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THE IMPACT OF CARE FARMS AND GREEN CARE ON HEALTH-RELATED QUALITY OF LIFE: A SYSTEMATIC REVIEW GUIDING COST-EFFECTIVENESS ANALYSIS

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The impact of care farms and green care on health-related quality-of-life: a systematic review guiding cost-effectiveness analysis

Abstract

Background: Care farms are increasingly commissioned by public sector and health sector organizations to provide support to vulnerable people. It is a complex intervention that provides farming activities for therapeutic purposes. The evidence base assessing the effectiveness of care farms is relatively recent and to date no systematic review has been conducted to assess the impact of care farms using health-related-quality-of-life measures.

Aim: This systematic review aims to identify any existing literature evaluating the impact of care farms and green care interventions in adult populations, with a specific focus on health-related-quality-of-life measures that could be used for a cost-effectiveness or cost-utility analysis.

Methods: 19 general health and social science databases were searched systematically in November 2013. Care farm and green care interventions, for adults measuring HRQOL outcome were included and assessed for methodological quality using the Cochrane's six item risk of bias checklist.

Results: Five studies with four hundred and eighty-four participants were included in this review. Two studies favoured the interventions, whereas three studies did not find strong evidence that the intervention had an effect on participants' health-related-quality-of-life at post-intervention follow-up. These results indicated that care farms and green care may benefit certain populations such as breast and lung cancer patients, the elderly, and people with affective disorders.

Conclusions: Given the small number of available studies and their methodological limitations we cannot make unequivocal conclusions about the impact of care farms on health-related-quality-of-life. With this caveat, some evidence suggests that care farms and green care interventions can improve quality of life for some participants. However, this review highlights the need to conduct more high quality trials with larger sample sizes and longer term follow-up.

Key words: health-related quality-of-life, care farms, green care, cost-effectiveness, cost-utility

JEL classification: I31, I38

1 Introduction

Care farms are increasingly commissioned by public sector and health sector organizations to improve quality of life of disadvantaged people (Bragg, 2013). It is a growing movement across the UK, with approximately 230 care farms currently providing services to a wide range of participants (Bragg, 2014). Care farms are defined as “the use of commercial farms and agricultural landscapes as a base for promoting mental and physical health, through normal farming activity” (Hine et al., 2008, p. 247). A wide variety of people including people with psychiatric conditions, learning disabilities, mild depression, history of drug abuse, the elderly and offenders attend care farms in the UK (Hine et al., 2008).

The intervention is complex and differ from cite to cite, however the defining characteristics of a care farm involves both a “farming” and “care” component. A number of activities can be delivered in care farms such as livestock farming, horticultural activities, use of machinery and woodland management. In addition, clients can receive different levels of support, including counselling, skills qualification and health promotion. While individual care farms can provide different services and activities, they all aim to provide farming activities for therapeutic purposes. Care farms can be situated within the discourse of green care. Green care is an umbrella term used for different nature-based interventions such as animal-assisted therapy, eco-therapy, therapeutic horticulture and others (Bragg et al., 2013, Sempik et al., 2010). The key process of these interventions includes participants using nature for health, social and educational benefits (Sempik et al., 2010).

The evidence base assessing the effectiveness of care farms is relatively recent. However, some evidence shows that care farms can be effective, especially to improve participants physical, and mental health (Bragg, 2013). The findings from three randomised controlled trials shows that these interventions increased self-efficacy and self-confidence in psychiatric patients (Berget et al., 2008, Kam and Siu, 2010a); and decreased anxiety and depression in adults with clinical depression and psychiatric patients (Pedersen et al., 2011, Kam and Siu, 2010b). However, these randomised controlled trails were conducted with small sample sizes, thus results should be interpreted with caution. Evidence from other non-randomised studies have shown that these interventions helped overcome drug addiction (Elings, 2012);

improved quality of life in elderly people and youth (Colombo et al., 2006, Hassink et al., 2010); improved self-confidence, socialization, and sense of responsibility in people with psychiatric conditions and drug addiction (Elings, 2007); improved mental well-being and self-esteem (Bragg et al., 2013, Leck, 2013); reduced stress in clinically depressed adults (Gonzalez et al., 2011); and improved social interaction (Leck, 2013). However, this evidence base is limited in terms of the number of evaluations conducted for specific groups such as offenders, and the methodological quality of the conducted studies (i.e. small sample sizes).

