REVIEW ARTICLE

The Development of Green Care in Western European Countries

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This article represents a review of green care across Western European countries. The following questions are addressed: What is green care, and what are its basic goals? What are the most commonly known types of green care interventions, and how are they connected to each other? There are different sectors of green care intervention that vary from each other regarding their structure, specific goals, and purpose. These traits will be investigated in this review. And lastly, how these interventions are designed and their approach to promote and provide health will be examined.

Key words: Care farming, animal-assisted interventions, social and therapeutic horticulture, healing gardens, green exercise, wilderness therapy

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INTRODUCTION

Green care is a developing phenomenon, both in Western Europe and other parts of the world.[1] Key words such as care farming, animal-assisted interventions (AAI), social and therapeutic horticulture (STH), healing gardens, or facilitated green exercise, to name but a few, are becoming widely known and internationally approved. However, despite all of these interventions and research specifications in use, there is still a lack of understanding about what constitutes green care and its therapeutic value.

This article, therefore, emerged out of the need to answer the following questions: What is green care, how can it be defined and what are its limitations and caveats? What different types of green care interventions do exist and what are their specific structure and goals?

WHAT IS GREEN CARE?

As Sempik et al[2,3] and Hine[4-6] point out, *green care* is an umbrella term for a broad spectrum of health-promoting interventions that all use both biotic and abiotic elements of nature in their treatments. The ultimate goal is to maintain or promote a person's social, physical, mental, and even educational well-being.

To describe green care in more detail, it is useful to first recognize some limitations and caveats:

1. All forms of contact with nature are not automatically green care. Green care interventions are specifically designed for health maintenance, promotion, and provision of care. "Although there is much diversity on green care, the common linking ethos is essentially to use natural elements to produce health, social or educational benefits."[4(p24)]
2. Green "care" is not only the act of "caring." It also includes interventions that lead to maintaining, promoting, and providing health. Thus, green care does not only mean care, but also health promotion and social rehabilitation.
3. Green care is linked to a natural environment but does not necessarily need to happen within it. Interventions can also happen within hospitals, nursing homes, or even prisons.
4. Green care relates to all of nature's animate and inanimate elements, and these elements need not essentially be within open nature. Plants and animals can be brought into or kept within houses or other buildings. For example AAI can take place within hospitals, nursing homes, and other institutions.
5. Green care is not the only healthcare solution for human society. There are several circumstances where green care may not always be appropriate. A participant needs to have some affinity or interest with the inanimate and animate elements of nature he/she is in contact with; he/she must not be afraid of or allergic to, or otherwise negatively attuned to the natural elements he/she is dealing with.
6. Each country has its differences and uniqueness regarding green care. The United Kingdom, for example, has to date primarily focused on contexts such as STH, horticultural therapy (HT), and green exercise as a treatment option. In Finland, Norway, and partly also in Germany and Austria, treatments involving animals are preferred (AAI). In the Netherlands and Belgium, care farming is a thriving sector and is highly developed compared with many other European countries,[1(pp347-357)] except Norway and Italy. In these two countries, care farming emerged from agriculture and created a link with healthcare, and is therefore strongly linked to agriculture. In Germany, care farming arose from traditional healthcare and created a link with agriculture, gardening, and animal husbandry. Therefore, care farming in Germany is closely bound to healthcare institutions. These are only a few examples to highlight the complexity of green care across European countries.

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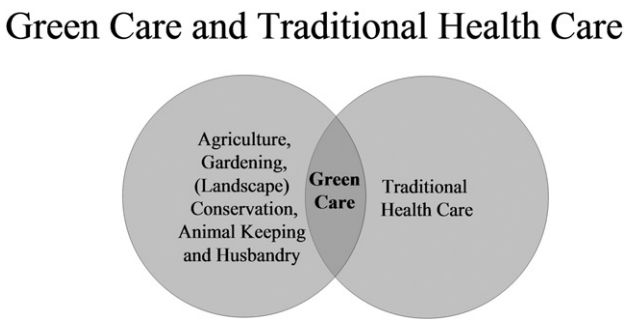

Figure 1. Green care is a link between traditional healthcare and other sectors of human societies, like agriculture, gardening, landscape and nature conservation, animal keeping and animal husbandry, and different combinations lead to different types of green care.

