

Meta-synthesis of findings from evaluations and qualitative interviews of work involving community food and its impact on mental health and wellbeing

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Executive summary

Background

Improving mental health and diet are important components of the public health agenda in the UK. Community organisations have an important role to play in promoting mental health and wellbeing, and a number of community-based food projects are specifically designed to address this issue. However, impact assessment for such projects is difficult, and in-depth, high-quality evaluation data linking project activities to health outcomes is lacking.

Aims and objectives

This study aimed to summarise findings from Scottish evaluations of community food work on mental health and wellbeing.

Method

The project was undertaken in three different phases that had different methods. Phase 1 was a prospective evaluation of one community-based food project's work, called Eat Well – Keep Active, run by the CHANGES Community Health Project. All participants who took part in the course were asked to complete a paper survey at the beginning of the course (baseline) and at six weeks. Various types of statistical analyses were then used to assess change in mental wellbeing and in eating habits. Phase 2 entailed qualitative interviews with key staff from seven community-based food projects and two Community Food and Health (Scotland) staff. The interview transcripts were qualitatively analysed to draw out key themes around how and why community food projects and their evaluations work. In Phase 3, a meta-synthesis of self-evaluations from eight community food projects was undertaken. Information from each of the reports was extracted to compare and summarise the project and participant characteristics, evaluation tools used, and outcomes measured by each project.

Summary of main results

Nearly all of the community-based food projects reported improvements in participants' mental health and wellbeing. This was measured through a wide range of indicators and by a variety of tools, most qualitative in nature. Interviews with project staff suggested that the mechanism by which mental health and wellbeing benefit as a result of these projects may be related to social connectedness and support, rather than purely dietary (biochemical) mechanisms. The interviews also revealed that because outcome evaluation is not often built into the projects offered by mental health charities, securing the time, expertise, and funding for evaluation is a major barrier.

Conclusions

Community-based food programs offer participants the opportunity to develop skills, confidence, and social connections, in addition to learning about and making nutritious food, but current standard evaluation tools may fail to capture many important aspects of change in the lives and behaviours of community-

based food project participants with mental health problems. This work highlights a key opportunity for community-academic partnerships, through which rigorous alternatives to quantitative questionnaires can be developed for use in community-based mental health work.

Main recommendations for practice

- Create a logic model or other way of visualising how a course works, on which outcomes and why
- Collect a minimum data set at the start of the course, and some follow-up data at a later stage to measure change in outcomes
- Use tools which can measure a change in outcomes
- Seek out academic or evaluation partners to provide advice and support with evaluation

Main recommendations for researchers

- Undertake further development of the theoretical model for why the community food programmes have an impact on mental health outcomes
- Develop and validate new evaluation tools that are appropriate for use in community-based services and programmes, and that are specifically designed to be able to measure change in diet and mental health outcomes.
- Use evaluation methods that are appropriate to the population, the intervention, and the outcomes, and include an assessment of how and why the intervention works.

1. Introduction

1.1 Background

The area of mental health and wellbeing has gained increasing global prominence over recent decades, having been recognised as a policy priority by the World Health Organisation and the European Union. In 2013, the Joint Action on Mental Health & Wellbeing was launched to facilitate a collaborative effort among 27 EU member states to promote various aspects of mental health, including the development of community mental health care and the integration of mental health in all policies (European Union, 2013).

This comes at a time when Scotland, along with many other countries, is experiencing a major shift in the delivery of mental health services, where long-term decreases in in-patient treatment have meant that community-based services are being called upon to take a larger role in treatment and prevention of mental health issues.

Physical activity is recognised within Scotland's Mental Health Strategy 2012-2015 as an effective intervention to improve mental health and wellbeing. Food and nutrition, however, are not mentioned in the strategy document (Scottish Government, 2012).

Mental health and diet, however, are significant parts of the public health agenda in Scotland. Community organisations have an important role to play in promoting mental health and wellbeing, and there are a number of projects in Scotland specifically designed to do so. However, one consistent problem that has arisen when trying to assess the impact of such projects is that there is not enough in-depth, high quality evaluation linking the project activities to health outcomes. Thus, although much anecdotal evidence is collected which suggests potential mental health benefits, relatively little data using validated measurement tools has been collected. In 2012-2013, Community Food and Health (Scotland) (CFHS) ran a four-day learning and development programme around evaluation and funded the self-assessment of eight community-based food projects (along with one further evaluation of the CHANGES programme, carried out by SCPHRP) to examine the impact of community food projects on mental health and wellbeing.

Between October 2012 and January 2013, a four-day learning and development programme was facilitated by Evaluation Support Scotland programme on self-evaluation tools and techniques. Twelve participants undertook this programme from ten different organisations. Organisations that completed the programme were offered a small amount of funding to carry out an evaluation within their own organisation based on their food-related work and its impact on mental health and wellbeing. Eight organisations took up this offer of funding. CFHS also funded a prospective CHANGES evaluation (see Phase 1).

The community food project evaluations were designed to be used by the individual projects to help produce evidence of effectiveness and to embed a culture of evaluation within these groups (and promote evaluation within the third sector). However, there is much knowledge to be gained from looking at all the evaluations together and from undertaking a 'meta-analysis / meta-synthesis' of the findings (an evaluation method that combines results of individual studies to obtain an overall effect estimate of the intervention).

The aim of this research study is to bring together the learning from the community food evaluations, which will enable a much broader understanding of the important topics and issues that are common to the projects, and will help provide recommendations for future project work and for future evaluations.

This study has three phases:

1. Carry out a prospective evaluation of the CHANGES programme
2. Review the evidence and findings presented by organisations in the evaluation reports from the Building Evidence of Impact Programme.
3. Analyse the evidence produced by the community food projects in relation to what has been learned about the impact of community-based work involving food on mental health and wellbeing.

Findings will be used to support future community-based work involving food, mental health and wellbeing. The study findings will also be shared with a range of CFHS stakeholders including community food initiatives, community-based mental health organisations, local authorities, and health and academic partners that contribute to the evidence-base in relation to the impact of work involving food on mental health and wellbeing.

