

Background

With this report Mind calls for a new green agenda for mental health, following growing evidence in support of an accessible, cost-effective and natural addition to existing treatment options – ecotherapy.

As the cost and prescription of drugs continues to rise and 93 per cent of GPs say they have prescribed antidepressants against NICE guidelines owing to a lack of alternatives, ecotherapy needs to be seen as a clinically valid option that can play a vital part in patients' recovery.

Three of the Government's six key priorities set out in the recent Public Health White Paper were to increase exercise, improve mental health and reduce obesity – we believe that implementing this green agenda would go some way to achieving all three.

Mind has commissioned two studies from the University of Essex, the results of which are published in this report. These studies confirm that participating in green exercise activities provides substantial benefits for health and wellbeing.

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Mind in Birmingham
Brentwood Mind
Mind in Brighton and Hove
Chelmsford and District Mind
Dartford, Gravesham and Swanley Mind
East Berkshire Mind
Great Yarmouth and Waveney Mind
Havering Mind
Hull and East Yorkshire Mind
Kensington and Chelsea Mind
Lewes District and Wealden Mind
Maidstone Mind
Mind in Wallingford

Mid-Staffordshire Mind
Mid-Warwickshire Mind
Pembrokeshire Mind
Redcar and Cleveland Mind
Solihull Mind
Southend District AMH
St Helens Mind
Tameside and Glossop Mind
Mind in Taunton and West Somerset
Thurrock Mind
Wallingford Mind
West Cornwall Mind.

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Key findings

Mind commissioned the University of Essex to undertake two new studies investigating the benefits of ecotherapy for mental distress.

Green exercise at local Mind groups

We surveyed 108 people involved in green exercise activities with local Mind groups. The activities included gardening projects (52 per cent), walking groups (37 per cent), conservation work (7 per cent), running (3 per cent) and cycling groups (1 per cent).

- 90 per cent of people who took part in Mind green exercise activities said that the combination of nature and exercise is most important in determining how they feel.

- 94 per cent of people commented that green exercise activities had benefited their mental health. Some of their comments included:

“I feel better about myself and have a sense of achievement.”

“I am more relaxed, have better focus of mind, greater coordination and greater self-esteem.”

“It improves my depression, helps me be more motivated and gives me satisfaction in doing things. Since starting the project I have been able to improve on my quality of life. Coming here has helped me overcome most of my problems.”

- 90 per cent of those surveyed commented that taking part in green exercise activities had benefited their physical health. Comments included:

“My fitness has improved, I feel refreshed and alive.”

“I feel as though I can do things without being tired. I am more active, I want to join in things and my body is looser and more agile.”

“It stops the stiffness in the joints that I get when I just sit around doing nothing.”

“I lost weight and it helps keep my body moving.”

Outdoor versus indoor exercise

The second study looks at the role the environment plays on the effectiveness of exercise for mental wellbeing. Twenty members of local Mind associations took part in two walks in contrasting environments to test the impact on self-esteem, mood and enjoyment.

The green walk was around Belhus Woods Country Park in Essex, which has a varied landscape of woodlands, grasslands and lakes. The indoor walk was around a shopping centre in Essex.

Self esteem

- 90 per cent of respondents had increased self-esteem after the green walk.
- 44 per cent of people experienced reduced levels of self-esteem following the indoor shopping centre walk.

Mood

- 71 per cent of respondents reported decreased levels of depression following the green walk.
- Feelings of depression increased for 22 per cent of people and 33 per cent expressed no change in their level of depression following the indoor shopping centre walk.
- 53 per cent of respondents said feelings of anger decreased after the green walk, but after the equivalent walk indoors, feelings of anger had only decreased for 33 per cent and 45 per cent experienced no change.
- 71 per cent of participants stated that they felt less tense after the green walk and no one reported any increased levels of tension.
- 50 per cent said their feelings of tension had increased after the shopping centre walk.
- 71 per cent of participants said that they felt less fatigued and 53 per cent of people said they felt more vigorous after the green walk – even though they had just walked for 30 minutes.
- 88 per cent of people saw an overall improvement in mood after the green walk.
- The shopping centre walk left 44.5 per cent of people in a worse mood, 11 per cent showed no change in mood and 44.5 per cent had an improvement in their overall mood.

Previous research

- Research has demonstrated that a supervised programme of exercise can be equally as effective as antidepressants in treating mild to moderate depression (Halliwell, 2005; Richardson et al., 2005).
- A report by the Chief Medical Officer stated: “physical activity is effective in the treatment of clinical depression and can be as successful as psychotherapy or medication, particularly in the longer term.” (Department of Health, 2004)
- 93 per cent of GPs have prescribed antidepressants because of a lack of alternative treatment options (Hairon, 2006).
- In 2005, 27.7 million antidepressant prescriptions were written in England, at a cost of £338 million to the NHS.
- The Department of Health (2004) estimated that a 10 per cent increase in adult physical activity would benefit the UK by £500 million per year, saving 6,000 lives; this calculation does not include the potential economic impact of improved mental wellbeing.
- The World Health Organization predicts that depression will be the second largest single cause of ill health by 2020.
- On average adults expend 500 fewer calories per day than 50 years ago; this is the equivalent of not running a marathon every week (Eurodiet, 2001).
- A Dutch study found that people living near green space experienced fewer health complaints and had better physical and mental health than those living in an urban environment (de Vries et al., 2001).
- Research shows an inverse relationship between proximity of open green spaces in urban areas and levels of stress (Grahn and Stigsdotter, 2003).
- Prisoners in Michigan whose cells overlooked farmland and trees had 24 per cent fewer sick visits than those in cells facing the prison yard (Moore, 1981).

Mind’s recommendations

1. Ecotherapy should be recognised as a clinically valid treatment for mental distress.
2. Allocation of health and social care budgets should be informed by cost-benefit analysis of ecotherapies.
3. GPs should consider referral for green exercise as a treatment option for every patient experiencing mental distress.
4. Access to green space should be considered as a key issue in all care planning and care assessment.
5. Referral to green care projects – such as green care farms – should be incorporated into health and social care referral systems.
6. Inequality of access to green space should be addressed as a human rights, social justice and discrimination issue.
7. All health, social care and criminal justice institutions should be required to ensure access to green space.
8. Designing for mental wellbeing should be recognised as good practice for architecture and town and country planning.
9. The benefits of green exercise should be promoted by public health campaigns, targeting young people in particular.
10. Ecotherapy projects should be evaluated to collect data and continue to build an appropriate evidence base.

Introduction

Ecotherapy is a natural, free and accessible treatment that boosts our mental wellbeing. Whether it's a horticultural development programme supervised by a therapist or simple walk in the park, being outdoors and being active is proven to benefit our mental health.

For the one in four people in England and Wales who will experience a mental health problem at some point in their lives there are few treatment options immediately available. In 2005, 27.7 million antidepressant prescriptions were written in England, at a cost of £338 million to the public health service. Ecotherapy, a treatment that is free of unpleasant side-effects, offers a cost-effective and natural addition to existing treatments.

Last year, *The Depression Report* by Lord Layard drew attention to the economic costs of mental distress and the lack of treatment options.

The report made the case for "a new deal for depression and anxiety disorders," pointing out that three-quarters of the six million people in Britain diagnosed with these disorders were not receiving treatment. Of those that were, most were prescribed pills when they would have preferred therapy.

Public and political concern about treatment availability has focused on the lack of access to talking treatments, particularly cognitive behavioural therapy (CBT). Mind has discovered waiting lists of up to four years for CBT in some parts of the country. This is a cause for serious concern. It is important, however, not to lose sight of other preventive and therapeutic interventions that have a key role to play in tackling mental distress. Despite the current prominence of green issues in virtually every area of policy debate, ecotherapy is still not widely regarded as a serious treatment option.

Few GPs will consider a local conservation project or rambling group as a treatment option for people with depression, often because there are no local schemes to which patients can be referred. Care plans or social care assessments do not generally

consider providing support to access green space. While town planners and architects often fail to allow for accessible green space in their designs.

The principles behind ecotherapy are not new. In the past, mental health institutions were often situated in pleasant gardens and natural landscapes. But these considerations no longer play a significant role in the planning of urban and rural space – in the design of hospitals, the treatment and care of people experiencing mental distress, or the identification of public health and social care priorities.

Many of the over 200 local Mind associations across England and Wales run green projects – including walking, gardening and conservation work. The thousands of people who use our services place great value on these kinds of activities, and report that they have a positive impact on mental health and wellbeing.

A solid evidence base is essential to promote the benefits of ecotherapy. More and more evidence has been emerging in recent years, which demands a serious response from policy makers and service providers. This report draws together the existing evidence and takes seriously the personal testimonies of people who have experienced mental distress and have benefited from ecotherapy. It also presents the findings of two new research studies undertaken on behalf of Mind by the green exercise programme at the University of Essex.

With commentators and politicians arguing for more focus on wellbeing and less on wealth, it is time to take a proper look at the potential of green approaches to mental health care and promotion. Against this background, our report has three aims:

1. to provide an overview of the evidence for the therapeutic role of green exercise
2. to present new research confirming that green exercise improves mental health and wellbeing
3. to set out the policy implications and call on politicians and other decision-makers to bring ecotherapy in from the margins of Britain's mental health policy.

Why ecotherapy?

There is plenty of evidence to show that regular contact with the natural environment enhances both physical health and mental wellbeing. This body of research has looked at our interaction with a wide variety of outdoor settings – from open countryside and remote wild lands, through parks and open spaces, to trees, allotments and gardens in urban areas. The consistent message from all this research is that contact with green space improves psychological health and mental wellbeing. It reduces stress and improves mood. It provides a restorative environment for people to relax, unwind and recharge their batteries. It facilitates social contact and brings people together.

The presence of nature

Research has found that there is a relationship between lack of green spaces in urban areas and levels of stress (Grahn and Stigsdotter, 2003). The benefits of nature are highlighted by two classic studies from the 1980s. The first found that prisoners in Michigan whose cells overlooked farmland and trees had 24 per cent fewer sick visits than those in cells facing the prison yard (Moore, 1981). The second was a 10-year comparative study of post-operative patients in Pennsylvania whose rooms overlooked either trees or a brick wall. The hospital stay for patients with tree views was significantly shorter, they required fewer painkillers, used less medication, and nursing staff reported fewer negative evaluation comments in the medical records.

These findings have implications for the economic costs of health and social care – less expenditure on drugs – as well as for the human costs of ill health.

A study in a Swedish psychiatric hospital looked at the amount of vandalism to paintings on walls over a 15-year period. It found that damage was only ever inflicted on abstract paintings. There were no recorded attacks on landscape paintings. A recent study of hospital patients demonstrates the therapeutic benefits of images of nature (Diette et al., 2003). One group waiting for surgery was shown a landscape picture and listened to sounds

of birdsong and a babbling brook. Their rating for good or excellent pain control was 50 per cent higher than that of other patients.

