate fewer than 3 portions of fruit and vegetables a day (Health and Social Care Information Centre, 2016). Diet or dietary patterns play critical roles in obesity and other pathophysiological conditions (Lee et al., 2013). Here, food growing programmes offer opportunity for improved nutrition via diet (Flanigan and Varma, 2006, Leake et al., 2009), and generally, involvement in community gardens has shown increased consumption of fresh fruit and vegetables (McCormack et al., 2010, Ferres and Townshend, 2012).

### **Community Gardening and social isolation, skills and confidence**

A unique aspect of community gardening compared to normal gardening, is that it provides opportunity for social interaction and connection between individuals within the local community. It can also provide a stepping-stone for individuals to then engage with other social activities or with their community. The social aspect of community gardening is important because the quality and quantity of social relationships affect physical and mental functioning and health (Uchino et al., 1996, Cacioppo and Hawkley, 2003, Umberson and Montez, 2010). Indeed, community support is a key determinant of mental health (World Health Organisation, 2016). The term 'social isolation' refers to a lack of contact with family or friends, community involvement, or access to services (Davidson and Rossall, 2014). Age UK's 2014 Loneliness Evidence Review outlines that social isolation can be a risk factor for loneliness, which impacts on physical and mental health, and quality of life (Cattan, 2002, Cattan et al., 2005, Davidson and Rossall, 2014). Here, additionally to factors such as frequency of contact with friends, family, and children, social isolation can be significantly impacted by participation in social activities (Shankar et al., 2011); gardening can be a way to break down social boundaries (Christian et al., 2014).

Community gardening offers provision for social experiences and the development of social skills and confidence. Social skills are important for wellbeing as they function to enhance the extent of individuals' connectedness, which constitutes one of the five ways to wellbeing (Aked et al.,

2009). As previously described, community garden projects also provide opportunity for development of gardening-specific knowledge and skills; and individuals' perceived increases in their own competence impacts positively on wellbeing. Further, volunteering in nature creates social capital and reduces social isolation by connecting individuals to communities, allowing them to meet other people, and providing opportunity for individuals to become an active member of their community (Bragg et al., 2015). Indeed, gardening is associated with increased neighbourhood attachment, and supports social interaction with family, friends and neighbours (Ferres and Townshend, 2012). Community garden sites can provide a 'sanctuary' promoting social connectedness and facilitating individuals in defining their own role in their community (Kingsley et al., 2009).

### **Community Gardening and Nature connectedness**

Nature connectedness reflects the extent to which an individual includes nature as part of their identity (Schultz, 2002) and as such is robustly correlated with psychological wellbeing, meaningfulness and vitality (Cervinka et al., 2011). Although nature relatedness is considered to be relatively stable, it can be shaped and changed by our experiences over time. Individuals who are more connected to nature tend to experience more positive affect, vitality, and life satisfaction compared to those less connected to nature (Capaldi et al., 2014). That is, exposure to greenspace may function may be a mechanism by which to reduce income-related health inequalities within communities (Mitchell and Popham, 2008), with socioeconomic inequality in mental wellbeing 40% narrower among respondents reporting good access to green/recreational areas, compared with those with poorer access (Mitchell et al., 2015). Across England there is currently large inequality in access to greenspace (Balfour and Allen, 2014); here, community gardening provides opportunity for all individuals across a community to engage with nature, thereby enabling these pathways between greenspace exposure, nature relatedness and mental wellbeing to develop and strengthen.

## **The Current Evaluation**

The evaluative element of this report consists of an independent evaluation by the University of Essex (UoE), which seeks to address how community gardening impacts the following four key areas in relation to different Sharing the Harvest beneficiary groups (vulnerable adults; adults with learning disabilities or autism; non-vulnerable adults):

- i. Mental health and wellbeing
- ii. Physical health and activity
- iii. Skills and confidence
- iv. Connection to nature

## Methods

A range of quantitative and qualitative data was collected predominantly via questionnaires, with Community Garden Partners also providing quarterly and six monthly monitoring forms. Data was sought in line with the outcome areas of interest, namely mental health and wellbeing, physical health and activity, skills and confidence, and connection to nature. A total of five composite questionnaires were used to collect data across different periods of time and across different community garden settings, in order to investigate both short-term and longer-term impacts of community gardening on health and wellbeing. Using discussion-based group questionnaires as well as individual questionnaires ensured that those with learning disabilities or those who might not be otherwise able or willing to complete the individual questionnaires could also be part of the evaluation. Questionnaires comprised a mixture of internationally recognised, standardised measures, bespoke questions and free text questions. Questionnaires can be found in Appendix C of this report.

## Questionnaire types

The following questionnaires were developed and used with participants:

### *'Initial Long-term Questionnaire' and 'Follow-up Long-term Questionnaires'*

Long-term influences of participation in the Sharing the Harvest project, over a 3-6 month time period, were investigated using 'long-term questionnaires'.

### *'Start of Session Snapshot Questionnaire' and 'End of Session Snapshot Questionnaire'*

Impacts of single Sharing the Harvest community gardening sessions were investigated using 'snapshot questionnaires'. Although the long-term and snapshot questionnaires were not intended for use with individuals who had learning disabilities or autism, these individuals were free to complete these questionnaire types in instances that they wished to do so.

### *'Group Questionnaires'*

These questionnaires were designed to be inclusive of participants with learning disabilities, and autism. They were also frequently used in instances where the individual questionnaires were not appropriate for the setting and where participants would otherwise struggle or be unwilling to complete the other questionnaire types. A session leader completed each Group Questionnaire in order to record participants' reflections on possible impacts of their involvement in the Sharing the Harvest project. The session leader read the questions aloud and encouraged responses to be given both by 'a show of hands' and verbally. These "Group" questionnaires were initially always carried out within a group setting, but over the course of the project it was found to be useful to also use them on a 1-2-1 basis in a "Question and Answer" format (for individuals who might not be keen/able to contribute within a group).

## Sample categorisation

Within the long-term and snapshot questionnaires, participants were identified as either vulnerable or non-vulnerable adults via a tick box menu, completed by participants. Within the group questionnaires, classification was made by the group session leader, to the best of their knowledge. Vulnerable adults were those identified to have experienced or be currently experiencing at least one physical disability; sensory impairment; learning disability / difficulty; long term illness and / or

unemployment; abuse; autistic spectrum disorder; mental health condition; dementia; alcohol, homelessness, and/or substance misuse.

## Measures

An overview of the quantitative and qualitative measures comprising each questionnaire type is given in Table 1. Detailed description and explanation of each measure can be found in Appendix A. Measures are grouped by the outcome areas of interest: mental health and wellbeing; physical health and activity; skills and confidence; connectedness to nature. Qualitative data generated is presented across the relevant outcome areas to which their findings relate (i.e. mental health and wellbeing; physical health and activity; skills and confidence; connectedness to nature).

**Mental health and wellbeing items** measured facets of mental health and wellbeing such as self-esteem and happiness.

**Physical health and activity measures** addressed aspects of healthy eating (how much fruit and vegetables participants tend to consume), physical activity levels and perceived changes and status of physical health.

**Skills and confidence items** addressed the gaining or improvements in skills relating to food preparation, team building and leadership skills, social interaction, and confidence associated with those.

**Participation reflections items** offered participants the opportunity to consider impacts that their participation in community gardening might have had on their lives.

**Connection to nature** items measured two aspects about participants: their level of nature connectedness and their frequency of contact with greenspace.

**Table 1. Measures by Questionnaire**

Outcome area	Measure	Questionnaire type				
		Validated or bespoke	Initial Long-term	Follow-up Long Term	Snapshot Start of Session	Snapshot End of Session
Mental health and wellbeing	Resilience	Brief Resilience Scale (Smith et al., 2008)	✓	✓		
	Mental wellbeing	Warwick-Edinburgh Mental Wellbeing Scale (Tennant et al., 2007)	✓	✓	✓	✓
	Life satisfaction	Single-item life satisfaction (Office for National Statistics, 2013)	✓	✓	✓	✓
	Happiness (at this moment in time)	Single-item happiness (Office for National Statistics, 2013)			✓	✓
	Self-esteem	Bespoke			✓	✓
	Reported changes in mental health					✓
Physical health and activity	Rated physical health	Bespoke	✓	✓	✓	✓
	Physical activity frequency	Single-item physical activity measure (Milton et al., 2010)	✓	✓	✓	
	Healthy eating	Bespoke	✓	✓	✓	
	Reported changes in physical health	Bespoke				✓
Skills and confidence	Preparation of own meals	Bespoke	✓	✓		
	Skills gained	Bespoke		✓		✓
	Social skills	Bespoke	✓	✓		

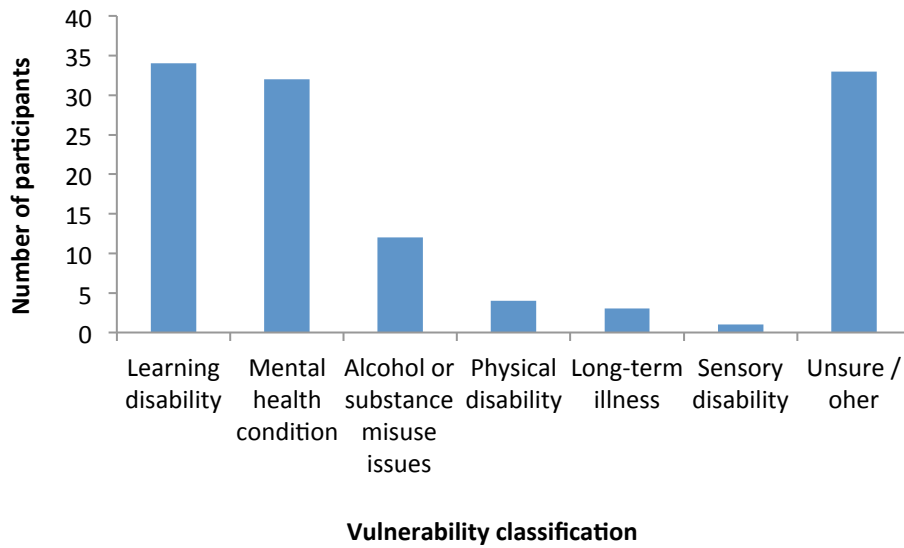
	Reported changes in skills and confidence	Bespoke							✓
<b>Connection to nature</b>	Contact with greenspaces	Bespoke	✓	✓					
	Nature connectedness	Bespoke	✓	✓	✓		✓		
<b>Participation reflections</b>	Importance scales (of activities undertaken)	Bespoke		✓				✓	
	Expected future impacts	Bespoke		✓					✓
	Reflection on project experience	Bespoke		✓				✓	✓

## Data samples and analyses

Data included in this interim report was collected across Years 1 and 2 of the Sharing the Harvest project (with funding being granted in September 2014, and data being collected from January 2015 to September 2016). All data analyses was completed using IBM SPSS version 19. For measures only collected on one occasion (typically those that of a reflective nature, e.g. skills gained via participation), data is reported in order to indicate trends. For measures where changes in values are of interest (e.g. mental wellbeing), only matched data is included in analyses; that is, instances whereby data at *both* relevant time points has been obtained (e.g. both at the start and end of a single session via the Snapshot questionnaires). Mean (*M*) data values and percentage changes are reported in tables for these measures. Paired samples t-tests were used to test for statistical significance. Where sample sizes were small, a non-parametric alternative to the paired t-test, the Wilcoxon rank sign test, was used. Statistical values are only reported in instance of statistical significance.

Of all participants to complete or contribute to any questionnaire, a pooled sample of 498 was achieved. Of this sample, 173 participants were vulnerable adults, with 141 being recorded as non-vulnerable and 184 were not classified both due to participants' reporting and for methodological reasons.

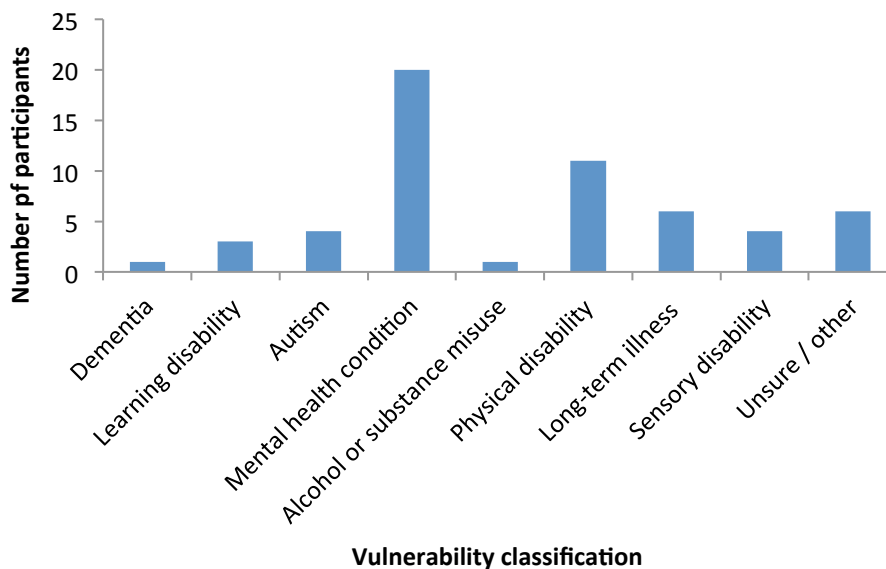
A total sample of 265 participants (128 males, 137 females) contributed to the **Group questionnaires**. Of those sampled during Year 2 (sample size = 140), 60 participants were identified as vulnerable adults, 8 participants were non-vulnerable adults, and 72 participants were unclassified in relation to vulnerability. Of those classified as vulnerable, 34 participants had a learning disability, 32 had a mental health condition, 12 had alcohol or substance misuse issues, 4 participants had a physical disability, 3 had long-term illness 1 had a sensory disability, zero had dementia, or were autistic, and session leaders were unsure as to 33 participants (Figure 2). Number of participants with individual vulnerabilities exceeds the total number of vulnerable participants because participants could recognise more than one categorised vulnerability (e.g. tick boxes both for dementia and for physical disability). This breakdown was not enabled via the Year 1 Group questionnaire methodology; the Group questionnaire was redesigned to enable this data capture for Year 2.



**Figure 2. Number of vulnerable participants contributing to group questionnaire**

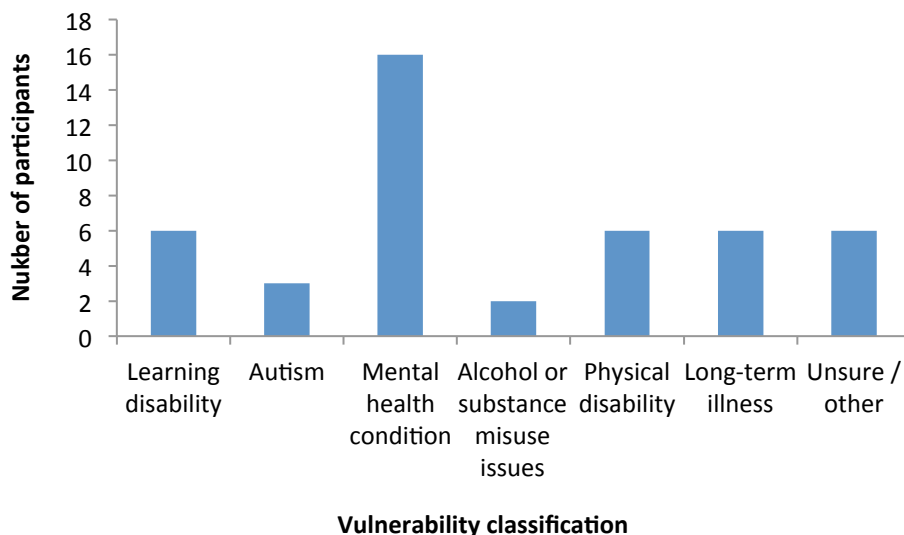
There was a total of 68 *matched Start and End of a single session Snapshot questionnaires* (30 male, 38 female). The age of this sample ranged from 19 – 77 years ( $M= 43.2 \pm 17.6$  years). Of this sample, 36 participants were classified as being vulnerable adults (15 male, 21 female; age  $M= 43.0 \pm 17.5$  years). Of these vulnerable adults, 20 had a mental health condition, 11 had a physical disability, 6 had a long-term illness, 4 participants were classified as being autistic, 4 had a sensory impairment, 3 had a learning disability, 1 had dementia, 1 had alcohol or substance misuse issues, 3 was unsure and 3 classified themselves as having an ‘other’ vulnerability (Figure 3).