So then, what is green care? Green care links aspects of the traditional healthcare systems to agriculture (care farming), gardening (healing gardens), landscape or nature conservation (ecotherapy), animal keeping (AAI), or animal husbandry (care farming). Thus, green care creates a link between sectors that were not formerly linked, and therefore creates new benefits for all sectors involved. In doing so, green care may sometimes be particularly linked to one sector, depending on the type and practical application. It can be seen as a system of interdisciplinary innovation where interaction, communication, and flow of information between actors (individuals, offices, or organizations[7]) in different sectors is crucial to facilitate its development. These links are represented in Figure 1.

This article will present an overview of the most common and well-known green care interventions. A graphical overview that also presents the links between different interventions is presented in Figure 2.

Care Farming

Hine et al[4,6] define care farming as follows:

> . . . the use of commercial farms and agricultural landscapes as a base for promoting mental and physical health, through normal farming activity. It is a . . . movement to provide health (both mental and physical), social or educational benefits through farming for a wide range of people. These may include those with defined medical or social needs (e.g., psychiatric patients, . . . people with learning disabilities, people with a drug history . . . as well as those suffering from the effects of work-related stress or ill-health arising from obesity. Care farming is a partnership between farmers, health and social care providers, and participants.[4(p12)]

It is important to note that the definition of what constitutes a care farm varies between European countries. In the Netherlands, the green care farm is an agriculturally productive farm where, at the same time, some form of care, cure, or health promotion is offered. The total farm income is derived both from agricultural activities and from care activities. However, in Germany, for example, care farms are always linked to healthcare institutions; thus, there are no farms based solely on agricultural production, and subsidies for care are only distributed among healthcare interventions that cater to more than 300 clients. Smaller scale green care farms in Germany do not have the

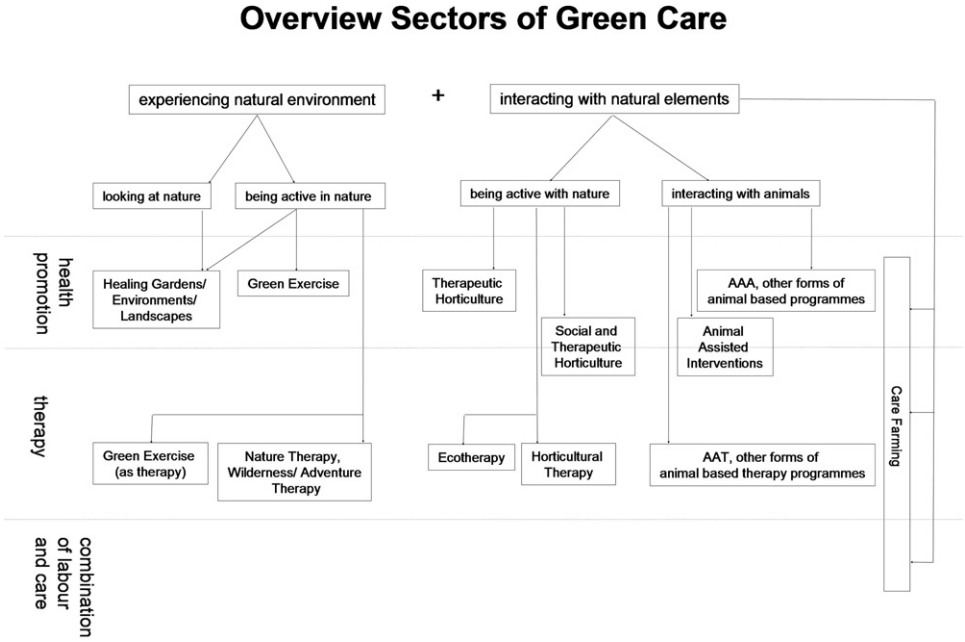

Figure 2. Overview of most common sectors of green care in Western Europe. The sectors are categorized into the aims of healthcare they follow (health promotion, therapy, and the combination of labor and care), the sorts of natural elements they are built on, and the way they use these elements. *AAA,* animal-assisted activities; *AAT,* animal-assisted therapy.

opportunity to earn their money as healthcare institutions. This explains why, in Germany, green care farming only happens on a large scale, for many clients, and in direct linkage to large healthcare facilities.