Some hospitals and care homes still have ‘healing’ gardens designed to alleviate stress for patients, visitors and staff. Whitehouse et al. (2001) surveyed users of a garden in a children’s hospital in California. Fifty-four per cent stated that they felt more relaxed and less stressed after visiting the garden; 24 per cent, refreshed and rejuvenated; and 18 per cent more positive and able to cope. Only 10 per cent experienced no difference in mood. Nearly half of the visitors observed spent fewer than five minutes in the garden, so even very short visits were beneficial. Visitors to the garden wanted to “escape the stresses of the hospital and enjoy the relaxing and restorative elements of nature.”

The positive ‘side-effects’ of exercise

The side-effects of psychiatric drugs can include muscle spasms, loss of energy, restlessness and sleeplessness, Parkinsonism, loss of appetite and libido, dizziness, nausea, constipation and weight gain. The ‘side-effects’ of green exercise are overwhelmingly positive. Participating in regular physical exercise is a highly effective method of preventing and treating illness. Regular exercise reduces morbidity rates by 30 to 50 per cent (Centres for Disease Control and Prevention, 1996). It offers protection from type II diabetes, coronary heart disease, musculoskeletal disease and cancer. It lowers blood pressure, improves blood lipid and glucose profiles and boosts the immune system, as well as generating a general sense of wellbeing and fitness.

The UK has witnessed a dramatic fall in levels of physical activity. On average, adults expend 500 calories less energy per day than their forebears of 50 years ago – the equivalent of (not) running a marathon every week. The economic and human costs of our more sedentary lifestyles are substantial. The annual cost of physical inactivity in England alone is reported to be £8.2 billion (Department of Health, 2004). This figure excluded individuals who are obese as a result of inactivity, the costs of which represent an additional £2.4 billion each year.

Ecotherapy – the green agenda for mental health

Table 1: Four key principles describing why people enjoy green exercise activities

Principles	Subcategories	Descriptors
1. Natural and social connections	a. Social	Being with friends and family, companionship and social interaction, creation of collective identity, making new friends, conviviality.
	b. Animals and wildlife	Direct bonding with pets (eg, dogs and horses) and wild animals (eg, birdwatching).
	c. Memories and knowledge	Visiting special places where memories and stories are evoked and recalled (childhood associations), story-telling, personal identity, links to myths, stimulation of imagination, ecological literacy.
	d. Spiritual	Large scale and longevity of nature in contrast to humans, transformative capacity of green nature, oneness with nature.
2. Sensory stimulation	a. Colours and sounds	Diverse colours of nature and landscapes, views of landscape, beauty of scenery, bird-song and sounds of other animals, light (especially sunrise / sunset), visual and aesthetic appreciation of landscapes.
	b. Fresh air	Smell and other senses, being outdoors, exposed to all types of weather, changing of seasons, a contrast to indoor and city life, escape from urban pollution.
	c. Excitement	Adrenalin rush, exhilaration, fun, arising from a physical activity or experience of risk (eg, rock-climbing), sense of adventure.
3. Activity	a. Manual tasks	Learning a skill and completing a manual task (eg, conservation activity), challenging, fulfilling and rewarding, sense of achievement, leading to a sense of worth and value.
	b. Physical activity	Enjoyment of the activity itself and the physical and mental health benefits associated with it, makes people feel good, more energetic, less lethargic.
4. Escape	a. Escape from modern life	Getting away from modern life, relaxing (as a contrast), time alone or with family, a time to think and clear the head, peace and quiet, tranquillity and freedom, privacy, escape from pressure, stress and the 'rat-race', recharging batteries.

The Department of Health (2004) advises people to do “at least 30 minutes [exercise] a day of at least moderate intensity on five or more days a week”. Only 35 per cent of men and 24 per cent of women in England, and 29 per cent of all adults in Wales are active to this level.

This has particular significance for people with direct experience of mental distress. The Disability Rights Commission report, *Equal Treatment: Closing the Gap* (2006), shows that people with mental health problems are much more likely to have major physical health problems – including obesity, heart

disease, high blood pressure, respiratory disease, diabetes, stroke and smoking-related cancers.

We are gaining a much better understanding of the intimate relationship between physical and mental health for everyone. We know that physical exercise is directly linked to improved mental health, because it improves mood and self-esteem, reduces stress, enriches quality of life and reduces vulnerability to depression.

A winning combination

Empirical evidence shows exposure to nature has substantial mental health benefits. Equally, participating in physical activity is known to result in positive physical and mental health outcomes. So, what happens when you combine the two?

A number of research projects have been undertaken at the University of Essex, involving a total of more than 3,000 people. This research has identified three key benefits from green exercise:

- it improves psychological wellbeing by enhancing mood and self-esteem, while reducing feelings of anger, confusion, depression and tension
- it has a wide range of physical health benefits
- it facilitates social networking and connectivity.

Table 1 sets out these benefits and identifies four key principles:

- natural and social connections
- sensory stimulation
- activity
- escape.

It highlights the importance of social interaction and connectivity through green exercise. Crucially, the combination of exercise and engagement with

nature adds up to more than the benefits of either alone.

Research at the University of Essex has shown that engaging in physical activities while viewing pleasant green rural or urban pictures enhances mood, improves self-esteem and reduces blood pressure. It does so to a greater extent than exercise alone or exercise while viewing images of less pleasant rural or urban environments (Pretty et al., 2005).

A further University of Essex study measured the effects of 10 green exercise activities, including walking, cycling, horse riding, fishing, canal boating and conservation activities (Pretty et al., 2006; Pretty et al., 2007). It involved 263 participants and found that they were significantly less angry, depressed, confused and tense after engaging in green exercise. Self-esteem levels also improved significantly.

These findings are supported by a number of other studies. Terry Hartig argues that nature can restore deficits in attention arising from overwork or over-concentration, and make people feel and think better (Hartig et al., 2003). He found that walking in a nature reserve reduced blood pressure more than a walk along a tree-less urban street.

Pembrokeshire Mind

Pembrokeshire Mind started their beachcombing project in 2004, with the help of a small grant from Keep Wales Tidy. “We used that up ages ago!”, says Jacky Hemming, the project manager, “But the project has been such a success that we had to keep it going.”

Once a month, a small group of Pembrokeshire Mind clients head to the area’s beautiful beaches to walk, hunt for interesting objects, and to tidy up litter. The days are often topped off with a picnic or barbecue.

“I thought it was such a shame that we never got outdoors, even though we’re only three or four miles from some of the best coastline in the country,” Jacky says. “And it’s something we were in a position to facilitate. Few of our clients would have the resources, financially or motivationally, to get out and do this by themselves. But together in a group, it’s a lot easier.

“When we first started, one lady told me she hadn’t been to the beach since she was a child. That’s 30 years without visiting the beach, even though it’s just down the road. It can be very hard going alone to somewhere that’s seen as a family-oriented place.

“The social side is very important, and it gives people an opportunity to do things that they otherwise wouldn’t. It takes more confidence than many of our service users have to get on a bus and go for a walk by yourself. And no one would have a barbecue by themselves.

“The beach-tidying isn’t strenuous or dangerous. We have the right equipment, and people find it very rewarding. People take pride in getting as many bags of litter picked up as we can. It’s a great way to give our clients a sense that they’re doing something valuable and worthwhile, and they really benefit from that.

“For people who come to us, it’s often about survival, needing to get through a day at a time. Getting to lunchtime is the first challenge, and then to dinner. Going for a walk on the beach isn’t on their agenda. But when you start to show people that they can do that, the increase in their self-esteem and confidence is phenomenal.



“Being outside relaxes you, and it gets you thinking about different things, it broadens your horizons. There’s no doubt that it’s an immense benefit to everyone who takes part.”



“Some of our clients are very excluded. You can never forget that you’re dealing with people who have little more than the clothes they’re wearing. We’d like to get some funding just for some basics – some wellies, kagools and so on, and run the walks more frequently.”

“People with mental health problems are shunned wherever they go. They’re denied opportunities because of their health problems. They’re judged and stigmatised and excluded. But the beach doesn’t care who they are, and that’s invaluable.

“Being outside relaxes you, and it gets you thinking about different things, it broadens your horizons. There’s no doubt that it’s an immense benefit to everyone who takes part. People have been even more passionate about this than I anticipated.”

Ecotherapy and mental distress

While the benefits of green activities for wellbeing are documented, there has been less investigation of the role ecotherapy can play for people with direct experience of mental distress. It may be particularly beneficial for some of the most marginalised groups, including offenders and people with coexisting drug and alcohol problems.

Mild to moderate depression

Supervised programmes of exercise can be as effective as antidepressants in treating mild to moderate depression (Halliwell, 2005; Richardson et al., 2005). Ongoing research in Australia is looking at participation in forest and woodland management as a treatment for depression (Townsend, 2006). Initial findings show encouraging improvements to physical and mental health, along with a reduction in social isolation among participants.

The Chief Medical Officer stated that “physical activity is effective in the treatment of clinical depression and can be as successful as psychotherapy or medication, particularly in the longer term” (Department of Health, 2004). There is therefore a good argument for recommending it as the primary treatment option for mild to moderate depression. Exercise has fewer adverse effects than drugs and is an ideal treatment for people experiencing a combination of physical and mental health problems.

It is not helpful, however, to think in either/or terms. The best treatment for most people visiting GP surgeries with depression or anxiety-related disorders will combine different interventions, including exercise and psychological therapy, and in many cases antidepressant medication, too. Similarly, it is not recommended that patients with heart problems exercise instead of using medication or other forms of treatment. Green exercise should be a 'complementary' therapy in the literal sense of that term.

Hospitals and inpatient settings

Mental health wards can be stressful places. In 2004 to 2005 Mind's 'Ward watch' campaign highlighted the extremely poor environments within many mental health wards. Over a quarter of respondents to the Ward watch survey (27 per cent) said that they rarely felt safe while in hospital; over half (53 per cent) said that the hospital surroundings had not helped their recovery; and one third (31 per cent) said that hospital surroundings had made their health worse. The Department of Health's *Policy implementation guide on adult acute care provision* (2002) states that “the design and physical appearance of the ward acts as a tangible statement of value to service users, carers and staff”. NHS Estates guidance (1996) recommends “ensuring access to open space” and argues that when hospitals get this right it can have a big impact on the therapeutic environment of the mental health ward.

First-hand testimony gathered in the course of Mind's 'Building solutions' campaign supports this conclusion. For example, one patient commented that access to a pleasant garden environment “made a significant contribution to the effectiveness of my patient stay, I was ward-bound and being able to get outside is always helpful when I am unwell”.

Overall, 67 per cent of respondents to the Building solutions survey of recent psychiatric inpatients said that the ward had a garden that was easily accessible, with half reporting that the garden was either pleasant or very pleasant. While this is encouraging, it leaves thousands of inpatients in mental health wards without access to an adequate garden or green exercise.

Worryingly, there were also reports from some service users that access to hospital gardens had been conditional upon behaviour, with one respondent saying that “staff used trips to the garden as a reward and withheld them as a punishment”. Punishment should never have a place in the relationship between health services and patients. It is particularly counterproductive in this context, since – as NHS guidelines recognise – access to a garden can help to calm patients and defuse problems.