**Figure 3. Number of matched Start and End of single session questionnaires completed by vulnerable participants**



A total of 165 Initial long-term questionnaires were completed, and a total of 63 Follow-up Long-term questionnaires were completed. There was a total of 47 **matched Initial and Follow-up long-term questionnaires** (27 male, 18 female, 2 unknown). The age of this sample ranged from 20 – 74 years ( $M=48.3 \pm 15.9$  years). Of this sample, 29 participants were classified as being vulnerable adults (18 male, 9 female, 2 unknown; age  $M=45.5 \pm 14.6$  years). Of these vulnerable adults, 16 had a mental health condition, 6 had a learning disability, 6 had a physical disability, 6 had long-term illness, 3 participants were classified as being autistic, 2 had alcohol or substance misuse issues, 1 was unsure zero had dementia, zero had a sensory impairment, and 5 classified themselves as having an ‘other’ vulnerability (Figure 4).

**Figure 4. Number of matched Initial and Follow-up long-term questionnaires completed by vulnerable participants**



As not all participants completed all measures within the respective questionnaires, sample size varied between measures; therefore, sample size is given for each result reported. For each measure, first, all data were analysed together as an **overall** sample. Data for three subgroups of interest were then analysed in isolation. These subgroups were: (i) autism and/or learning disabilities; (ii) other vulnerable adults (comprising individuals who identified as either having experienced or were currently experiencing one or more of physical disability; sensory impairment; learning disability / difficulty; long term illness and or unemployment; autistic spectrum disorder; mental health condition; dementia; alcohol, homelessness, and/or substance misuse); (iii) non-vulnerable adults. Results for each measure are presented for in line with these overall and subgroup analyses. Qualitative data obtained across all questionnaire types is presented following the quantitative measures within each relevant section of the

results (e.g. skills and confidence). Where qualitative data is known to be from individuals of the subgroups of interest, this is indicated.

## Results

### Attendance figures

In total, from September 2014 – end of September 2016, the Sharing the Harvest project has engaged 1300 vulnerable adults, of which, almost 350 are individuals with learning disabilities or autism. The project estimates that at least 900 people attended a community garden; other received volunteering advice but may not have progressed (Table 2).

Total data collected by the Initial Long-term Questionnaire indicated that 78% of participants attended a garden project at least once a week. For the *matched data* across Initial and Follow-up Long-term Questionnaires, participants' attendance frequency dropped over the 3-6 month period, whereby only 86% of participants attended at least once per week at the follow-up time-point, compared to 91.5% at the initial time-point (Table 3).

**Table 2. Number of individuals reached by action and participant vulnerability**

Action	Participants by vulnerability			Total Sharing the Harvest (not including non-vulnerable adults)
	Autism and learning difficulties	Other vulnerable adults	Non-vulnerable adults	
Volunteering advice	44	291	391	335
Volunteering talks	97	197	258	294
Taster sessions	44	116	65	160
Garden participants	159	440	587	599
<i>Total</i>	<i>344</i>	<i>1044</i>	<i>1301</i>	<i>1388</i>

The 'Sharing the Harvest' project covers the Food Partnership's work with vulnerable adults in gardens and is funded by the Big Lottery Fund, whilst work with non-vulnerable adults is funded separately.

**Table 3. Attendance frequency by questionnaire type**

Questionnaire type	Attendance frequency						
	3-4 times a week	Twice a week	Once a week	Once a fortnight	Once a month	Once every 6 months	Not been yet
Initial long-term (sample size = 132)	9%	17%	52%	6%	11%	2%	3%
Matched Initial long-term (sample size = 36)	19%	5.5%	67%	5.5%	3%	0%	0%
Matched Follow-up long-term	8%	17%	61%	8%	0%	6%	0%

## Mental health and wellbeing

### Happiness

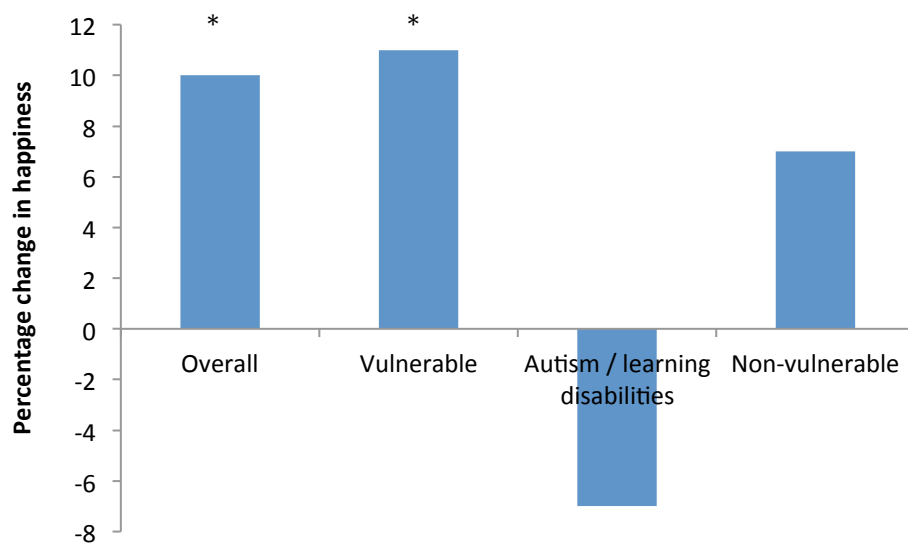
For the overall sample, a paired samples t-test found that a 10% increase in reported happiness from start to end of a single sessions was statistically significant ( $t_{67} = -3.0, p < 0.01, 95\% \text{ CI } [-1.1, -0.2]$ ). For the vulnerable sample, an 11% increase from start to end of a single sessions was statistically significant ( $t_{35} = -2.1, p = 0.04, 95\% \text{ CI } [-1.3, -0.03]$ ) (Table 4 and Figure 5).

**Table 4. Findings for Happiness**

Questionnaire type	Mean ( <i>M</i> ) values by participant group			
	<i>Overall</i>	<i>Vulnerable</i>	<i>Autism / learning disabilities</i>	<i>Non-vulnerable</i>
<i>Snapshot</i>	Initial <i>M</i> = 6.9; Follow-up <i>M</i> = 7.6	Initial <i>M</i> = 6.4; Follow-up <i>M</i> = 7.1	Initial <i>M</i> = 7.5; Follow-up <i>M</i> = 7.0	Initial <i>M</i> = 7.6; Follow-up <i>M</i> = 8.1
	10% increase* (Sample size = 68)	11% increase* (Sample size = 36)	7% decrease (Sample size = 6)	7% increase (Sample size = 31)

\* indicates statistical significance at an alpha level of 0.05

**Figure 5. Percentage change in happiness scores reported at start and end of single sessions**



\* indicates statistical significance at an alpha level of 0.05

### **Perceived changes in in mental health**

Of participants who responded to the question on mental health via the group questionnaire (sample size = 232), 96% of participants reported that attending the community gardening sessions had improved their happiness, mood or wellbeing (0.5% reported that attending had not improved their physical health; 3.5% were unsure). Qualitative evidence accompanying this numerical finding is included within the 'Qualitative findings for mental health and wellbeing' subsection that follows.

### **Qualitative findings for mental health and wellbeing**

Within participants' responses across the different questionnaire types, the gardening sessions were evidenced to improve mental health and wellbeing. The key themes identified in relation to mental health and wellbeing improvements were the enhancing of individuals' sense of purpose, and emotional relaxation associated with time spent in green spaces, as well as community gardening functioning as important time away from daily life stresses. Examples are given in Table 5.

**Table 5. Qualitative findings for mental health**

Identified Theme	Examples	Sample sub-group
	<i>'It made me feel useful and purposeful.'</i>	Vulnerable
	<i>It lifts my mood and you feel like you are actually doing something useful for the day.</i>	Non-vulnerable
	<i>'This place is like home to me'</i>	Vulnerable
Sense of purpose	<i>'Seeing the results of my labours'</i>	Vulnerable
	<i>'Sense of purpose, and having a regular commitment'</i>	Non-vulnerable
	<i>'It lifts my mood and I feel like I've done something useful for the day. It sets me up for the day, I feel energised for the rest of the day'</i>	Vulnerable
	<i>'I really like working outside. I feel like I'm doing the right thing, like I'm doing something purposeful. It makes me feel like a 'normal' person'</i>	Vulnerable
	<i>'I've been brought up working and taking pride in my work and this has given me a chance to do that and remember that I can be that person, that I am that person'</i>	Vulnerable
	<i>'I don't have any work now so to come up here and work hard, it's a life saver for me'</i>	Vulnerable
	<i>'I have been coming up for six years, when I moved into the hostel there were no activities, then the garden came on about 4 months later. When I got better I moved out. I keep coming because I like the outdoor space and the company. I think it's really important to have for people in hostels, especially the flexibility'</i>	Vulnerable
	<i>'Relaxing, like watching seeds grow. Being outside makes me feel better'</i>	Non-vulnerable
Nature-stimulated relaxation	<i>'Fresh air and generally seeming better'</i>	Non-vulnerable
	<i>'Air, water and the colour green'</i>	Non-vulnerable
	<i>'Being outside and working with a really great group. Probably the reason I am positive most of the time'</i>	Non-vulnerable
	<i>'It works miracles, Brighton town is chaos, so to come here is nice and relaxing'</i>	Vulnerable
	<i>'Listening to the wind, the peacefulness, the calm. I enjoy the jobs but it is serenity and tranquil and I feel that I can breathe'</i>	Vulnerable

	<i>'My head goes crazy with nothing to do due to the ADHD. Here I am peaceful , calm, I can chat to people, make friends, people accept me , I can just be chilled and not stressed about ,my life and social situations'</i>	Vulnerable
	<i>'I love nature; it's so nice so close to Brighton but away from the madness. Hostel environments are crazy so a break away from that is needed so you don't lose yourself in that'</i>	Vulnerable
	<i>'I felt shattered this morning but now I feel invigorated. Listening to the birds I've got a great uplifted feeling'</i>	Vulnerable
	<i>'I feel calmer from being here with the plants and the fresh air. It's been therapeutic for me'</i>	Vulnerable
	<i>'I feel inspired to create a life for myself that involves being out in nature regularly'</i>	Vulnerable
	<i>'I suffer from anxiety and the gardening sessions are calming and boost my mood. I leave feeling more relaxed. It's nice to hear from passers-by how much they appreciate seeing the veg plot and admire it.'</i>	Vulnerable
	<i>The garden reduces stress by looking at the plants</i>	Vulnerable
	<i>'Sometimes when I am depressed I miss coming but I know that if I make the effort to get here I will instantly feel better'</i>	Vulnerable
Time away from daily stresses	<i>'Relaxed + less stressed. Happy to get away from inside (spend most of the week indoors)'</i>	Vulnerable
	<i>'...out of the house, helps me to feel happy. The garden makes me feel relaxed'</i>	Vulnerable
	<i>'The scenery and trees are just gorgeous and helped me to feel relaxed. It takes me away from the miserable people in my shared house, city smells and the stress of the city and the crap where I live.'</i>	Vulnerable
	<i>I can just be chilled and not stressed about my life and social situations.</i>	Vulnerable

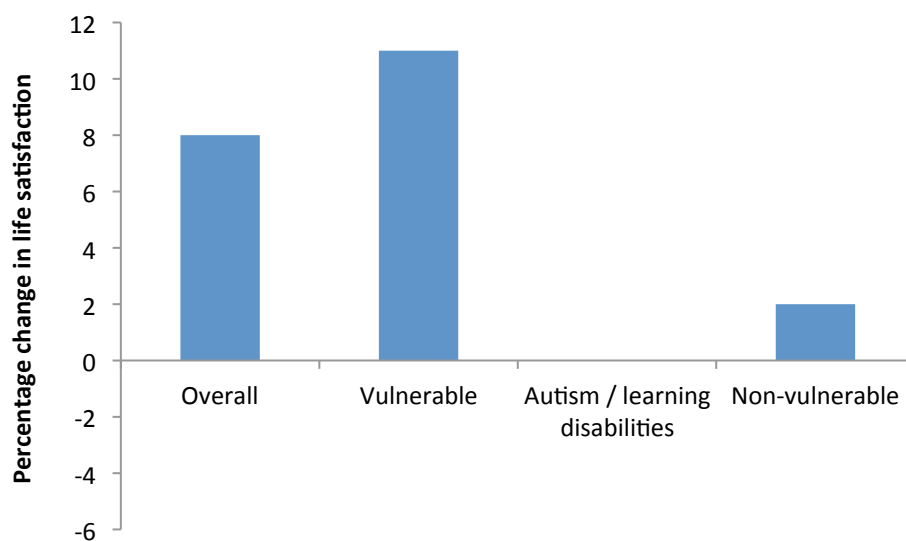
## Life Satisfaction

Life satisfaction of vulnerable adults increased by 11% over the 3-6 months from initial to follow-up questionnaire. Across the overall sample an 8% increase was reported (Figure 6). No change was reported by the autism and learning disabilities subgroup. Changes were not statistically significant (Table 6).

**Table 6. Findings for life satisfaction**

Questionnaire type	Mean ( <i>M</i> ) values by participant group			
	<i>Overall</i>	<i>Vulnerable</i>	<i>Autism / learning disabilities</i>	<i>Non-vulnerable</i>
<b>Long-term</b>	Initial <i>M</i> = 6.3; Follow-up <i>M</i> = 6.8	Initial <i>M</i> = 5.5; Follow-up <i>M</i> = 6.1	Initial <i>M</i> = 6.9; Follow-up <i>M</i> = 6.9	Initial <i>M</i> = 8.3; Follow-up <i>M</i> = 8.5
	8% increase (Sample size = 33)	11% increase (Sample size = 23)	0% change (Sample size = 7)	2% increase (Sample size = 10)

**Figure 6. Percentage change in life satisfaction scores reported within Initial and Follow-up Long-term Questionnaires**



## Self-esteem

All subgroups reported increases in self-esteem, although these were not statistically significant (Table 7).

**Table 7. Findings for Self-esteem**

Questionnaire type	Mean ( <i>M</i> ) values by participant group			
	<i>Overall</i>	<i>Vulnerable</i>	<i>Autism / learning disabilities</i>	<i>Non-vulnerable</i>
<b>Snapshot</b>	Initial M= 14.6; Follow-up M= 15.0	Initial M= 14.1; Follow-up M= 14.5	Initial M= 13.8; Follow-up M= 16.0	Initial M= 15.9; Follow-up M= 16.1
	3% increase (Sample size = 40)	3% increase (Sample size = 23)	16% increase (Sample size = 4)	1% increase (Sample size = 16)

## Mental wellbeing

The overall sample reported minor decreases in mental wellbeing both via the long-term questionnaires and in relation to single sessions via the snapshot questionnaires. Changes across subgroups and the overall sample were not statistically significant (Table 8). This finding is in contrast to that of the qualitatively reported perceived changes in mental health, and is inconsistent with previous literature and expectation; the possibility that more accurate reporting may have occurred on the follow-up occasion may be considered, however such assumption raises questions as to why this may function in this way for the current measure but not for others, such as life satisfaction.