To date, a systematic review of health-related-quality-of-life (HRQOL) measurement of care farms has never been published. Our team is currently undertaking a Campbell systematic review to assess the overall impact of care farms; this scoping review was conducted to identify any existing literature on the impact of care farms and similar interventions on HRQOL in adult populations. We also intend to report on the types of measures that have been used to measure HRQOL, with a specific focus on HRQOL measurements that could be used for a cost-effectiveness or cost-utility analysis.

The main outcome measure used in this review was participant's health-related-quality-of-life. HRQOL is increasingly used as an outcome to measure effectiveness in both medical and social interventions (Wilson and Cleary, 1995). Researchers can use three different measures to calculate HRQOL: generic measures, disease specific measures or preference-based questionnaires. HRQOL is a multidimensional measure that encompasses a number of domains, including social, physical and psychological (Testa and Simonson, 1996, Guyatt et al., 1993). Another benefit of using HRQOL is that it supports cost-effectiveness analyses in order to determine whether the benefits of care farms outweigh the cost of delivering the intervention. The results of this study will help to inform a current study being conducted by the team to explore the impacts of care farms on the health and well-being of offenders serving community orders.

2 Methods

2.1 Search strategy

In November 2013, 19 general health and social science databases were searched including ASSIA, CINAHL, Criminal justice abstracts, and Sociological Abstracts. See appendix A for full details. Databases containing grey literature (e.g. Web of Science conference proceedings index) and care farm related websites were searched to ensure that unpublished studies were included in this analysis (See appendix A). Bibliographies of included studies were also searched for relevant studies.

All search strategies were based on the search concepts ‘green care’ and ‘quality of life’. The scoping review identified limited studies evaluating care farms. As a result, we expanded the scope of the review to include interventions that fall under the broader category of green care interventions. The green care concept included care farms, horticultural activity, gardening, animal-assisted therapy, therapeutic horticulture and more related terms. The search concepts ‘community orders’ and ‘offenders’ concepts were used where they proved valuable following test searches. This search terms were primarily used because the pilot study currently ongoing aims to understanding the impacts of care farms on offenders to improve health and wellbeing and reduce re-offending. Thus, we were particularly interested in finding suitable HRQOL measures used for offenders. Quality of life terms were derived from quality of life tools and concepts common in health economics.

The search strategies were similar across every database. The Google search had an additional limit to UK web sites. The full search strategy for CINAHL is presented in Appendix B as an example of terms and headings used. Full search strategies for all databases are available from the author on request.

2.2 Inclusion criteria

Studies that met the following criteria were included in this review. We considered including randomised controlled trials, cluster randomised controlled trials, non-randomised studies such as cohort studies and case controlled studies (provided that baseline characteristics were comparable). Single subject studies were excluded. Adult participants (18 or above) were

considered. Care farms or green care interventions that encompass an interaction with natural elements, such as animal assisted therapy or horticultural therapy were included. Any comparison group were considered, it could be no intervention, care as usual, alternative intervention. Studies that measured HRQOL using any validated measures were considered. This review only included studies that measured quantitative outcomes, purely qualitative studies were excluded. Studies not conducted in high-income countries were excluded as our aim was to identify results relevant to the United Kingdom's socio-economic context.

2.3 Data collection and analysis

Titles and abstracts were screened by one researcher based on the inclusion criteria to select studies for the review. This process was managed using EndNote Software. When the decision to include or exclude a study was not straightforward, a second reviewer was consulted to resolve uncertainty. Once the included studies were identified, data were extracted using a standardized data extraction form. The detailed process of study selection was presented in a PRISMA chart (Liberati et al., 2009).