1.2 Aims and objectives

The aim of this study is to bring together and synthesise the learning from evaluations of community-based work involving food and its impact on mental health and wellbeing.

The main objectives are to:

1. Identify the similarities and differences between the projects in terms of participants and activities
2. Explore what the findings reveal about the impact of community food work/activities on mental health and wellbeing
3. Identify the range of outcomes (health and non-health) that the evaluations report; and how/why do these differ between projects
4. Explore what the findings reveal about the tools and techniques used to evaluate impact
5. Identify which tools and techniques worked well and which (if any) proved more difficult to use

6. Identify the learning that can be drawn from the findings to share with other community food initiatives / community-based mental health projects
7. Identify the learning that can be drawn from the findings to share with wider stakeholders including policy makers
8. Identify if there are any particular elements of evidence that would be worth further investigation e.g. in practice development

2. Method

The study was undertaken in three phases that had different methods and aims, and so are described separately:

2.1 Phase 1: Prospective evaluation of people taking part in Eat Well – Keep Active' course, run by CHANGES

CHANGES was established in 1996 to “promote positive wellbeing and provide opportunities for people in East Lothian, Scotland to find ways towards healthier and less stressful living”. One of the activities that CHANGES provides is a six week course called ‘Eat Well – Keep Active’ henceforth referred to as ‘the Course’. The aim of the Course is to improve mental and physical wellbeing by increasing awareness and knowledge of eating well and exercising and to provide practical examples of healthy meals and ways to exercise. The free Course comprises 5 weekly two-hour sessions and a 6th session after a 5-week break. In the sessions, participants take part in some light physical activity, are told about a healthy diet, and have a cookery demonstration (which they have the opportunity to taste as well). In 2013 a *retrospective* evaluation and qualitative study was undertaken by members of the research team (Robertson & Jepson, 2014) and the evaluation report is available on the [Scottish Collaboration for Public Health Research and Policy website](#).

The aim of this prospective study was to estimate the size of the effects for particular outcomes that the retrospective evaluation found to be positively associated in a cohort study of participants. The objectives were to:

- Determine the size of effects for mental health and dietary outcomes
- determine whether these effects are maintained over the longer-term
- determine which effects are maintained over the longer-term and which are not.

All participants who took part in the November 2013 Course were asked to complete a paper survey (see [Appendix 1 \(page 32\) in Evaluation of Eat Well-Keep Active \(Stage 1\)](#) for a copy of this survey.) Survey data was collected at the beginning of the course (baseline) and at six weeks. Future work will include collecting data at six months and, if possible, one year. Data will also be collected for participants in the June 2014 uptake. Methods, analysis and ethical considerations were the same as for the retrospective evaluation although for this evaluation pre- and post-analyses were performed. All analyses were carried out

using the statistical software package SPSS. Paired-sample t-tests were used to assess change in mental wellbeing. Wilcoxon sign-rank tests (statistical tests that can be used to assess if repeat measurements of an outcome differ e.g. measuring an outcome before and after an intervention) were used to assess change in eating habits (e.g. reducing the consumption of take-away food, eating more fruit and vegetables etc.)

2.2 Phase 2. Review the research evidence and qualitatively explore the findings from the community food projects

2.2.1 Rapid review and coding of the community food projects

A rapid review of the literature was by undertaken to identify other research that:

- a) Identified the possible pathways between food and health
- b) Focused on community food projects, in particular their relationship with the mental health and wellbeing of service users.

The relevant measures and outcomes described in the literature (particularly those with a focus on mental health outcomes) helped frame the questions for the face-to-face interviews.

The evaluation reports from all nine community-based food projects were gathered and data were extracted into NVivo (a qualitative data software package). Coding of the data (using the objectives outlined previously) was carried out for type of participants, setting, length and content of the course, number included in any evaluation, outcomes measures and type of evaluation tools used.

2.2.2 Qualitative interviews with key project staff

In addition to reviewing the evidence from the reports the researchers also undertook seven one-to one interviews with key project staff in each of the projects, as well as two CFHS staff, to further identify and clarify key themes (nine interviews in total).

The interviews were carried out with key staff involved in developing, delivering, and evaluating the food and mental health projects. Ethical approval, from the Ethics Committee, Centre for Population Health Sciences, University of Edinburgh, was obtained for the interviews. Potential participants were recruited via a letter of invitation and study information sheet sent via email. Those who did not respond were followed up via telephone. One person declined participation, and one could not be contacted. The seven remaining project staff, along with two CFHS staff, participated in individual in-person interviews. Written consent was obtained from participants prior to the interviews being conducted. The interviews focused on exploring topics where the researchers felt more information was needed as well as exploring in greater depth some of the

preliminary themes identified from coding the data (see Appendix 1 for topic guide). The data was transcribed and analysed alongside the project report data.

2.3 Phase 3. Meta-synthesis of the evaluation data

The meta-synthesis is an attempt to fill in some of the evidence gaps linking community food projects and mental health and wellbeing, using a novel method that has not been widely used in this context. Transcripts from the nine qualitative interviews were analysed alongside the project evaluation reports. During the analysis the diversity of settings and participants was carefully considered.

The findings of Phases 1 and 2 (plus the retrospective CHANGES evaluation) were then synthesised to answer the research objectives, taking care to recognise un-anticipated themes emerging. Coding was undertaken in NVivo and followed a similar process as that used for coding qualitative data: a broad set of codes was identified and organised into themes. The themes were crosscutting, looking at issues across the range of projects rather than being limited to individual projects. From this analysis, a model was constructed to demonstrate the potential pathways that indicated how the projects created change in the outcomes that had been described both in the evaluation report and from the interviews with the key stakeholders. This meta-synthesis went beyond a description of the data to producing new analyses and ways of thinking about the underlying mechanisms of action of community food projects.