**Table 8. Findings for mental wellbeing**

Questionnaire type	Mean ( <i>M</i> ) values by participant group			
	<i>Overall</i>	<i>Vulnerable</i>	<i>Autism / learning disabilities</i>	<i>Non-vulnerable</i>
<b>Long-term</b>	Initial M= 23.9; Follow-up M= 23.2	Initial M= 22.4; Follow-up M= 21.7	Initial M= 25.9; Follow-up M= 22.0	Initial M= 26.8; Follow-up M= 25.8
	3% decrease (Sample size = 34)	3% decrease (Sample size = 22)	15% decrease (Sample size = 8)	4% decrease (Sample size = 12)
<b>Snapshot</b>	Initial M= 24.2; Follow-up M= 24.1	Initial M= 22.5; Follow-up M= 22.2	Initial M= 28.8; Follow-up M= 25.8	Initial M= 26.2; Follow-up M= 26.3
	< 1% decrease (Sample size = 62)	1% decrease (Sample size = 32)	10% decrease (Sample size = 5)	< 1% increase (Sample size = 29)

### Resilience

Resilience decreased across all subgroups. For the overall sample, a paired samples t-test found that a 9% decrease in reported resilience from initial to follow up long-term questionnaire was statistically significant ( $t_{29} = 2.1$ ,  $p = 0.04$ , 95% CI [0.01, 0.72]) (Table 9).

**Table 9. Findings for the Single Item Measure of Resilience**

Questionnaire type	Mean ( <i>M</i> ) values by participant group			
	<i>Overall</i>	<i>Vulnerable</i>	<i>Autism / learning disabilities</i>	<i>Non-vulnerable</i>
<b>Long-term</b>	Initial M= 3.2; Follow-up M= 2.9	Initial M= 2.7; Follow-up M= 2.5	Initial M= 3.3; Follow-up M= 2.7	Initial M= 4.2; Follow-up M= 3.6
	9% decrease* (Sample size = 30)	7% decrease (Sample size = 20)	18% decrease (Sample size = 6)	14% decrease (Sample size = 10)

\* indicates statistical significance at an alpha level of 0.05

## **Physical health and activity**

### **Perceived changes in physical health**

Of participants who responded to the question on physical health via the group questionnaire (sample size = 160), 86% of participants reported that attending the community gardening sessions had improved their physical health (5% reported that attending had not improved their physical health; 9% were unsure). Qualitative evidence accompanying this numerical finding is included within the 'Qualitative findings for physical health' subsection.

### **Qualitative findings for physical health**

Within participants' responses across the different questionnaire types, the gardening sessions were evidenced to provide opportunity for physical activity and healthier diets. Examples are given in Table 10. Via the self-reflection items within the group questionnaire, participants indicated that their involvement in the project had increased their likelihood of being physically active in the future (see Table 24 in the 'Long Term / Future Impacts' subsection).

**Table 10. Qualitative evidence of changes in physical health**

Identified Theme	Examples	Sample sub-group
Gardening sessions provide opportunity for physical activity	<i>'I'm more healthy; I'm using every single muscle in my body. Its great exercise. I sleep better at night... obviously its good for my fitness.'</i>	Vulnerable
	<i>'Yes - I've done much more here than I usually would have done. I'm definitely more active for coming here.'</i>	Learning disability / Autism
	<i>'Good to get more exercise. Exercising in a different way.'</i>	Vulnerable
	<i>'It has helped to maintain fitness as been coming for a long time. I cycle up here and that keeps me fit'</i>	Vulnerable
	<i>'Yes it helps me to get exercise that I wouldn't otherwise have'</i>	Vulnerable
	<i>'This garden is great because it's accessible for all types of people. If someone has a disability you can always find something for them to do. There's not many environments that there is such a variety of things that need to be done, that there's something that everybody can do'</i>	Vulnerable
	<i>'I feel more confident, more healthy, I'm using every single muscle in my body. It's exercise. I sleep better at night'</i>	Vulnerable
	<i>'Inspired me to be outside more - regardless of the weather - so it has led me to be more active. Lovely to be outside, I've enjoyed feeling physically liberated as a result.'</i>	Vulnerable
	<i>'Have become more active at least 1 day, week'</i>	Vulnerable
	<i>'I enjoy the physical activity'</i>	Vulnerable
<i>'Helps with mobility as I suffer from saetica. Also have been active with my own garden to work on aswell.'</i>	Unknown	
Healthy eating	<i>It helps me drink less...coming up here its a day I can cut down the cans'</i>	Vulnerable
	<i>'Eating the food we have grown has been such a treat, it has shown me a part of life I never knew existed for me'</i>	Vulnerable
	<i>'The food and the outdoors'</i>	Vulnerable
	<i>'I definitely eat more salads and lettuce now, I was never a 'salady' person before'</i>	Vulnerable
	<i>It has made me try to stop eating so many crisps and eat food that is better for me</i>	Vulnerable
<i>The garden gives me confidence to try new foods and I'm</i>	Vulnerable	

*more open minded, for e.g. eating a bit **of leaf**.*

*'Coming up to the allotment has influenced my diet changes. I now eat healthier food, mostly vegetarian and have been learning about herbal tea. It has made me think more about what I put in my body. Before I was coming to the allotment I was basically eating junk food before, now I don't eat so many biscuits and cakes. I've been eating salads and shopping at the open market. I've tried new things like Cat made Beetroot and chocolate cake. I even like nasturtiums. You meet new people and they give you new ideas about what to eat. I'm buying organic eggs now and you can really notice the difference to battery hens'*

Vulnerable

*'The space, garden, lunch'*

Non-vulnerable

*'Coming up to the allotment has influenced my diet changes. I now eat healthier food'*

Vulnerable

*'I've lost weight! But that is also to do with my diet'*

Vulnerable

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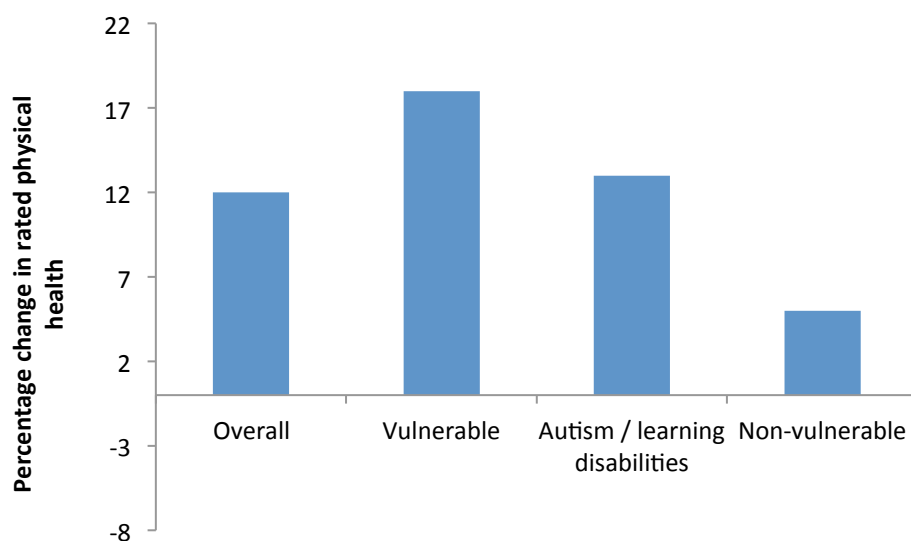
## Rated physical health

Vulnerable individuals reported an 18% average long-term increase in rating of physical health. For the overall sample, average long-term increase of 12% was reported (Figure 7). Only very minor changes were reported from start to end of single sessions. No changes reached statistical significance at the alpha level of 0.05 (Table 11).

**Table 11. Findings for Rated physical health**

Questionnaire type	Mean ( <i>M</i> ) values by participant group			
	<i>Overall</i>	<i>Vulnerable</i>	<i>Autism / learning disabilities</i>	<i>Non-vulnerable</i>
<b>Long-term</b>	Initial <i>M</i> = 6.0; Follow-up <i>M</i> = 6.7	Initial <i>M</i> = 5.1; Follow-up <i>M</i> = 6.0	Initial <i>M</i> = 6.0; Follow-up <i>M</i> = 6.8	Initial <i>M</i> = 7.7; Follow-up <i>M</i> = 8.1
	12% increase (Sample size = 35)	18% increase (Sample size = 24)	13% increase (Sample size = 8)	5% increase (Sample size = 12)
<b>Snapshot</b>	Start <i>M</i> = 6.9; End <i>M</i> = 7.1	Start <i>M</i> = 6.3; End <i>M</i> = 6.5	Start <i>M</i> = 7.8; End <i>M</i> = 7.7	Start <i>M</i> = 7.6; End <i>M</i> = 7.6
	3% increase (Sample size = 68)	3% increase (Sample size = 36)	1% decrease (Sample size = 6)	0% change (Sample size = 31)

**Figure 7. Percentage change in rated physical health scores reported within Initial and Follow-up Long-term Questionnaires**



### Physical activity frequency

Individuals with autism or a learning disability reported a 19% average increase in number of days in the last week that they were physically active. Vulnerable adults overall reported an increase (5%) in physical activity level (Table 12).

**Table 12. Findings for Physical activity frequency**

Questionnaire type	Mean ( <i>M</i> ) values by participant group			
	<i>Overall</i>	<i>Vulnerable</i>	<i>Autism / learning disabilities</i>	<i>Non-vulnerable</i>
<b><i>Long-term</i></b>	Initial <i>M</i> = 3.1 days; Follow-up <i>M</i> = 3.1	Initial <i>M</i> = 2.2 days; Follow-up <i>M</i> = 2.3	Initial <i>M</i> = 2.6 days; Follow-up <i>M</i> = 3.1	Initial <i>M</i> = 5.0 days; Follow-up <i>M</i> = 4.8
	0% change (Sample size = 36)	5% increase (Sample size = 24)	19% increase (Sample size = 8)	4% decrease (Sample size = 12)

## Healthy eating

Both the sample overall and the vulnerable adults subsample reported an 11% long-term increase in the number of portions of fruit and vegetables consumed per week. Although individuals with autism or a learning disability reported a 22% decrease in consumption of fruit and vegetables, the low sample size and lack of statistical significance of the data alludes that this finding was susceptible to enhanced strength of individual data points. This may also be true for the subgroup sample of non-vulnerable adults (Table 13).

**Table 13. Findings for Healthy Eating**

Questionnaire type	Mean ( <i>M</i> ) number of portions by participant group			
	<i>Overall</i>	<i>Vulnerable</i>	<i>Autism / learning disabilities</i>	<i>Non-vulnerable</i>
<b><i>Long-term</i></b>	Initial <i>M</i> = 3.7; Follow-up <i>M</i> = 4.7	Initial <i>M</i> = 2.8; Follow-up <i>M</i> = 3.1	Initial <i>M</i> = 3.6; Follow-up <i>M</i> = 2.8	Initial <i>M</i> = 5.0; Follow-up <i>M</i> = 7.4
	11% increase (Sample size = 29)	11% increase (Sample size = 18)	22% decrease (Sample size = 5)	48% increase (Sample size = 11)

## Skills and confidence

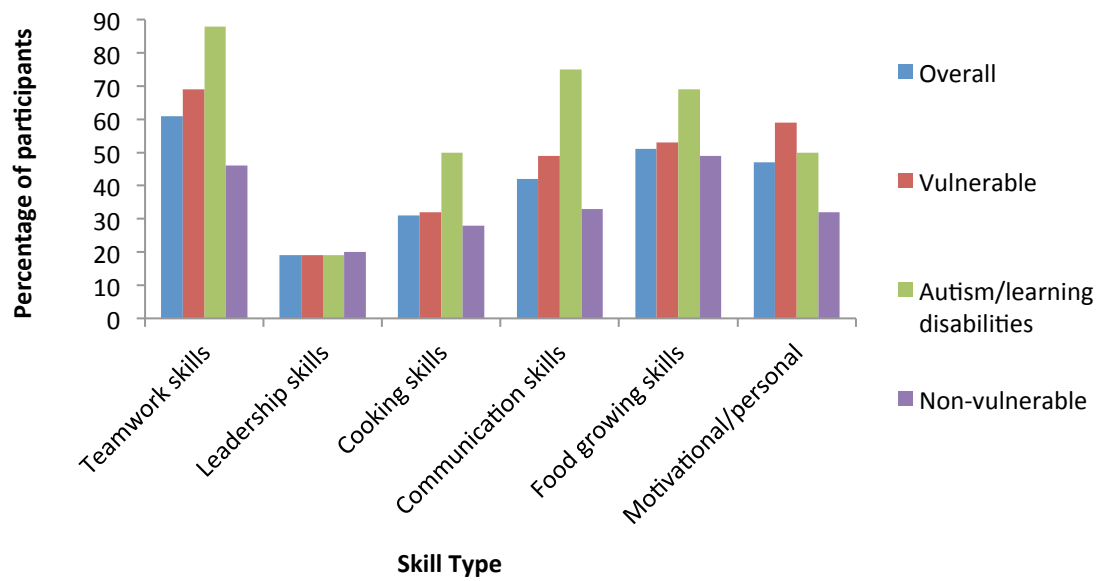
### Skills gained

As this measure was consistent between questionnaire types, data from both the Long-term Follow-up questionnaire and the End of Session Snapshot questionnaire were pooled. Over half of all attendees reported gaining teamwork skills (61%) and food growing skills (51%). 88% of the autism subgroup gained or developed teamwork skills and a further 75% reported gaining communication skills. 69% of vulnerable adults gained or improved teamwork skills, and 59% of this subgroup advanced their motivational / personal development skills (Table 14 and Figure 8).

**Table 14. Percentages of participants who reported that they had gained skills as a result of their attendance**

Skill type	Percentages by participant group			
	<i>Overall</i> (Sample size = 144)	<i>Vulnerable</i> (Sample size = 74)	<i>Autism/learning disabilities</i> (Sample size = 16)	<i>Non-vulnerable</i> (Sample size = 69)
Teamwork skills	61%	69%	88%	46%
Leadership skills	19%	19%	19%	20%
Cooking skills	31%	32%	50%	28%
Communication skills	42%	49%	75%	33%
Food growing skills	51%	53%	69%	49%
Motivational/personal development skills	47%	59%	50%	32%

**Figure 8. Percentage of participants who reported gaining different skill types, by subgroup**



### **Preparation of own meals**

These measures were only included in the long-term questionnaires. Wilcoxon ranked sign test found that for the item: 'I enjoy putting effort and care into the food I eat', 32% of participants more positively agreed with this statement at the follow-up time point compared to the initial time point. For the item of 'I often eat meals cooked from basic ingredients, either by myself or someone else', this figure was 42%. Figures for sub-groups are shown in Tables 15 – 17. For each analysis (overall; subgroups), the changes from initial to 3-6 month follow-up time point were not statistically significant.

**Table 15. I enjoy putting effort and care into the food I eat**

	<b>Participant group</b>			
	<b>Overall</b> (Sample size = 34)	<b>Vulnerable</b> (Sample size = 22)	<b>Autism/learning disabilities</b> (Sample size = 7)	<b>Non-vulnerable</b> (Sample size = 12)
Percentage of participants who more positively agreed with this statement at the follow-up time point compared to the initial time point.	32%	32%	29%	33%
Percentage of participants who agreed with this statement to a lesser extent at the follow-up time point compared to the initial time point.	12%	18%	29%	0%
Percentage of participants reporting no change (Sample size = 12)	56%	50%	42%	67%

**Table 16. I often eat meals cooked from basic ingredients, either by myself or someone else**

	<b>Participant group</b>			
	<b>Overall</b> <i>(Sample size = 31)</i>	<b>Vulnerable</b> <i>(Sample size =22)</i>	<b>Autism/learning disabilities</b> <i>(Sample size = 7)</i>	<b>Non-vulnerable</b> <i>(Sample size = 9)</i>
Percentage of participants who more positively agreed with this statement at the follow-up time point compared to the initial time point.	42%	41%	43%	44.5%
Percentage of participants who agreed with this statement to a lesser extent at the follow-up time point compared to the initial time point.	16%	18%	14%	11%
Percentage of participants reporting no change	42%	41%	43%	44.5%

**Table 17. I feel confident cooking and preparing my own meals**

	<b>Participant group</b>			
	<b>Overall</b> <i>(Sample size =35)</i>	<b>Vulnerable</b> <i>(Sample size = 23)</i>	<b>Autism / learning disabilities</b> <i>(Sample size = 7)</i>	<b>Non-vulnerable</b> <i>(Sample size = 12)</i>
Percentage of participants who more positively agreed with this statement at the follow-up time point compared to the initial time point.	23%	22%	29%	25%
Percentage of participants who agreed with this statement to a lesser extent at the follow-up time point compared to the initial time point.	17%	22%	14%	8%
Percentage of participants reporting no change	60%	56%	57%	67%

### **Reported changes in skills and confidence**

Within the group questionnaire (sample size = 236), 88% of participants reported that attending the community gardening sessions had functioned to improve their skills or confidence (6% reported that attending had not improved their skills or confidence; 6% were unsure). Qualitative evidence accompanying this numerical finding is included within the ‘Qualitative findings for skills and confidence’ subsection that follows.