Older people

The poor provision of mental health services for older people has been a matter of longstanding concern for Mind, and was highlighted by our 'Access all ages' campaign in 2005 to 2006. There is a risk this group will become even more marginalised in mental health policy as a result of tightening budgets and the emphasis on getting working-age people experiencing mental distress into employment.

Research has highlighted the benefits of social and therapeutic horticulture for patients suffering from dementia or Alzheimer's disease. A study of over 2,000 older people living in the Gironde area of France concluded that regular participation in gardening may offer some protection against the development of dementia (Fabrigoule et al., 1995). Subsequent studies have shown that the exercise provided by gardening activities may be significant in delaying the onset of both dementia and Alzheimer's disease (Rovio et al., 2005 and Larson et al., 2006).

Offenders and the criminal justice system

The Social Exclusion Unit (2002) has identified poor mental health as one of nine major reasons for reoffending by ex-offenders. This SEU report also states that 72 per cent of male prisoners and 70 per cent of female prisoners sentenced experience two or more mental health disorders – 14 and 35 times the levels in the general population, respectively. There is little or no access to green space in many prisons, despite evidence that even a view of trees can improve prisoners' health and behaviour. There is real potential for developing innovative community sentences that involve offenders in green exercise as an alternative to imprisonment or as part of post-release programmes.

There are a number of existing Offender and Nature (O&N) schemes that aim to address underlying factors that contribute to reoffending. This is another example of an initiative to improve mental and physical health by using green exercise activities. These schemes involve partnerships between offender-management organisations and environment groups. Offenders work as volunteers on nature conservation and woodland sites. They carry out tasks such as creating and maintaining footpaths, opening up dense vegetation to create habitats, establishing ponds and building boardwalks.

O&N schemes benefit the public – and therefore involve reparation – while also providing experience of teamwork, life and skills training and boosting confidence and self-esteem (Carter and Hanna, 2007). Some O&N schemes already apply ecotherapy, using work in natural environments to support people with mental health and addiction problems, and drawing on the capacity of nature to calm, heal and inspire. There is plenty of qualitative and anecdotal evidence of positive outcomes from O&N schemes, but there is a shortage of 'hard' or quantitative data.

There is a lack of research generally on the benefits of ecotherapy for marginalised sections of the population – or on green space as an important social inclusion issue. It is clear that green space is not equally distributed, that inequalities in access tend to correlate with other inequalities and that this may mean that those individuals and communities who could benefit most from contact with nature and green exercise are often least able to access it.

Green care projects

A number of projects now use ecotherapy to help people with experience of mental distress. Evidence is mounting for the effectiveness of interventions like green gyms and care farms. These kinds of approaches are collectively labelled 'green care'. In recent years, a green care movement has emerged to champion the benefits of a whole range of interventions, including social and therapeutic horticulture, and animal-assisted therapy in agricultural settings.

Green gyms

BTCV (the British Trust of Conservation Volunteers) has driven the emergence of 'green gyms' in the UK. The term refers to local nature conservation activities that encourage outdoor physical activity. This benefits physical and mental health, while building social networks and providing opportunities to develop skills and boost self-esteem. Green gym projects include the creation of community gardens, management of local woodlands, tree planting and maintenance of public footpaths.

Green gym groups often involve individuals experiencing mental distress, and BTCV is currently exploring the potential to work with service users at local Mind associations to develop green gyms. Initial evaluations have reported significant increases in the mental health state scores of participants, a reduction in depression and a trend towards weight loss (Reynolds, 1999 & 2002). The School of Health and Social Care at Oxford Brookes University has conducted a national evaluation of the health benefits of green gyms due to be published soon.

Mentro Allan

Mentro Allan is a collection of projects in Wales supported by the Big Lottery Fund and a national partnership. The programme targets specific groups that are generally less active than the wider population. Each of the projects will be funded for four years to increase the physical activity levels of its target group, making best use of the local natural outdoor environment close to where people live. The programme will collect evidence on the

effectiveness of specific interventions designed to increase people's levels of healthy physical activity. The Mentro Allan project in Merthyr Tydfil and Blaenau Gwent will be working with people who experience mental distress.

Stepping Out

Another example of a green exercise initiative targeting people experiencing mental health problems is Natural England's Stepping Out project. This supports both informal carers of people experiencing mental distress and those they care for to explore and discover green spaces and the countryside in and around Coventry.

The project managed by Warwickshire Wildlife Trust, working in partnership with Coventry Carers and the Asian Mental Health Action Project, works with individuals who are often isolated and live in a community with a high level of economic and social deprivation. Stepping Out supports and encourages participants to access green space in their local environment through a 'stepping stone' approach to confidence-building and awareness activities.

Green care farming

Green care in agriculture, also known as 'care farming', has been defined as the use of farms and agricultural landscapes to promote mental and physical health. Britain lags behind other European countries in developing this approach. There are a number of different terms for green care in agriculture across Europe, including 'farming for health', 'care farming' and 'social farming'. There are several hundred green care farms in Norway, the Netherlands, Italy, Germany, Austria, Belgium and Slovenia.

Farms are tied to local social and health services, and are a key component of care in the community in some European countries. Someone visiting a doctor or in a psychiatric hospital or with high social care needs may be referred to a 'care farm' to work for a particular period of time (ie, one day a week, or for a continuous period of a number of weeks). Participation is optional and farmers are paid for providing a health service. This helps maintain the economic viability of their farms – they benefit from

the additional labour and can sell the agricultural produce.

Green farming projects in Europe include people experiencing mild to moderate depression and people in mental health wards, as well as people with learning disabilities, people with a history of drug problems, disaffected young people and elderly people with mental and physical health problems. Care farms have also been used to combat the effects of work-related stress.

Researchers at Wageningen University in the Netherlands are looking at the effect of green care farms on the quality of life of elderly people suffering from dementia, people who have been in psychiatric hospitals and people with a history of drug problems. Studies at the Norwegian University of Life Sciences are examining the benefits of animal-assisted therapy for people with mental health problems.

In the UK, there is an increasing amount of interest from potential stakeholders, including farmers, healthcare professionals, social care providers and the prison and probation services. However the numbers of care farms are thought to be small and the movement is in its infancy, with no national framework. The National Care Farming Initiative has been set up to promote and support the expansion of care farming and is currently undertaking research to establish its extent in the UK.

Care farming could help rural regeneration, build the skills base and self-esteem of participants, and break down the stigma surrounding mental health problems in some rural communities. This is all part of a growing recognition that the land is multifunctional, providing a range of environmental and social goods and services, and is part of a wider movement to reconnect people to the land.

Social and therapeutic horticulture

Social and therapeutic horticulture (STH) has been used as a therapy – or an add-on to therapy – for many years, and has been more widely researched than other green care approaches. In the UK there has been a steady rise in the number of garden projects offering horticultural therapy since the 1980s, including many that are run by local Mind associations. The health benefits of STH are now well documented, and include studies of participants experiencing mental distress.

Green care, care farming, STH, green gyms and other green exercise projects are inspiring examples of how engaging in green exercise and care activities can help people who are experiencing mental health problems. The scientific evidence base is still being collected, but the testimony of service users is overwhelming. The successes of care farming in Europe and initial research findings on green exercise initiatives in the UK, such as green gyms and STH, support their use as a mainstream treatment.

Natural England is currently working with the National Institute for Clinical Excellence on the development of a single framework for the measurement and evaluation of green exercise activity. They intend to produce a common framework that all local projects can use, to provide a free data-analysis service and to facilitate the sharing of data so that local schemes can compare their performance with the national picture. This scheme will be piloted in 2007, with the intention of rolling it out to every local project in 2008. This could help to develop the evidence base on green exercise and to disseminate good practice, so long as local projects are given sufficient support to participate effectively, and get clear benefits from participation.

Thurrock Mind

Almost 20 years ago Ron O'Regan was suffering from agoraphobia and found it difficult to leave his front door but thanks to the healing powers of nature, he recovered and is now helping others to do the same through the highly successful Thurrock Mind garden project.

Speaking about his own experience, Ron said: "When I moved to a house that had a garden, I decided to use this as a training ground to help me tackle my problems. I set myself a target of spending a period of time each day in the garden to get used to being outdoors. Whenever I had feelings of anxiety I would go out into my greenhouse rather than stay inside. Gradually, I built up the confidence to go down the street until I was able to spend more time outside.

"I got involved with Thurrock local Mind association where I got a lot of support from the team. As I was already interested in gardening, finding it an excellent way to take my mind off things, I got involved with a college course sponsored by Thurrock Mind. Eventually, the association could offer me employment and, together, we developed the garden project as we felt sure that there would be many other people who could be helped by this alternative treatment."

The project, which has now been running for 16 years, provides horticultural training and work experience for people who have mental health problems. Ron and his team provide support and encouragement for participants, helping them to grow in confidence and self-esteem. The project also offers people the opportunity to gain a City and Guilds qualification in horticulture and can be a stepping stone back into education or employment.

Tony Barrell, aged 35, is one of the project's success stories. When his community mental health team referred him to the garden project about four years ago he was agoraphobic and had been having problems with mental distress for many years.

"In September 1997, I was forced to give up employment and all other social networks as I was suffering from an anxiety disorder coupled with depression. Over the following two or three years I was prescribed various antidepressant drugs by different consultant psychiatrists, none of which helped with my increasing mental health problems.

"Eventually in 2003, it was suggested I attend Thurrock Mind's garden project. While the mere thought of it was frightening, I decided to give it a try. The first thing that



“Working in a safe environment, free from stigma, my confidence slowly began to grow.”

struck me about the manager, Ron, was the way that he seemed to have time for me and a genuine interest in my problems. This was something that I had never experienced with the statutory services and for the first time in years I felt that I was treated as an equal citizen.

“I began attending just half a day a week. I can’t pretend that this was easy for me but after just a few months I started to attend once a week. During this time Ron would offer me help and advice on the ways that I could deal with my ongoing mental health problems. Working in a safe environment, free from stigma, my confidence slowly began to grow.

“During 2005, I was able to attend Mind’s six-week volunteering course and I am now a volunteer with both the advocacy and befriending services. I have also recently completed an Open University course. I feel that all these positive steps have built my confidence and self esteem.”

Another service user who has benefited from Thurrock Mind’s garden project is David Digby. For 16 years David needed a family member with him to go outside. In April 2005, his occupational therapist referred him to the project.

“When I first started to visit the project I went for just half a day a week and my occupational therapist had to attend with me. Working in the garden project was a great boost to my confidence and gradually I started to go on my own but with my parents picking me up at the end of the day.

“By September, Ron asked if I would like to join some of the other group members selling plants at a local show. I was in two minds because I did not wish to let anyone down so I said that providing my dad could pick me up at lunchtime I would attend. On the day, I was feeling so good that I decided to stay the whole day.”

This was the start of a breakthrough for David. A month later he began a City and Guilds qualification in gardening and recently gained several modules towards the final qualification.

“I have come a long way since I first joined the garden project. I am now passing on my knowledge to others and this is giving me added confidence.”



Ron O'Regan in the potting shed

Solihull Mind

Located in Knowle, to the south of the borough, Solihull Mind's horticulture and recreation projects are an excellent example of green exercise in action.

