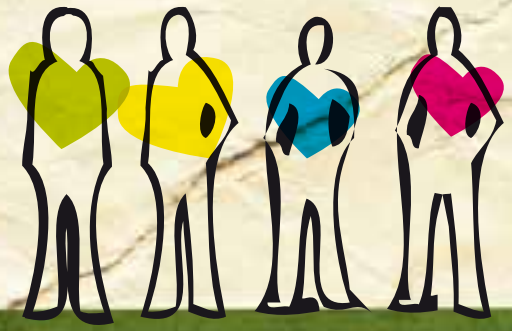
**Report,** Neil Wilson, June 2009

# Branching Out

## Greenspace and Conservation on Referral



"When I'm out here it's like a sense of freedom"

Forestry Commission Scotland

NHS Greater Glasgow and Clyde

Glasgow Centre for Population Health

green network

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# Contents



*Branching Out clients and staff attending a parliamentary reception!*

# I Literature Review

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## I A – Introduction

There is considerable evidence to suggest that access to, and utilisation of, greenspace can promote and maintain mental health, and over the past twenty years, this research area has grown exponentially (Butler and Friel, 2006). In fact, the strength of these findings has led to national and international policy considerations and directives (World Health Organization, 1997). For example, the use of nature to improve health and wellbeing is supported by The Ottawa Charter for Health Promotion (World Health Organization, 1986).

The concept of utilising greenspace to promote mental health predates the development of almost all current treatment modalities. During the 19th century, mental health institutions were often situated in pleasant gardens or natural landscapes and at that time it was thought that greenspace helped people relax and recuperate (Loudon, 1829; Beveridge and Rocheleau, 1998). Although some mental health institutions continued with the tradition, the use of greenspace as a therapeutic tool decreased throughout the 20th century (Smyth, 2005). Part of the reason for this may be that demand for evidence-based practice has concentrated on the provision of quantitative studies which concentrate on a finite number of parameters and have difficulties in examining complex interactions (Coote et al., 2004). Traditionally, the studies examining the links between greenspace and health have been qualitative.

However, recent growth in the area has been accompanied by the emergence of quantitative studies demonstrating positive findings on a number of parameters of mental, physical and social functioning. These findings indicate that the utilisation of greenspace may yield holistic health benefits. The World Health Organization emphasises a holistic approach to health by defining it as *"a state of complete physical, mental and social wellbeing"* (World Health Organization, 1946; World Health Organization, 1986). This statement reflects that there is *"widespread recognition that health is influenced by many factors and most of them are interrelated"* (Mallor, 2002, p.10).

Such a holistic approach to health may be of particular benefit to those in mental health services, as secondary problems such as physical and social limitations are frequently associated with poor mental health. This review examines the theory and evidence for utilizing greenspace in order to improve the health of those who use mental health services with particular reference to those experiencing enduring mental health difficulties. This review includes large scale correlational studies examining greenspace and the living environment, experiments examining single day or short-term interventions, and longer-term activity programmes.

## I B – Evolutionary Perspectives on the Benefits of Greenspace.

The "biophilia" hypothesis runs contrary to the prevailing attitude in society, that human beings are detached from nature, by suggesting a fundamental need to seek natural experiences, processes and diversity (Martian, 1996; Wilson, 1984).

With the industrial revolution, the last two centuries have seen mass migration from rural to urban communities, with the result that 80% of people now live in urban areas (Axelrod and Suedfield, 1995; DEFRA, 2004). The literature suggests that such a rapid transition has resulted in human beings being inadequately adapted to their current environment (Burns, 1998; Kellert, 1997; Kellert and Wilson, 1993; Orians, and Heerwagen, 1992; Wilson, 1984). This is thought to have impacted negatively on physical, but primarily mental health (Gullone, 2000; Orians and Heerwagen, 1992).

Evolutionary perspectives suggest that human beings respond positively to natural environments due to a genetic predisposition which favours the surroundings which aided survival during evolution (Appleton, 1975; Orians and Heerwagen, 1992). African savannahs were the most conducive environments for pre-modern humans' long-term survivability (Orians and Heerwagen, 1992). On such a basis, Habitat Selection Theory dictates that, in comparison to urban environments, natural surroundings should be visually more calming with those approximating to African savannahs being the most preferential (Orians and Heerwagen, 1992). Humans do appear to have a visual preference for the vegetation and other distinguishing features found in savannah environments over other types of habitat, and these findings emerge cross-culturally (Orians 1986; Schroeder and Green, 1985; Colan, 1986; Parsons et al., 1998; Hull and Revell, 1989, Purcell et al., 1994, Korpela and Hartig, 1996). Parsons (1991) suggests that the physiological processes associated with habitat selection involve the release of hormones, which can impair or enhance immunity and cardiovascular function.

According to Habitat Selection Theory, a preference for natural environments should emerge cross-culturally, and those acting on such a preference should experience health benefits. Newell (1997) had participants from Senegal, Ireland and the United States identify their favourite places and give the reason they were chosen. 61% of the participants identified a part of the natural environment as their favourite place and, across all cultures, "relaxation" and "recharging" were among the most commonly given reasons.

There are also a host of separate studies from within several western countries, including the UK, USA, Netherlands and Australia, which reflect this positive perception amongst laypersons (Greenhaigh and Worpole, 1995; Dunnett et al., 2002, Ozguner and Kendle, 2006, Ho et al., 2005; De Sousa, 2006, Netherlands: Chiesura, 2002, Australia: Gill and Simeoni, 1995). Browne (1992) demonstrated that natural landscapes were important in an elderly population, and were often a factor which determined their choice of retirement home. Ogunseitan (2005) conducted a study comparing 379 respondents on the brief version of the World Health Organization's quality of life questionnaire, with self-reported measures of individual preferences for components within ecosystems. Preferences for eco-diversity were significantly associated with higher overall quality of life. The presence of flowers and water bodies were identified as major factors associated with quality of life and the experience of restorative environments. Ulrich (1993) proposes that attraction for such water bodies has a genetic basis as it indicates the presence of both food and water.