To assess reliability and validity of randomised controlled trials, we used Cochrane's six item risk of bias checklist. This involved evaluating whether the studies described sequence generation, allocation concealment, blinding, completeness of outcome data/attrition, selective outcome reporting, and sample size assessment (Higgins and Green, 2008). These were then graded as high risk, low risk or unclear risk based on the information provided. For all other non-randomised controlled trials, suggested risk of bias criteria for EPOC reviews was used. Due to the limited number of studies identified and substantial differences in populations and setting, a meta-analysis was not conducted. Instead a narrative summary of the included studies is presented below. Studies were not excluded if they were found to have a high risk of bias; instead these limitations were highlighted in the discussion section.

3 Results

The literature search identified 1132 potentially relevant studies. After the removal of duplicates, 948 titles and abstracts were screened, of which 937 studies were excluded. Eleven possibly relevant studies were retrieved for full-text assessment. After full-text

review, six studies were excluded and five studies were included in the analysis. A flow diagram describing the inclusion and exclusion process can be found in Figure 1.

Studies were excluded for the following reasons. One study was a conference abstract with insufficient data in the abstract to decide inclusion or exclusion. We contacted the corresponding author but no further information was retrieved (Voskuil et al., 2009). Three studies were excluded on methodological grounds. For example, the study designs were descriptive or qualitative (Stigsdotter et al., 2010, Yamane and Adachi, 2008, Williams, 2003). One study was excluded as the intervention did not have any contact with nature (Raanaas et al., 2012). Another study was excluded because the quality of life outcome was not measured (Park et al., 2008). For more information of excluded studies refer to Table 2.

3.1 Description of included studies

Four hundred and eighty-four participants were included in this review. The age of participants that received the intervention ranged from 20 to 79. The participants included those with breast cancer, lung cancer, chronic musculoskeletal pain, psychiatric conditions and drug or alcohol addiction history.

All included studies delivered different types of green care interventions, such as care farms, animal-assisted therapy, horticultural-therapy or a combination of the above. Only two studies were conducted in a farm setting. In one study participants received animal-assisted therapy where the patients visited a farm to work with farm animals (Berget et al., 2008). Similarly, Elings and colleagues (2011) also evaluated the intervention in a care farm setting. Two studies implemented a combination of different interventions including forest therapy, horticultural therapy, yoga, meditation, supportive group therapy and pain management (Nakau et al., 2013, Verra et al., 2012). One study delivered a pet therapy intervention, where the participants were given a canary (bird) to care for (Colombo et al., 2006).

Of the 5 studies included in the review, four studies compared the intervention to a control group. The study with chronic musculoskeletal pain patients used a comparison group that received a pain management program (Verra et al., 2012). In another study the authors delivered standard therapy to the control group (Berget et al., 2008). Elings and colleagues (2011) compared the intervention to a control group that received other programs. Colombo

et al. (2006) had a multiple arm trial where one group was given a plant and the other group received no intervention. One study did not include a control group instead the authors conducted a pre-test post-test design (Nakau et al., 2013).

All the included studies measured participant's quality of life using a variety of different measures. Two studies used the SF-36 instrument to calculate participant's quality of life (Nakau et al., 2013, Verra et al., 2012). The SF-36 yields scores for eight health domains. These scores can range from 0 to 100, where higher scores denote higher quality of life. The remaining three studies used various instruments to measure quality of life. For example, Berget and colleagues used the Norwegian version of Quality of Life Scale which is a 16-item scale where questions were scored on a 7-point scale. This instrument produces a total score range of 16 to 112, where higher scores indicate better quality of life (Berget et al., 2008). LEIPAD II-Short Version was used by Colombo and colleagues. It consists of 25 items, divided into six subscales. Each item in the instrument was scored on a 3-point scale, where 0 corresponds to the best condition and 3 to the worst (Colombo et al., 2006). Elings and colleagues utilized the WHOQOL-BREF instrument, which produced four domain scores. The scores ranged from 4 to 20, where higher scales reflected higher quality of life (Elings et al., 2011).