"The site was derelict when we took it over 12 years ago" says horticulture project coordinator, Julie Bennett. "It was just an eyesore, without basic facilities like a water supply. Its main use seemed to be fly-tipping. Our first experience of green exercise was de-stoning the area we wanted to make into a football pitch – that was hard work! But because we've physically built everything that we have here today, everyone feels an enormous attachment to it."

The site is now home to an organic garden growing plants and vegetables, a conservation area, five-a-side football pitch, putting green and boules courts.

"There was just a little wariness from the neighbours when we first moved to the site, but as soon as they saw what we were doing they were glad to see it put to good use. Nowadays, we have an excellent relationship with local residents. They actively support us. Some have keys to the site and walk their dogs round at night, which helps keep vandalism down.



"We've gained a very good reputation for the plants we produce. We hold plant sales on weekends in May, and these are just getting bigger and bigger. This year, Warwickshire Wildlife Trust commissioned us to grow all their plants for a new project. It's really important for the service users to be doing something that they know is appreciated and valued."

The site has strong support from the local healthcare community, with GPs routinely recommending Solihull Mind projects to people experiencing mental distress. Project staff and service users designed and planted the local hospital's courtyard garden.

"People actually work very hard on the site," Julie says. "Digging, lifting, planting and pruning are all great exercise, but people don't think about it as exercise. If you go to the gym, you might spend half an hour on the treadmill, and sometimes it's hard to find the motivation to do that. Here, you can spend half an hour digging potatoes – you get the exercise and you come away with some lovely organic vegetables but it doesn't feel like exercise. It's certainly not as intimidating as a gym."

“Digging, lifting, planting and pruning are all great exercise ... but it doesn't feel like exercise. It's certainly not as intimidating as a gym.”



“The wildflower meadow, for example, takes a surprising amount of maintenance, and people spend hours tending to it. But because they're in the fresh air, and chatting and laughing with people, and listening to the radio, it feels like nothing. No one would want to spend as long in a stuffy gym as they do out here – and even if they did I don't believe they'd get the same benefit as being outdoors.”

The football teams are particularly popular, with sports projects reaching people who are otherwise very hard or impossible to engage in services. “Often, our football teams are the only service that some of the young men will use, other than being in and out of inpatient care,” Julie says. “They probably don't think of it as using a service. But once they come to trust us with the football, they're much more willing to start looking at our other services and our training and employment projects.”

The football pitch is used by everyone for informal games, but the Solihull Mind team also has regular matches against local rivals, including Coventry Mind, and plays in borough tournaments. “The real value of the football, I think, is in how normal it is,” Julie says. “When people are playing football, they're not people with mental health problems, they're just people playing football.”

Solihull Mind's drop-in service runs a healthy living group, which also takes advantage of the site. “It's a great space to have, because you can do so much with it. It's easy just to come here with some frisbees or kites.” Others to benefit from the space include residents at nearby hospitals, including those in medium secure accommodation, who often come to the garden on visits.

The project's vegetable plots provide fresh, organic food for service users and for meals at Solihull Mind's day service. Neighbours buy the rest – just part of the project's engagement with its community. Weekly plant sales in the spring have become very popular with local people, and provide an excellent opportunity for service users to get work experience, break down barriers, and see how their efforts are appreciated.

Mind's research

Local Mind associations run a wide range of green exercise projects. These include walking groups, gardening activities (especially on allotments), social and therapeutic horticulture, garden design and conservation activities.

Many of our gardening projects actively encourage the people who use our services to learn more about the natural environment. Conservation groups work with gardening teams on formal gardens, woodlands and the open countryside. Walks take place regularly in the open countryside, at local parks or woodlands, along the beach or canal side. People go on these walks in all weathers, and are often encouraged to engage in other activities, such as bird watching, photography, admiring the wildlife and enjoying the scenery.

The popularity and importance of green activities in many local Mind groups, as well as feedback from participants, offers anecdotal evidence for the benefits of green activities. But we wanted to assess these benefits in a more structured way, and so we commissioned researchers from the University of Essex to conduct two related studies. Both offer striking confirmation of the benefits of green exercise for mental health service users.

Green exercise at local Mind groups

The first study evaluated green exercise activities within local Mind groups. A questionnaire was sent out to all Mind members engaging in green exercise activities. A total of 108 completed questionnaires were returned by people from 19 different groups.

About the activities

The green exercise activities were predominantly made up of gardening projects, conservation activities and walking groups.

Fifty-two per cent of respondents were engaging in gardening activities, often on allotments. These activities included weeding, digging, planting, lawnmowing, watering, pruning and composting. A further seven per cent of participants were

involved in conservation activities, including scrub clearances and laurel thinning. Thirty-seven per cent of respondents took part in regular walks around local gardens, along riverbanks or cross country. Three per cent ran regularly in green spaces and one per cent went cycling.

The duration of an activity session varied considerably, from a minimum of 15 minutes to a maximum of six hours. The average length of a session was two and three-quarter hours and the most common session duration was two hours. Twenty-nine per cent of the activities lasted over four hours.

Most respondents attended sessions fairly frequently. Fifty-five per cent engaged in green exercise activities on a weekly basis. Twenty-six per cent attended sessions at least twice a week. Six per cent engaged in the activities only occasionally

The length of time people had been attending green exercise projects varied from one month to 16 years. The average time was a little over two years.

Seventy-two per cent of respondents were male and 28 per cent female. The most common age group was 31- to 50-year-olds, closely followed by the 51- to 70-year age group. Together these age groups made up 82 per cent of the sample population.

The findings

Respondents were asked to reflect on the benefits they hoped to get out of participating before they started engaging in the activities and to compare these with the benefits that they actually got now they were participating on a regular basis.

The most commonly identified benefit anticipated from participation was to 'get out in the fresh air' (83 per cent of respondents). This was closely followed by the opportunity of 'meeting new people' (76 per cent) and the prospect of 'getting fitter' (69 per cent). The benefits derived from participation in green exercise exceeded those anticipated across all four categories: 'meet new people', 'learn new skills', 'get out in the fresh air' and 'get fitter'.

Table 2

Key theme	Examples of comments from respondents
1. Becoming part of a group – enjoyment of socialising, having company and conversation and feeling refreshed.	<p>"Socialising and talking about problems helps me a great deal."</p> <p>"It gives me company which I don't have where I live."</p> <p>"Being part of a team, getting out on a nice bright day, feeling refreshed. Often don't feel confident to be out alone. Don't have my own garden so would otherwise stay indoors."</p> <p>"Refreshed and feeling more like facing things."</p> <p>"Like being part of the workforce in the community, feeling good."</p>
2. Sense of achievement – completing a task and achieving something worthwhile, feeling useful.	<p>"Pleased and a sense of achievement that I have done a task that I have been asked to do and finished it."</p> <p>"Feeling better about myself, having a sense of achievement."</p> <p>"Feel good about doing an activity that has definite results."</p> <p>"That I have achieved something worthwhile."</p>
3. Feeling relaxed and less stressed.	<p>"Before attending Mind I only went out if I had to, I now find it less stressful."</p> <p>"Relaxed, peace of mind."</p> <p>"Relaxed, more focus of mind and greater co-ordination, greater self-esteem."</p>
4. Feeling able to deal with problems and begin to cope.	<p>"Improves my depression, helps me be more motivated and gives me satisfaction in doing things. Since starting the project I have been able to improve on my quality of life. Coming here has helped me overcome most of my problems."</p> <p>"Happier and able to cope again."</p> <p>"Less depressed, revitalised and more able to cope with my issues."</p> <p>"It takes me out of my depression for a while and gives me something to look forward to."</p>
5. Feeling healthier and fitter – both physically and psychologically.	<p>"It improves my fitness and is very beneficial for my mental and physical health."</p> <p>"Healthier, more active, fitter."</p> <p>"Healthier psychologically and physically."</p> <p>"Much fitter and I feel especially good immediately after a session. I feel able to chat to other runners easily and feel generally less anxious."</p>
6. Feeling good about yourself – improving self-worth, confidence, self-esteem.	<p>"It makes me feel good about myself and it improves my confidence."</p> <p>"A lot happier in myself, also there is a great sense of peacefulness here and the nature is wonderful."</p> <p>"More positive about myself, better for being with people and out in fresh air."</p> <p>"After being out in the fresh air and doing gardening I feel better in my self – eat well and sleep well."</p>
7. Feeling more alive and confident.	<p>"Great – life's worth living, clears the mind."</p> <p>"More focused, feeling confident, much happier."</p> <p>"Makes me feel good, it is good, makes you get out of the house, look forward to all the activities."</p>
8. Feeling 'happy'	<p>"It makes me feel good and happy and lifts my mood."</p> <p>"I enjoy the fresh air and conversation, it makes me happy."</p> <p>"It makes me happy."</p>
9. A sense of escape – getting out of the house and having something to do	<p>"Its nice to get out and go for a walk, to get out of the house."</p> <p>"It gives me something to do during the week which makes me happy to be out socialising. I don't tend to go out much so it gives me something to do."</p> <p>"Sleeping better at night, gets me out of the house, socialising better, gaining new skills, coming to the project has given me new confidence and a belief in myself."</p> <p>"I enjoy being in the countryside away from the stresses of the town, traffic, crowds and noise."</p>

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Other benefits that were anticipated from green exercise by 17 per cent of the sample included improved concentration, enhanced self-esteem, keeping occupied, 'keeping sane', building confidence, motivation, building friendships and losing weight. When surveyed again after taking part in these activities, the actual benefits experienced exceeded respondents' expectations.

Participants were also asked the question "how does taking part in these activities normally make you feel?" We have grouped the 103 answers into nine key themes (see Table 2, p.19).

Other participants commented that they gained a sense of satisfaction, felt refreshed, were at peace with nature, had a new lease of life, felt they were being set free – or simply that it was better than sitting staring at the walls.

Respondents were also asked how important being outside and in contact with nature was in determining how they felt as a result of green exercise activities. Eighty-eight per cent said that this was important or very important in determining how they felt – exactly the same proportion who said that participation in exercise was important or very important. But it was the combination of engagement with nature and participation in physical activity that was most important – with almost 90 per cent of respondents saying that this was important or very important in determining how they felt. This supports the view that combining exercise and contact with nature produces greater benefit for people with direct experience of mental distress than either in isolation.

People were also asked to comment specifically on the benefits of green exercise for mental and physical health respectively. Ninety-four per cent of those surveyed highlighted particular mental health benefits. Many respondents said that they felt mentally healthier, more motivated and more positive. They felt that the green exercise helped

to lift depression and instil feelings of calm and peacefulness. Their overall mood, confidence levels and self-esteem all improved.

Ninety per cent mentioned the physical health benefits of engaging in green exercise activities. Overall, respondents felt a lot healthier, more alive and refreshed. Many spoke of improved fitness levels and said they felt stronger, less lethargic and more energetic. Others commented on losing weight, easing stiffness in their joints and becoming more agile.