One of the research team attended a learning exchange event hosted by CFHS (“Second Helpings”), the follow-up to a previous event (“Mind the Menu”) around evaluation and building evidence of impact in community-based food and mental health projects. During the one-day event, the model that emerged from this research was presented to an audience of over 50 stakeholders and staff from community food projects and mental health organisations. The description and explanation of the model was well received, and discussion throughout the day provided some validation for the proposed mechanisms of action.

3. Results

3.1 Phase 1 - Prospective evaluation of people taking part in CHANGES Eat Well - Keep Active course

3.1.1 Response rates

Nineteen people were sent a ‘Before’ questionnaire before the course started. Seven returned a completed questionnaire. Six of these seven completed an ‘After’ questionnaire six weeks after the fifth course session and a few days before the course follow-up session. The following results are based on the responses of these six participants. Four (67%) were female and the group

ranged in age from 36 to 65 years with an average age of 55 years. Five people (83%) lived alone. The results from this small sample, measuring both mental wellbeing and aspects of healthy eating, were however encouraging in several respects.

3.1.2 Mental wellbeing results

Data on mental wellbeing were collected using a short survey called The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) as well as an additional five questions related to mental wellbeing (New Economics Foundation, 2012). The results are shown in Table A1 (see Appendix 2).

The short WEMWBS score (Stewart-Brown et al, 2009) increased following the intervention, from a mean score of 19.4 to 22.8 and there was also an increase in all but one (anxiety) of the other mental wellbeing measures. However, no statistically significant improvement in mental wellbeing was found following the CHANGES Eat Well Keep Active course (where the p-value test statistic is less than or equal to 0.05 ($p \leq 0.05$) – see Section 7.1.1 for a more detailed explanation of statistical significance).

3.1.3 Healthy eating results

There were seventeen questions relating to healthy eating; the results for these are shown in Table A2 (see Appendix 2) and Table A3 (see Appendix 2). The scores for how healthy people thought their diets were, how confident they were about knowing about healthy food and how confident they were about preparing healthy foods were improved after the course, but these were not statistically significant ($p > 0.05$) (Table A3). There was a statistically significant reduction in the amount of chips, fried or roast potatoes people reported eating following the intervention, but no statistically significant improvement for other aspects of healthy eating (Table A3).

3.1.4 Using the evaluation tools

The use of the short WEMWBS (which showed a trend for better mental wellbeing following the course) and five short questions about feelings were easy to complete (and were acceptable) by the participants and would be valuable to include in larger studies. The questions about diet and cooking and preparing healthy meals were also completed well and suggested course participants felt more confident about cooking from basic ingredients and had made efforts to reduce the amounts of fried or roast potatoes they consumed.

3.2 Phase 2: Rapid review of the literature

To aid analysis of the evaluations and the qualitative data, two types of literature were considered, which are described separately.

3.2.1 The pathways between food and mental health and wellbeing

Research has shown that diet quality is related to numerous measures of cognitive and mental health outcomes, with nutrient intakes often positively correlated with overall mental health (Davison, 2012). Adults with mental health issues are frequently found to be at risk for nutrient inadequacies, as well as overweight and obesity. Indeed, obesity-related diseases (e.g. diabetes) are the most common comorbidities associated with mental ill health (Farnam, 1999). One frequent problem is that antipsychotic medications present many challenges to maintaining a healthy weight, with side effects often including increased appetite and lethargy (Tschoner, 2007).

On a biochemical level, specific nutrients have the potential to influence brain function through the effects of digestive hormones that also drive metabolic processes in the brain (Gomez, 2008). Having a balanced diet consisting of a mix of complex carbohydrates, essential fatty acids, amino acids, vitamins/minerals and enough water also has a role in maintaining optimal health and function of all body systems, which in turn can impact how one feels (Mental Health Foundation, 2006).

What remains unclear, however, is how these pathways work in the context of the wider environment in which humans live and interact, which includes many other influences. At the population level, there is evidence that diet and mental health are related, but it is largely cross-sectional, meaning that the direction of causality cannot be inferred. For example, Blank et al (2008) analysed household survey data collected in 2002 and 2004 from 39 deprived communities in the UK. Over the two-year period, increases in physical activity and fruit and vegetable consumption were associated with changes in specific dimensions of self-reported mental health, such as peacefulness and happiness.

What is impossible to ascertain from this data, however, is whether dietary changes were the driving force behind improved mental health measures, or whether the influence was in the opposite direction, such that better mental health caused people to improve their diets. Some researchers have suggested a model of reciprocal causality, in which both factors influence each other in a circular pathway (Duancy, 2009).

3.2.2 Published evaluations of community food projects

A literature search was conducted for evaluations of community food projects, particularly those that had focused on their relationship with the mental health and wellbeing of service users. No literature published on this specific topic in academic journals was identified. However, a report commissioned by the Food Standards Agency describes some potentially pertinent work (Wrieden, 2002). From 2000-2002, a community-based cooking intervention was developed and evaluated in eight different Scottish communities. The aim of the project was to improve the diet quality of people living in deprived areas throughout Scotland. In-depth dietary data were collected at baseline, during the cooking skills

programme, and at 6 months post-intervention in order to measure changes in participant behaviour and diet quality. The courses taught basic cooking skills to adults living in deprived areas and lasted 8-12 weeks on average. Though the intervention was designed and intended to improve dietary behaviours, very little sustained change in participants' diets was detected from baseline through to post-intervention follow-up. However, because the project also utilised qualitative interviews as part of the evaluation, they were able to identify significant improvements in participants' confidence, pride, and ability to prepare food, as well as willingness to try new foods and an overall heightened awareness of food and nutrition.

3.3 Phase 3: Synthesis and meta-synthesis of the food project evaluations and interviews

This section presents a synthesis of the project evaluation reports and a synthesis of the qualitative interviews. A model is then proposed, showing some of the pathways that link the project activities with better mental health outcomes.