The numbers of care farms per country differs considerably within Europe. The Netherlands is leading the way with approximately 1.000 green care farms; in Belgium, Norway, Italy, and Austria a few hundred are already established, with numbers increasing.[1(pp347-357)] In the United Kingdom, there are at least 80,[4,6] and in Slovenia, Sweden, and Finland, the phenomenon has just started to develop.[1(pp347-357)]

Countries also differ with regard to their main client groups. Norway mostly caters to children and psychiatric clients, whereas Switzerland and Sweden cater to vulnerable children. Belgium, the Netherlands, United Kingdom, and Italy have the broadest spectrum of client groups, with those served including people with learning disabilities, psychiatric patients, recovering addicts, demented elderly, long-term unemployed, and people suffering from burnout. A green care farm can offer an environment of meaningful activities and/or work for a variety of client groups, where the combination of work and care is a key component. Both animal-based and crop-based agricultural production is possible, while at the same time, income gained by offering care activities and by selling the agricultural products can help finance the farm. Besides offering useful daytime activities and work training, care farms can also provide social involvement, rehabilitation, education, and a place to live, and can also address specific therapeutic goals.[1(pp347-357),4]

There is a lack of both quantitative and qualitative research analyzing the effects of care farms on client groups. Some research has been conducted on the influence of nature on the well-being of humans,[8,9] but few deal with care farming as a particular intervention.

One study is being carried out at Wageningen University, the Netherlands, dealing with the possible effects of care farm visits on clients.[10] Over the period of one year, people with mental/psychiatric problems and people with addiction histories are followed as they either visit a care farm (test group) or another form of work project (eg, workplaces in bicycle repair shops) on a regular basis. Standardized questionnaires are used to measure the participants' quality of life, social functioning, and mental functioning among other parameters. These quantitative methods are also complimented by a set of qualitative methods. The results of this study are expected to be published later in 2010. Results of the pilot study preceding this one were published by Elings and Hassink (2008).[11]

A second study of the impact of care farm visits is being done by another research group of Wageningen University, where elderly participants with dementia are followed over a period of one year to examine changes in their health status.[12]

Healing Environments and Healing Gardens

According to Hartig and Cooper Marcus,[13] healing gardens combine a certain location–a garden or any other green outdoor space within a healthcare setting that is designed for use–with a specific process. This process includes all stages of regaining or improving health on a physical, mental, and/or social level for people in a healthcare facility (ie, hospitals or residential care homes). Healing gardens are specifically designed to support recovery processes caused by illness or injury by reducing physical symptoms, reducing stress, and increasing general well-being. They are aesthetically and sensually attractive places with flowers, nicely arranged bushes and trees, ponds or other forms of water, and places to sit and relax. People are encouraged to either look at or to use them, either alone or in groups. The whole spectrum of passive (observing, listening, sitting) and active (strolling, exploring) experience is possible.

Healing gardens are mainly used for inhabitants of healthcare facilities, such as psychiatric hospitals, institutions for children, nursing or residential homes, or hospices. There are also special healing gardens for people suffering from Alzheimer's disease to stimulate senses and to promote positive memories and emotions. Also, visitors and staff members, themselves not physically ill, may also value such a garden as a place for grieving or for a relaxing break from stressful work. The reported positive effects of nature experienced in healing gardens include the reduction of stress, improvement of one's mood, and the increase of healthcare satisfaction.[14] There are few studies investigating the positive effects of healing gardens (see Cooper-Marcus and Barnes (1999) for an overview[15]).

Healing environments (or landscapes) have some elements in common with healing gardens: both have mainly a health-promoting and recreational function, include no specific therapy programs, and consist of looking at or being in an appealing natural surrounding. However, unlike healing gardens, healing environments (landscapes) are not essentially geographically and structurally linked to healthcare facilities.

Green Exercise as an Intervention

Pretty[16(p144)] defines *green exercise* as the "synergistic benefit in adopting physical activities whilst at the same time being directly exposed to nature." Green exercise per se has, like healing gardens and healing environments, mostly a health-promoting function, but when facilitated, has been used as a true therapy or intervention program, following certain therapy goals of care and cure.