### **Qualitative findings for skills and confidence**

Within participants’ responses across the different questionnaire types, the gardening sessions were evidenced to improve social skills and confidence, and confidence to cook, and offer opportunity for learning new skills including specific food-growing skills. Examples are given in Table 18. The prominence of learning new knowledge and skills resonates with the ‘Keep Learning’ component of the Five Ways to Wellbeing.

**Table 18. Qualitative findings for skills and confidence**

Identified Theme	Examples	Sample sub-group
Improved social skills and confidence	<i>'It has brought me out of myself'</i>	Vulnerable
	<i>'I really enjoy the social aspect of the demo garden as I really need to challenge my tendency to isolate when I am depressed.'</i>	Vulnerable
	<i>'Meeting people with same interest'</i>	Vulnerable
	<i>'Confidence - yes especially to seek out new places'</i>	Vulnerable
	<i>'I feel more at ease meeting new people and socially'</i>	Non-vulnerable
	<i>'Have made new friends, looking forward to seeing people again'</i>	Non-vulnerable
	<i>'I am a bit more used to being around people now more than anything, because a couple of years ago I was diagnosed with schizophrenia and was on my own a lot'</i>	Vulnerable
	<i>'If I look back to how I was when I first started I have changed so much in my confidence and social skills so yes, that will change my future life'</i>	Vulnerable
	<i>'When I first moved in I felt quite isolated but now having this garden space which we all share, it feels to me like having a family'</i>	Vulnerable
	<i>'It's such a comfortable way of being with people; there is no pressure so that helps my anxiety'</i>	Vulnerable
	<i>'Coming to the course has increased my confidence in speaking in front of people in a group.'</i>	Vulnerable
	<i>'It helps you get on better with people and helps your social skills, you mix with people in a nice way, have nice chats'</i>	Vulnerable
	<i>'Helped me feel more confident in front of other people'</i>	Non-vulnerable
Confidence to cook	<i>'Gives me the confidence to try new foods'</i>	Vulnerable
	<i>It's widened my ability to cook vegan food and changed my perspective of how easy it is to cook without egg. My confidence in cooking demo's has improved massively! Broadened my range of ideas for cooking</i>	Vulnerable
	<i>'I have tried out quite a few of the recipes at home and I am keen to try them out in courses'</i>	Vulnerable

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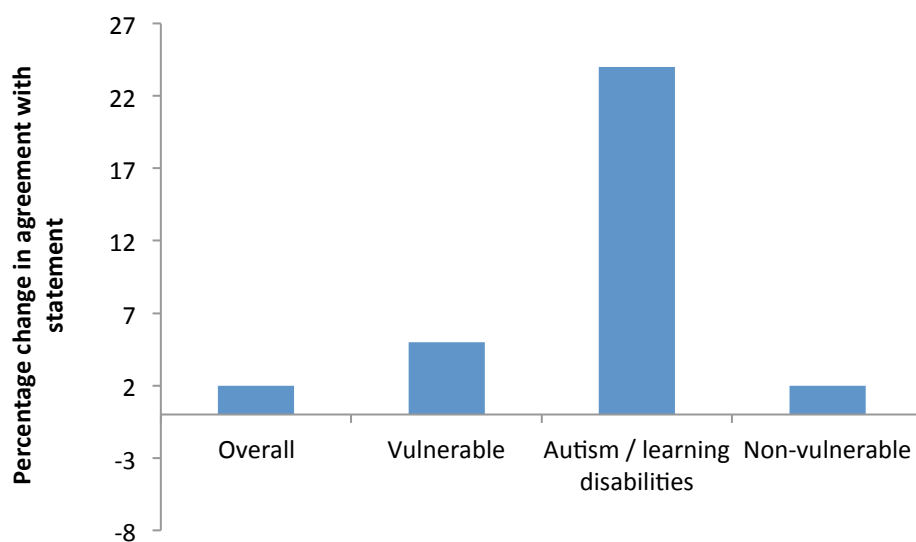
	<i>'Learnt new skills'</i>	Non-vulnerable
Learning and gaining skills, including specific food-growing skills	<i>'I've learnt skills so now I can apply to college to do landscaping. I've learnt how to do wood chopping. I can use my skills from college here'</i>	Vulnerable
	<i>'Learning new gardening skills'</i>	Vulnerable
	<i>'Learning about fruit and veg and growing'</i>	Vulnerable
	<i>'Learning new ideas'</i>	Non-vulnerable
	<i>'(I have learned...) how to cook outdoors. Harvesting fruit + veg. Weeding + learning about different weeds'</i>	Vulnerable
	<i>'The people, and feeling like you've given a little bit back. It's nice to keep coming and see the changes, I came a month ago and the tomatoes were just being planted and now they're ready to be harvested'</i>	Vulnerable
	<i>'I am gaining experience as I work, learning about the construction of things such as petal shaped herb beds'</i>	Vulnerable
	<i>'Yes – my practical skills have improved, like digging, weeding, seed sowing, bark-chipping, watering and sculpture'</i>	Vulnerable
	<i>'Learned more about brassicas and carrots and general gardening'</i>	Unknown

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## Social skills and confidence

The autism and learning disabilities subsample reported a 24% increase in the extent to which they felt that 'There are people in my life who really care about me'. The vulnerable adults subgroup (5%) and the overall sample (2%) also reported improvements in this measure. All subgroups reported long-term worsening in terms of the difficulty they felt in sharing their hobbies or interests with others. One possibility here is that as community gardening became more pronounced as a hobby for participants, they may have felt that they have less in common with non-gardening friends from existing friendship groups. Paired samples t-test showed that none of these changes were statistically significant (Figure 9 and Table 19).

**Figure 9. Percentage change in scored agreement with the statement 'There are people in my life who really care about me', reported within Initial and Follow-up long-term questionnaires**



**Table 19. Changes in social skills and confidence**

Item statement	Mean ( <i>M</i> ) values by participant group			
	<i>Overall</i>	<i>Vulnerable</i>	<i>Autism / learning disabilities</i>	<i>Non-vulnerable</i>
<b><i>I find it difficult to meet people who share my hobbies or interests</i></b>	Initial M= 2.4; Follow-up M= 2.8  17% increase (worsening) (Sample size = 31)	Initial M= 2.9; Follow-up M= 3.2  10% increase (worsening) (Sample size = 21)	Initial M= 3.3; Follow-up M= 3.7  12% increase (worsening) (Sample size = 7)	Initial M= 1.5; Follow-up M= 1.9  27% increase (worsening) (Sample size = 10)
<b><i>I regularly meet socially with friends and relatives</i></b>	Initial M= 3.6; Follow-up M= 3.6  0% change (Sample size = 31)	Initial M= 3.3; Follow-up M= 3.4  3% increase (improvement) (Sample size = 21)	Initial M= 3.8; Follow-up M= 3.6  5% increase (improvement) (Sample size = 8)	Initial M= 4.3; Follow-up M= 3.9  9.3% decrease (worsening) (Sample size = 10)
<b><i>There are people in my life who really care about me</i></b>	Initial M= 4.1; Follow-up M= 4.2  2% increase (improvement) (Sample size = 31)	Initial M= 4.0; Follow-up M= 4.2  5% increase (improvement) (Sample size = 21)	Initial M= 3.7; Follow-up M= 4.6  24% increase (improvement) (Sample size = 7)	Initial M= 4.3; Follow-up M= 4.2  2% decrease (worsening) (Sample size = 10)

## Connection to nature

### Contact with greenspaces

18% of respondents increased the frequency of their contact with greenspaces over the 3-6 month course of their attendance to the community gardens. The greatest proportion of respondents reported maintenance their frequency of contact (Table 20).

**Table 20. Long-term change in frequency of individuals' contact with green space**

	Participant group			
	<i>Overall</i> (Sample size = 33)	<i>Vulnerable</i> (Sample size = 22)	<i>Autism / learning disabilities</i> (Sample size = 6)	<i>Non-vulnerable</i> (Sample size = 10)
Percentage of participants who reported more frequent contact with green spaces at the follow-up time point compared to the initial time point.	18%	14%	0%	27%
Percentage of participants who reported less frequent contact with green spaces at the follow-up time point compared to the initial time point.	15%	18%	17%	9%
Percentage of participants reporting no change	67%	68%	83%	64%

## Nature connectedness

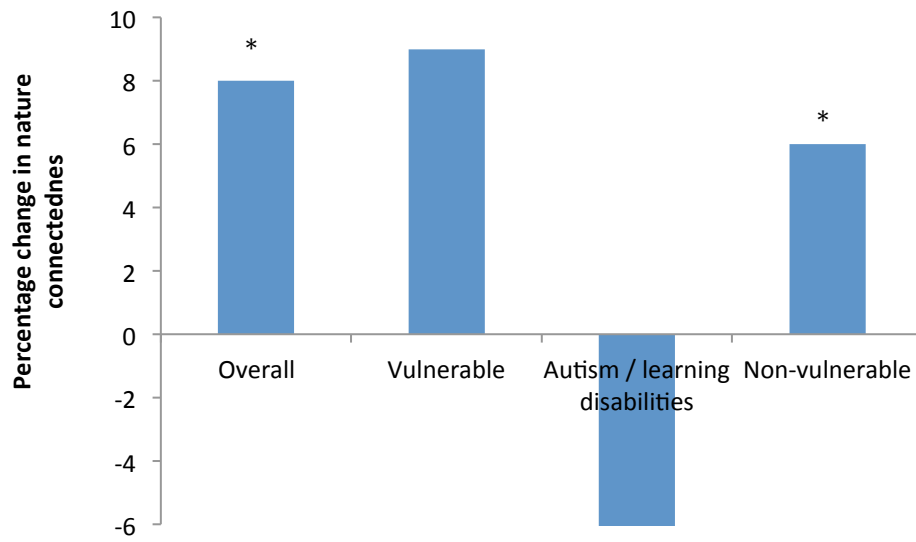
For the overall sample, a paired samples t-test found that an 8% increase in reported nature connectedness from start to end of a single sessions was statistically significant ( $t_{63} = -2.6$ ,  $p = 0.01$ , 95% CI [-1.0, -0.1]). For the non-vulnerable sample, a 6% increase from start to end of a single sessions was statistically significant ( $t_{29} = -2.3$ ,  $p = 0.03$ , 95% CI [-0.9, -0.1]). Vulnerable individuals reported a 9% increase over the course of single sessions, however, greater variance in the data contributed to this not being statistically significant (Figure 10). Reported changes in nature relatedness within the long-term questionnaires were not statistically significant (Table 21).

**Table 21. Findings for Nature Connectedness**

Questionnaire type	Mean ( <i>M</i> ) values by participant group			
	<i>Overall</i>	<i>Vulnerable</i>	<i>Autism / learning disabilities</i>	<i>Non-vulnerable</i>
<b>Long-term</b>	Initial <i>M</i> = 7.3; Follow-up <i>M</i> = 7.5	Initial <i>M</i> = 6.7; Follow-up <i>M</i> = 7.4	Initial <i>M</i> = 6.5; Follow-up <i>M</i> = 7.4	Initial <i>M</i> = 8.5; Follow-up <i>M</i> = 7.7
	3% increase (Sample size = 34)	10% increase (Sample size = 23)	14% increase (Sample size = 8)	9.4% decrease (Sample size = 11)
<b>Snapshot</b>	Initial <i>M</i> = 7.4; Follow-up <i>M</i> = 8.0	Initial <i>M</i> = 6.8; Follow-up <i>M</i> = 7.4	Initial <i>M</i> = 7.5; Follow-up <i>M</i> = 6.0	Initial <i>M</i> = 8.2; Follow-up <i>M</i> = 8.7
	8% increase* (Sample size = 64)	9% increase (Sample size = 33)	20% decrease (Sample size = 4)	6% increase* (Sample size = 30)

\* indicates statistical significance at an alpha level of 0.05

Figure 10. Percentage change in mean nature connectedness scores reported at start and end of single sessions



\* indicates statistical significance at an alpha level of 0.05

## Participation reflections

### Importance Scales

Across both the End of a Single Session Snapshot Questionnaire and the Long-term Follow-up Questionnaire, all subgroups indicated that they had found being outside in nature of high importance during their project participation. For the overall sample, each of the three facets were rated as more important than not (all mean scored values are over 7 out of a possible 11) (Table 22).

**Table 22. Findings for Importance Scales**

Questionnaire type	Importance scale	Mean ( <i>M</i> ) values by participant group			
		<i>Overall</i>	<i>Vulnerable</i>	<i>Autism / learning disabilities</i>	<i>Non-vulnerable</i>
<b>End of Session Snapshot</b>	<i>Being outside in nature</i>	<i>M</i> = 8.3 (Sample size = 44)	<i>M</i> = 8.2 (Sample size = 27)	<i>M</i> = 9.0 (Sample size = 8)	<i>M</i> = 8.5 (Sample size = 17)
	<i>Being with other people</i>	<i>M</i> = 7.9 (Sample size = 45)	<i>M</i> = 7.8 (Sample size = 28)	<i>M</i> = 8.9 (Sample size = 8)	<i>M</i> = 8.1 (Sample size = 17)
	<i>The gardening / activity</i>	<i>M</i> = 8.0 (Sample size = 43)	<i>M</i> = 7.9 (Sample size = 26)	<i>M</i> = 8.4 (Sample size = 7)	<i>M</i> = 8.2 (Sample size = 17)
<b>Long-term Follow Up</b>	<i>Being outside in nature</i>	<i>M</i> = 9.2 (Sample size = 64)	<i>M</i> = 8.9 (Sample size = 34)	<i>M</i> = 8.2 (Sample size = 5)	<i>M</i> = 9.7 (Sample size = 29)
	<i>Being with other people</i>	<i>M</i> = 8.4 (Sample size = 64)	<i>M</i> = 7.8 (Sample size = 34)	<i>M</i> = 6.7 (Sample size = 6)	<i>M</i> = 9.1 (Sample size = 29)
	<i>The gardening / activity</i>	<i>M</i> = 8.6 (Sample size = 64)	<i>M</i> = 8.3 (Sample size = 34)	<i>M</i> = 7.4 (Sample size = 5)	<i>M</i> = 9.0 (Sample size = 29)

## Long term / future impacts

100% of individuals who reported on the measure of long-term impacts within the Long-term Follow-up Questionnaire reported that they felt that their participation would lead to positive long-term impacts (Table 23). Of participants who responded to the question on long-term impact via the Group Questionnaire (sample size = 62), 80% of responding individuals reported that they felt their coming to the garden would have an impact on them in the future (5% of respondents reported that it would not have an impact on them; 15% were unsure of impact). Qualitative answers indicated that these expected impacts included higher physical activity levels, a greater sense of routine and purpose, and a greater intention for food growing behaviours (Table 24).