3.3.1 Synthesis of the self- evaluation reports

The first objective of the project was to identify the similarities and differences between the projects in terms of participants and activities. The characteristics of the different projects are summarised in Table 1. Eight out of a possible nine evaluation reports were provided by the community projects involved. The projects were based throughout Scotland, including Strathclyde, Lothian and the Highlands. All of the projects worked with (or were open to) adult men and women, except two that focused solely on mothers. Four of the eight projects worked with people with mental health issues, one with adults with learning difficulties, two with mothers of young children, and one with the elderly. Most worked with groups of five to ten participants, and the courses ran from between five to twelve weeks. Because two of the intervention courses were repeated multiple times during the data collection period with new participants, sample sizes reached up to 40 participants for one project. Three of the projects are on-going services, without start or end dates, while three were one-off interventions. The projects aimed to provide participants with three main activities: cookery skills (six projects), healthy eating information (six projects) and/or food safety (two projects). One project also included a light exercise component.

The second and third objectives of the meta-synthesis were to explore what seemed to be the impact of the programmes and identify the range of outcomes (health and non-health related) that the evaluations report. Each project evaluated a variety of outcomes, many of which were determined by participants or project staff. Participants reported nearly universal self-assessed improvement across all outcomes evaluated, although it is difficult to quantify the magnitude of change given limited baseline data and the descriptive nature of many of the evaluations. Three of the eight reports included some baseline data collection to allow for assessment of changes after project implementation. Two projects reported no change in selected outcomes (related to food choices) following their

intervention. The most common benefit reported in the evaluations was for an improvement in general self-confidence and/or a feeling of achievement (seven projects), followed by being able to build new relationships/feel confident around others (five projects).

Four projects found evidence for increased frequency of home-cooking and increased awareness about healthy eating. Respondents from three of the projects reported positive dietary changes, such as eating fewer ready meals and trying new foods. Less common but also reported outcomes included increased use of meal plans, more frequent family meals, and improvements in family members' dietary behaviours.

There were a variety of evaluation techniques employed, with multiple tools used by each project, although with varying degrees of analysis and reporting (objective 4). The most common tool was the evaluation wheel, used by four projects. An evaluation wheel is a visual survey tool in which a circle is divided into a number of segments, each representing an outcome. Participants can then put a mark somewhere between the centre and outside of the circle to indicate how close they feel to achieving each outcome. Questionnaires, interviews, and focus groups, were each used by three projects, while two used staff observations. Most questionnaires were used to measure frequency of dietary behaviours or to measure level of satisfaction with the course.

Interviews and focus groups were used to elicit more in-depth responses from participants about changes occurring in their lives and feelings throughout the course. Staff observations were used to validate the findings that participants reported. Four projects included other techniques such as single-word descriptions, photographs, and video footage. These alternative techniques were used as a way to help participants creatively examine and convey their feelings about what kinds of outcomes they were experiencing as a result of the courses in which they were participating.

Table 1. Characteristics of the community-based food projects and their evaluations.

Participants	Adults with mental health issues (4) Mothers in deprived areas Elderly attending a day centre Adults with learning disabilities Women accessing peer support groups
N	5-10 (typical group size) Up to 40 evaluated for one project
Program length	5-11 weeks On-going (3)
Project components	Cooking skills (7) Health eating (5) Food Safety (4) Breakfast/lunch/supper club (3) Gardening Group discussion/peer support Light exercise
Outcomes measured	Dietary habits (6) Feelings about the course (5) Perceived social support (5) Confidence (4) Perceived physical & mental health (3) Individually-determined goals (2) Motivation (2) Shopping habits (2)
Tools	Focus groups (3) Qualitative interviews (3) Evaluation wheels (4) Pictures/words (4) Survey questionnaires (3) Staff observations (2) Photos/video
Reported findings	Increased/improved: Confidence (6) Cooking skills (6) Social interaction (5) Changes in specific dietary habits (4)

3.3.2 Synthesis of the qualitative interviews

Nine qualitative interviews were completed in total. Seven interviews were with key project staff who delivered courses to service users. Two further interviews were conducted with CFHS staff in order to further clarify emerging themes. A semi-structured interview guide (see Section 7.2) was used to explore a range of topics related to the food and mental health work being carried out by each organisation. Interviews lasted between 30 minutes and two hours. Two overarching themes emerged:

- 1) Evaluation in practice and appropriateness of evaluation tools
- 2) The pathways that link the food projects with mental health and wellbeing.

3.3.2.1 Evaluation in practice and appropriateness of evaluation tools.

Most organisations offered a variety of services and activities beyond the food-related work described in this study. In many cases, cookery courses were started because of demand expressed by service users who were taking part in other activities being offered. Staff described their interest in learning to conduct better evaluation as an avenue to funding opportunities and as an opportunity to improve their services. Most of the organisations for which they worked do not have resources to support in-depth, high quality evaluation, and therefore funding from CFHS was of integral importance in facilitating the evaluation of these projects. For this reason, much of the evaluation work carried out with the support of CFHS was a one-off.

It is worth noting that only half of the projects involved in this evaluation served people with existing mental health issues. Despite vastly different mental health starting points of participants, staff in the organisations that applied for CFHS funding to participate in the Building Evidence of Impact programme did so because they felt that their projects were demonstrating links between food and mental health and wellbeing. The vast majority were doing so through courses involving cooking.

Objectives 4 and 5 of this project were to explore what the findings reveal about the tools and techniques used to evaluate impact; and to identify which tools and techniques worked well and which (if any) proved more difficult to use. This synthesis found that many different outcomes were measured by the eight projects using tools that varied widely. Therefore, it is impossible to pool results as singular outcomes for comparison. What can be appreciated though, are patterns in the way that data were collected and the broader categories into which the reported outcomes fit. No project relied solely on questionnaire-based data collection. Only three of the eight projects used questionnaires in any part of their evaluation. Much more common were visual-based tools. Questionnaires seemed to be very poorly accepted by service users, and staff described participants' uneasy and disengaged reactions to being evaluated in this way. One common explanation offered was that people are regularly evaluated

through questionnaires and having to fill in forms in other settings (for example in clinical mental health or social work settings), and they have grown weary of this. Staff therefore described the need to explore qualitative or alternative-method evaluations, such as use of pictures, in order to engage service participants and draw out important outcomes.