Finally, participants were asked to comment on what they felt was 'special' about the activity. One hundred and two responses were received, which identified five key aspects of green exercise activity: social benefits; benefits from contact with nature; benefits from the activity itself; psychological benefits, and physical benefits.

Conclusion

These findings demonstrate that participating in green exercise activities provides substantial social, health and wellbeing benefits. Contact with nature and green space was an enriching experience, providing a restorative context for physical activity,

Participating was perceived as therapeutic and engendered feelings of relaxation and peacefulness. It reduced stress levels and made people feel better about themselves by improving their sense of self-worth, boosting confidence and building self-esteem. Participants also felt healthier, fitter, more alive, refreshed and a lot happier. A sense of achievement came from contributing to worthwhile projects of benefit to others, and people felt useful.

Engaging in green activities in groups also nurtured new friendships and enhanced social capital. Participants enjoyed being part of a group, socialising with like-minded people and the experience of companionship, camaraderie and conversation.

Outdoor versus indoor exercise

The second study investigated the role the environment plays on the effectiveness of exercise for mental wellbeing. Twenty members of local Mind associations took part in two walks in contrasting environments to compare the effects on self-esteem, mood and enjoyment.

The first took place at Belhus Woods Country Park in Essex, which has a varied landscape of woodlands, grasslands and lakes and the second in a large indoor shopping centre in Essex. The walks took place one week apart, at the same time of day and each lasted for half an hour. On both walks, the same participants were encouraged to walk continuously, although they were allowed to stop briefly to admire the scenery or look in shop windows. A certain level of social interaction was encouraged.

To ensure that the two walks were comparable, both were led by the same Mind organiser and were equivalent in duration and intensity. Mini-buses took participants to the locations on both occasions. Seven men and 13 women took part with ages ranging from 31 to 70 years (47 per

cent of the group were 31 to 50 years old and 53 per cent were 51 to 70 years old). Participants were asked to complete identical questionnaires immediately before and after each walk without comparing or discussing their answers. The questionnaire asked the participants to reflect how they felt at that particular moment in time.

Self-esteem was measured using the Rosenberg self-esteem scale (Rosenberg, 1989). Mood change was measured with the (McNair et al., 1984) profile of mood state questionnaire (POMS). In addition, a total mood disturbance (TMD) score was calculated to denote an overall assessment of emotional state. This involved summing the POMS subscale T-scores of anger, confusion, depression, fatigue and tension and then subtracting the T-score for vigour (McNair et al., 1992). Participants were given the opportunity to add any further comments about their individual experience of the walk and describe their feelings.

Self-esteem

Figure 1 highlights the statistically significant improvement in self-esteem which was experienced by 90 per cent of the participants after completing

Fig. 1: Change in feelings of self-esteem (%) after the green outdoor walk

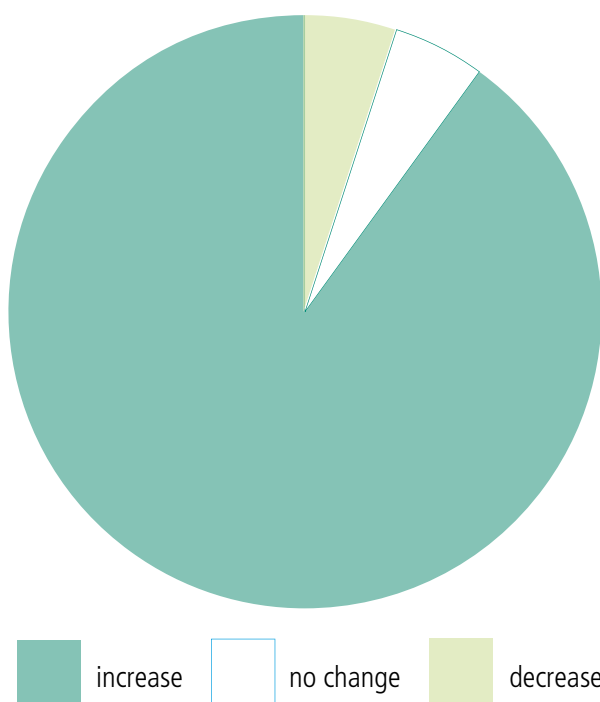
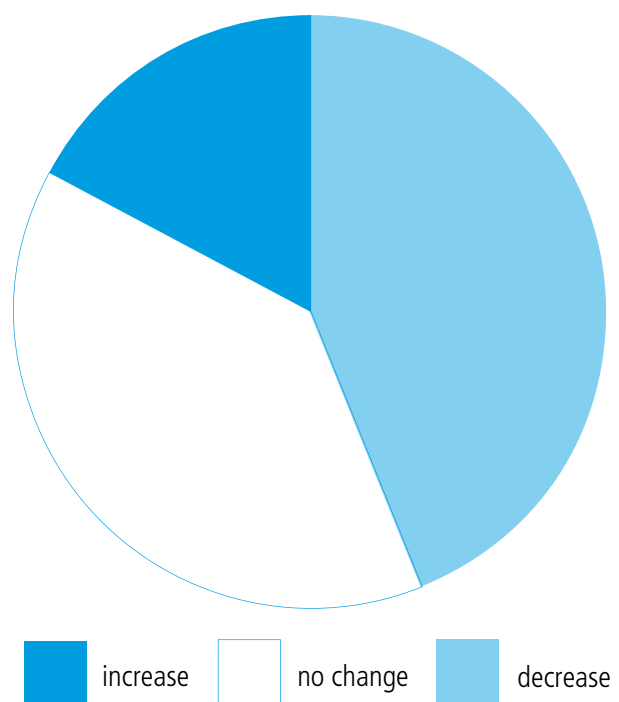


Fig. 2: Change in feelings of self-esteem (%) after the indoor walk



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Fig. 3: Change in feelings of depression (%) after the green outdoor walk

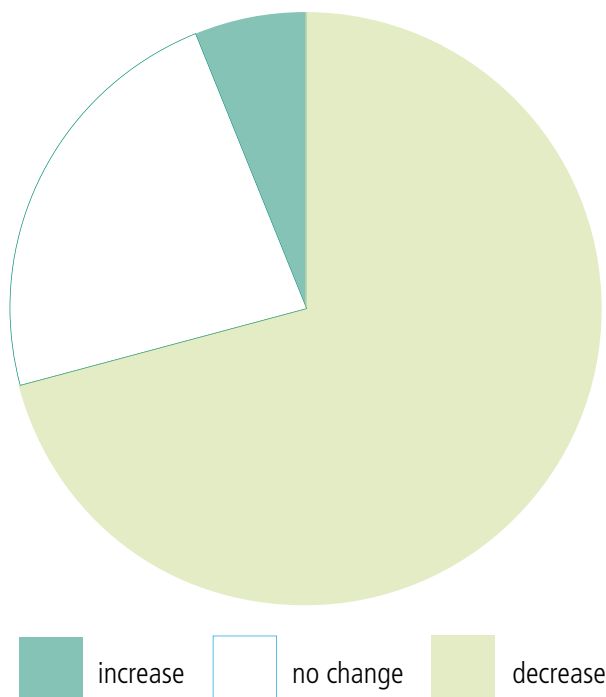
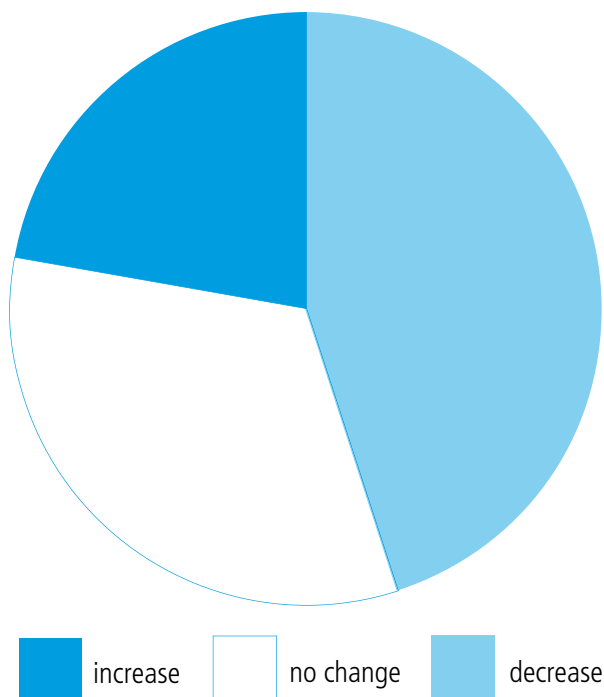


Fig. 4: Change in feelings of depression (%) after the indoor walk



the green outdoor walk. In comparison, after completing the equivalent walk indoors within the shopping centre, only 17 per cent reported any level of improvement, 44 per cent of respondents actually experienced reduced levels of self esteem and 39 per cent stayed the same (fig. 2).

Mood

Six mood factors were measured as part of the research: depression, anger, tension, confusion, fatigue and vigour. The green walk had a significant positive impact across all of these mood factors.

Depression

Figure 3 illustrates how 71 per cent of respondents reported decreased levels of depression following the green walk. Following the indoor shopping centre walk, feelings of depression increased for 22 per cent of people, 33 per cent expressed no change in their level of depression and 45 per cent cited an improvement (fig. 4).

Anger

Figure 5 shows how 53 per cent of respondents said that any feelings of anger decreased after the green

walk, but after the equivalent walk indoors feelings of anger had increased for 22 per cent of people (fig. 6).

Tension

After the green walk, 71 per cent of participants stated that they felt less tense, 29 per cent felt the same and no one reported any increased levels of tension (fig. 7).

The indoor walk provoked a very different response, with 50 per cent of people reporting their feelings of tension had increased (fig. 8).

Confusion

Sixty-five per cent of people said they felt less confused after the green walk compared with 39 per cent of people who reported feeling more confused after the indoor walk.

Fatigue

Even though they had been walking for 30 minutes, 71 per cent of participants said that they felt less fatigued after completing the green walk. Levels of fatigue also reduced for 50 per cent of people after the indoor walk.