**Table 23. Findings for Expected future impacts**

Response	Frequency of responses by participant group			
	<i>Overall</i> (Sample size = 10)	<i>Vulnerable</i> (Sample size = 8)	<i>Autism / learning disabilities</i> (Sample size = 3)	<i>Non-vulnerable</i> (Sample size = 2)
<i>Significant positive long term impact</i>	80%	75%	100%	100%
<i>Some positive long term impact</i>	20%	25%	0%	0%
<i>No impact</i>	0%	0%	0%	0%
<i>Some negative long term impact</i>	0%	0%	0%	0%
<i>Significant negative long term impact</i>	0%	0%	0%	0%

**Table 24. Qualitative reporting of expected future impacts**

Identified Theme	Examples	Sample sub-group
Higher physical activity levels	<i>'Being more active...Keeps me aware of... being more active'</i>	Vulnerable
	<i>'Helps you make your life better which leads to other things like doing yoga.'</i>	Vulnerable
	<i>'Hopefully also inspire me to walk more often.'</i>	Vulnerable
	<i>'Hoping it will inspire me to look up and go back to swimming - someone at the garden does synchronised swimming and activities.'</i>	Vulnerable
	<i>'Yes it helps me to get exercise that I wouldn't otherwise have'</i>	Vulnerable
	<i>'Lovely to be outside, I've enjoyed <u>feeling physically liberated</u> as a result'</i>	Vulnerable
Greater sense of routine and purpose	<i>'Inspired me to be outside more – regardless of the weather – so it has led me to be more active'</i>	Vulnerable
	<i>'Given me a structure/routine to week'</i>	Vulnerable
	<i>'So I need a routine, doing stuff regularly working like this, then I have my rest of days to do my bits and bobs'</i>	Vulnerable
	<i>'Hoping it will keep me in the swing of regular hours + to manage time better - which will help in my future work life.'</i>	Vulnerable
	<i>'I've started doing yoga again even do tai chi now'</i>	Vulnerable
	<i>'I have ADHD so I can't sit still all day. This helps me channel all that energy that would otherwise be destructive. So I'm active but in a purposeful way'</i>	Vulnerable
	<i>'I love it up here, it gives me a rhythm and it's the only job I can really do'</i>	Vulnerable
<i>'Doing stuff like this, like the other guy was saying, it makes me smoke less weed, and cause I've done something useful, like digging all that stuff out, I now feel motivated to do some other stuff so later I'll feel like doing something not just getting wasted'</i>	Vulnerable	
Intention for food growing behaviours	<i>'It has made me think about getting my own allotment when I get my own place'</i>	Vulnerable
	<i>'Going to go home and grow some of the herbs we planted today'</i>	Vulnerable
	<i>'it has made me think about getting my own allotment when I get my own place. I'm currently living in Phase 1 but have moved downstairs'</i>	Vulnerable

<i>'I have learnt skills so now I can apply to college to do landscaping. I've learnt how to do wood cutting as well'</i>	Vulnerable
<i>'It has inspired me to design my garden space in a more holistic natural way'</i>	Vulnerable
<i>'Taking the ethos of the garden away and putting it into my life, so I know if I do something that isn't right then its ok, just re do it, carry on, have a go, if I can take that into my life it will make it a lot calmer and a lot less worry-full'</i>	Vulnerable

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## Key Findings

From September 2014 – end of September 2016, the Sharing the Harvest project engaged 1300 vulnerable adults, of which, almost 350 are individuals with learning disabilities or autism. The project estimates that at least 900 people attended a community garden; other received volunteering advice but may not have progressed.

Key findings of the University of Essex evaluation indicate that the Sharing the Harvest project promotes improvements in mental health and wellbeing, connection to nature, physical health and activity, and skills and confidence, as well as elements of social wellbeing.

100% of all respondents to long-term impacts within the Long-term Questionnaires reported feeling that their participation in community gardens would lead to positive long-term impacts.

80% of participants who responded to the question on long-term impact via the Group Questionnaire (sample size = 62) reported that they felt their coming to the garden would have an impact on them in the future (through greater physical activity, greater sense of purpose and improved food growing/eating behaviours).

### *Mental health*

Of participants who responded to the question on mental health via the group questionnaire (sample size = 232), 96% of participants reported that attending the community gardening sessions had improved their happiness, mood or wellbeing; and questionnaire data found that single gardening sessions resulted in a statistically significant 10% increase in reported happiness. Community gardening was also associated with long-term (3 – 6 month) enhancement of life satisfaction, although not statistically significant. The key themes identified in relation to mental health and wellbeing improvements were the enhancing of individuals' sense of purpose, and emotional relaxation associated with time spent in green spaces, as well as community gardening functioning as important time away from daily life stresses.

### *Physical health*

Of participants who responded to the question on physical health via the group questionnaire (sample size = 160), 86% of participants reported that attending the community gardening sessions

had improved their physical health. Average self-reported improvement over the 3-6 months since completing an Initial Long-term questionnaire was 12%, whereby vulnerable individuals reported highest improvements of 18%. For the sample overall there was a long-term increase in the number of portions of fruit and vegetables consumed per week (11%).

#### *Skills and confidence*

Community gardening sessions were evidenced to improve social skills and confidence, and confidence to cook, and offer opportunity for learning new skills including specific food-growing skills. Within the Group Questionnaire, 88% of participants reported that attending the community gardening sessions had functioned to improve their skills or confidence (sample size = 236). 61% of all attendees, 69% of the vulnerable adults, and 88% of the autism and learning disabilities subsample reported gaining teamwork skills via Long-term questionnaires.

42% of the overall sample, 49% of vulnerable adults, and 75% of the autism and learning disabilities subsample reported that they gained communication skills through their attendance to the community gardens.

47% of the overall sample, 59% of vulnerable adults, and 50% of the autism and learning disabilities subsample reported that they gained motivation or personal development skills through their attendance to the community gardens.

22% of vulnerable individuals, 29% individuals with learning disabilities or autism, and 25% non-vulnerable individuals respectively felt more confident cooking and preparing their own meals at the follow-up time point compared to the initial time point. Attendance functioned to enhance the extent that individuals felt that 'there are people in my life who really care about me', with greatest percentage increase reported by the autism and learning disabilities subgroup (24%).

#### *Connection to nature*

Sharing the Harvest gardening activities functioned to maintain or increase frequency of contact with greenspaces for 85% of respondents, with single gardening sessions alone stimulating a statistically significant 8% increase in nature connectedness across the overall sample, and a significant 11% increase across the vulnerable adults subsample.

## Conclusions and recommendations

The findings presented suggest that the Sharing the Harvest community gardening project **significantly benefits the physical health mental wellbeing, skills and confidence** of both the Brighton and Hove community as a whole, and specific vulnerable adult groups.

This evaluation concludes that coordinated and supported community gardening, such as that afforded by Sharing the Harvest, positively impacts upon the physical health and mental wellbeing of vulnerable adults on a citywide scale, thus contributing to Brighton and Hove NHS Clinical Commissioning Group and Brighton and Hove City Council's Mental Health and Wellbeing Strategy.

Echoing the key recommendations of the Kings' Fund Report, the findings of this evaluative report supports the notion for the **further integration of community gardens into mainstream health policy, practice and commissioning, in support of local and national strategic priorities.**

Sample size of the learning disabilities / autism subgroup was small across measures within the long-term and snapshot questionnaires, which created high susceptibility to extreme values skewing mean values. It was also felt by Sharing the Harvest session leaders that this subgroup's understanding of these questionnaires was poor. As these questionnaire types were not intended for use with individuals who have learning disabilities or autism, and as the data collection process has indicated that this questionnaire type may be inappropriate for these individuals, it is recommended that for Year 3 of this evaluation, this data not be included in analyses.

This interim report recommends

- (i) The continued gathering of robust evidence to further demonstrate and understand the efficacy of community gardening for health and wellbeing. With particular reference to the final year of the Sharing the Harvest Project
  - a. Further efforts should be made to ensure that questionnaire methods used for those with a learning disability, autism and other hard to reach groups are appropriate and fit for purpose to allow more robust and reliable results for this beneficiary group
  - b. Questionnaire type, content and collection methods should be reviewed for each beneficiary type to enhance the proportion of matched questionnaires obtained

- (ii) That the beneficial outcomes offered by community gardening should be supported and promoted by local and national authorities, through the commissioning of community gardening as part of health and wellbeing services within the city for public health and wellbeing improvements.

## References

- AKED, J., MARKS, N., CORDON, C. & THOMPSON, S. 2009. Five Ways to Wellbeing: A report presented to the Foresight Project on communicating the evidence base for improving people's well-being. *London: Nef*.
- BALFOUR, R. & ALLEN, J. 2014. Local action on health inequalities: Improving access to green spaces. Health equity briefing 8. Public Health England. UCL Institute of Health Equity.
- BARTON, J., HINE, R. & PRETTY, J. 2009. The health benefits of walking in greenspaces of high natural and heritage value. *Journal of Integrative Environmental Sciences*, 6, 261-278.
- BLAIR, S. N. 2009. Physical inactivity: the biggest public health problem of the 21st century. *British journal of sports medicine*, 43, 1-2.
- BRAGG, R., EGGINTON-METTERS, I., ELSEY, H. & WOOD, C. 2014. Care farming: defining the 'offer' in England. *Natural England Commissioned Reports*.
- BRAGG, R., WOOD, C., BARTON, J. & PRETTY, J. 2015. Wellbeing benefits from natural environments rich in wildlife: A literature review for The Wildlife Trusts. University of Essex.
- BRAGG R., WOOD C. & J., B. 2013. Ecominds: Effects on Mental Wellbeing. . London: Mind.
- BRIGHTON & HOVE NHS CCG AND BRIGHTON & HOVE CITY COUNCIL 2014. Happiness: Brighton & Hove Mental Health and Wellbeing Strategy.
- BRIGHTON & HOVE NHS CCG AND BRIGHTON & HOVE CITY COUNCIL 2015. Happiness: Brighton & Hove Mental Health and Wellbeing Strategy - Year 1 update and plans for years 2 & 3.
- BRITISH MEDICAL ASSOCIATION 2014. Recognising the importance of physical health in mental health and intellectual disability: achieving parity of outcomes. *London: British Medical Association*.
- BROWN, D. K., BARTON, J. L. & GLADWELL, V. F. 2013. Viewing nature scenes positively affects recovery of autonomic function following acute-mental stress. *Environmental science & technology*, 47, 5562-5569.
- BUCK, D. 2016. Gardens and health Implications for policy and practice. *The King's Fund, London*.
- CACIOPPO, J. T. & HAWKLEY, L. C. 2003. Social isolation and health, with an emphasis on underlying mechanisms. *Perspectives in biology and medicine*, 46, S39-S52.
- CAPALDI, C. A., DOPKO, R. L. & ZELENSKI, J. M. 2014. The relationship between nature connectedness and happiness: a meta-analysis. *Frontiers in psychology*, 5, 976.

- CAPALDI, C. A., PASSMORE, H.-A., NISBET, E. K., ZELENSKI, J. M. & DOPKO, R. L. 2015. Flourishing in nature: A review of the benefits of connecting with nature and its application as a wellbeing intervention. *International Journal of Wellbeing*, 5.
- CATTAN, M. 2002. *Supporting older people to overcome social isolation and loneliness*, Help the Aged London.
- CATTAN, M., WHITE, M., BOND, J. & LEARMOUTH, A. 2005. Preventing social isolation and loneliness among older people: a systematic review of health promotion interventions. *Ageing and society*, 25, 41-67.
- CERVINKA, R., RÖDERER, K. & HEFLER, E. 2011. Are nature lovers happy? On various indicators of well-being and connectedness with nature. *Journal of health psychology*, 1359105311416873.
- CHRISTIAN, M., EVANS, C. & CADE, J. 2014. Does the Royal Horticultural Society Campaign for School Gardening increase intake of fruit and vegetables in children? Results from two randomised controlled trials.
- CLARKE, A., FRIEDE, T., PUTZ, R., ASHDOWN, J., MARTIN, S., BLAKE, A., ADI, Y., PARKINSON, J., FLYNN, P. & PLATT, S. 2011. Warwick-Edinburgh Mental Well-being Scale (WEMWBS): validated for teenage school students in England and Scotland. A mixed methods assessment. *BMC Public Health*, 11, 487.
- DAVIDSON, S. & ROSSALL, P. 2014. Evidence Review: Loneliness in Later Life. Age UK.
- DECI, E. L. & RYAN, R. M. 2000. The " what " and " why " of goal pursuits: Human needs and the self-determination of behavior. *Psychological inquiry*, 11, 227-268.
- DEPARTMENT FOR CULTURE, M. A. S. 2015. *Freetime activities tables [online]*. [Online]. GOV.UK website. Available: Available at: <http://www.gov.uk/government/statistics/taking-part-201314-focus-on-reports> [Accessed (accessed on 26 April 2016)].
- FERRES, M. & TOWNSHEND, T. 2012. The social, health and wellbeing benefits of allotments: Five societies in Newcastle. *Global Urban Research Unit*.
- FLANIGAN, S. & VARMA, R. 2006. Promoting community gardening to low-income urban participants in the Women, Infants and Children Programme (WIC) in New Mexico. *Community, Work and Family*, 9, 69-74.
- GLADWELL, V. F., BROWN, D. K., WOOD, C., SANDERCOCK, G. R. & BARTON, J. L. 2013. The great outdoors: how a green exercise environment can benefit all. *Extreme Physiology & Medicine*, 2, 1-7.
- HANNA, A. K. & OH, P. 2000. Rethinking urban poverty: a look at community gardens. *Bulletin of Science, Technology & Society*, 20, 207-216.

- HEALTH AND SOCIAL CARE INFORMATION CENTRE 2015. Statistics on Obesity, Physical Activity and Diet: England 2015.: Health and Social Care Information Centre.
- HEALTH AND SOCIAL CARE INFORMATION CENTRE 2016. Statistics on Obesity, Physical Activity and Diet England, 2016. Health & Social Care Informaiton Centre.
- KING, C. A. 2008. Community resilience and contemporary agri-ecological systems: reconnecting people and food, and people with people. *Systems Research and Behavioral Science*, 25, 111-124.
- KINGSLEY, J. Y., TOWNSEND, M. & HENDERSON-WILSON, C. 2009. Cultivating health and wellbeing: members' perceptions of the health benefits of a Port Melbourne community garden. *Leisure Studies*, 28, 207-219.
- LANE, A. M. & LOVEJOY, D. J. 2001. The effects of exercise on mood changes: the moderating effect of depressed mood. *Journal of sports medicine and physical fitness*, 41, 539-545.
- LEAKE, J. R., ADAM-BRADFORD, A. & RIGBY, J. E. 2009. Health benefits of 'grow your own' food in urban areas: implications for contaminated land risk assessment and risk management? *Environmental Health*, 8, 1.
- LEE, H., LEE, I. S. & CHOUE, R. 2013. Obesity, inflammation and diet. *Pediatric gastroenterology, hepatology & nutrition*, 16, 143-152.
- LOVELL, R., WHEELER, B. W., HIGGINS, S. L., IRVINE, K. N. & DEPLEDGE, M. H. 2014. A systematic review of the health and well-being benefits of biodiverse environments. *Journal of Toxicology and Environmental Health, Part B*, 17, 1-20.
- MALLER, C., TOWNSEND, M., HENDERSON-WATSON, C., PRYOR, A., PROSSER, L., MOORE, M., LEGER, L. S. & VICTORIA, P. 2008. *Healthy parks healthy people: The health benefits of contact with nature in a park context*, Deakin University and Parks Victoria.
- MCCORMACK, L. A., LASKA, M. N., LARSON, N. I. & STORY, M. 2010. Review of the nutritional implications of farmers' markets and community gardens: a call for evaluation and research efforts. *Journal of the American Dietetic Association*, 110, 399-408.
- MCMANUS, S., MELTZER, H., BRUGHHA, T., BEBBINGTON, P. & JENKINS, R. 2009. Adult psychiatric morbidity in England, 2007: results of a household survey.
- MENTAL HEALTH FOUNDATION 2015. Fundamental Facts About Mental Health 2015.
- MILTON, K., BULL, F. & BAUMAN, A. 2010. Reliability and validity testing of a single-item physical activity measure. *British Journal of Sports Medicine*, bjsports68395.
- MITCHELL, R. & POPHAM, F. 2008. Effect of exposure to natural environment on health inequalities: an observational population study. *The Lancet*, 372, 1655-1660.