Project staff commented:

“As soon as you gave them [participants] a questionnaire, it went dead silent, and everyone was just sitting...like a test. And it was very, very tense, and it took quite a while to break that afterwards.”

“There are quite a few forms that people have to fill in these days so they get a wee bit fed up with the evaluations...”

“Our folk, so often they feel like they get asked the same questions over and over again by health professionals...they really don't like being over analysed if you know what I mean. So it was finding a way to evaluate without people feeling that they're being tested in some way, because people assume that the minute you come with a sheet of paper, that they are being assessed.”

The tools that included visual and interactive components were reported by project staff as more effective in getting participants to open up and express their feelings in more depth than was possible through other methods.

“I think the way we're collecting information [with visual/interactive tools] is much easier for people; it makes them more relaxed, and they don't feel they're being pestered in some way...”

Staff also frequently commented on the importance of creating an environment in which participants felt safe and comfortable. This was seen as integral, both for the success of the project as well as for the evaluation.

“It's like they're finding a place in the community, which is just so important because they've felt completely alienated from the community... Acceptance is the huge thing, and if you make the space for it to happen, it does.”

“We had some issues with the fact that for four weeks [the course] was done [at a different organisation's] kitchen, which some of our service users found very difficult to manage, and actually one of them dropped out permanently because they just couldn't manage going to somewhere new they didn't know and didn't feel safe and comfortable.”

“One of the barriers to doing the evaluation was going into that [safe, close-knit] environment. So it did feel quite naughty that I was intruding into what was actually *their* group for my own agenda (evaluation)... I was just very conscious of changing the dynamic.”

3.3.2.2 The pathways that link the food projects with outcomes in terms of mental health and wellbeing.

The outcomes evaluated, though different across projects, fit broadly into four themes. These were:

- Measures of self-concept
- social interaction and connectedness
- self-assessed wellbeing
- dietary behaviours.

The most frequently reported outcomes across projects were those related to self-concept. Common examples in this category included self-confidence, self-worth, and feelings of achievement. The second most common type of outcomes reported were social interaction measures, such as developing new friendships, strengthening family relationships, and building trust. Self-assessed wellbeing was the next most common type of outcome reported, from perceived physical abilities (fitness) to feeling calm and content. Tangible changes in dietary behaviours were also reported, but less frequently than other outcomes. These included, for example, frequency of meal planning and use of ready-meals. Though many of the reported dietary outcomes were positive behaviour changes, there is not enough evidence to conclude that overall diet quality changed significantly for most participants.

“The group aspect of things, that peer support is so beneficial for people... they encourage each other.”

“Service users felt they were partaking in something. A lot of conversation was around mental health and anxiety. It was about how standing holding a knife made you feel, or how being in a group of people that you didn't really know very well...all those conversations came up in the groups. So, I couldn't clearly identify that actually eating healthy had an impact in everybody, but I think it was the impact of all of it together.”

“Cooking groups were a hook for them, and that would help them get involved in other groups beyond that... it was a sociable way of getting them into more groups, growing confidence...”

3.3.3 A model for creating a better understanding of how community food projects can impact on mental wellbeing (Figure 1)

There are several theoretical pathways that link community food projects and mental health and wellbeing (Figure 1). While improved diet quality is generally assumed to be a major mechanistic pathway for the mental health improvements in community food initiative participants, and most evaluation is geared towards detecting changes in this pathway, there is little evidence to support this in the meta-synthesis and from the qualitative interviews. Rather, this analysis suggests that food is being used by community-based organisations as a tool to help people overcome barriers to social interaction and self-confidence, partly through building skills and knowledge, which act as the key pathways that can improve mental health and wellbeing.

Figure 1. Proposed pathways affecting mental health outcomes in community food work



Interviews with the project staff involved in delivering the initiatives lent further evidence to this:

“It was about getting them [participants] to come in and trust other people”

“It wasn’t specifically a mental health programme, we weren’t doing it to benefit people’s mental health as such, but it just seemed to be a secondary outcome.”

“It’s really social... and for a lot of people who live on their own, they don’t think they’re worth bothering about. What we constantly try and reinforce is "yes you are", you’re important, you deserve to eat properly.”

“Food has just always been a social sort of thing, so it’s that sharing... put them at the table and butter is on that side, and "could you pass that" and there’s eye contact and "yes thank you" and "please". People who live on their own don’t observe the niceties of sharing food anymore. It’s just sitting in front of the telly and not speaking, and it’s not an occasion of any sort. And I think we offer that. It is kind of a family sort of thing. It reminds them that they’re important, and everybody’s polite to each other.”

“What we're saying to people from the very start is that people's safety depends on your care and you're paying attention to the details like washing your hands and not putting chicken on a board that somebody's gonna cut bread on. So from thinking "nothing matters" to "this really matters" ... that being responsible is a first step.”

A search of the psychology literature also supported the mechanisms proposed here. From the psychology perspective, it has been argued that the most socially-isolated individuals in society gain the most from new sources of contact and support, which in turn then have a substantial impact on both physical and psychological health (Cohen, 2004). One proposed mechanism for this effect is through the promotion of one's sense of identity, purpose, and self-worth. People who report having high levels of psychological stress are less likely to have depressive symptoms if they have social support structures in place (Cohen, 2004).

4. Discussion

All the evidence collected, the more in-depth evaluation of CHANGES (Phase 1), the rapid review (Phase 2) and the meta-synthesis (Phase 3) – suggests that the community food projects can have positive effects on mental health and wellbeing. However, there remain gaps in the evidence base and the links between food projects and mental health and wellbeing are not yet fully understood (although it is unlikely that participants dietary changes are wholly responsible). Given that this is a relatively new area of inquiry, high quality intervention data on this topic is lacking and more studies are needed. Evidence for the influence of dietary factors on the brain has been established at the biochemical level, however assuming these individual pieces of the puzzle are direct conduits between food and mental health outcomes risks an over-simplified interpretation, because many non-dietary factors also influence psychological wellbeing. In a model by Duancy (2009), environment, social interaction, physical activity, and genetics are listed among elements that mediate the biochemical pathways between nutrient intake, brain function, and mental health outcomes. For this reason, diet in particular is well positioned to be part of a wider whole-environment approach to supporting mental wellbeing. The meta-synthesis suggests that while the pathways to improved mental health may include eating a better diet, they are also strongly related to increased self-confidence gained through the courses and the opportunities for socialising in a safe and trusted environment.