Green exercise activities may typically include walking, cycling, gardening, and conservation activities in a variety of locations in nearby green spaces or the open countryside. It can even go so far as to closing the link to STH.[9,17,18] Green exercise can also include a strong social dimension. The University of Essex conducted research on the effects of green exercise in the countryside. Among other results, the overall improvement of self-esteem and the significant reduction of anger, confusion, depression, and tension were most prominent.[9,19-21]

Ecotherapy

Ecotherapy is described as "the practice of supporting vulnerable people (e.g., those with disabilities or mental health needs), to work with nature (both plants and wildlife), with the specific aim of the conservation or establishment of a local habitat or green space as a form of therapy."[4(p29)] It therefore combines the primary purpose of improving health and social inclusion of the client and the secondary purpose of benefiting the environment. Special examples of ecotherapy are nature and animal conservation projects.[22] Ecotherapy is usually supervised by a therapist

and takes place as an intervention or therapy program. According to Mind Week Report[23] participants enjoy activities in nature for four reasons: (1) making natural and social connections (by doing activities within a social group, by having contact with animals or looking at wildlife, and on a spiritual basis by becoming one with nature), (2) having their senses stimulated (by colors, sounds, fresh air, and the excitement about being outside), (3) being physically active or doing manual tasks, and (4) by escaping from modern life (and getting time to relax and think).

Wilderness Therapy and Adventure Therapy

Wilderness therapy and adventure therapy[24] are interventions following goals in psychotherapy by using wilderness and adventure activities[25] and are particularly popular in the United States.

According to Hine et al,[4,26] wilderness therapy is an experiential program that takes place in a wilderness or remote outdoor setting. The purpose of these interventions is often to separate participants (such as disaffected young people) from negative influences and stressful situations and put them in outdoor environments to lead them back on a good path. Although experiencing wilderness can also be considered health promoting in nature, wilderness therapy is usually thought of as therapy or specific intervention. Berman and Davis-Berman[27] associate wilderness and adventure therapy with psychotherapeutic treatments, either for adolescents or for adults, and Itin[28] cites adventure therapy in relation to addiction therapy. A growing body of literature describes the manner in which experiences in the wild can help people deal with their emotional and behavioral problems[26,27]; according to Bernstein,[29] this happens because wild nature evokes coping behaviors in clients rather than defensive behaviors. The positive aspects of such therapies include the uniqueness of the setting, the notion of perceived risk, being away from one's usual surroundings, the immediacy of consequences, the importance of cooperation and leadership, and the impact of the small group environment.[30]

Itin[28] divides adventure therapy into five areas, all of them combining a common perception of risk and the fact that the activities cannot be successfully accomplished alone, giving the client on one hand the chance to challenge him/herself, but at the same time giving the feeling that he/she is part of a team. Regardless of the client group, possible goals of adventure therapy include the enhancement of physical and social health, and above all, the promotion of mental health (through self-evaluation, self-exploration, self-reevaluation, self-acceptance, and self-realization).

Horticultural Therapy, Therapeutic Horticulture, and STH

There is a well-defined difference between HT, therapeutic horticulture, and social and therapeutic horticulture (STH). These interventions are mainly developed in and spread over the United Kingdom, but are also present in the rest of Europe, the United States, and other parts of the world.

Horticultural therapy is a therapy with predefined clinical goals (rather like occupational therapy). According to Sempik et al,[2] HT describes the use of plants by a professional with special training to reach certain clinical goals. As it is a form of cognitive therapy, it helps patients learning new skills or regaining lost ones. The American Horticultural Therapy Association[31] describes improved memory, initiation of tasks, attention to detail, improved responsibility, regained physical abilities (like better coordination, balance, and strength), problem-solving skills, and order following as typical outcomes of HT. The patient is the main focus and plants are the medium used for therapy. The therapy may take place either within the horticultural surrounding of a care institution, or within the practice garden of the therapist. Special skilled therapists create surroundings that suit either a broad range of client groups or a specific one. In general, different client groups can be considered suitable for HT; for example, people with physical and/or mental disabilities and people in a rehabilitation process from illness, injury, addictions, or abuse. Horticultural therapy is considered to be successful due to the nonthreatening environment, the fact that the activities are carried out in a social community, and the stress-reducing and relaxing qualities of working with plants.[32]