Such an evolutionary perspective is advocated in both the leading theories regarding the psychologically beneficial aspects of nature (Kaplan and Kaplan 1989; Ulrich, 1983). Kaplan and Kaplan's (1989) Attention Restoration Theory focuses on nature's restorative capacity in relieving stress. The theory describes the relationship as being mediated by four facets: 'being away', 'extent', 'fascination' and 'compatibility'. 'Being away' is described as a sense of distance, involving both conceptual and physical distancing. 'Extent' is described as the scope for exploration within the surroundings. 'Compatibility' describes the relationship between a person's wants, and the support and demand of the environment.

'Fascination' is the most frequently addressed aspect of the theory within the literature and builds on James's (1890) theory of attention, in proposing that there are two types of attention: voluntary and involuntary. Voluntary or directed attention, is that which is deliberately invoked by the self and is deployed when attending to tasks. Involuntary attention is directed by specific elements of an environment and is thought to be useful in the recovery of fatigued directed attention by giving the mechanism that serves it a chance to rest. Kaplan and Kaplan (1989) propose that by containing the elements which draw on involuntary attention, natural environments facilitate restoration.

The second theory, that of Ulrich (1983), concerns emotional and psychological recovery from stress. Such restoration is thought to be achieved when viewing scenes eliciting feelings of interest, pleasantness and calm. Natural environments are thought to elicit such feelings by containing elements of moderate depth, moderate complexity, the presence of a focal point, vegetation and water. Whilst viewing the natural environment, negative affects (feelings, emotions and moods) are replaced by positive affects, negative thoughts are blocked and sympathetic arousal declines.

Ulrich's model concerns emotional, mental and physiological components as opposed to Kaplan and Kaplan's attention based model which regards attention fatigue and arousal as separate phenomena. In the model devised by Kaplan and Kaplan, restoration results from the replenishing of attentional capacity, which is viewed as a consequence of arousal reduction. In Ulrich's model, restoration results from an involuntary reduction of arousal. The research generated by these theories has been substantial and many of the studies included in this paper were originally produced to evidence these models.

## I C – Psychological & Physiological Benefits of Greenspace

The psychological benefits of greenspace have been examined across a range of dependent variables, including psychological restoration of stress, physiological measures, measures of affect (including anger, aggression, and fear) and measures of depressive and anxious symptomotology.

### I C1 – Cross-sectional Studies: Mental Health

Following a literature review by Chu et al. (2004) which identified five key domains (control over the internal environment, quality of house design and maintenance, presence of valued escape facilities, crime and fear of crime and social participation) through which the urban and built environment might impact on mental well-being, Guite et al. (2006) surveyed 1012 adults in Greenwich by post to examine the relationship between the identified domains and mental health and well-being. Population density and dissatisfaction with local greenspaces were associated with poorer mental health. Another postal survey by Grahn and Stigsdotter (2003) used 953 respondents in nine towns and cities in Sweden and demonstrated an inverse relationship between the proximity of greenspace in urban areas and levels of stress whilst controlling for gender, age and socioeconomic status.

Using a sub-set of older adults aged 50 years-86 years (N=100) who had responded to a previous questionnaire, Orsega-Smith et al. (2004) conducted a five-day diary-based study which measured park use, perceived daily stress and common health indicators (Body Mass Index, Weight to Hip Ratio). They did not find any significant relationship between stress and park-based leisure or between park-based leisure and perceived physical and mental health. However, they did find two significant relationships. Those who experienced higher levels of daily stress stayed longer in the park and those who reported they received health-related benefits from the park had lower diastolic systolic blood pressure. Limitations include the fact that measures of daily stress and park use were measured over different time periods. Another study surveyed visitors (N=164) to an urban forest and a city park in Zurich and found a significant reduction in self-rated stress between pre- and post- visit measures (Hansmann et al., 2007).

### I C2 – Benefits of Viewing Nature

As described in the previous section, Ulrich (1983) argued that nature can play a significant role in the emotional and psychological restoration from stress. In a randomised control trial among post-surgical patients, those patients with windows on a natural view spent significantly less time in the hospital than those patients whose windows looked out onto a brick wall (Ulrich, 1984). Further, those patients with a natural view were prescribed less analgesia. Whilst the experiment failed to account for improvements in post-surgical pain controlling medication over a nine year period, it remains one of the first empirical attempts to explore the psychological benefits of viewing nature.

In a similar randomised control trial, Diette et al. (2003), compared two groups (n=80) of patients awaiting surgery. The experiment controlled for age, gender, education, health status and dosage of narcotic medication. Patients in the experimental group were offered the possibility of viewing a nature scene and listening to tapes of natural sounds while patients in the control group were offered no such intervention. The experimental group to whom landscape pictures were shown and natural sounds played, had significantly better ratings of "good" or "excellent" pain control whilst no notable differences for anxiety were observed. Both these experiments were predated by that of Moore (1981) who, in comparing prisoners, found lower frequency of headaches, digestive illnesses and sick calls when their cell window had a natural view.

### I C3 – Positive Affect

In a further experiment by Ulrich et al. (1991), the restorative effects of nature following stress were examined. A mild stress response was evoked in participants (N=120) by having them view a film depicting accidents within the work place. Participants were then exposed to a second film depicting either natural or urban scenes. Those participants viewing natural scenes demonstrated significantly greater recovery from stress (as measured by physiological measures) than participants viewing urban scenes. There was a broad synchronicity between the physiological findings and pre/post measures of affect on three dimensions: positive affect, anger/aggression, and fear. Parson et al. (1998) demonstrated similar results with a sample (N=160) exposed to a mild stressor before viewing a video tape of drives through urban or rural areas. In an earlier experiment which supported and predated Ulrich's 1983 theory, Ulrich (1979) had compared participants who viewed slides of unspectacular scenes of nature and those who viewed urban scenes. Those viewing the natural scenes had an increase in positive affect while those viewing the urban scenes had a decline in positive affect.