All included studies were conducted in high-income countries. Of the 5 included studies, four were conducted in Europe and one was conducted in East Asia. Studies conducted in the United Kingdom were not found.

3.2 Effects of interventions

Elings and colleagues (2011) did not find strong evidence to show that the intervention has an effect on quality of life at one year follow-up. Quality of life improved slightly in both intervention and control groups, however it was not statistically significant. Berget and colleagues (2008) reported no significant difference in quality of life between the intervention and control groups at both immediate and six months follow-up (Table 3). However, when sub-group analyses were conducted there was a significant increase in quality of life for people with affective disorders ($p = 0.01$). Colombo and colleagues reported statistically significant, positive effects of pet therapy on quality of life, compared to the two control groups (plant therapy and no intervention) at the end of the trial (Colombo et al., 2006).

Participants that received plant therapy also showed significant improvement in quality of life compared to the control group with no intervention (Table 4).

Two studies reported scores for the eight subscales in the SF-36 questionnaire. Nakau et al. (2013) reported statistically significant, positive effects in 6 domains of the SF-36 scale, namely physical functioning, role-physical, general health perception, vitality, role-emotional and mental health but not in bodily pain and social functioning (Table 5). While Nakau and colleagues found significant improvements in 6 domains, without a control group it is difficult to demonstrate that the intervention caused these improvements. For instance, these results could be due to other reasons such as other external factors besides the intervention affecting the outcome or regression towards the mean (extreme scores in the first measurement are likely to be closer towards the mean in the second measurement). Alternatively, Verra et al. (2012) reported statistically significant, positive effects in role-physical and mental health; the remaining 6 scales were non-significant (Table 6). Direct comparisons of these two studies are difficult as there are large differences in baseline scores in all dimensions, this may be due to the heterogeneity of participants who were recruited in the two studies. However, we can compare the mean differences observed in each dimension according to the study. The mean differences in two dimensions - bodily pain and mental health were significant in both studies. Participants in both studies showed an increase in mean difference for role-physical domain, for instance Nakau et al. found an increase in mean difference of 6.2 compared to 9.3 in Verra and colleagues study. For mental health domain, there is an increase in mean differences in both studies, 4.5 in Nakau et al. compared to 8.1 Verra et al.

3.3 Assessment of risk of bias

Studies included in this review varied in methodological quality. Two studies were randomised controlled trials, but only one study reported randomization sequence. The majority of the studies had small sample sizes and only two studies reported conducting a sample size calculation. Thus, it is difficult to determine if all the included studies were adequately powered to find significant effects of the intervention. Most studies failed to report allocation concealment and attrition rates. Except for one study, all others failed to report whether outcome variables were assessed blindly. The risk of bias was lowest across studies for selective outcome reporting bias. Baseline differences in non-randomised trials

can bias results. Out of the two non-randomised studies included in this review, one study found no significant difference at baseline (Verra et al., 2012) whereas the other study did not report whether baseline characteristics were similar (Nakau et al., 2013).

4 Discussion

Overall, five studies measured the impact of care farms and green care on quality of life of participants. Two studies favoured the interventions, whereas three studies did not find strong evidence to show that the intervention had an effect on participants' quality of life, at post-intervention follow-up. These results indicated that care farms and green care may benefit certain populations such as breast and lung cancer patients, the elderly, and people with affective disorders. However, due to the small number of participants included in each trial, conclusions should be drawn with caution.

The risk of bias evaluation revealed that the two studies that favoured care farms and green care interventions had high to medium risk of bias indicating that the results should be interpreted with caution. Most studies had small sample sizes and therefore may have been insufficiently powered to detect an effect. Furthermore, the majority of studies did not measure longer term follow-up. Therefore, it is difficult to determine if the effects of the intervention maintained over time. In most studies risk of bias especially allocation concealment bias or attrition bias was challenging to determine due to lack of adequate reporting. This highlights the need for studies to completely report trial data to allow for better appraisal of risk of bias.