The term *social and therapeutic horticulture* (STH) was developed some time ago to describe the process by which plants and horticulture are used to develop well-being, as evidence showed that social interactions can also play a significant role within this concept.[33] Thus, STH can be seen as the participation by a range of vulnerable people in groups and communities whose activities are centered around horticulture and gardening. Social and therapeutic horticulture is distinct from domestic gardening because it operates in an organized and formalized environment, and it is one of the most successful and popular green care options in the United Kingdom, with "over 1000 projects catering for over 21,000 clients each week."[4(p27)] In contrast to HT, STH has a more general focus on well-being improvements through horticulture and is rather not a therapy with predefined clinical goals. "In 2003, nearly half of the STH projects in the UK provide services for people with learning difficulties, while 40% work with people with mental health problems."[4(p.28)]

Animal-Assisted Activities, Animal-Assisted Therapy, Animal-Assisted Interventions, and Other Animal-Based Healthcare Interventions

The Delta Society,[34,35] one of the leading international organizations for the human-animal bond, offers one of the most common definitions of both animal-assisted activities and animal-assisted therapy. Animal-assisted activities (AAA) may take place in a variety of environments, carried out either by specially trained professionals, paraprofessionals, or volunteers. Most programs include interaction between animals and clients. The programs are open and normally follow somewhat general social, motivational, educational, and recreational needs. Animal-assisted therapy, on the other hand, is a tailor-made program to suit the needs of a certain client with certain therapeutic needs. It is delivered by professionals (physical therapists, occupational therapists, certified therapeutic recreation specialists, recreational therapists, teachers, social workers, and others with specialized expertise) and is well documented and evaluated.

Despite their popularity, AAA and animal-assisted therapy are not the only terms in use. Kruger and Serpell[36] use the term *animal-assisted interventions* as a general definition for AAA, animal-assisted therapy, and various equine-facilitated programs. According to them, animal-assisted interventions is "any inter-

vention that intentionally includes or incorporates animals as part of a therapy or ameliorative process or milieu."[36(p25)]

Animal-assisted interventions with companion animals (and sometimes farm animals) appear to be the most thoroughly studied type of animal-based green care. Effects on both physical[37-39] and mental well-being[40-44] have been studied, for different client groups,[37,40,42,43,45] and with different animal species.[41,46]

Equine-assisted activities (sometimes also named therapeutic [horseback] riding) includes riding a horse or pony as a psychotherapeutic, physical, emotional, cognitive, or social treatment.[47] It has to be underlined that these are not formal therapies, but rather sport and recreational activities, having health promoting value. Hippotherapy (provided by physical and occupational therapists) and equine-facilitated psychotherapy (provided by mental health professionals), on the other hand, are formal therapy programs facilitated by licensed therapists and professionals using horses and ponies.[48]

Besides pet animals, horses, and ponies, there is a wide spectrum of other animal-based interventions, including onotherapy (which uses donkeys) and other programs involving dolphins or a broad spectrum of farm animals.

CONCLUSIONS AND FUTURE RECOMMENDATIONS

The previous pages offered an overview of the most common interventions that compose green care, summarized from information collected in both primary and secondary literature. We have written about their design, their different approaches and goals, and the positive long-term effects they can achieve. The full possibilities of green care approaches are yet to be realized.

In Western European countries, green care interventions are becoming increasingly more widely accepted and integrated. The challenge is to expand and to spread the reach of green care approaches, particularly to new countries such as those in Eastern and Southern Europe, where the approach is less recognized.

Another challenge for green care is for research in the field to be accepted by the scientific community. Researchers need to find new methodological approaches, or amend the current methodologies, to deliver robust, statistically significant quantitative and qualitative results to underline the positive effects of green care interventions. In doing this, professionals and policy makers in health and social care can be convinced that green care is a care approach to be taken seriously.

A task for all stakeholders engaged in green care is to encourage constant communication and interaction between each other and with outside parties. The flow of information is one key element of innovative systems, and therefore, one of the crucial factors to facilitate the success of green care.

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