Fig. 5: Change in feelings of anger (%) after the green outdoor walk

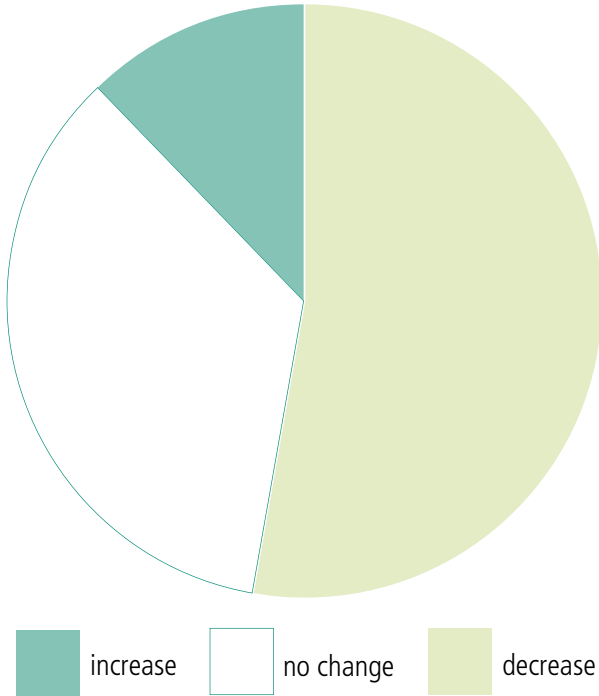


Fig. 6: Change in feelings of anger (%) after the indoor walk

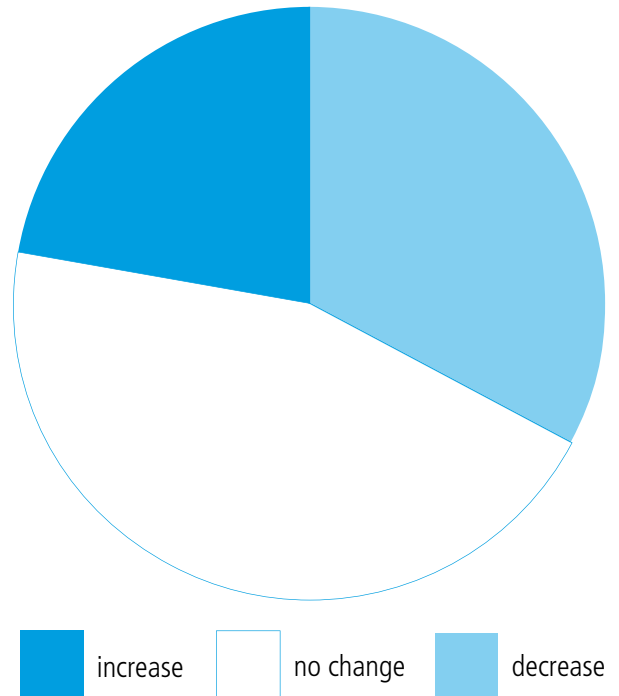


Fig. 7: Change in feelings of tension (%) after the outdoor walk

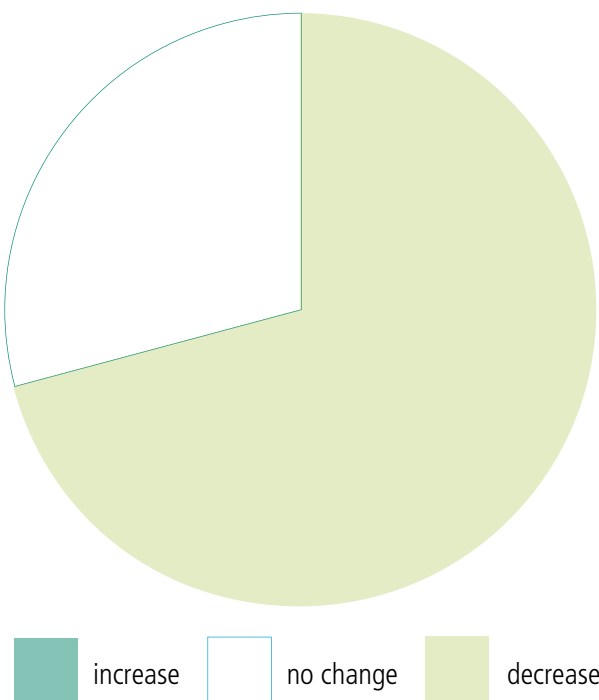
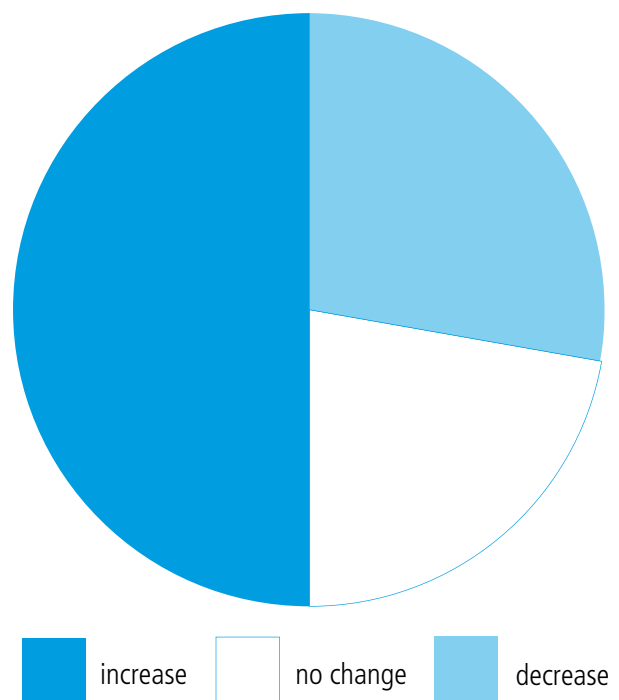


Fig. 8: Change in feelings of tension (%) after the indoor walk



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Vigour

The green walk left 53 per cent of people feeling more vigorous whereas 45 per cent of respondents felt less vigorous after the shopping centre walk.

Total impact on mood

Taking all six mood factors into consideration, the green walk had by far the most positive impact with 88 per cent of people seeing an improvement in mood after the green walk. The shopping centre walk left 44.5 per cent of people feeling worse, 11 per cent showed no change in mood and 44.5 per cent had an improvement in their overall mood.

Comparison between the walks

A further test was used to directly compare changes in self-esteem and mood between the two walks. We wanted to know the average change in mood across the whole group but each of the participants would have started the walk with slightly different feelings. Therefore, the mean starting point was calculated and then each person measured to see how far they changed from that point. Finally the mean of these results was calculated again.

Figure 9 shows the change in self-esteem after both walks. There was an 11 per cent improvement after the green outdoor walk and a decrease of four per cent following the shopping centre walk. This difference is statistically significant.

Figure 10 compares overall changes in mood following the two walks. There were statistically significant differences between the walks for anger, confusion, depression and tension. All of these findings favoured the outdoor walk over the indoor walk.

On average feelings of tension significantly decreased after the green walk, down 13 per

cent. This compares with an average two per cent increase in feelings of tension after the indoor walk. Levels of depression were reduced an average of six per cent after the green walk compared with just one per cent after the indoor walk. On average, participants' feelings of fatigue reduced by 15 per cent after exercising outside and feelings of vigour increased by four per cent. Feelings of anger and confusion were down eight per cent after the green walk but only one per cent after the indoor walk.

There was a significant difference in the overall effect on mood, strongly favouring the outdoor walk, as illustrated by the percentage for total mood disturbance in figure 10. Overall, the green walk improved mood by an average of 13 per cent whereas measures for the indoor walk show that on average mood was unaffected.

Fig. 9: Overall changes in self-esteem following the two walks (%).

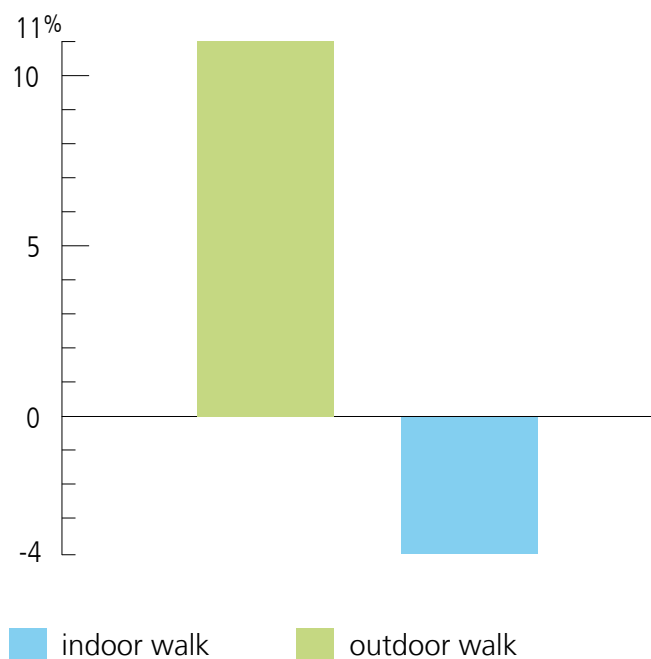
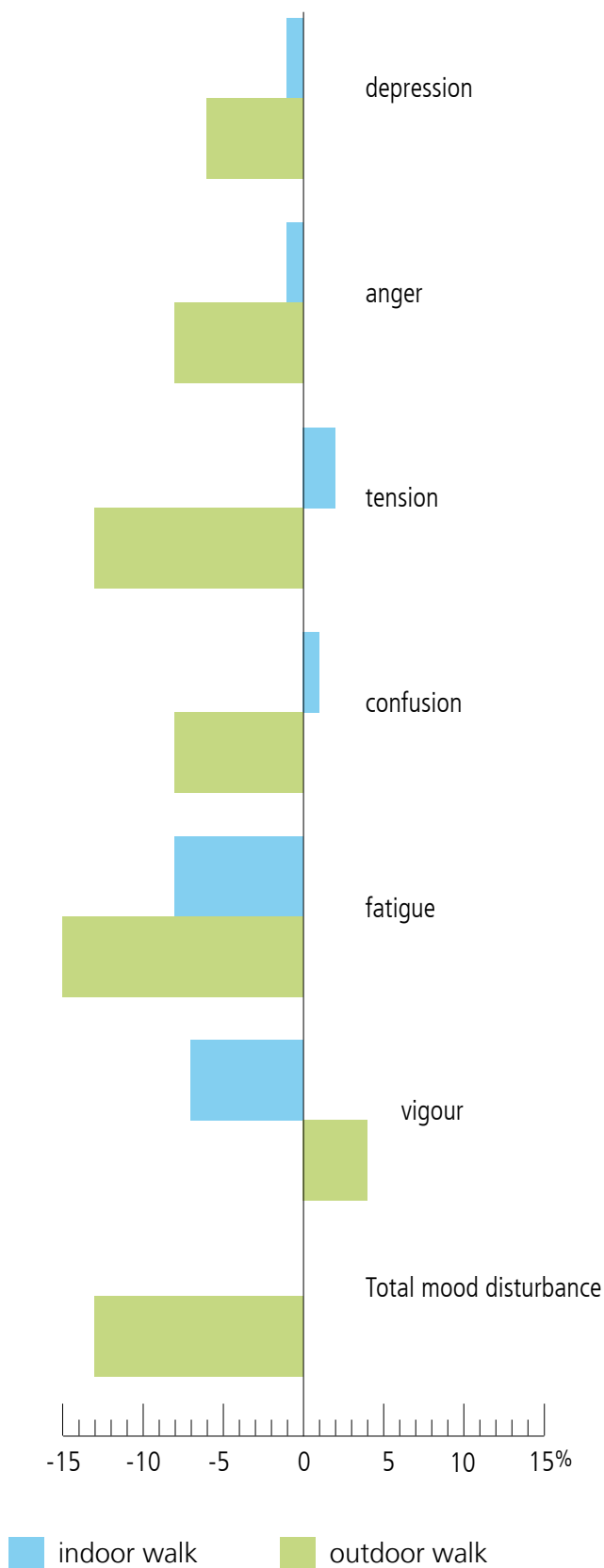


Fig. 10: Overall changes in mood following the two walks (%).