Overall, the review is limited in their generalizability. For example, participants were heterogeneous ranging from people with breast cancer to psychiatric conditions. One of the most important findings from this review is the paucity of research that evaluated the impact of care farms in the United Kingdom; none of the included studies were conducted in the United Kingdom highlighting the need for more evaluations.

This review was conducted to guide future research to evaluate the cost-effectiveness of care farms. Consequently, we wanted to identify studies that operationalised health-related-

quality-of-life using utility (preference-based) instruments. However, we found no studies that included any direct measure of utility. Instead, two studies used the SF-36 instrument which can be used to generate utility. Estimating utility from the SF-36 instrument could help to conduct cost-effectiveness analyses to determine if care farm interventions are cost-effective.

Strengths of this review include the selection of inclusion criteria *a priori*, a comprehensive search strategy, assessment of risk of bias and adherence to PRISMA reporting guidelines. In addition, to our knowledge this is the first review to compile existing evidence to evaluate the effectiveness care farms and green care on health-related-quality-of-life. Therefore, findings add to the literature and highlight the need for more research. We have attempted to mitigate bias while conducting the review. However, we included both randomised controlled trials and non-randomised studies to avoid a review with limited relevance; this increased the heterogeneity of the results.

5 Conclusion

Given the small number of available studies, and their methodological limitations we cannot make unequivocal conclusions about the impact of care farms on health-related-quality-of-life. With this caveat, some evidence suggests that care farms and green care interventions can improve quality of life for some participants (i.e. breast and lung cancer patients, elderly, and people with affective disorders). It may be that studies assessing other health and well-being outcomes beyond quality of life can shed further light on the effectiveness of care farms and green care for different population groups. However, this review highlights the need to conduct more high quality trials to evaluate the effectiveness of care farms as current evidence is insufficient to be confident that care farm interventions can improve health-related-quality-of-life. Future research will benefit from improved reporting quality, larger sample sizes, and longer term follow-up.