- MITCHELL, R. J., RICHARDSON, E. A., SHORTT, N. K. & PEARCE, J. R. 2015. Neighborhood environments and socioeconomic inequalities in mental well-being. *American journal of preventive medicine*, 49, 80-84.
- NHS ENGLAND 2014. NHS Five year forward view. NHS England.
- O'BRIEN, L., BURLS, A., TOWNSEND, M. & EBDEN, M. 2011. Volunteering in nature as a way of enabling people to reintegrate into society. *Perspectives in Public Health*, 131, 71-81.
- O'BRIEN, L., TOWNSEND, M. & EBDEN, M. 2008. Environmental volunteering, motivations, barriers, benefits.
- OFFICE FOR NATIONAL STATISTICS 2013. Measuring National Well-being, What matters most to Personal Well-being? Released online on 30th May 2013.
- OFFICE FOR NATIONAL STATISTICS 2016. Personal well-being in the UK: 2015 to 2016.
- OKVAT, H. A. & ZAUTRA, A. J. 2011. Community gardening: a parsimonious path to individual, community, and environmental resilience. *American journal of community psychology*, 47, 374-387.
- PARKINSON, J. 2006. Establishing national mental health and well-being indicators for Scotland. *Journal of public mental health*, 5, 42-48.
- PASCO, J. A., JACKA, F. N., WILLIAMS, L. J., BRENNAN, S. L., LESLIE, E. & BERK, M. 2011. Don't worry, be active: Positive affect and habitual physical activity. *Australian and New Zealand Journal of Psychiatry*, 45, 1047-1052.
- PENEDO, F. J. & DAHN, J. R. 2005. Exercise and well-being: a review of mental and physical health benefits associated with physical activity. *Current opinion in psychiatry*, 18, 189-193.
- PRETTY, J., GRIFFIN, M. & SELLENS, M. 2004. Is nature good for you? *ECOS - Quarterly Journal of the British Association of Nature Conservation*, 24, 2-9.
- PRETTY, J., PEACOCK, J., SELLENS, M. & GRIFFIN, M. 2005. The mental and physical health outcomes of green exercise. *International journal of environmental health research*, 15, 319-337.
- PUBLIC HEALTH ENGLAND 2016. The Eatwell Guide: Helping you Eat A Healthy, Balanced Diet. Public Health England.
- REED, J. & BUCK, S. 2009. The effect of regular aerobic exercise on positive-activated affect: A meta-analysis. *Psychology of Sport and Exercise*, 10, 581-594.
- ROBINS, R. W., HENDIN, H. M. & TRZESNIEWSKI, K. H. 2001. Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Personality and social psychology bulletin*, 27, 151-161.
- ROSENBERG, M. 1965. Society and the adolescent self-image. *Princeton, NJ: Princeton University*.

- RUSSELL, R., GUERRY, A. D., BALVANERA, P., GOULD, R. K., BASURTO, X., CHAN, K. M., KLAIN, S., LEVINE, J. & TAM, J. 2013. Humans and nature: How knowing and experiencing nature affect well-being. *Annual Review of Environment and Resources*, 38, 473-502.
- SCHULTZ, P. W. 2002. Inclusion with nature: The psychology of human-nature relations. *Psychology of sustainable development*. Springer.
- SEMPIK, J. & BRAGG, R. 2013. Green Care: origins and activities. In: GALLIS, C. (ed.) *Green Care: for Human Therapy, Social innovation, Rural economy, and Education*. . New York: NOVA Science Publishers.
- SHANKAR, A., MCMUNN, A., BANKS, J. & STEPTOE, A. 2011. Loneliness, social isolation, and behavioral and biological health indicators in older adults. *Health Psychology*, 30, 377.
- SMITH, B. W., DALEN, J., WIGGINS, K., TOOLEY, E., CHRISTOPHER, P. & BERNARD, J. 2008. The brief resilience scale: assessing the ability to bounce back. *International journal of behavioral medicine*, 15, 194-200.
- STEWART-BROWN, S. & JAMOHAMED, K. 2008. Warwick-Edinburg mental well-being Scale: User guide. *Glasgow: NHS Health Scotland*.
- TENNANT, R., HILLER, L., FISHWICK, R., PLATT, S., JOSEPH, S., WEICH, S., PARKINSON, J., SECKER, J. & STEWART-BROWN, S. 2007. The Warwick-Edinburgh mental well-being scale (WEMWBS): development and UK validation. *Health and Quality of life Outcomes*, 5, 63.
- THOMPSON COON, J., BODDY, K., STEIN, K., WHEAR, R., BARTON, J. & DEPLEDGE, M. H. 2011. Does participating in physical activity in outdoor natural environments have a greater effect on physical and mental wellbeing than physical activity indoors? A systematic review. *Environmental Science & Technology*, 45, 1761-1772.
- UCHINO, B. N., CACIOPPO, J. T. & KIECOLT-GLASER, J. K. 1996. The relationship between social support and physiological processes: a review with emphasis on underlying mechanisms and implications for health. *Psychological bulletin*, 119, 488.
- UMBERSON, D. & MONTEZ, J. K. 2010. Social relationships and health a flashpoint for health policy. *Journal of health and social behavior*, 51, S54-S66.
- VAN DEN BERG, A. E. & CUSTERS, M. H. 2010. Gardening promotes neuroendocrine and affective restoration from stress. *Journal of Health Psychology*.
- WARBURTON, D. E., NICOL, C. W. & BREDIN, S. S. 2006. Health benefits of physical activity: the evidence. *Canadian medical association journal*, 174, 801-809.
- WHITE, M. P., ALCOCK, I., WHEELER, B. W. & DEPLEDGE, M. H. 2013. Would you be happier living in a greener urban area? A fixed-effects analysis of panel data. *Psychological science*, 0956797612464659.

- WINDLE, G., BENNETT, K. M. & NOYES, J. 2011. A methodological review of resilience measurement scales. *Health and quality of life outcomes*, 9, 1.
- WOOD, C., SANDERCOCK, G. & BARTON, J. 2014. Interactions between physical activity and the environment to improve adolescent self-esteem: a randomised controlled trial. *International journal of Environment and Health*, 7, 144-155.
- WOOD, C. J., PRETTY, J. & GRIFFIN, M. 2015. A case-control study of the health and well-being benefits of allotment gardening. *Journal of Public Health*, fdv146.
- WORLD HEALTH ORGANISATION 2016. Mental Disorders Fact Sheet.

## **Appendix A: Measures**

### **Physical health**

#### **Rating of physical health**

Participants responded to the item ‘On a scale of 1 – 10, how physically healthy do you feel at the moment?’ by circling one number between 1 (labeled ‘*Not very healthy*’) - 10 (labeled ‘*Very healthy*’). This was a bespoke item designed in line with the Office of National Statistics Wellbeing measures (Office for National Statistics, 2016).

#### **Single Item Physical Activity Measure**

Participants reported their physical activity levels over the past week, via a validated single item taken from the International Physical Activity Questionnaire (IPAQ) (Milton et al., 2010). In response to the question ‘In the past week, on how many days have you done a total of 30 minutes or more of physical activity which was enough to raise your breathing rate?’ This may include sport, exercise, brisk walking, cycling or gardening for recreation or to get to and from places’, participants ticked one of eight boxes labeled from ‘*0 days*’ to ‘*7 days*’.

#### **Healthy eating**

Participants reported on their dietary behavior by responding to the question ‘On average, how many portions of fruit and vegetables do you eat a day? (Hint: 1 piece of fruit = a handful of grapes, an orange, a banana. 1 portion of vegetables = 3 heaped tablespoons of carrots, a side salad, two spears of broccoli)’. A box was provided for participants to enter a number of days to reflect their answer.

## **Self-reflected changes in physical health**

Within the Group questionnaires only, participants responded to the question 'Has coming to the garden changed your physical health? (e.g. Been more active / raised breathing rate, tried a new food, etc.)'. Participants were offered an answer of 'Yes; No' or 'Unsure' and were encouraged to provide additional qualitative comments to complement their answer. Data from this item contributed to the qualitative findings for physical health.

## **Skills and confidence**

### **Preparation of own meals**

Participants responded to three statement items, for which they responded via a five-point Likert scale comprising options of 'Strongly agree; Agree; Neutral; Disagree; Strongly Disagree'. The three statement items were 'I enjoy putting effort and care into the food I eat; I often eat meals cooked from basic ingredients, cooked by either myself or someone else; I feel confident cooking and preparing my own meals'.

### **Skills gained**

Participants ticked boxes to indicate skills that they felt they had gained via their participation in the Sharing the Harvest project. Participants were asked 'Have you gained any skill(s) as a result of this project? If yes, please tick any of the box(es) that are relevant to you.' Tick boxes were labeled 'Team working skills; Leadership skills; Cooking skills; Communication skills; Food growing skills; Motivation / personal development skills; Other'.

## **Social skills and confidence**

Participants responded to three social skills-related statements, via a five-point Likert scale comprising options of '*Strongly disagree; Disagree, Neutral, Agree; Strongly agree*'. The three statements were 'I find it difficult to meet with people who share my hobbies or interests; I regularly meet socially with friends and relatives; There are people in my life who really care about me'. Responses were scored from 1 (strongly disagree) to 5 (strongly agree).

## **Self-reflected changes in skills and confidence**

Within the Group questionnaires only, participants responded to the question 'Has coming to the garden changed your skills or confidence?(e.g. Learning something new, feeling more confident around other people etc.)'. Participants offered an answer of '*Yes; No*' or '*Unsure*' and were encouraged to provide additional qualitative comments to complement their answer. Data from this item contributed to the qualitative findings for skills and confidence.

## **Mental health**

### **Resilience**

A single item from the Brief Resilience Scale was used to measure resilience. Brief Resilience Scale assesses resilience as an outcome described as the ability to 'bounce back'(Smith et al., 2008, Windle et al., 2011). Participants responded to the statement 'I tend to bounce back quickly after hard times' via a five-point Likert scale comprising options of '*Strongly disagree; Disagree, Neutral, Agree; Strongly agree*'. Answers were scored from 1 (*Strongly disagree*) to 5 (*Strongly agree*), with higher scores reflecting higher resilience.

## **Mental Wellbeing**

Within all of the Snapshot and Long Term questionnaires wellbeing was assessed using the Warwick Edinburgh Mental Well-being Scale (WEMWBS). The scale comprises a global well-being measure including affective-emotional aspects, cognitive-evaluative dimensions and psychological functioning and is short enough to be used in population-level surveys (Tennant et al., 2007). The scale is validated for use in adults and adolescents in the UK (Tennant et al., 2007, Stewart-Brown and Jamohamed, 2008, Clarke et al., 2011) and consists of 14 items, all of which are worded positively and address positive aspects of positive mental health (Parkinson, 2006, Stewart-Brown and Jamohamed, 2008). It is scored by summing responses to each item which are scored on a five point Likert scale from one (none of the time) to five (all of the time). The minimum score is 14 whilst the maximum score is 70. A higher score represents a better wellbeing.

## **Life Satisfaction**

A single item, taken from the UK government's Annual Population Surveys (2011 – 2016) was used to measure life satisfaction (Office for National Statistics, 2013, Office for National Statistics, 2016). Participants responded to the statement 'On a scale of 1-10, how satisfied with your life are you nowadays?' by circling one number along a scale of 0 '*Not at all*' to 10 '*Completely*'.

## **Happiness**

Within the Snapshot questionnaires only, a single item, modified from the UK government's Annual Population Surveys (2011 – 2016) was used to measure happiness (Office for National Statistics, 2013, Office for National Statistics, 2016). For the purpose of investigating acute change from start to end of single sessions, the item was worded 'On a scale of 1-10, how happy do you feel AT THE MOMENT?', rather than the original wording of 'Overall, how happy did you feel yesterday?'. Participants reported on this item by circling one number along a scale of 0 '*Not at all*' to 10 '*Completely*'.

It is important to note that the item measuring life satisfaction was included immediately prior to this happiness item within the Snapshot questionnaires. It was intended that the more general 'nowadays' wording of the life satisfaction item would function to increase likelihood that participants would respond truly with their momentary state of happiness to the 'AT THE MOMEMENT' phrasing of the happiness measure, which followed it. That is, the inclusion of the life satisfaction item within the Snapshot questionnaires was solely for this purpose; and this data was not analysed.

## **Self-esteem**

Self-esteem was measured using the bespoke University of Essex Self-esteem Scale (UoESES); an all positively worded composition of four statement items that are taken or amended from other existing self-esteem scales. The items are: 'I feel that I have a number of good qualities' (taken from the Rosenberg Self-Esteem Scale (Rosenberg, 1965)); 'I have good self-esteem' (amended from the Single Item Self-Esteem Scale (Robins et al., 2001)); 'I feel useful' (amended from the Rosenberg Self-Esteem Scale from negative to positive wording); 'I have a positive attitude towards myself' (amended from the Rosenberg Self-Esteem Scale). Responses are reported via a five-point Likert scale for which the options are '*Strongly disagree*' (1); '*Disagree*' (2); '*Neutral*' (3); '*Agree*' (4); '*Strongly agree*' (5). Overall score calculated as the sum of item scores (minimum = 4, maximum = 20). Initially, the Rosenberg Self-Esteem Scale was used, however the negative wording of statement items was found to discourage participants from completing this item and the remainder of the questionnaire. The UoESES therefore replaced the Rosenberg Self-Esteem scale, and only UoESES data was included in data analyses.

## **Contact with greenspaces**

Participants reported on the normal frequency of their contact with greenspaces, by responding the question 'How much contact do you normally have with green space? (e.g. going to the park;, wood, countryside, beach etc.). Tick box options for responses were '*daily; 2-3 time a week; once a week; once a fortnight; once a month; once every 6 months; once a year or less; none, I have never had the opportunity*'. For purposes of statistical analyses, tick boxes were considered to function as a scale from 1 (daily) to 8 (none, I have never had the opportunity).

## **Nature connectedness**

A single bespoke item was designed in line with UK government's four measures of wellbeing (of which, life satisfaction is one), in order for participants to report their level of nature connectedness. Participants responded to the statement 'On a scale of 1-10, how connected to nature do you feel?' by circling one number along a scale of 0 '*Not at all*' to 10 '*Completely*'.

## **Self-reflected changes in mental health**

Within the Group questionnaire only, participants responded to the question 'Has coming to the garden changed your happiness, mood or wellbeing? (e.g. Feeling more relaxed, happy, supported by other people, less stressed etc.)'. Participants offered an answer of '*Yes*; *No*' or '*Unsure*' and were encouraged to provide additional qualitative comments to complement their answer. Data from this item contributed to the qualitative findings for mental health.

## **Participation reflections**

### **Importance scales**

Participants reported their reflections on the relative importance of three aspects of their participation in the Sharing the Harvest activities. Participants were instructed 'Below is our importance scale. Please put a cross somewhere on each green line to tell us how important you have found each of the following during the project'. Three continuum scales, titled 'Being outside in nature; Being with other people; The gardening / activity' were then presented. The continuum ranged from '*Not very important*' to '*Very important*'. Consistent with the visual design of the continuum, which consisted of a line running through eleven coloured blocks, items were scored from 0 ('*Not very important*') – 11 ('*Very important*').

## **Long-term / future impacts**

Within the Long-Term Follow Up questionnaire, participants responded to the question 'To what extent do you think that taking part in community gardening has had/will have a long-term impact on your life?' Responses were given first via tick boxes labeled '*Significant positive long-term impact; Some positive long-term impact; No impact; Some negative long-term impact; Significant negative long-term impact*'. Immediately following these tick boxes, participants were asked to 'Please provide any further comments as to how you feel your life has been/will be impacted by your involvement in community gardening', via a large box for qualitative free text answers.

Within the Group questionnaire only, participants responded to the question 'Do you think coming to the garden will have any impact on you in the future? (e.g. Improved diet, being more active etc?)'. Participants offered an answer of '*Yes; No*' or '*Unsure*' and were encouraged to provide additional qualitative comments to complement their answer.

## **Reflection on project experiences**

Participants were encouraged to offer qualitative reflections on their project experience by responding to the following three open questions (wording of these items varied to a small extent between the Long-Term Follow Up, Snapshot End and Group questionnaires): 'What have you most enjoyed about participating in the gardening sessions / coming to the garden?; Was / is there anything you did not enjoy?; Is there anything that you would like to change or tell us? / Is there anything that could have improved your experience or anything else that you would like to tell us?' Data from these items contributed to the qualitative findings in relation to each of the key areas of interest (e.g. skills and confidence).