Three reports led by Terry Hartig also found increases in positive affect. Two of the experiments (Hartig et al., 1991 and Hartig et al., 2003) are reported within this paper. The other report, that of Hartig et al. (1996) describes two separate experiments. However, the first study lacked baseline measurements, whilst the second suffered from a small sample size. As a result neither experiment was considered methodologically robust enough to base firm conclusions on.

### I C4 – Attention, Concentration, Aggression & Impulse control

Kaplan and Kaplan's (1989) attention restoration theory postulates that the recovery from stress associated with greenspace is accompanied by increased attention and a lowering in levels of aggression. Kuo and Sullivan (2001) interviewed 145 women who had been randomly assigned to identical apartments within a large public housing development in Chicago. The only difference between the apartments was their view of, and access to, greenspace. Kuo and Sullivan (2001) reported that those who had greater access to green common spaces demonstrated significantly lower levels of aggression and violence and, further, demonstrated improved levels of concentration when compared to those without greenspace access. Using the same population as the previous study, Kuo (2001) found a significant relationship which indicated that individuals with greater access to green common spaces assessed their life problems as less severe and enduring, indicating less mental fatigue.

Morita et al. (2007) found significant improvements in levels of hostility and depression in 498 volunteers who took part in a "forest day" (a walk in a forest on a holiday) compared to when the same participants were on a public holiday or partaking in their usual daily activities. However, a selection bias may have existed in that a large percentage of the participants expressed a liking for forest walks.

In an experiment by Laumann et al. (2003), participants (N=28) completed an attentionally demanding task before and after viewing a video of either a natural or an urban environment. Heart rate was measured continuously throughout. During the video, those in the nature group had significantly lower heart rates and their performance on the attention task indicated a shift from a narrow to a broad attentional focus (indicating that they were either better able to deal with complex stimuli or less able to deal with simple stimuli). The direction of this relationship is difficult to interpret due to differences in performance between the pre- and post- video measures.

Using the same public housing development as the studies of Kuo (2001) and Kuo and Sullivan (2001), Taylor et al. (2002) used child and adult caregivers (N=169) to examine the relationship between natural surroundings and self discipline. Self-reported measures of greenspace were ascertained during interview with the caregivers while measures of concentration, inhibition of impulses, and delay of gratification were measured in the corresponding children. When the results were divided by gender, no significant differences were found for males (N=91), while in females (N=78) significant differences were found in all three measures. Higher levels of concentration, impulse control and delay of gratification were associated with increased greenspace. The authors hypothesize that the findings may be attributable to boys playing greater distances from their homes and previous evidence supports this conclusion (Hart, 1979; Sobel, 1993).

In an earlier study Taylor et al. (2001) conducted research with parents (N=96) of children who were perceived to have severe attention deficit disorders. The children were exposed to leisure activities conducted in either green, ambiguous, or not green settings. A regression analysis between horticulture students' greenness ratings of the play settings and the parental ratings of the children's post-activity attentional functioning revealed a significant positive relationship (i.e. the greener the play environment the less severe the symptoms). Tennessen and Cimprich (1995) compared (N=72) university students unequally split into groups by the view they had from their dormitory windows. Those with a view of nature scored significantly better on two separate measures of directed attention than those with non-natural views. The experiment was, however, limited by the lack of baseline measures, the small sample in the natural views and the inability to eradicate other distractions in the dormitories.

In an experiment by Hartig (1991), college students (N=34) were randomly assigned to one of three conditions: a nature walk, a walk in an urban setting, or relaxation. Pre- and post- measures on the Zuckerman Inventory of Personal Reactions and the Overall Happiness Scale were used to measure emotional restoration (Zuckerman, 1977; Campbell et al., 1976). Those participants assigned to a nature walk demonstrated significantly lower levels of anger/aggression than participants assigned to the other conditions. Measures of overall happiness, perceived restoration and positive affect were also significantly higher in this group.

In another experiment designed to compare the theories of Ulrich (1983) and Kaplan and Kalpan (1989), Hartig et al. (2003) compared the effects of a natural environment (sitting in a room with tree views, followed by a walk in a nature reserve) and an urban environment (sitting in a room without views, followed by a walk in an urban area) in 112 participants. Pre/post walk psychological (positive affect/anger/aggression) and physiological (systolic/diastolic blood pressure) measures were employed. There was a significant difference between the conditions with an increase in positive affect (supporting Ulrich) and a decrease in anger/aggression (supporting Kaplan) and decreases in blood pressure observed among participants exposed to the natural environments.

### I C4 – Self-Esteem/Depression

In a recent study supported by MIND (2007), participants (N=20) were exposed to walks (of equal length) in either woodland or urban settings. Pre- and post- measures of self-esteem and mood were taken using the Rosenberg self-esteem scale and the profile of mood state questionnaire (POMS) (Rosenberg 1989, McNair et al., 1984). Statistically, significant improvements in self-esteem and overall mood (depression, anger, tension, confusion, fatigue and vigour), change were evidenced between the experimental conditions with greater improvement observed among participants exposed to walks in woodland settings. This tendency, for measurements of self-esteem to rise following visits to greenspace, was echoed in a report commissioned for the Countryside Recreation Network (Pretty et al., 2005a). In this study, participants (N=263) completed pre/post psychological assessments before/following the completion of ten countryside activities. There was a significant improvement in self-esteem from baseline in nine out of the ten case studies.

In the evaluation of a project offering a structured programme of weekly practical conservation sessions over six months, Reynolds (2002), described strong trends towards improvements in depressive symptoms and a significant reduction in the proportion of participants reporting moderate to severe impairments in anxiety and depression. The findings may not be applicable to the population at large, however, as the evaluation suffered from a small sample and modest (48%) completion rates.