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7 Tables and figures

Figure 1: Flow diagram of excluded and included studies

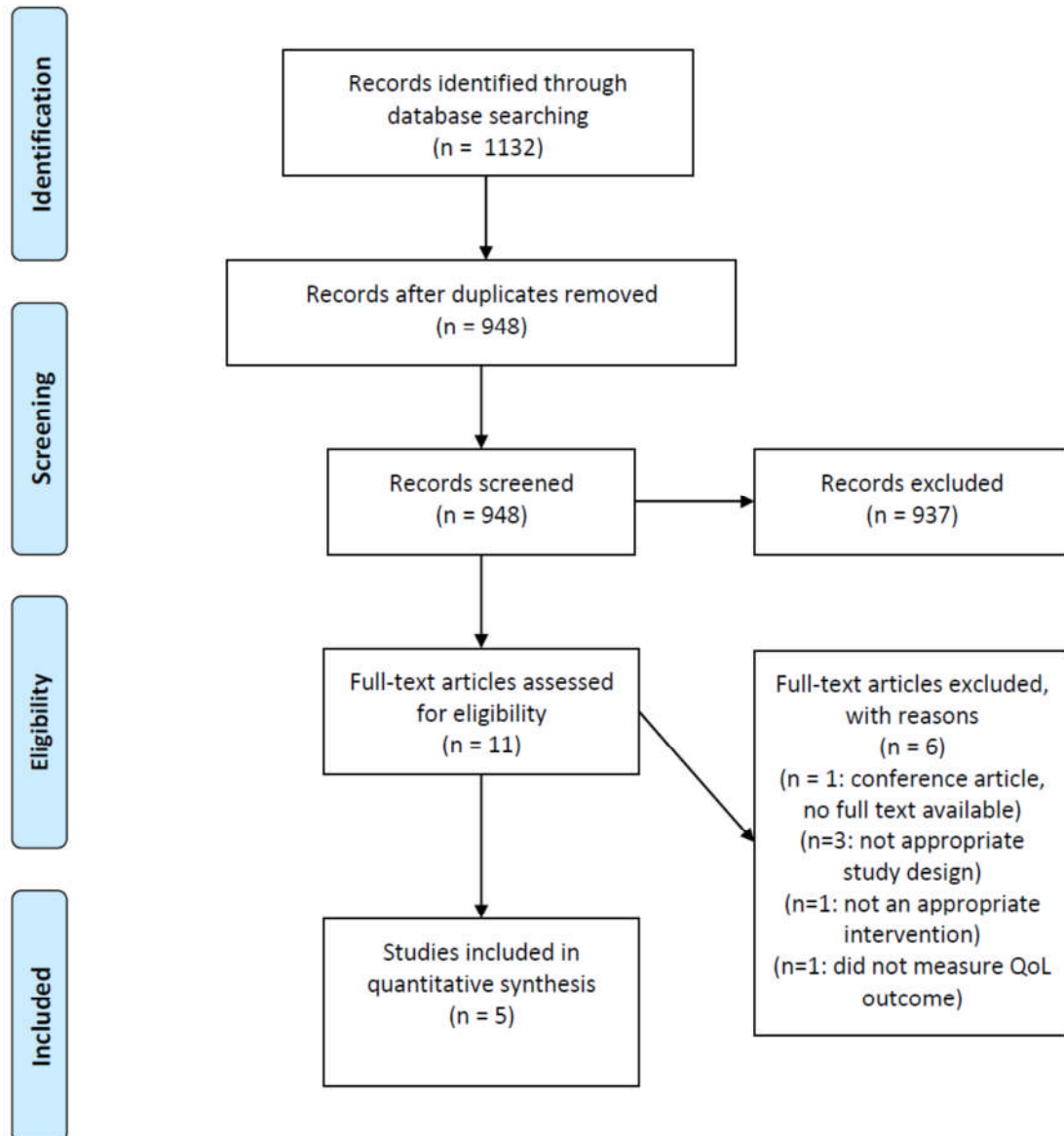


Table 1: Summery of included studies

Study	Population and sample size	Setting	Study Design	Intervention	Comparison	Outcome Measures
Berget et al., 2008	90 Adult psychiatric patients (schizophrenia and schizotypal disorders, affective disorders, anxiety and stress-related disorders, and disorders of adult personality and behaviour)	Norway	Randomised Controlled Trial	Animal-Assisted therapy in a farm setting	Treatment as usual	Self-efficacy, coping, and quality of life
Colombo et al., 2006	144 Elderly people	Italy	Randomised Controlled Trial	Pet therapy	Two control groups, one group received plant therapy, and the others did not receive any intervention	Quality of life, psychopathological symptoms
Elings et al., 2011	149 Participants suffering from psychiatric conditions and addiction	Netherland	Quasi-experimental design	Care farm	Other projects	Quality of life, Mental Health, Social Functioning, Nutritional Appetite, Client satisfaction, Use of medicine, drugs and alcohol, Use of health care
Nakau et al., 2013	22 patients with breast cancer or lung cancer	Japan	Pre-post study	Integrated medicine: consists of forest therapy, horticultural therapy, yoga meditation and	No comparison group	Spirituality, quality of life, cancer-related fatigue, mood, anxiety and natural killer cell activity

				supportive group therapy		
Verra et al., 2012	79 patients with chronic musculoskeletal pain	Switzerland	Non-randomised Study	Horticultural therapy and Zurzach Interdisciplinary Pain Program	Zurzach Interdisciplinary Pain Program. This program has three main components: medical care, exercise therapy, and psychotherapy (cognitive and behavioural therapy)	Pain, quality of life, Anxiety and depression coping strategies and Mobility