## **Appendix B: Gardens, groups and activities**

Brighton and Food Partnership supports all of the 75 community gardens within their city. The 7 “Open Garden Partners” that the Food Partnership has been supporting as part of Sharing the Harvest consist of 5 established community gardening groups across Brighton and Hove that run regular (at least weekly) activity days that are open to both vulnerable adults and those without any particular health or additional support needs. The other 2 remaining Open Garden Partners are established public sector and voluntary organisations that run regular sessions and courses specifically for vulnerable adults. The 7 Open Partners, the groups they support and activities carried out by their participants are briefly described below.

### **Centre for Ecotherapy at Stanmer Park**

Two activity days per week, one focusing on food growing, one on connection with nature. Participants are predominantly those with mental health issues

### **Moulescoomb Forest Garden**

Two activity days per week involving allotment gardening and green woodworking. Participants are predominantly those with learning disabilities and young people struggling in school. The garden is open to all, creating a melting pot of people from diverse backgrounds, who might not otherwise come into contact with each other. Preparing and eating lunch together is an integral part of the sessions, with lots of cookery activities taking place on their clay oven.

### **Plot 22**

Run weekly sessions for women involving general gardening and food growing activities. Preparing and eating food together is also an integral part of the sessions. Additional monthly community work days open to the local community are also run, as are “Natures Nippers” (sessions for young children and their parents). They are also running a number of dementia friendly gardening taster sessions.

### **Roots to Growth**

Run sessions 3 days per week on a 6-acre market garden. Activities include growing fruit and vegetables on scale and include a communal lunch. This project is open to the whole community

and welcomes a diverse range of people including participants from the Just Life Homelessness Project, a dementia group and Worthing Homeless Church Project.

### **Stanmer Community Garden Group**

Runs activity days twice per week. The group is predominantly made up of a number of regular volunteers with learning disabilities, growing fruit and vegetables, some of which are sold through small-scale local outlets to help support the project.

### **Brighton and Hove City Council Allotment Group**

Run a weekly group every Tuesday, for vulnerable adults from 3 homelessness hostels within the city. Taxis from hostels are provided to take participants up to the site, which is an allotment overlooking the sea. Picnics are part of the sessions

### **Grow**

Runs 8-week nature connection courses for people with experience of various mental health issues to improve wellbeing.

### **Specialist Garden Partners**

The 7 'Specialist Garden Partners' that the Food Partnership supports are existing service providers or organisations with specialist experience of working with vulnerable adults but with limited/no experience or capacity to set up, develop and maintain, community gardens or growing spaces for their clients to enjoy. The Food Partnership has been supporting these core 7 groups (in addition to a handful of other local groups also working to support vulnerable adults) through the provision of funding and through the individual advice and support provided by a Food Partnership employed Community Gardener. The Specialist Garden Partners, the groups they support and activities carried out by their participants are briefly described below.

### **BHT - First Base Day Centre**

First Base Day Centre is run by Brighton Housing Trust offers a range of services to support people who are sleeping rough or insecurely housed in the city, to get off the streets, start realising their aspirations through work, learning and leisure and find a place they can call home. The Food Partnership's Community gardener has been running weekly to monthly drop in sessions at First

Base to develop the centre's outside space into an attractive growing and outdoor relaxation area to be enjoyed by the centre's users. Activities have included working with interested centre users to create a new decking area, with raised beds and edible plants

### **YMCA Downslink**

YMCA Downslink Group is a charity that supports children, young people and families across Sussex and Surrey. The Food Partnership is supporting their weekly allotment group in which young people from various hostels across the city, get the chance to enjoy spending time outside in an environment far removed from their life in the city centre, learning how to grow fruit and vegetables, tend the allotment and eat fresh food together

### **Fred Emery Court**

Fred Emery Court is a supported housing building run by YMCA Brighton that provides studio flats to 32 vulnerable adults in central Brighton. The Food Partnership's Community Gardener runs monthly gardening activity days for residents, helping them to transform what was previously a concrete courtyard garden, into an edible growing space and outdoor relaxation area that residents can enjoy every day of the week. Staff and residents now also run weekly gardening sessions in the space.

### **Hop 50+**

Hop 50+ is a community space and café for people aged 50+ run by support charity, Impact Initiatives to help improve local residents' health and wellbeing through the provision of a number of services and activities, including a weekly gardening group. The Food Partnership's Community Gardener provides monthly advice and support to the centre, helping predominantly older vulnerable adults develop the centres' small outside space into an attractive patio garden with numerous container plants.

### **Lighthouse Recovery Support**

Lighthouse Recovery Support is a centre for people with a personality disorder living in Brighton and Hove. Brighton and Hove Food Partnership's Community Gardener runs a monthly drop in session for centre users, helping them to develop the outdoor space and grow edible food that is then used in their kitchen.

### **Grace Eyre Cromwell Road**

Grace Eyre Cromwell Road is a residential building with individual flats for people with learning disabilities. The Food Partnership's Community Gardener supports residents on a monthly basis helping them to turn a section of their lawned garden into a small growing patch and relaxation area for residents to enjoy.

### **Nurture Through Nature**

Nurture Through Nature is a small new growing project connected to The Bridge Community Centre, that runs weekly allotment sessions and also therapeutic gardening courses. The Food Partnership has provided funding and advice to the group to help it develop.

### **Autism Sussex**

Autism Sussex is a charity that supports people with wide range of autistic spectrum conditions. The Food Partnership has provided monthly gardening sessions for day centre users, rejuvenating a previously neglected space through the development of raised beds, and helping to maintain their front gardens.

### **Seaside Homes at Preston Road**

Seaside Homes at Preston Road is a residential property with approximately 16 flats for adults who have previously been homeless. The Food Partnership has provided the residents with funding, and ad hoc support and advice to create 2 raised beds where food growing now occurs. Residents are able to enjoy and contribute to the newly created space and in their own time.

### **Fulfilling Lives**

Through additional funding from BHT's Fulfilling Lives project, the Food Partnership is able to run weekly gardening sessions for adults with particularly complex support needs (those with experience of at least 3 of the following: homelessness, drug or alcohol misuse, abuse, mental health issues, long term unemployment; long term health conditions). Taxis are arranged to take participants from a homeless hostel in the city centre to a beautiful therapeutic garden on the outskirts of the city, The Centre for Ecotherapy at Stanmer Park. Participants are able to escape their often chaotic lives, and take part in a variety of food growing activities, help to cook and then enjoy eating a healthy soup made of vegetables grown on the plot over an open fire together, or simply sit back, relax and enjoy being amongst nature.

**Millview Psychiatric Hospital**

The Food Partnership has delivered taster sessions for residents and is also looking into the possibility of developing training sessions for their staff to enable them to develop and maintain growing spaces within individual wards of the hospital.

## **Appendix C: Questionnaires**

## Initial Long Term Questionnaire

Brighton & Hove Food Partnership have asked The University of Essex to evaluate the benefits of community gardens in the city. As part of this evaluation, we are asking you to complete this initial questionnaire and will follow up with you again in the coming months. Your answers will help us understand the benefits people experience from attending community gardens so we can help more people to take part in future.

Taking part is voluntary and you do not have to answer the questions if you do not want to. If you can't answer a question just leave it and go onto the next question.

When you have completed the questionnaire please hand it back to the person who gave it to you. Thank you!

1. I agree to take part in this research by completing questionnaires (please tick)

2. Please read the following statements and tick the one that applies to you:

I am filling in the questionnaire about myself

I am a project worker or helper reading out the questions to the participant and filling in their responses

I am a carer/ guardian completing the questionnaire on behalf of someone else

3. What gender do you identify with?

Male  Female  Transgender  Prefer not to say

4. What age are you?

5a. Are your day-to-day activities affected by a health condition or disability which has lasted or is expected to last at least 12 months?

Yes  No  Prefer not to say

5b. If yes, which of the following best describes your health condition or disability? (Please tick any that apply to you)

- Physical disability
- Sensory impairment
- Learning disability/difficulty
- Long-term illness
- Autistic spectrum disorder
- Mental health condition
- Dementia
- Alcohol and/or substance misuse
- Unsure
- Other (please specify)

6. Which of the following best describes your current situation? (Please tick all that apply)

- Employed
- Unemployed
- Retired
- Carer
- Student
- Homeless/vulnerably housed
- Other (please specify)



**7. So that we can match up your responses at the beginning and at the end of the project, please write the first part of your postcode and the initials of your first name and surname in the boxes below: (Please note we are only asking for your postcode in order that we can match the different questionnaires that you may fill out.)**

Postcode First name initial Surname initial 

**8. How long have you been coming to this project?**

**9. How often do you usually come here?**

3-4 times a week or more

Twice a week

Once a week

Once a fortnight

Once a month

Once every 6 months

Once a year or less

**10. How much contact do you normally have with nature and green spaces?**

(e.g. Going to the park, woods, countryside, beach etc)

Daily

2-3 times a week

Once a week

Once a fortnight

Once a month

Once every 6 months

Once a year or less

None, I have never had the opportunity

The following sections of the questionnaire contain questions about how you feel about yourself, other people and nature. They are made up of standardised questions so some of the words and phrases are written in different styles. Please ask if you need any help. There are no right or wrong answers, so please just answer honestly by ticking the relevant box for each question.

**11. On a scale of 1 – 10, how physically healthy do you feel at the moment? (Please circle one number only)**

Not very healthy

Very Healthy

**12. In the past week, on how many days have you done a total of 30 minutes or more of physical activity which was enough to raise your breathing rate? This may include sport, exercise, brisk walking, cycling or gardening for recreation or to get to and from places (please tick one box).**

0 days

1 day

2 days

3 days

4 days

5 days

6 days

7 days

**13a. Do you prepare your own meals?**All of  
the timeMost of  
the time

Sometimes

Never

Never (because  
I do not have  
cooking facilities)**13b. If yes, please tell us how much you agree with the following statements by ticking the appropriate box**

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I enjoy putting effort and care into the food I eat					
I often eat meals cooked from basic ingredients, cooked by either myself or someone else					
I feel confident cooking and preparing my own meals					

**14. On average, how many portions of fruit and vegetables do you eat a day?***Hint: 1 piece of fruit = a handful of grapes, an orange, a banana.**1 portion of vegetables = 3 heaped tablespoons of carrots, a side salad, two spears of broccoli***15. Please tell us how much you agree with the following statements by ticking the appropriate box**

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I find it difficult to meet with people who share my hobbies or interests					
I regularly meet socially with friends and relatives					
There are people in my life who really care about me					
I tend to bounce back quickly after hard times					



16. Please tick the box that best describes your experience of each over the last week

	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future					
I've been feeling useful					
I've been feeling relaxed					
I've been dealing with problems well					
I've been thinking clearly					
I've been feeling close to other people					
I've been able to make up my own mind about things					

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17. On a scale of 0-10, how satisfied are you with your life nowadays? (Please circle one number only)

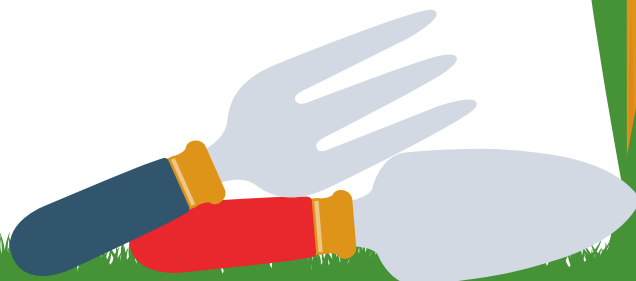
Not at all  1  2  3  4  5  6  7  8  9  10 Completely

18. On a scale of 1 – 10, how connected to nature do you feel? (Please circle one number only)

Not at all  1  2  3  4  5  6  7  8  9  10 Completely

**That's all! Thank you very much for taking the time to complete our questionnaire. Please hand it back to the person that gave it to you.**

**If you have any questions about this research please contact the key researcher Mike Rogerson, by email: [mike.rogerson@essex.ac.uk](mailto:mike.rogerson@essex.ac.uk)**



## Long Term Questionnaire: Follow Up

Brighton & Hove Food Partnership have asked The University of Essex to evaluate the benefits of community gardens in the city. As part of this evaluation, we are asking you to complete this questionnaire and may also follow up with you again in the coming months. Your answers will help us understand the benefits people experience from attending community gardens so we can help more people to take part in future.

Taking part is voluntary and you do not have to answer the questions if you do not want to. If you can't answer a question just leave it and go onto the next question.

When you have completed the questionnaire please hand it back to the person who gave it to you. Thank you!

1. I agree to take part in this research by completing questionnaires (please tick)

2. Please read the following statements and tick the one that applies to you:

I am filling in the questionnaire about myself

I am a project worker or helper reading out the questions to the participant and filling in their responses

I am a carer/guardian completing the questionnaire on behalf of someone else

3. What gender do you identify with?

Male  Female  Transgender  Prefer not to say

4. What age are you?

5a. Are your day-to-day activities affected by a health condition or disability which has lasted or is expected to last at least 12 months? Yes  No  Prefer not to say

5b. If yes, which of the following best describes your health condition or disability? (Please tick any that apply to you)

- Physical disability
- Sensory impairment
- Learning disability/difficulty
- Long-term illness
- Autistic spectrum disorder
- Mental health condition
- Dementia
- Alcohol and/or substance misuse
- Unsure
- Other (please specify)

6. Which of the following best describes your current situation? (Please tick all that apply)

- Employed
- Unemployed
- Retired
- Carer
- Student
- Homeless/vulnerably housed
- Other (please specify)

7. So that we can match up your responses at the beginning and at the end of the project, please write the first part of your postcode and the initials of your first name and surname in the boxes below: (Please note we are only asking for your postcode in order that we can match the different questionnaires that you may fill out.)

Postcode  First name initial  Surname initial

8. How long have you been coming to this project?

**9. How often do you usually come here?**

3-4 times a week or more	Twice a week	Once a week	Once a fortnight	Once a month	Once every 6 months	Once a year or less
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**10. How much contact do you normally have with nature and green spaces?**

(e.g. Going to the park, woods, countryside, beach etc)

Daily	2-3 times a week	Once a week	Once a fortnight	Once a month	Once every 6 months	Once a year or less	None, I have never had the opportunity
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The following sections of the questionnaire contain questions about how you feel about yourself, other people and nature. They are made up of standardised questions so some of the words and phrases are written in different styles. Please ask if you need any help. There are no right or wrong answers, so please just answer honestly by ticking the relevant box for each question.

**11. On a scale of 1 – 10, how physically healthy do you feel at the moment?** (Please circle one number only)

Not very healthy	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	Very Healthy
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**12. In the past week, on how many days have you done a total of 30 minutes or more of physical activity which was enough to raise your breathing rate?** This may include sport, exercise, brisk walking, cycling or gardening for recreation or to get to and from places (please tick one box).

0 days	1 day	2 days	3 days	4 days	5 days	6 days	7 days
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**13a. Do you prepare your own meals?**

All of the time	Most of the time	Sometimes	Never	Never (because I do not have cooking facilities)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**13b. If yes, please tell us how much you agree with the following statements by ticking the appropriate box**

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I enjoy putting effort and care into the food I eat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I often eat meals cooked from basic ingredients, cooked by either myself or someone else	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I feel confident cooking and preparing my own meals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**14. On average, how many portions of fruit and vegetables do you eat a day?**

Hint: 1 piece of fruit = a handful of grapes, an orange, a banana.

1 portion of vegetables = 3 heaped tablespoons of carrots, a side salad, two spears of broccoli

**15. Please tell us how much you agree with the following statements by ticking the appropriate box**

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I find it difficult to meet with people who share my hobbies or interests					
I regularly meet socially with friends and relatives					
There are people in my life who really care about me					
I tend to bounce back quickly after hard times					

**16. Please tick the box that best describes your experience of each over the last week**

	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future					
I've been feeling useful					
I've been feeling relaxed					
I've been dealing with problems well					
I've been thinking clearly					
I've been feeling close to other people					
I've been able to make up my own mind about things					

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**17. Below is our importance scale. Please put a cross somewhere on each green line to tell us how important you have found each of the following during the project:**

Not very important  Very important

Being outside in nature																				
Being with other people																				
The gardening / activity																				

**18. Have you gained any skill(s) as a result of this project?**

If yes, please tick any of the box(es) that are relevant to you.