Community-based food projects are well positioned to intervene at various levels of the wider environment that are integral to influencing psychological wellbeing (e.g. that go beyond just focusing on the individual, and take into account the context in which people live). Interestingly, however, in a search of the academic

literature (Phase 2), community-led projects involving food and mental health are not well represented. Because of the way individual organisations evaluate and disseminate outcome information about their projects and programmes, it is difficult to ascertain the potential significance of effects. Many community organisations do not have adequate funding or staff training to carry out in-depth, high quality evaluation and dissemination of results. One response to this problem has been to support the development of self-evaluation skills – a move that has been undertaken by CFHS and Evaluation Support Scotland with backing from the Scottish Government. Internationally, there has also been a recent trend in forming community-academic partnerships in order to address barriers to evaluation. A recent and relevant example of how such a partnership can be successful in highlighting the potential of community-led interventions targeted at health behaviours is the in-depth evaluation of a community-based gardening project in the US, which reported significant improvements in dietary behaviours as well as mental and physical health outcomes (Carney 2012). This involved a joint effort between a university research group and a community organisation to develop, implement, and evaluate the project.

4.1.1 Learning that can be shared with other community food initiatives / community-based mental health projects (objective 6)

These results suggest that commonly used methods of evaluation, particularly questionnaires, may be inappropriate for vulnerable populations that seek the services of charitable organisations. Though quantitative data gleaned from questionnaires is often more highly valued than other types of data, this method may not be useful in detecting the important nuances of change that occur in behaviours and feelings of participants. The finding that questionnaires are not well accepted among participants may help explain why response rates were relatively low in the CHANGES evaluation, which used various standardised questionnaire tools to collect data. Other methods of collecting data are necessary, but it is important that they are able to detect change over time (for example, so that we can see whether someone's diet, or mental health, or self-esteem has changed as a result of the course). If possible, any evaluation tools should be used when the person joins the course and again after the course is complete. If developing or evaluating a project, the following steps are recommended:

4.1.1.1 Create a logic model or other way of visualising how the course works
From the results of this study, it appears that the community food project may 'work' in many different ways – not only through the course content (healthy eating, cooking skills etc.) – but also through the safe social environment they create, and the interactions with people that participants can trust and relate to. To provide evidence of success, it is important for community food projects to be able to demonstrate that they have had an effect. Logic models or other ways of describing how the activities linked to the outcomes can be very useful ways to understand how to recognise what success looks like, and what can be achieved

through the delivery of a course. Using such models can make you more efficient in deciding what the key outcomes are, and whether the course is producing the outcomes originally intended.

4.1.1.2 Collect a minimum data set

Though opportunities for continued in-depth, high quality evaluation may not be available, a framework for creating a minimum dataset within third sector organisations could prove useful. This will enable project staff to efficiently collect a small amount of data that can have maximum impact. The biggest barrier to evaluation, according to those interviewed, was staff time (usually in the form of lacking funds to pay for the extra time staff need to spend on evaluation-related tasks). A standardised minimum dataset could be collected as part of the daily routine already carried out by project staff (e.g. as part of the 'registration process' for the intervention). This could include, for example, attendance rates, details about the socio-demographics of participants (age, gender, postcode), baseline WEMWBS, some measures of dietary behaviour (this could be visual data, not just survey data), measures of social interaction and self-esteem; and a log book of brief comments from staff and service users. Surveys and questionnaires are not necessarily needed – other visual ways of representing what people eat can be used – as long as are designed to measure a change in outcomes. This was demonstrated through the use of a wide range of alternative evaluation tools by the community food programs in this meta-synthesis. If possible, follow-up data would also be collected from participants in the short (1 month after the intervention), medium (6 months) and long (12 months) term. Follow-up data could be collected over the phone, or by using a short survey. These data can be complemented by qualitative data (and indeed would benefit from it). Having consistency in the data collected by projects both within and between organisations (if all community-based projects were able to decide on, and collect, similar data) will be powerful in generating evidence that builds on multiple sources (as seen with a meta-synthesis such as this) rather than relying on individual examples and variable outcomes. This will be particularly useful for policy and planning.

4.1.1.3 Seek out academic or evaluation partners to help with evaluation

Community organisations would benefit from forming collaborative relationships or seeking advice from university research groups or other evaluation organisations (e.g. NHS Health Scotland, Evaluation Support Scotland) that have the expertise to provide advice on in-depth, high quality evaluations. This could be a good starting point for building a culture of high-quality evaluation with the organisation. Partnerships should involve shared control and responsibility and should be viewed as an avenue to building long-term high-quality evaluation practices, rather than a one-off external evaluation.

4.1.2 Learning that can be drawn from the findings to share with wider stakeholders including policy makers (objective 7)

This meta-synthesis suggests that community-based work involving food has the potential to improve and protect the mental health and wellbeing of a range of population groups, and their community (and inclusive) focus is particularly important. Project staff have developed the courses with a nuanced and in-depth understanding of their population group and how to address their needs. This understanding in itself is likely to be a big predictor of success. However, the in-depth, high quality evidence needed to satisfy some funders and policy makers may still be lacking. It is unlikely that community food projects (indeed any community projects) will have the money and resources to undertake the sort of evaluations that are deemed to be robust and 'gold standard' (e.g. experimental studies such as randomised controlled trials). Indeed it could be argued that they are the wrong sort of study design to be able to answer the sort of questions that policy makers want answered.