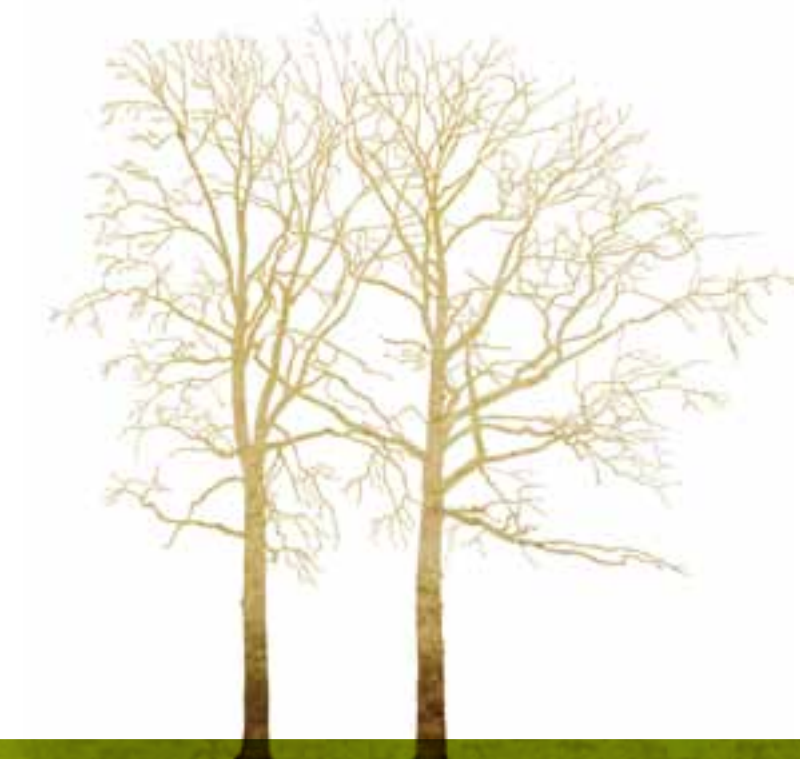
In summary, in spite of a variety of methodological difficulties a considerable amount of empirical evidence is beginning to amass indicating that interaction with greenspace may lead to positive changes on a variety of psychological parameters including stress, concentration, self esteem, depression, aggression and positive affect.

### I D – Social benefits of Greenspace

It has been demonstrated that social relationships provide a buffer to the harmful effects of stress (House et al., 1988). The capacity for mutually satisfying and enduring relationships has been identified as a key aspect of good mental health (WHO, 2004). Berkman et al. (2000) provides evidence demonstrating that increased social contact is positively correlated with lower rates of mortality, risk of developing cardiovascular disease and higher ratings of self-reported health. Jacobson et al. (2001) also notes that reduced social contact can create secondary problems due to decreased activity. Mallor (2002) cites a lack of research on the effect of biophysical environments on social capital (defined as: social structures such as networks, trust and norms which facilitate co-operation and cohesion in communities), but points to anecdotal evidence suggesting there are social capital benefits of environmental groups such as "Friends of Parks".

#### I D1 – Greenspace and socialization within communities

Two qualitative studies examining community garden projects emphasise the importance interacting with greenspace can have in facilitating social cohesion. The first, (Armstong, 2000), which analysed the data of 20 garden programme coordinators, highlighted the role garden programmes played in resolving other community issues, particularly in deprived areas. The second (Milligan, 2004), analysed data obtained in focus groups and semi-structured interviews with elderly gardeners (N=19). The results emphasised the role that interacting with greenspace can have in providing a sense of achievement, satisfaction, aesthetic pleasure and the facilitation of social networks. Similarly, Lewis, (1990, 1992) identified enhanced social belonging and positive attitudes towards neighbours as a result of urban community garden schemes in impoverished areas.



Coley et al. (1997) utilised the same housing development as the studies of Taylor et al. (2002) Kuo et al. (2001) and Kuo and Sullivan (2001). From 97 observations, the link between the locations of trees and the gathering locations of youths and adults were examined. Spaces with trees attracted larger and more mixed groups than their barren counterparts. Using the same development, Kweon et al. (1998), interviewed elderly residents (N=91) about their use of outdoor greenspaces, social ties and sense of community. Although the use of greenspace appeared to predict social ties and participants self-reported sense of community, particular care should be invested in interpreting the results with regards to the direction of causality, particularly considering the aforementioned results of Coley et al. (1997). i.e. It is possible that those with more social contacts will, due to these contacts, make more use of greenspace, and as it has already been established that social gatherings in this particular housing scheme occur primarily in greenspaces, this becomes a likely explanation for the findings. The same criticism can be made of Kuo et al. (1998), who in a further study in the same development, interviewed 145 women who had been randomly assigned to identical apartments. In describing their findings, the authors stated that individuals with greater access to green common spaces engaged in significantly more social activities, received significantly more visitors, were more knowledgeable about, and reported more positive feelings about, their neighbours, and exhibited a greater sense of social belonging.

#### I D2 – Greenspace and Social Skills

In an evaluation of outdoor adventure camps, Hazelworth et al. (1990) measured pre- and post- measures of self-concept in 30 teenage participants using the Tennessee Self-Concept Scale (Fitts and Warren, 1996). Significant positive changes in moral-ethical self-concept, identity and self-satisfaction were obtained. This reflects one aspect consistently reported anecdotally within the literature on wilderness and adventure therapy: individuals behave in specific ways due to their environment and in the absence of their usual environment behavior adapts. Walsh and Golins (1976) attribute this to cognitive dissonance; Nadler and Lucker (1992) to increased levels of trust bestowed upon clients; Kemp (1998) to the modification of coping responses; and Dieser and Voight, (1998) to a shift in the locus of control, toward more stable, internal attributions. A broad range of social skills including leadership, trust, ability to deal with anxiety and fear and team building, which are broadly termed "personal growth" has amassed considerable anecdotal support (Walsh and Golins 1976; Miles, 1993; Schleien et al., 1993; Witman, 1993; Furnass, 1979; Humberstone, 1991; Crisp, 1998; Vogel, 1989; Kaplan, S. and Talbot, J. F., 1983; Kaplan, 1984). This broad range of skills equate to the eudemonic perspectives of well-being depicted by Ryff, (1989); Ryff and Keyes, (1996) i.e. self-acceptance, environmental mastery, autonomy, purpose in life and personal growth.