Enjoyment

In addition to analysing changes in psychological states, participants were asked to rate the enjoyment they got out of various aspects of the walk. A simple scale was used, which ranged from 1 ('did not enjoy at all') to 5 ('enjoyed a lot').

The scenery was preferred on the green walk with participants giving the natural environment a score of 4.5 compared with the window-shopping which rated at 3. People enjoyed the exercise more on the green walk where they rated their enjoyment at 4.5. On the indoor walk exercise scored lower on the enjoyment scale at 3.6. Being in the company of others and doing something different were also enjoyed more on the green walk than the indoor walk.

The results from this study are supported by previous green exercise research, which has identified significant improvements in self-esteem, mood and social connectivity.

For this group of mental health service users, exercising outdoors in a green environment was better than comparable exercise indoors – it was more enjoyable, more therapeutic and had a positive effect on participants' mental health and wellbeing.

Kensington and Chelsea Mind

Meanwhile Wildlife Garden is a project of Kensington and Chelsea Mind's Training and Employment Service which aims to help people with experience of mental distress gain confidence and skills to move into work or further training. Nestled between the concrete jungle of North Kensington and the Grand Union Canal, the garden provides a therapeutic environment in an otherwise very urban area.

The garden sits on land owned by the Royal Borough of Kensington and Chelsea which is leased to a local community association. The training course can accommodate up to 15 people at a time, normally referred by the local community mental health teams. Trainees work towards a City and Guilds qualification in horticulture.

"It's a very practical qualification," says Horticulture Tutor Ulla Johnson. "It normally takes people about six to nine months to complete. It's an important part of the service, because we're all about helping people to progress on to education, further training or employment."

Attending the training course helps trainees get to the next stage in their journey back to employment. The garden is a working environment, which allows people to learn skills for employment, bring structure and routine back into their lives, and meet other people.

"What needs doing depends on the season," says Ulla. "In the Winter, for example, we tend to do structural work on the paths, on wooden structures and so on. In the Spring there's plenty of growing seeds, tending to young plants and weeding.

"There's always a variety of tasks to be done, and the garden lends itself to people's moods. If someone comes in wanting to chat to people and do some heavy work, then there'll be a job for them. If they're not feeling like that, if they'd rather be alone or if they'd rather do some lighter work, there'll be a job for them, too."

"There's something that the trainees get from being outside that you couldn't get indoors, however good the project might be," Ulla says. "People say they feel the difference, and you see it yourself. People feel calm and safe in the garden, and they leave with a sense of wellbeing."



“People feel calm and safe in the garden, and they leave with a sense of wellbeing.”



"Working with the plants is very rewarding. Planting a seed, tending to it, and seeing it grow, brings a sense of pleasure and purpose."

"Lots of people come through the garden," Ulla says, "with their children, with dogs, on their way back from shopping – we've got a constant flow of people enjoying the space. And they interact with the trainees and talk about the garden. And, of course, it's so important for local residents to see people with mental health problems enjoying gardening just as anyone else would – it destigmatises mental distress and helps the trainees feel socially included."

The garden has its own social enterprise offshoot, too, which is developing into a viable, sustainable business creating paid work opportunities, full time and part time, for graduates of the training course. Use of Permitted Work regulations gives some people a chance to try out small amounts of paid work. Two days a week, trainees sell herbs and flowers grown in the garden at a stall in London's famous Portobello Road Market – another great way for trainees to build confidence, while breaking down myths about mental distress.

Kensington and Chelsea Mind has also won contracts to design and maintain gardens for private clients, businesses, and public bodies. "The buzz trainees get when they go off-site and do real work and earn real money for it is amazing," Ulla says. "The sense of achievement and satisfaction is incredible, and it's perfect for demonstrating their potential to future employers, too."

"The social enterprise is the ideal supplement to what we do in the garden. It augments what the trainees learn from the horticulture course, and expands their skills in employment and business."

Kensington and Chelsea Mind have recently secured a further three-year contract with a two-year option for extension for the Training and Employment project from their PCT and local Social Services.

Conclusion

The World Health Organization predicts depression will be the second greatest cause of ill health globally by 2020. The Sainsbury Centre for Mental Health estimates the cost of mental distress in a single year in England alone at £77 billion. The British Government states that one in four of us will directly experience mental health problems. Is it conceivable that a therapeutic intervention that can substantially reduce the human and other costs of mental distress is available on our doorsteps? Should people with experience of mental distress be routinely referred for green exercise, social and therapeutic horticulture or a period of time on a care farm – instead of, or in addition to, drugs and psychological therapy?

We believe the answer to all these questions is 'yes'. The evidence base is growing stronger, our concern about the environment is increasing and the 'green care' movement is gathering momentum across Europe. Policy makers, opinion formers and health and social care professionals should not lag behind. We need to develop mental health policy and practice in such a way that we are able to reap the potentially massive human and economic benefits of a new green agenda for mental health.

Ecotherapy is emerging as a clinically valid treatment option for mental distress, and a core component of an adequate public health strategy for mental health. The new research presented in this report shows green exercise has particular benefits for people experiencing mental distress. It directly benefits mental health (lowering stress and boosting self-esteem), improves physical health (lowering blood pressure and helping to tackle obesity), provides a source of meaning and purpose, helps to develop skills and form social connections.

While there are successful projects in the UK, including many funded by Primary Care Trusts, ecotherapy is still on the margins of mental health policy and service provision. Against this background, Mind is proposing a 10-point plan to provide a framework for ecotherapy within mental health policy and to set the parameters and objectives for policy development in this area.

Recommendations

1. Ecotherapy should be recognised as a clinically valid treatment for mental distress.

Few health and social care professionals will be surprised by the research evidence emerging to show that interaction with nature has clear and measurable benefits for mental health. But there is still a reluctance to regard a walk in the countryside or participation in a green gym as having the same sort of therapeutic status as psychiatric medication or psychological therapies, even when outcomes are comparable. This suggests that there may be a bias in the way evidence is assessed, with potentially damaging implications for service provision. For example, primary care trusts (PCTs) and local health boards (LHBs) may regard green exercise projects as soft targets if NHS budgets bite.¹

Another barrier to the acceptance of ecotherapy as a serious treatment option for mental health problems is a tendency for current debate to be conducted in adversarial either-or terms. The ultimate question is not whether green exercise is more or less effective than psychiatric drugs or psychological therapies – although for some people in some circumstances this may well prove to be the case.

The real question is what contribution ecotherapy can make to effective packages of health and social care for people experiencing mental distress, and to greater treatment choice. Many people experiencing mental distress will benefit most from a combination of treatments – for example, cognitive behavioural therapy and involvement in a green care project. Equally important is the contribution ecotherapies can make to a public health strategy for mental wellbeing that prevents people developing problems.

1. The new National Assembly for Wales initiative for Exercise Referral will be phased in over a three-year period, following a randomised control trial in the first 12 months, and tending to focus upon access to leisure activities. There is concern that the drivers for leisure are different to the drivers for health, and there will be insufficient focus upon green exercise.

2. Allocation of health and social care budgets should be informed by cost-benefit analysis of ecotherapies.

There is a growing recognition of the economic case for investment in mental health treatment and services.

In *The Depression Report*, Lord Layard explained that loss of output due to failure to treat depression and chronic anxiety effectively is £12 billion a year – one per cent of total national income. He argues that the cost of providing a first-rate therapy service would be £0.6 billion a year. Economic costs are at the heart of the European Commission's Green Paper on a mental health strategy for Europe. It estimates that the annual cost of mental distress across the EU is three to four per cent of total gross domestic product or GDP. The cost of prescribing antidepressant drugs in England alone was estimated at over £417 million for 2004, and the cost of prescribing antipsychotics as more than £311 million. The Sainsbury Centre for Mental Health has put the overall cost of mental distress in England at £77 billion. In addition, the annual costs of physical inactivity in England are reported to be £8.2 billion annually, and the health costs associated with obesity a further £2.5 billion.

To date, however, there has been no serious attempt at a cost-benefit analysis of green exercise and green care, covering the benefits for both physical and mental health. There is a compelling economic argument for increased investment in ecotherapies. Research shows that something as simple as a tree view from a hospital window reduces the need for expensive drugs and the length of stay. Many green exercise activities are available free or at a low cost. More investment in prevention could significantly reduce expenditure on treating mental health problems, as well as reducing the human cost of mental distress.

3. GPs should consider referral for green exercise as a treatment option for every patient experiencing mental distress.

Physical activity is extremely important for both physical health and mental wellbeing. A recognition of the health benefits of exercise has resulted in a 'universal recommendation' from the Department of Health that individuals should participate in 'at least 30 minutes [exercise] a day of at least a moderate intensity on five or more days a week'. The Chief Medical Officer has said that 'physical activity is effective in the treatment of clinical depression and can be as successful as psychotherapy or medication, particularly in the long term' (Department of Health, 2004). Exercise should be a primary treatment for some people experiencing mental distress – particularly mild to 'moderate' depression. It has few negative side-effects and can be an ideal treatment for patients experiencing a combination of physical and mental health problems.

A common concern is that people will not have the desire or motivation to exercise. Exercising in traditional gyms incurs an extremely low adherence rate, due in part to what has been dubbed 'lycraphobia' – defined as a fear of undertaking physical activity in a commercial fitness industry setting. Green exercise could help people to persevere. Nearly half of participants of indoor sports drop out in the first six months, whereas walking outside has a much higher success rate (Hillsdon and Thorogood, 1996).

GPs referring patients for exercise should consider green exercise where practical. Green exercise encourages people to reconnect with nature and people are more likely to persevere, thus improving outcomes. Research conducted by the Mental Health Foundation has found that only five per cent of GPs offer exercise therapy as one of their three most common treatment responses for mild to moderate depression. By comparison, 93 per cent commonly prescribe antidepressants. Many have admitted to prescribing antidepressants in situations where they did not believe this was the most effective approach, because they didn't have access to other options (Halliwell, 2005).

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4. Access to green space should be considered as a key issue for all care planning and care assessment processes.

Supporting access to green space should be routinely considered in care planning and social care assessment processes. For example, people on a care plan might be supported in finding an allotment or getting involved in a local horticultural project and 'buddy' schemes could increase people's confidence about taking part. The options for green activity should be highlighted by care coordinators and in the training and supervision of support workers.

These options should be reflected in the work of Community Mental Health Teams. For example, assertive outreach teams should develop green exercise projects as part of their work to engage hard-to-reach people in the community. It should also be a key issue for inpatient settings. Green space and opportunities for exercise should be available to all inpatients in low, medium and high secure hospitals.

There is also a need to train people to run ecotherapy projects for people with experience of mental distress. In Wales, for example, there is a shortage of green activity providers who have been trained to work with mental health service users – sometimes this means that staff can have negative attitudes to working with people with experience of mental distress. They may also seek to involve people in inappropriate activities with inappropriate supervision.

Improved mental health awareness and training for people working in environmental agencies would help widen access to ecotherapy. There should also be further development of models that involve mental health service users in the design and delivery of green projects.

5. Referral to green care projects – such as green care farms – should be incorporated into health and social care referral systems.