Given that project staff have limited time, resources and expertise, other types of evaluation approaches should be valued and recommended. For example, the realist approach to evaluation (Pawson & Tilley, 1997) takes into account the complex social situations in which these projects are run and may be more appropriate than traditional evaluation methods that focus on 'cause-and-effect' and typically ignore the context in which these projects are employed. Put simply, this realist approach seeks to evaluate 'what works, for whom, in what circumstances and why'.

Evaluation is often viewed as an 'add-on or 'optional extra' when it could be viewed more as an integral part of designing, delivering and sustaining any project or service. However, project managers should be given appropriate resources, training and support. Maintained autonomy should be seen as an important aspect in third-sector organisations when seeking and securing of funds and delivering services. Community organisations maintaining control over evaluation may also be key to attaining high-quality outcome data. Service users feel that programmes provide a safe environment in which to explore and express their feelings, and if breeched by outside evaluators, it could decrease trust and cause problems collecting sufficient quality data.

4.1.3 Particular elements of evidence that would be worth further investigation (objective 8).

The proposed model (Figure 1) suggests that it is the *combination* of some key components that are important if we want to see an increase in mental health and wellbeing. These include the range and content of activities; the focus on skill building and self-esteem; the trusted and familiar environment; and the opportunities for socialising and meeting similar people. However, at the moment this is a plausible, but still theoretical model. It would be useful for policy and practice to further explore and discuss whether these are the key components of any intervention that are integral to its success. Further investigation may reveal

other key ingredients, or revise the ones in the theoretical model of action proposed by this work (Figure 1).

4.2 Strengths and limitations of the project

4.2.1 Phase 1

The potential strength of the CHANGES evaluation is to provide more in-depth, high quality evidence as to the potential effectiveness of community food projects, and to evaluate the acceptability of a range of evaluation tools to those participating in such projects. However, the results from the questionnaire administered before and after the CHANGES Eat Well Keep Active course are limited by the small sample size. Surveys will be repeated with another cohort of course participants starting the course in June; it is hoped that this will increase the sample size to give further credence to the results found. In addition, the questionnaire will be administered six months and one year after the courses to determine what changes people have made in the longer term.

4.2.2 Phases 2 and 3

This project, particularly Phase 3 has a number of strengths. The meta-synthesis is an attempt to fill in some of the evidence gaps linking community food projects and mental health and wellbeing, using a novel method that has not been widely used. Evidence from the types of self-evaluation reports which were synthesised are often disregarded as being 'case studies' or 'not proper research.' However, there was merit in bringing together the findings from all of these self-evaluations to see whether there was any common themes which could be identified, across different types of populations, methods used for evaluation and type of intervention. The model proposed suggests that the meta-synthesis was successful in this regard. The meta-synthesis brought to light new insights which were not apparent (or strong enough evidence) to be considered on their own, but as a group provide stronger evidence. Community-based projects should be better placed in designing and justifying projects based on clear theoretical pathways of action (as highlighted in the proposed model, Figure 1) following this study, as well as being aware of the need to generate more consistent and in-depth evaluations that can be pulled together with those from other projects to help produce stronger evidence.

There are some limitations of the methods used in Phase 3. First, the short time frame meant that the research team was unable to undertake an exhaustive search of the literature, and therefore, it is possible that some studies were missed. However, the literature search strategy queried many sources of high quality, widely published research, and did not uncover any relevant evaluation research. The meta-synthesis of the self-evaluation reports was limited to the documents that were given to the research team, and did not include the 'raw' (original version) data collected by the organisations completing self-evaluations. This limited the amount of data that could be synthesised, and therefore the results and conclusions could be criticised for lacking rigour. However, some

clear themes that emerged across the projects were identified, regardless of the quality and depth of the evaluations, suggesting that the meta-synthesis methods do hold merit. However, this work is just the first step in understanding more about how and why community food projects can impact on mental health and wellbeing.

5. Conclusions and recommendations

5.1 Conclusions

Despite some limitations of the methods used, several clear messages can be drawn from the meta-synthesis. First, many of the survey evaluation tools traditionally used to collect data for evaluation were 'not fit for purpose' as they did not take into account the needs of either the project staff or the project participants. However, project staff were able to modify and utilise more novel tools such as evaluation wheels, body maps, and video footage. Second, the way in which these community food projects impact on mental health and wellbeing is not just through enabling people to eat a healthier diet. Most of the evaluation reports qualitatively suggested effects on self-esteem and self-confidence and that participants valued the opportunity to socialise. There may be many mechanisms that interact to provide the 'active' ingredients which are necessary to make a difference to participants. Thus it is not sufficient to simply teach people what is required to have a healthy diet; this research suggests that the project also needs to ensure that participants gain skills and self-confidence, are in a trusted and safe environment, and have the opportunity to socialise with people they feel are 'like themselves.'

5.2 Recommendations

5.2.1 Recommendations for policy and funders of community-based projects

'Gold standard' evaluations are neither achievable nor appropriate in this setting, and other forms of evaluation (using a range of evaluation tools) may need to be recognised by policy makers as providing evidence that a project or type of activities is well designed for the needs of the population group and that success can be measured in different ways. For example, a number of organisations are currently supporting organisations to undertake high quality self-evaluation using a range of techniques and tools.

5.2.2 Recommendations for practice

The community projects included in this meta-synthesis used a wide range of creative data collection tools that were developed and adapted to suit the unique circumstances and needs of the population with which they were working. Collecting and collating evaluation data can be burdensome, and the results of this study demonstrate that participants, and project staff, do not like lengthy surveys. However, if the intended aims and outcomes are made clear, it is

possible to undertake an in-depth, high quality evaluation with a minimum of effort. The following are recommendations to further facilitate the process:

- Create a logic model or other way of visualising how a course works, on which outcomes and why
- Collect a minimum data set at the start of the course, and some follow-up data at a later stage to measure change in outcomes
- Use tools which can measure a change in outcomes
- Seek out academic or evaluation partners to provide advice and support with evaluation

5.2.3 Recommendations for researchers

This research suggests that the ways in which community food projects impact on mental health goes beyond the teaching about good nutrition or cooking skills, to looking at the context in which it takes place and the skills participants develop. The theoretical model proposed is at an early stage in development and needs further testing and refinement.