Table 2: Characteristics of excluded studies

Reference	Reason for exclusion
Park et al., 2008	Did not measure quality of life Participants: Elderly 60 years or over Intervention: Gardening Comparison: No control group Outcome: physical and mental health conditions Setting: USA
Raanaas et al., 2012	Intervention was inappropriate as the participants did not have any contact with nature Participants: Coronary and pulmonary patients Intervention: Bedroom window view to natural surroundings Control: Bedroom window view to natural surroundings was blocked Outcome: Quality of life (measured using SF-12) Setting: Norway
Stigsdotter et al., 2010	Not appropriate study design No intervention: measured association between green space and health-related-quality-of-life Setting: Denmark
Voskuil et al., 2009	Conference Abstract no further information
Williams, 2003	Not appropriate study design No intervention: qualitative research about quality of life of prisoners Setting: Utah, USA
Yamane and Adachi, 2008	Not appropriate study design No intervention: measured association between daily horticultural activity and health-related-quality-of-life Setting: Japan

Table 3: Results of Quality of Life: Berget et al., 2008

QOLS-N	Pre-intervention	Post- intervention	Six month follow-up	p- value
Treatment group	64.3 ±14.93	64.3 ±17.09	66.7±16.86	Not significant both at post intervention and six month follow-up
Control group	63.2 ±14.06	64.4 ±13.52	66.0±15.25	

Table 4: Results of Quality of Life: Colombo et al., 2006

LEIPAD	Group with plant (1)	Inter group comparison (1) vs (2)	No intervention (2)	Inter group comparison (2) vs (3)	Group with animal (3)	Inter group comparison (3) vs (1)
Physical Functioning	5.09±2.14	n.s	4.98±2.53	***	3.45±2.04	***
Self-Care	8.04±3.19	n.s	7.36±3.74	*	5.54±3.78	**
Depression and Anxiety	3.25±2.45	n.s	3.53±3.08	**	1.93±1.94	***
Cognitive Functioning	3.37±2.13	*	4.28±2.37	***	2.37±2.11	*
Social Functioning	3.88±1.57	n.s	4.15±1.95	**	3.06±1.52	**
Life Satisfaction	6.51±2.16	n.s	6.42±2.59	***	4.50±2.08	***
n.s = not significant, * p< 0.05, ** p< 0.01, *** p< 0.001						

Table 5: Results of Quality of Life: Nakau et al., 2013

SF-36	Pre-intervention Mean(SD)	Post-intervention Mean(SD)	p-value
Physical functioning	44.7 (9.1)	47.8 (6.9)	.034
Role-physical	40.0 (13.8)	46.2 (10.1)	.017
Bodily pain	49.4 (10.8)	49.0 (10.1)	.805
General health perception	41.6 (11.4)	45.5 (11.4)	.035
Vitality	48.8 (12.5)	54.6 (8.9)	.007
Social functioning	45.7 (14.4)	50.2 (10.8)	.189
Role-emotional	41.7 (15.4)	49.1 (11.2)	.039
Mental health	50.8 (9.9)	55.3 (6.6)	.027

Table 6: Results of Quality of Life: Verra et al., 2012

SF-36	Pre-intervention Mean(SD)		Post-intervention Mean(SD)		Between group effect size
	Control	Intervention	Control	Intervention	
Physical functioning	40.5 (18.6)	36.8 (19.0)	46.1 (18.2)	41.4 (21.5)	n.s.
Role-physical	27.5 (13.4)	21.7 (17.3)	30.4 (18.8)	33.9 (20.4)	0.49 (p=.018)
Bodily pain	15.9 (10.8)	16.2 (14.9)	23.1 (16.5)	22.7 (17.5)	n.s.
General health perception	35.3 (13.2)	42.4 (18.3)	40.1 (17.2)	43.0 (20.3)	n.s.
Vitality	23.9 (11.9)	26.8 (19.1)	31.4 (16.7)	35.5 (19.1)	n.s.
Social functioning	38.0 (24.3)	34.0 (26.3)	50.5 (23.5)	44.1 (33.4)	n.s.
Role-emotional	38.3 (28.4)	35.5 (30.2)	41.7 (27.2)	43.9 (30.3)	n.s.
Mental health	43.5 (20.7)	41.8 (24.9)	46.8 (20.9)	53.2 (21.6)	0.30 (p=.027)
n.s = not significant, cut-off at 5%					