It is also time society took a serious look at the potential for incorporating green gyms and green care farms into mainstream health and social care practice. For example, hospital inpatients or people in contact with Community Mental Health Teams could be referred to work on green care farms or on conservation projects for a day each week or for a continuous number of days or weeks. Participation would be optional and it would be funded out of health and social care budgets.

There could be a particularly important role for the European Union. In his draft report on the European Union Green Paper on mental health strategy, the UK Rapporteur, John Bowis, suggests that a core function of the European Commission should be to identify sites and examples of good practice and disseminate details of these to all member states.

There is also an obvious link to the EU's environmental action plan and to its agricultural policies. This might take the form of further EU support for the European Farming for Health Community of Practice (CoP), which is a network of individuals and organisations involved in care farming. Its aim is to increase scientific knowledge on best practice for implementing green care in agriculture to improve physical and mental health and quality of life.

The National Care Farming Initiative (UK) reports that there are a number of care farms operating in the UK, "although the numbers are small and the movement is very embryonic". Further development of green care in the UK will depend on the emergence of a more robust evidence base. The UK government and other stakeholders should monitor work being done at European level, while supporting research and evaluation at a national level.

Both green care farms and green gyms combine care of people and care of the land. Both could play a key role in rural regeneration strategies that regard land as multifunctional, while playing a key

role in health and social care strategies to reduce the human and economic costs of mental distress.

Any expansion of green care projects in the UK would need to be accompanied by regulatory and inspection procedures, with the development of evaluation methods and professional training. The benefits of green care should also be covered in the training of all mental health professionals

6. Inequality of access to green space should be addressed as a human rights, social justice and discrimination issue.

The extensive green space that is available to the public constitutes a massive health resource. But too few people make use of the available opportunities, and access is unequally distributed. Groups with particularly low participation rates include young people, low-income groups, Black and Minority Ethnic groups and people with physical disabilities. Barriers to participation include poor local access to green exercise opportunities. If you do not own a car and are on a low income or benefits, getting out of the city and into the countryside can be expensive, and bus and train services may be few and far between.

The challenge is to develop, manage and promote green spaces in ways that can engage groups with low participation rates. The Commission for Architecture and the Built Environment (CABE) states that a key principle of the parks and green spaces services of local councils that gain Beacon status is a “commitment to address the needs of all sections of the community including the young, older people, disabled people and other social groups and targeting areas of deficiency and exclusion”. Countryside and green space agencies need to ensure that service development at urban parks, country parks and recreation areas targets socially excluded groups, and that green space is available to all in practice as well as in theory.

The Disability Discrimination Act 2005 introduces a public sector equality duty (the Disability Equality Duty or DED), which places a legal obligation on public bodies such as local councils, schools and

hospitals, to think about the needs of disabled people in planning their services, and to actively promote inclusion and involvement. This legal duty will apply to green spaces such as parks, which are managed by, or on behalf of, local authorities.

Failing to think about the needs of people with mental distress when planning development of and access to green space is discriminatory. It is important to remove barriers such as prohibitive transport costs and to ensure that people who need support to participate confidently in green exercise activities or to enjoy natural spaces are able to access it. Development of green space should have a particular focus on communities that experience the greatest ‘poverty of place’.

Natural England's Accessible Natural Green Space Standards (or ANGSt) provide a good and challenging benchmark for developing access to green space in towns and cities. The ANGSt standards require that no one should live more than 300 metres from their nearest green space of at least two hectares in size, that there should be at least one accessible 20-hectare site within two kilometres of their home, one accessible 100-hectare site within five kilometres and one accessible 500 hectare site within 10 kilometres.

7. All health, social care and criminal justice institutions should be required to ensure access to green space.

Mind's ‘Building solutions’ campaign found that inpatients in mental health hospitals place a high value on access to green space, and that many hospitals have accessible gardens. But significant numbers of hospitals do not. *Health Building Note 35* (NHS Estates, 1996), which covers hospital design, provides an excellent opportunity to enshrine a green approach in NHS guidance. All patients in mental health inpatient facilities should have access to green space and opportunities for exercise. The same should apply to all residential care environments, whether provided by statutory, private sector or voluntary agencies.

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Table 3: Potential barriers to participation in green exercise activities

Potential barriers	Reasons
Time available	Many people assume that in order to have any benefit to health, walks need to be for at least an hour and because of this many people feel that they then cannot spare this much time.
Lack of motivation	Many people find it difficult to get the motivation to do any type of exercise and this is accentuated for people experiencing mental distress. They often state that they are too tired from a long day's work.
Perceptions of personal safety	Public spaces are sometimes seen as 'risky' and associated with crime. The fear of personal attack, angry farmers, farm animals, or fear of having a medical emergency may affect people's willingness and ability to make the most of these natural places. The absence of safe pavements and walking and cycling paths is also a concern.
Lack of transport options	Some groups of adults and children are not independently mobile and can't get to these places or there may be a lack of public transport which limits travelling options. If there are busy roads to cross this often acts as an obstacle.
Location of rights of way	Many people do not know where footpaths start, finish or how to get to them. Local Authorities and land managers should place a higher emphasis on rights-of-way signage and maintenance to encourage access.
Terrain	A lack of knowledge about the terrain of an area can also act as a barrier to participation, if there is no information available on the type of surface, steepness of hills, maintenance standards of paths and hedges and potential obstacles. This is doubly worrying for those people with joint and balance problems or those with generally low levels of fitness.
Facilities	A lack of information about facilities, such as toilets, that may be available en route may also act as a deterrent.
Purpose	Some people need a reason to go for a walk. These reasons include walking with a pushchair, walking the dog, or social reasons such as meeting people or family time.

The Prison Service is phasing out its agricultural programme and shifting the emphasis to horticulture. While this has increased the numbers of prisoners involved in developing horticultural skills, it has involved the sale of 2,778 acres of agricultural land owned by the Prison Service and the closure of 23 farms. The current pressures on the prison system as prison numbers grow to record levels is also having a serious impact on the recreational opportunities for inmates and access to green space.

Access to green space and exercise should be a core issue for the Healthcare Commission, Commission for Social Care Inspection, the Prisons Inspectorate and other relevant agencies with inspection, complaint management and oversight functions.

In May 2006, a new toolkit was launched by the Countryside Council for Wales (CCW) to help local authorities plan and improve natural green areas for people in their communities. CCW Chairman, John Lloyd Jones said: "Green spaces are not just the places between buildings; they are what make towns and cities desirable places to be. They keep us healthy by reconnecting us to the natural world and giving us the space to take exercise which modern lifestyles no longer supply. CCW's work has shown that even Wales' small towns and housing estates are deficient in crucial local green space, despite being within sight of world-class landscapes".

8. Designing for mental wellbeing should be recognised as good practice for architecture and town and country planning.

There is a mismatch between evidence for the benefits of green space and exercise and the current drivers of economic development in both rural and urban areas. But there have been promising developments. For example, CABE Space, which is part of the Commission for Architecture and the Built Environment, aims to improve the quality of the design and management of public spaces in urban areas. It works with public authorities involved with the delivery of parks and other green spaces, as well as with private and voluntary sector organisations to help them think holistically about design.

But there is still a long way to go. In urban areas, green spaces are often removed to keep down maintenance costs and private sector housing developments squeeze as many homes as possible into development land to take advantage of buoyant housing markets. In rural areas, modern agricultural development can impoverish the natural environment and housing developments in rural communities can put pressure on publicly accessible green spaces and green exercise opportunities.

The impoverished environments that result from exaggerated concerns about crime (eg, straight roads, bright lighting and removal of trees and other vegetation) are not good for mental wellbeing, and – perversely – could even foster antisocial behaviour. Design for mental wellbeing should be as high a priority for planners and designers as designing against crime. This should be reflected in the training and qualification systems for architects and town planners, and in the criteria that are applied in planning permission (and similar) processes.

Major developments, such as the Thames Gateway and the construction work for the 2012 Olympics provide excellent opportunities to develop practice in this area. The challenge is to deliver public and residential developments that take a holistic approach to design, incorporate green space and contribute to a public health policy for mental wellbeing.

9. The benefits of green exercise should be promoted by public health campaigns, targeting young people in particular.

Young people are becoming more disconnected from nature and are making fewer visits to the countryside. If we can engage children with nature at a young age, this will encourage participation in outdoor exercise later in life. Low-income groups and ethnic minorities are also less likely to access the countryside for recreation. Reaching these groups may require a new image of green activities, so that they are more relevant to people living in innercity areas. This might include promoting urban walking and the health benefits of activities like kite flying, Nordic walking and off-road cycling. This is a key challenge for voluntary organisations delivering and developing green services and promoting countryside recreation, as well as statutory agencies.

Public health campaigns have tended to be launched in response to health crises and to discourage harmful activities, such as smoking. But they also have a role in promoting beneficial activities. The green agenda is an opportunity for the health and mental health sectors to work with rural and urban regeneration agencies to promote the benefits of active engagement with the natural world as a key public health issue.

10. Ecotherapy projects should be evaluated to collect data and continue to build an appropriate evidence base.

With the potential for an expansion of ecotherapy projects it is important that research and evaluation is built into service development, and that data are not only used to monitor compliance with targets, but also to help to build a better evidence base.

There is a need for further research. As discussed above, there is a particular gap in the evidence for the economic benefits of green exercise. Large-scale surveys are needed to draw out the connections between the accessibility of green space, its use and improved physical and mental health outcomes. There is also untapped potential to use National Health Survey data to assess the contribution of green space to quality of life, physical wellbeing and mental health. Other research priorities include more work to look at the barriers to participation in green activity for groups such as those with disabilities.

What Mind will do

Mind will run a campaign on green exercise and mental health. The campaign will start with Mind week (12 to 19 May), the theme of which is 'Fly a kite for mental health', running until mid September 2007.

The campaign has the following aims:

- To raise awareness of the proven benefits for mental health of green exercise amongst service users, GPs, PCTs/Local Health Boards, Local Councils, mental health professionals and town planners.
- To encourage campaign audiences to take up the recommendations made in this report.
- To engage our networks, including local Mind associations and Mind in Action members in campaigning at a local level.

The campaign has the following objectives:

1. Increase the number of GPs who prescribe green activities as a treatment for mental health.
2. Increase the number of PCTs/Local Health boards that have exercise referral schemes for mental health.
3. Increase the number of PCTs/Local Health boards who have green exercise as part of their exercise referral schemes.
4. Encourage social inclusion by encouraging local Mind groups to engage in local green activities with other groups such as Ramblers, BTCV, youth groups, kite clubs, cycling clubs, etc.
5. Encourage the engagement with local councils on raising awareness and use of local green amenities.
6. Influence an increased availability of access to green exercise for patients in psychiatric hospitals
7. Ensure that town planners engage fully with creating a mentally healthy environment.
8. Facilitate an increase in the number of local Mind groups offering green activities to their service users and local communities.

Mind will work at a national policy and local activity level throughout England and Wales to ensure a raised awareness of the benefit of access to exercise in green spaces to mental health and wellbeing, and will encourage a wider take-up.

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