This anecdotal evidence has been supported by two meta-analyses examining social and interpersonal skills. The first by Hattie et al. (1997), based on over 12,000 participants, found the average pre- to post- intervention effect size on the parameters leadership, self-concept, academic, personality, interpersonal skills, and adventurousness to be 0.34. An additional average effect size of 0.17 was found for assessments administered up to 18 months after the end of the programme. Hattie grouped the results into six broad categories. The smallest programme effect size was for self-concept (0.28) though this transpired to be the largest effect size on follow up (0.23) which may indicate a sleeper effect. Leadership, personality, and interpersonal skills had effect sizes of between 0.32 and 0.38 with follow up effect sizes of between 0.14 and 0.17.

Carson and Gillis (1994) analysed 43 studies on adolescent adventure programmes and found an average effect size of 0.31. Carson and Gillis (1994) did, however, find a very high effect size (1.05) for studies using clinical measurement scales. The studies that use such scales are likely to use outdoor education in the context of a more disciplined and individualised approach. Overall, the effect size for self-concept was 0.34. According to Kaplan and Kaplan, (1989) change in the perception of self is a commonly reported outcome of such adventure programmes. However, the high degree of variance within the findings of both Hattie and Carson and Gillis warn of the importance of the programme content and organisation. Hattie et al. (1997) also described a trend in which larger effects were found in programmes supported by reliable organisations and implemented for a period exceeding twenty days.

### I E – Physical Health Benefits of Greenspace

The Disability Rights Commission Report, Equal Treatment: Closing the Gap (2006) shows that people with mental health problems are far more likely to have major physical health problems. Physical exercise has been proven to be equally effective as medication in the treatment of depression in an elderly population and in treating mild to moderate depression (Blumenthal et al., 1999; Halliwell, 2005). Furthermore, the UK's Chief Medical Officer has stated that physical activity can be as successful as psychotherapy or medication in treating clinical depression (Department of Health, 2004). Exercise has a positive effect on numerous health determinants and lowers the risk of developing numerous chronic diseases (U.S. Department of Health and Human Services, 1996). Not only does it have a preventative function but many chronic diseases have a more favourable prognosis if patients take more exercise (U.S. Department of Health and Human Services, 1996).

Exercise referral schemes which encourage G.P.'s to refer patients to leisure centres or gyms are coming under scrutiny regarding their effectiveness (Riddoch et al., 1998). Hillsdon et al. (1995) in reviewing randomised control trials of physical activity promotion found that interventions that do not require attendance at a facility and encourage walking are most likely to lead to sustainable improvements.

#### I E1 – Cross-sectional studies: Physical Health

On the basis of a cross-sectional study which found high levels of physical activity and reduced levels of obesity in areas with higher levels of greenery, Ellaway et al. (2005) hypothesized that pleasant green areas are likely to encourage physical activity. A recent report for the RSPB, (Bird, 2004) notes that there is indeed a growing body of evidence supporting the use of greenspace in increasing levels of physical activity. Using pedometers, King et al. (2003) demonstrated, with a population of elderly women (N=149), that those living near a park or footpath walked more than those close to a pub, bar, coffee shop, community centre, post office or library. Ashley et al. (1999, p1) conducted a survey of clients from "Health Walks" a community-based exercise programme. From the 476 respondents of primarily elderly, upper class women, "having a chance to be in the countryside", was as one of the top motivating factors in their continued participation.

In one of the first quantitative explorations of the relationship between the amount of greenspace in the environment and perceived health, De Vries (2003) compared land use data with questionnaires reporting self-reported health. Gender, age, number of life events in the previous year, and four indicators of social-economic status were controlled for. Additionally an attempt was made to account for the fact the measures were taken in different years by removing those who had moved within the last year. Analysis of the 10,197 remaining respondents revealed a significant positive relationship between the greenness of the living environment and self-reported health. Although no account was taken of whether, and how much, respondents actually used the greenspace, the study represented the first clear evidence that nearby greenspace was related to public health.

A later study improved on this design by using larger numbers and more precise measures of greenspace. Maas et al. (2006) compared data from the Dutch National Land Cover Classification database (LGN4), and the Second Dutch National survey of GP's (Western et al., 2005). In this large study (N=250,782 participants), the authors investigated the strength of the relationship between the amount of greenspace available to people in their immediate surroundings and general health. It was observed that there was a positive relationship between the proportion of greenspace available in the immediate living environment and perceived general health. This relationship appeared stronger among those who spent more time in the vicinity of their homes, who were of lower social economic status, and who were aged under 25 and over 65. Mitchell and Popham (2007) conducted a similar study to Maas et al. (2006) comparing UK data from the generalised land use database and self-reported measures of health. In general, a greater proportion of greenspace was associated with better health. However, contrary to the findings of Maas et al. (2006) the degree of urban-living and level of deprivation appeared to play a relationship such that a greater level of greenspace was associated with worse health in low income suburban areas. The data used was, however, at area rather than individual level and thus could not account for access to greenspace merely for proximity.

In a further study, Mitchell and Popham (2008) compared greenspace data from the Generalised Land Use database (GLUD, 2001), mortality records from the Office of National Statistics (ONS) and the 2004 English Index of Multiple Deprivation (EMID). Although the study was unable to eliminate migration and access to greenspace as confounding variables, it did control for living environment, population density and degree of urbanity and was adjusted for age, group, sex, deprivation in education, skills and training, deprivation in living environment, population density and urban/rural classification.

Income deprivation related health inequalities in all-cause mortality (N=40,813,236) and mortality from circulatory diseases (N=90,433) were significantly lower among populations in the greenest areas. The associations were, however, very weak or insignificant for deaths from lung cancer (N=25,742) and intentional self-harm (N=12,308). Stress and lack of physical exercise are known to be contributory factors to circulatory diseases whilst both play a comparatively minor role in the prevention of lung cancer and intentional self-harm (Mitchell and Popham, 2008). The study therefore suggests that greenspace may buffer the negative impact of poverty on health and that this effect is likely to be mediated by increased physical activity and/or reduced levels of stress.