- Team working skills       Cooking skills       Food growing skills
- Leadership skills       Communication skills       Motivation / personal development skills

Other

**19. On a scale of 0-10, how satisfied are you with your life nowadays? (Please circle one number only)**

- Not at all  1  2  3  4  5  6  7  8  9  10 Completely

20. On a scale of 1 – 10, how connected to nature do you feel? (Please circle one number only)

Not at all  1  2  3  4  5  6  7  8  9  10 Completely

21. To what extent do you think that taking part in community gardening has had/will have a long-term impact on your life?

Significant positive long-term impact       Some positive long-term impact       No impact       Some negative impact       Significant negative long-term impact

Please provide any further comments as to how you feel your life has been/will be impacted by your involvement in community gardening:

22. What have you most enjoyed about participating in the gardening sessions?

23. Was there anything you did not enjoy?

24. Is there anything that you would like to change or tell us?

That's all! Thank you very much for taking the time to complete our questionnaire. Please hand it back to the person that gave it to you. If you have any questions about this research please contact the key researcher Mike Rogerson, by email: [mike.rogerson@essex.ac.uk](mailto:mike.rogerson@essex.ac.uk)

## Snapshot Questionnaire: Start of Session

Brighton and Hove Food Partnership have asked the University of Essex to evaluate the benefits of community gardens in the city. As part of this, we will be asking you to complete a questionnaire before and after you have taken part in a gardening activity. Your answers will help us understand the benefits people experience at community gardens so we can help more people to take part in future.

Taking part is voluntary and you do not have to answer the questions if you do not want to. If you can't answer a question just leave it and go onto the next question.

*When you have completed the questionnaire please hand it back to the person who gave it to you. Thank you!*

**1. I agree to take part in this research by completing questionnaires before and after my gardening session (please tick)**

**2. Please read the following statements and tick the one that applies to you:**

I am filling in the questionnaire about myself

I am a project worker or helper reading out the questions to the participant and filling in their responses

I am a carer/ guardian completing the questionnaire on behalf of someone else

**3. What gender do you identify with?**

Male  Female  Transgender  Prefer not to say

**4. What age are you?**

**5a. Are your day-to-day activities affected by a health condition or disability which has lasted or is expected to last at least 12 months?**

Yes  No  Prefer not to say

**5b. If yes, which of the following best describes your health condition or disability? (Please tick any that apply to you)**

- Physical disability
- Sensory impairment
- Learning disability/difficulty
- Long-term illness
- Autistic spectrum disorder
- Mental health condition
- Dementia
- Alcohol and/or substance misuse
- Unsure
- Other (please specify)

**6. Which of the following best describes your current situation? (Please tick all that apply)**

- Employed
- Unemployed
- Retired
- Carer
- Student
- Homeless/vulnerably housed
- Other (please specify)



**7. So that we can match up your responses at the beginning and at the end of the project, please write the first part of your postcode and the initials of your first name and surname in the boxes below: (Please note we are only asking for your postcode in order that we can match the different questionnaires that you may fill out.)**

Postcode  First name initial  Surname initial

**8. How long have you been coming to this project?**

**9. How often do you usually come here?**

3-4 times a week or more

Twice a week

Once a week

Once a fortnight

Once a month

Once every 6 months

Once a year or less

*The following sections of the questionnaire contain questions about how you feel about yourself, other people and nature. They are made up of standardised questions so some of the words and phrases are written in different styles. Please ask if you need any help. There are no right or wrong answers, so please just answer honestly by ticking the relevant box for each question.*

**10. On a scale of 1 – 10, how physically healthy do you feel at the moment? (Please circle one number only)**

Not very healthy

 1

 2

 3

 4

 5

 6

 7

 8

 9

 10

Very Healthy

**11. Please tick the box that best describes your experience of each over the last 2 weeks**

	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I've been feeling useful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I've been feeling relaxed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I've been dealing with problems well	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I've been thinking clearly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I've been feeling close to other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I've been able to make up my own mind about things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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**12. On a scale of 0-10, how satisfied are you with your life nowadays?** *(Please circle one number only)*

Not at all  1  2  3  4  5  6  7  8  9  10 Completely

**13. On a scale of 1 – 10, how happy do you feel AT THE MOMENT?** *(Please circle one number only)*

Not very happy  1  2  3  4  5  6  7  8  9  10 Very happy

**14. Here is a list of statements dealing with your feelings and thoughts about yourself.**  
*(Please tick the relevant box to indicate your feelings in response to each statement)*

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I feel that I have a number of good qualities					
I have good self-esteem					
I feel useful					
I have a positive attitude towards myself					

**15. On a scale of 1 – 10, how connected to nature do you feel?** *(Please circle one number only)*

Not very connected to nature  1  2  3  4  5  6  7  8  9  10 Not very connected to nature

**That's all! Thank you very much for taking the time to complete our questionnaire. Please hand it back to the person that gave it to you.**

**If you have any questions about this research please contact the key researcher Mike Rogerson, by email: [mike.rogerson@essex.ac.uk](mailto:mike.rogerson@essex.ac.uk)**



## Snapshot Questionnaire: End of Session

Now that you have finished your gardening activities we would be most grateful if you could spare the time to complete the second part of our questionnaire. *When you have completed the questionnaire please hand it back to the person who gave it to you. Thank you!*

### 1. Please read the following statements and tick the one that applies to you:

I am filling in the questionnaire about myself

I am a project worker or helper reading out the questions to the participant and filling in their responses

I am a carer/ guardian completing the questionnaire on behalf of someone else

### 2. So that we can match up your responses at the beginning and at the end of the project, please write the first part of your postcode and the initials of your first name and surname in the boxes below: *(Please note we are only asking for your postcode in order that we can match the different questionnaires that you may fill out.)*

Postcode

First name initial

Surname initial

*The following sections of the questionnaire contain questions about how you feel about yourself, other people and nature. They are made up of standardised questions so some of the words and phrases are written in different styles. Please ask if you need any help. There are no right or wrong answers, so please just answer honestly by ticking the relevant box for each question.*

### 3. On a scale of 1 – 10, how physically healthy do you feel at the moment? *(Please circle one number only)*

Not very  
healthy

1

2

3

4

5

6

7

8

9

10

Very  
Healthy



**4. Please tick the box that best describes your experience of each over the last 2 weeks**

	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future					
I've been feeling useful					
I've been feeling relaxed					
I've been dealing with problems well					
I've been thinking clearly					
I've been feeling close to other people					
I've been able to make up my own mind about things					

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**5. On a scale of 0-10, how satisfied are you with your life nowadays? (Please circle one number only)**

Not at all  1  2  3  4  5  6  7  8  9  10 Completely

**6. On a scale of 1 – 10, how happy do you feel AT THE MOMENT? (Please circle one number only)**

Not very happy  1  2  3  4  5  6  7  8  9  10 Very happy

**7. Here is a list of statements dealing with your feelings and thoughts about yourself.**

*(Please tick the relevant box to indicate your feelings in response to each statement)*

	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
I feel that I have a number of good qualities					
I have good self-esteem					
I feel useful					
I have a positive attitude towards myself					



**8. Below is our importance scale.** Please put a cross somewhere on each green line to tell us how important you have found each of the following during the project:

Not very important  Very important

Being outside in nature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Being with other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The gardening / activity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**9. Have you gained any skill(s) as a result of this project?**

(If yes, please tick any of the box(es) that are relevant to you)

Team working skills       Cooking skills       Food growing skills

Leadership skills       Communication skills       Motivation / personal development skills

Other

**10. On a scale of 1 – 10, how connected to nature do you feel?** (Please circle one number only)

Not very connected to nature  1  2  3  4  5  6  7  8  9  10  Not very connected to nature

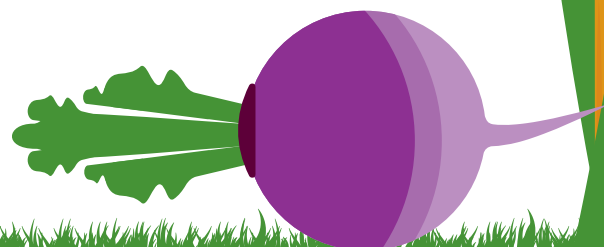
**11. What have you most enjoyed about participating in the gardening sessions?**

12. Was there anything you did not enjoy?

13. Is there anything that you would like to change or anything else that you would like to tell us?

**That's all! Thank you very much for taking the time to fill out the second half of our questionnaire. Please hand it back to the person that gave it to you.**

**If you have any questions about this research please contact the key researcher Mike Rogerson, by email: [mike.rogerson@essex.ac.uk](mailto:mike.rogerson@essex.ac.uk)**



## Sharing the Harvest – Group Questionnaire

This questionnaire must be filled in by the project/volunteer coordinator at each group evaluation session and once completed, be posted to:

Freepost RSSR-TZLH-UUSG, Rachel Bragg ICES, Department of Biological Sciences, University of Essex, Wivenhoe Park, COLCHESTER CO4 3SQ.

If you have any questions about this research please contact the key researcher Mike Rogerson by email: [mike.rogerson@essex.ac.uk](mailto:mike.rogerson@essex.ac.uk)

In order that everyone coming to the garden can tell us about their experience, these questions have been designed for participants who are not able to complete questionnaires themselves for any reason or for use when questionnaires are not appropriate.

There are a various ways that you can use these questions, depending on the abilities of your participant group and the time you have available. You can:

- Use this sheet as a group questionnaire, read the questions out loud to the group and write down what people say in the boxes below
- Ask participants to answer the questions, by writing down their answer, or by using other more imaginative ways to answer the questions, like drawing a picture, taking a photo or making a short video (many people have phones that can do this!)
- Write the questions down on flipcharts and stick them to the walls (or tables or portable boards – anything flat!) and ask participants to answer the questions by writing on post-it notes and sticking them to the flipcharts.

*Please ensure that all participants are aware that the information provided as part of this group evaluation will be used for research purposes. All children need to return parental consent prior to participating and adults need to provide oral consent. Participants do not necessarily have to answer all questions and not all questions may be suitable for all client groups.*

***It is important that the project/volunteer coordinator completes questions 1-11 as fully as possible, before moving on to the group questions (questions 12-18).***

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**1. Name of Garden and / or name of group**

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**2. Total number of people in group (Including carers and others)**

**3. Date**

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**4. How many people of each gender are in your group?**

Male

Female

Transgender

Prefer not to say

**5. How many people within your group have their day-to-day activities affected by a health condition or disability (which has lasted or is expected to last at least 12 months?)**

Number with health problem/disability       Number without health problem / disability       Unsure whether health problem or disability

**6. How many of your group are affected by the following?**

	Primary	Secondary	Other (please specify)
Physical Disability	<input type="text"/>	<input type="text"/>	
Autistic spectrum disorder	<input type="text"/>	<input type="text"/>	
Sensory Impairment	<input type="text"/>	<input type="text"/>	
Mental health condition	<input type="text"/>	<input type="text"/>	
Dementia	<input type="text"/>	<input type="text"/>	
Learning disability/difficulty	<input type="text"/>	<input type="text"/>	
Alcohol and/or substance misuse	<input type="text"/>	<input type="text"/>	
Long-term illness	<input type="text"/>	<input type="text"/>	
Unsure	<input type="text"/>	<input type="text"/>	

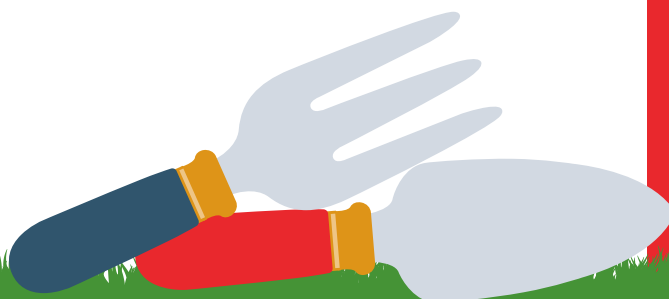
**7. How many of your group are:**

(NOTE: please provide numbers for only 1 category per person)

Employed      Student      Unemployed      Homeless / vulnerably housed      Retired      Unsure      Carer

Other (please specify)



8. Approximately how long did the group spend doing activities during today's session?

9. What types of activities were they participating in?

10. What was the weather like?

11. Any other information about the group (e.g visit from specific organisation, issues with completing forms, etc)?

## Questions to ask the group

Please note it is important that you include the number of people responding Yes, No and Unsure to each question, so that the total number of different responses for each question is equal to the total number of people in your session.

12. Has coming to the garden changed your physical health?

(e.g Been more active / raised breathing rate, tried a new food, etc)

Numbers reporting: Yes

No

Unsure

Comments below:

**13. Has coming to the garden changed your happiness, mood or wellbeing?**

*(e.g Feeling more relaxed, happy, supported by other people, less stressed etc)*

Numbers reporting: Yes  No  Unsure  Comments below:

**14. Has coming to the garden changed your skills or confidence?**

*(e.g Learning something new, feeling more confident around other people etc)*

Numbers reporting: Yes  No  Unsure  Comments below:

**15. Do you think coming to the garden will have any impact on you in the future?**

*(e.g Improved diet, being more active etc?)*

Numbers reporting: Yes  No  Unsure  Comments below:



**16. What have you enjoyed most about coming to the garden?**

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**17. Is there anything that you did not enjoy?**

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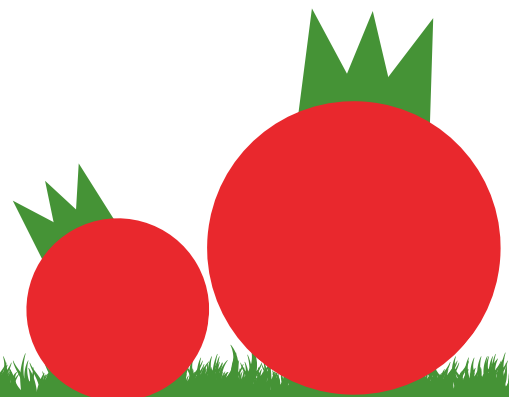
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**18. Is there anything that could have improved your experience or anything else that you would like to tell us?**

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**That's all!**  
**Thank you very much for taking the time  
to complete our questionnaire.**





# Evaluation Cover Sheet

This Evaluation Cover Sheet must be completed by the project/volunteer coordinator at each individual evaluation and be physically attached (by staple) to the front of each completed set of corresponding questionnaires and posted to:

Freepost RSSR-TZLH-UUSG, Rachel Bragg ICES, Department of Biological Sciences, University of Essex, Wivenhoe Park, COLCHESTER CO4 3SQ.

If you have any questions about this research please contact the key researcher Mike Rogerson by email: [mike.rogerson@essex.ac.uk](mailto:mike.rogerson@essex.ac.uk)

1. Name of person completing Evaluation Cover Sheet

2. Date of session

3. Name of Garden and/or group

4. Type of questionnaire completed

5. Number of questionnaires completed

6. Number of people in group (including carers and others)

7. Beneficiary group(s)

	Primary	Secondary
Physical Disability		
Autistic spectrum disorder		
Sensory Impairment		
Mental health condition		
Dementia		
Learning disability/difficulty		
Alcohol and/or substance misuse		
Long-term illness		
Unsure		

Other (please specify)



6. How many people of each gender are in your group?

Male  Female  Transgender  Prefer not to say

7. Approximately how long did the group spend doing activities during today's session?

8. What types of activities were they participating in?

9. What was the weather like?

10. Any other information about the group (e.g Visit from specific organisation, issues with completing forms, etc)?

**Thank you very much for completing the coversheet for this session.**

**Please staple this Evaluation Cover Sheet to the corresponding set of questionnaires and post to the address at the top of this form.**