In addition, there is a need to develop and validate new evaluation tools that are appropriate for use in vulnerable populations using community-based services and programmes, and that are specifically designed to be able to measure change in diet and mental health outcomes. The projects included in this meta-synthesis provided a strong case for this, along with valuable insights about why more interactive and engaging tools are necessary.

Evaluation using gold standard designs such as the randomised controlled trial may be neither appropriate nor acceptable/feasible. When designing evaluation research, use evaluation methods that are appropriate to the population, the intervention, and the outcomes. The focus should not just be on whether the intervention has been effective, but also how and why, and for which population groups. Realist methods may be appropriate to answer these types of questions.

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7. Appendices

Appendix 1. Interview topic guide used in Phase 2

What led you (your organisation) to start offering this programme/course?
How was the programme developed? How were the components/activities & objectives decided? What changes have been made to any components/ or objectives since it began (if any)?
In your view, why were participants in need of this programme/course? Why did they need to change their eating patterns/habits?
What do you think is the relationship between food and mental health? What is it that has convinced you, or made you unsure?
How do you think the programme/course is working? What outcomes are you seeing (if any) – are they the same or different from what you thought they would be?
What were the biggest barriers/facilitators to participants achieving the programme goals? When did you realise that those would be barriers/facilitators?
Why did you decide to carry out an evaluation of this programme/course? Has it caused you to change any of your activities?

Appendix 2. Data from CHANGES Eat Well - Keep Active Course

Table A1 Mean values and p-values¹ of mental well-being questions

	N*	Possible range of scores	Mean value before the course (95% CI)	Mean value after the course (95% CI)	P-value [#]
Short WEMWBS score	5	7-35	19.4 (14.2 to 24.6)	22.8 (19.0 to 26.6)	0.08 (ns)
How satisfied you are with your life nowadays	6	0-10	4.5 (2.5 to 6.5)	6.67 (4.4 to 8.9)	0.06 (ns)
How happy you felt yesterday	6	0-10	5.33 (3.5 to 7.2)	6.33 (3.8 to 8.9)	0.33 (ns)
How anxious you felt yesterday	6	0-10	4.83 (2.8 to 6.9)	4.67 (1.7 to 7.6)	0.92 (ns)
The extent to which you feel the things you do in your life are worthwhile	6	0-10	5 (3.5 to 6.5)	6.5 (4.7 to 8.4)	0.11 (ns)

* N = number of responses;

¹ p-value indicates the probability that the difference in 'before' and 'after' scores was due to random chance rather than the effect of the course. P-values above 0.05 (meaning 5% probability that the result happened by chance) are considered 'not significant' (ns). P-values below or equal to 0.05 are considered statistically different i.e. that there is evidence for a difference between the before and after scores.

CI = confidence interval. This is the range within which 95% of scores would fall if the questions were repeated in another group of participants.

Table A2 Participants' perceptions of how healthy their diet was and how confident they know how to follow and prepare a healthy diet

	N*	Possible range of scores	Mean value before the course (95% CI)	Mean value after the course (95% CI)	P-value#
How healthy do you think your diet is at the moment?	4	0-10	2.5 (0.5 to 5.6)	7.25 (4.2 to 10.3)	0.07 (ns)
How confident do you feel about ...					
..cooking from basic ingredients?	6	0-10	3.17 (1.6 to 4.7)	4.17 (1.9 to 6.4)	0.06 (ns)
..following a simple recipe?	6	0-10	3.83 (1.8 to 5.9)	4.33 (2.2 to 6.5)	0.18 (ns)
..tasting food that you have not eaten before?	6	0-10	3.5 (1.5 to 5.5)	4.33 (3.1 to 5.6)	0.13 (ns)
..preparing and cooking new foods and recipes?	6	0-10	3.17 (1.6 to 4.7)	3.67 (2.1 to 5.3)	0.08 (ns)
How confident are you about knowing how to follow a healthy diet?	6	0-10	3 (1.7 to 4.3)	4.33 (3.3 to 5.4)	0.18 (ns)

* N = number of responses to question; CI = confidence interval; # Statistical significance (Wilcoxon signed ranks test): $p \leq 0.05$; ns = non-significant

Table A3 Questions on diet before and after the course

	N*	Possible range of scores	Median (SD) before course	Median (SD) after course	P-value#
In a normal week how often do you eat...					
.. fast foods (from food outlet)?	5	1-8	3 (1.58)	2.0 (1.92)	0.56 (ns)
.. ready meals from local supermarket, shop or restaurant?	4	1-8	4.0 (1.26)	4.0 (1.1)	0.32 (ns)
...home prepared meals using basic ingredients?	5	1-8	4.0 (2.19)	4.0 (2.05)	1 (ns)
How often in the past month have you eaten ..					
..fruit?	6	1-8	4 (2.71)	6.0 (1.72)	0.41 (ns)
..vegetables or salad?	6	1-8	5.5 (1.72)	5.0 (1.41)	0.79 (ns)
..pasta or rice?	6	1-8	3.5 (1.27)	4.0 (0.75)	0.06 (ns)
..baked, boiled or mashed potatoes?	6	1-8	4 (1.21)	4.0 (0.75)	0.26 (ns)
..chips, fried or roast potatoes?	6	1-8	6.5 (1.38)	2.0 (1.51)	0.04
..oily fish?	6	1-8	3.0 (1.37)	3.0 (1.17)	0.32 (ns)
..sugary snacks?	6	1-8	5 (2.6)	3.5 (2.78)	0.67 (ns)
..salty snacks?	6	1-8	7.0 (3.01)	2.0 (1.87)	0.14 (ns)

* N = number of responses; SD= Standard deviation; # Statistical significance (Wilcoxon signed ranks test): $p \leq 0.05$; ns = non- significant