In another similar study to that of Maas et al. (2006), Takano et al. (2002) conducted a longitudinal epidemiological study of elderly people (N=3144) living in an urban area in Japan. The results indicated that the probability of survival over a five year period increased with the amount of accessible greenspace available in proximity to place of residence. In a cross-sectional UK study (N=4950), Hillsdon et al. (2006) found no evidence of a clear relationship between self-reported recreational physical activity and three measures of access to greenspace.

### I E2 – Exercising in Greenspace

Following three experiments in which participants perceived outdoor running as less strenuous than indoor running (Harte and Eifert, 1995; Ceci and Hassmen, 1991; Pennebaker and Lightner, 1980), Bodin and Hartig (2003) compared the emotional states of 12 runners in urban and park land environments. Although the results were inconclusive, due primarily to the small numbers, medium sized effects were found for the measures of tranquillity, anxiety and depression, with the park land environment having a more positive effect. Kerr et al. (2006) compared 22 competitive runners and 22 recreational runners running on a treadmill and in a natural environment. There was a similar lack of differences to the Bodin and Hartig (2003) study, with only two significant differences being found across the groups. The first significant difference was that "pride" was higher in the natural environment. In contradiction to the earlier findings "perceived exertion" was also significantly higher in the natural environment. The latter result contradicts earlier findings by Buchanan et al. (2000) who conducted a study comparing adults walking indoors on a treadmill and outdoors (not on a treadmill): participant's percentages of their maximum heart rate and walking speed were significantly higher in the indoor setting while their rate of perceived exertion was similar for both. Similarly, in comparing Green Gym activities with step aerobics, participants were less aware that they were exercising than with step aerobics and were happier to continue longer to finish the task (Reynolds, 1999).

Pretty et al. (2005b) conducted an experiment comparing participants (N=100) running on a treadmill while exposed to scenes projected on to a wall, with an exercise only control. The scenes projected were categorized as rural pleasant, rural unpleasant, urban pleasant and urban unpleasant. Both the urban pleasant category and rural pleasant category had a significantly greater effect on self esteem in comparison to the control group. However "pleasantness" appeared to have a greater effect than "greenness" with the urban pleasant scene having the greatest positive effect and the rural unpleasant the greatest negative effect on self esteem. Reynolds (2002) in evaluating a project offering a weekly structured programme of practical conservation sessions reported a significant improvement in aerobic capacity (associated with a significant decrease in the rate of perceived exertion) over six months.

There is scant evidence of any further health benefits, over and above the exercise itself, of exercising in green rather than urban environments. There is, however, compelling evidence suggesting that greenspace can be used to encourage physical activity and that this will be beneficial to both physical and mental health.

## I F – Limitations

There are common methodological difficulties in this literature. Four of the most common limitations are presented below, together with examples from within this review.

### I F1 – Nature of Control Group

One methodological limitation intrinsic to many experiments is in the deciding of what greenspace should be compared to. In the oft quoted experiments of Ulrich (1984), Diette et al. (2003) and Moore (1981), natural views were compared to comparatively barren environments and therefore it is difficult to attribute the positive effects to greenspace per se. The problem extends to a varying degree in all the experiments comparing greenspace (or representations of greenspace) with urban areas (Hartig, 1991; Hartig et al., 2003; Kaplan and Kaplan, 1989; Parson et al., 1998; Taylor et al., 2001; Tennessen and Cimprich, 1995; Ulrich 1979, 1982, in Rohde and Kendle, 1994; Ulrich et al., 1991) and can be seen most predominantly in the experiment of Pretty et al., (2005b) where urban areas were regarded as more pleasant when they had elements of natural environments (such as water bodies and greenery) incorporated into them. Natural environments were regarded as unpleasant when they had elements more befitting of an urban scene (e.g. dumped cars).

### I F2 – Direction of Relationship

Large scale correlational studies such as that of Iwaski et al. (2001) have suffered from the inability to predict the direction of a relationship. The relationship between physical activity and mental health may result from people with mental health problems engaging in less physical activity due to their illness. Similar limitations exist in the studies of de Vries (2003), Hillsdon et al. (2006), Maas et al. (2006), Grahn and Stigsdotter (2003), Ogunseitan (2005), Ellaway et al. (2005), Guite et al. (2006), Oresga-Smith et al. (2004), Kweon et al. (1998), Kuo et al. (2001), Taylor et al. (2002) and Takano et al. (2002) which have examined the effects of greenspace on living environments. These have, given their correlational nature, been unable to eliminate the "drift hypothesis": the possibility that wealthier people who appreciate the outdoors move to greener areas. Results reported by Maas et al. (2006) do, however, move toward eradicating the drift hypothesis in finding a stronger relation in those of lower social economic status.

### I F 3 – The subjectivity of Self-Reported Measures

Takano (2002), while controlling for socioeconomic and demographic factors, was further impeded by using subjective, self-reported measures. In this case the issue of subjectivity was the amount of greenspace people deemed within walking distance: those able to walk further were likely to be healthier. The study by Taylor et al. (2001) also suffered from a combination of an inability to eliminate the drift hypothesis and the subjectivity of self-reported measures.

Self-reported measures were also an issue in the studies of Kaplan and Kaplan (1989); Kaplan (1993); Oresga-Smith et al. (2004); Armstong (2000); Guite et al. (2006); Diette et al. (2003); Taylor et al. (2002); Milligan (2004); Lewis (1990); Kweon et al. (1998); Walsh and Golins (1976); Miles (1993); Schleien et al. (1993); Witman (1993); Furnass (1979); Humberstone (1991); Crisp (1998); Vogel (1989); Kaplan, S. and Talbot, J. F. (1983); Kaplan (1984); and Reynolds (1999).