8 Appendix A

- Allied and Complementary Medicine (AMED) [Ovid]
- Applied Social Sciences Index and Abstracts (ASSIA),
- CINAHL [EBSCO Databases]
- Cochrane Database of Systematic Reviews
- Cochrane Central Register of Controlled Trials
- Criminal justice abstracts -- EBSCO Databases
- Dissertations and Theses -- Proquest Databases
- Embase Classic+Embase [Ovid]
- Global Health
- Google Search
- GreenFILE [EBSCO Free Databases]
- HMIC Health Management Information Consortium [Ovid]
- Ovid MEDLINE(R) [Ovid]
- Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations [Ovid]
- National Criminal Justice Reference Service (NCJRS) Abstracts Database [ProQuest]
- PsycINFO [Ovid]
- Sociological Abstracts [ProQuest]
- Social Services Abstracts [ProQuest CSA]
- Web of Science Conference Proceedings Citation Indexes: Science (CPCI-S) and Social Sciences & Humanities (CPCI-SSH).

Websites searched to find grey literature

- <http://www.carefarminguk.org/>
- <http://carefarmingwm.org.uk/>
- <http://www.farmgarden.org.uk/partnerships/care-farming-uk>
- <http://www.longlandscarefarm.co.uk/>
- <http://www.thefold.org.uk/links/useful-links/>
- <http://www.downhamcottage.co.uk/>
- <http://www.carefarmingscotland.org.uk/>
- <http://www.naturalengland.org.uk/>

9 Appendix B

CINAHL - EBSCO Databases 01 Jan. 1960- 28-11-13

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1      (Horticulture OR "animal assisted" OR "community farm*" OR "social and therapeutic
horticulture" OR "healing garden*" OR "wilderness therap*" OR garden*)          2,391
2      ( nature w1 (therapies or therapy) ) ) 0
3      ( ( green w1 (care or exercise*) ) ) 22
4      ( ( ((green or care or counsel* or social* or rehab*) w2 (farm or farms or farming or
ranch or ranches)) ) ) 26
5      ( ( "community treatment order*" OR "community order*" OR "community service
order*" OR "community punishment order*" OR "community correction*" ) ) 110
6      (MH "Pet Therapy") or (MH "Horticulture") or (MH "Wilderness Experience") 2,237
7      ( hrql or hql or hqol or "h qol" or hrqol or "hr qol" or pqol or qls ) 2,284
8      ((quality w1 life) or "wellbeing" or "well being") 73,233
9      (MH "Quality of Life+") 43,440
10     ( sf6d or "sf 6d" or "short form 6d" or "shortform 6d" or "sf sixd" or "sf six d" or "SF12"
or "SF 12" or "SF 36" or "SF36" or Coreom or "CORE-OM" ) 8,029
11     ( "health* year* equivalent*" or hye or hyes or hui1 or hui2 or hui3 ) 85
12     ( disutil* or "standard gamble*" or "time trade off" or "time tradeoff" ) 244
13     ( "quality adjusted life" or qaly or qalys or qald or qale or qtime or "disability adjusted
life" or daly or dalys OR "eq-5d" or eq5d or euroquol* ) 2,713
14     ( ("economic model*") OR markov ) 1,053
15     (MH "Quality-Adjusted Life Years") 882
16     (MH "Short Form-36 Health Survey (SF-36)") 5,874
17     S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 81,924
18     s1 or s2 or s3 or s4 or s5 or s6 46,162
19     S17 AND S18 1,747
20     S1 OR S2 OR S3 OR S4 OR S5 46,162
21     S1 OR S3 OR S4 OR S5 2,541
22     S17 AND S21 138
23     S6 AND S17 140
24     S22 OR S23 195

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