### I F4 – Non-validated questionnaires

The majority of studies on outdoor adventure programmes have been limited by the use of non-validated questionnaires and many of the papers reported in the meta-analysis of Hattie et al. (1997) and Carson and Gillis (1994) used non-validated questionnaires. Moreover, outdoor adventure programmes have also tended to report qualitative evidence which has been gathered without eliminating experimental bias from those with vested interests in outdoor activities (Neill and Richards, 1998). The use of non-validated questionnaires was also a limitation in the studies of Hartig (1991); Ashley et al. (1999); Kaplan and Kaplan (1989); Grahn & Stigsdotter (2003); Diette (2003); Taylor et al. (2001); and Kuo et al. (1998).

## I G – Conclusion

Interventions which use greenspaces to improve psychological functioning have been labelled "ecotherapy" (Burls, 2007; MIND, 2007). There is a notable lack of studies examining the effects of ecotherapy on people who use mental health services.

The findings of Parson et al., (1998), Grahn and Stigsdotter (2003), Ulrich (1991), Lewis (1996), Hartig (1991), and Hartig et al. (2003) demonstrating the role of nature in increasing recovery from stress, suggest the potential importance of such interventions, as stress levels are known to be both a causal and maintaining factor in the majority of mental health problems (Middlebrooks and Audage, 2008).

Furthermore, a large proportion of those using secondary care mental health services have poor concentration levels (sometimes due to medication). If this restoration from stress is mediated by an increase in attention as Kaplan and Kaplan's (1989) "attention restoration theory" postulates and the results of Taylor et al. (2001), Kuo et al. (2001), and Tennessen & Cimprich (1995), suggest, a greenspace-based intervention could yield synergistic benefits to such a population.

Ulrich's (1979) theory and the results of Kaplan (2001), Ulrich (1983), Hartig (1991), and Hartig et al. (2003), suggest that nature reduces stress because it is a non-taxing stimulus which elicits well-being through increasing positive affect. Positive affect is an important hedonic component of wellbeing. Whilst primarily anecdotal, there is also considerable evidence suggesting that interaction with greenspace can impact on many of the eudemonic facets of well-being depicted by Ryff (1989); Ryff and Keyes (1996) from the literature on adventure and wilderness therapy. If this is the case, utilization of greenspace may again be considered particularly relevant to a secondary and tertiary care mental health population as positive emotion is often associated with lower anxiety and depression (Seligman et al., 2006, p777).

Moreover, as this review indicates, such psychological benefits may be accompanied by increased physical and social activity to generate a holistic effect on general health. This again, is of particular importance to clients of secondary and tertiary care mental health services, who typically experience lower levels of physical and social activity than the general population (Disability Rights Commission Report, 2006).

# II Background


# II Background

### II A – Branching Out: An Ecotherapy Group for Secondary and Tertiary Care

Despite methodological limitations, there does appear to be a growing evidence base demonstrating the physical, psychological and, to a lesser extent, social benefits of viewing and interacting with greenspace. These facets of health are particularly relevant to those who use secondary and tertiary care mental health services.

Interventions which the use greenspaces to improve psychological functioning have been described as "ecotherapy" (Burls, 2007; MIND 2007).

Following the findings of the literature review, the recommendations of the MIND (2007) report and the success of programmes such as the "Green Gym", "Stepping Out" and the various MIND projects (Reynolds, 2002; MIND, 2007) the "Branching Out" project was established. The service was developed as a result of a partnership between NHS Greater Glasgow and Clyde, Forestry Commission Scotland, Glasgow Centre for Population Health, Glasgow and Clyde Valley Green Network Partnership and Glasgow City Council.

Branching Out is an innovative service for clients who use mental health services within the Greater Glasgow and Clyde area. For each client, the service consists of approximately three hours of activities per week in an outdoor woodland setting. Clients work together in small groups of six to twelve for a twelve-week period. The course includes elements of bushcraft, nature conservation, environmental art, green exercise and relaxation. On completion of the course, clients receive certificates of achievement (including The John Muir Award if criteria has been met) and a certificate in basic tool handling.

### II B – Staff/Working in Partnership

"Branching Out" was originally devised by Kevin Lafferty (Forestry Commission Scotland) and Lee Knifton (NHS Greater Glasgow and Clyde) during a meeting exploring the possibilities for joint working between the NHS and the Forestry Commission Scotland. A joint proposal for a Branching Out group was constructed and submitted internally to FCS and NHSGGC. The FCS granted approval on the basis that match funding was secured for the project. Following further proposals, funding was gained from Glasgow and Clyde Valley Green Network Partnership, NHS Greater Glasgow and Clyde, Glasgow Centre for Population Health, and Glasgow City Council.

The report, Green Spaces Better Places (Urban Green Spaces Task Force, 2002) evidences the benefits of partnership working in using greenspace as a resource for health. The benefits of partnership working to increase health and well-being are also emphasised in "Delivering for mental health" (Scottish Executive, 2005), whilst Forestry Commission Scotland (FCS) considers working in partnership with other organisations as the best way to unlock the potential of Scotland's woodlands and forests (1, 2).

A multi-disciplinary steering group was formed with representatives from each of the funding bodies. The table overleaf shows the staff involved with the project, their designation and their role within the steering group/project.

| Organisation | Role | Organisation | Role |
|---|---|---|---|
| NHS Greater Glasgow and Clyde Assistant Psychologist Neil Wilson | Design, Promotion, Implementation, Co-facilitation, Evaluation and Write-up of intervention. Also previously conducted Literature review and co-wrote initial funding proposal | Forestry Commission Scotland Ranger: Kirsty Cathrine | Fieldwork Lead<br>Development of Intervention & Awards Ceremonies<br>Promotion |
| Forestry Commission Scotland: Kevin Lafferty / Hugh McNish | Project Managers | Glasgow Centre for Population Health: Russell Jones / Pete Seamen | Advice on research methodology, ethics, capture of qualitative data, supervision of write-up |
| NHS Greater Glasgow and Clyde Forensic Department: Tommy Harrison Jane Mitchell | Consultation on fieldwork/location/design of risk assessments/incident reporting mechanisms/policies & protocols/transport issues/bagpipe playing during awards ceremony | NHS Greater Glasgow and Clyde Research & Evaluation Team Public Health Resource unit: Susan Fleming | Advice on research methodology, ethics, capture and analysis of qualitative data |
| Glasgow and Clyde Valley Green Network Partnership: Max Hislop | Advice on research methodology | NHS Clinicians: Gwen Kavanagh, Nuala Davis, Ann O'Brien, Elaine Tarvis | Consultation on fieldwork/design of risk assessments/policies & protocols/transport issues/supervision/incident reporting mechanisms |
| Glasgow City Council: Paul Cookson | Site specific risk assessments/consultation on initial programme/activities | Key Facilitating Clinicians<br>Tommy Harrison, Nuala Davis, Ann O'Brien, Steph Muir, John.Maguire, Amy West, William McGrath, Dorothy Sharkey, Eddie Cassidy, Alison Milligan, David Campbell | |

## Programme Quality

During the course of the programme various instructors were hired to increase the range of the activities available. These included, a bushcraft expert, a willow weaver, a tia chi instructor, an environmental artist & wood producer, and local woodwork project workers.

# III Clients

# III Clients

## III A – Client groups

The table below shows the services that referred patients to the Branching Out programme along with the criteria under which clients access each service.

| | Title of Service | Service Description |
|---|---|---|
| 1 | The Esteem South Service | For clients between 16-35 years who are presenting for the first time with an untreated episode of psychosis. Clients must reside within south Glasgow. |
| 1 | Directorate of Forensic Mental Health & Learning Disabilities: Leverndale Low Secure Unit Group A | Patients recovering with long and enduring mental health problems in low secure rehabilitative care |
| 1 | Directorate of Forensic Mental Health & Learning Disabilities: Leverndale Low Secure Unit Group B | Patients recovering with long and enduring mental health problems in low secure rehabilitative care |
| 1 | Recreational Therapy Leverndale Hospital | 18 years – 65 years of age with a moderate to severe mental health issue. |
| 2 | Glasgow North ESF Training | Clients of working age who have experienced – or are recovering from mental health problems |
| 2 | Glasgow South Integrated Training | Clients of working age who have experienced – or are recovering from mental health problems |
| 2 | Directorate of Forensic Mental Health & Learning Disabilities: Leverndale Low Secure Unit Group C | Patients recovering with long and enduring mental health problems in low secure rehabilitative care |
| 3 | Glasgow North ESF Training / Glasgow South Integrated training | Clients of working age who have experienced – or are recovering from mental health problems |
| 3 | The Arran Centre Community Mental Health Team Glasgow East Community Health and Care Partnership: | 18 years – 65 years of age with a moderate to severe mental health issue. (Group were largely clients with chronic psychotic disorders) |
| 3 | The Anvil Centre Community Mental Health Team Glasgow East Community Health and Care Partnership | 18 years – 65 years of age with a moderate to severe mental health issue. (Group were largely clients with chronic depression) |
| 4 | Stobhill Hospital: Local Forensic Psychiatric Unit Medium Secure Unit | Patients recovering from long and enduring mental health problems in medium secure rehabilitative care |
| 4 | The Auchinlea Centre Community Mental Health Team Glasgow East Community Health and Care Partnership Discharge and Resettlement team, Parkhead hospital, Community Mental Health Team, Glasgow East Community Health and Care Partnership | CMHT: 18-65 with a moderate to severe mental health issue DART: inpatients from Parkhead/Stobhill Hospital who are homeless or potentially homeless. Patients who have been recently rehomed and continue to be supported by DART. Patients will have an RMO and have a mental health diagnosis |
| 4 | East Renfrewshire Community Health and Care Partnership: Community Mental Health Team | 18-65 with a moderate to severe mental health issue |

### III B – Supervision

One or more members of staff from the referring service were required to accompany each group of clients. This enabled high staff to client ratio and provided a feedback mechanism for incident reporting (See Appendix J). The addition of a member of staff from the referring service also ensured that there was an on-site health professional familiar with the particular needs of the client group. Additionally, in many instances, this provided clients with a staff member with whom they were acquainted. Furthermore many of the facilitating staff provided an organisational role with regards to travel, provision of lunch, reminding clients of arrangements, etc. The clinicians were further able to provide encouragement and reassurance and their involvement as learners in activities was thought to help break down the power divide and aid in the development of a therapeutic alliance. The groups involving forensic patients had higher staff ratios, lower overall numbers (N=6) and were on site for no longer than two hours forty five minutes. The ratios were in accordance with the recommendations from each of the referring services.

### III C – Inclusion/exclusion criteria

The table below details the inclusion/exclusion criteria under which clients were referred to the Branching Out programme.

#### Inclusion Criteria

1. Referred from Mental Health Service within the NHS Greater Glasgow and Clyde Area

2. Completed referral form detailing relevant medical history

3. Diagnosis (mental health diagnosis)

4. Current medication. If medication affects relevant issues such as BP or hand to eye coordination, this should be detailed on the referral form.

5. Blood pressure BP under 160/90mmHg. If BP is high but stable due to medication, referrals will be accepted with the G.P. or RMO giving details of the medication, expected BP and an acceptable range.

6. Heart Disease. For those with heart disease an accompanying note from the G.P. detailing that they are fit to exercise will also be required.

7. Other Health Issues. Any health issues which may affect ability to take part.

8. Completed Glasgow Risk Screen if appropriate. Low Risk (higher staff ratios must be provided for medium risk patients)

#### Exclusion Criteria

1. No self referrals

2. Physical Health
   Presence of unstable heart disease.

   Please do not refer to Branching Out if BP is consistently > 160/90mmHg and is not being monitored/treated OR if BP > 180/110mmHg

   Admissions may be made under both of these categories with an accompanying letter from the G.P./RMO detailing reason for high BP and assuring the individual is physically fit for exercise

3. Mental Health – Deemed risk to others/self. If there is a history of violence and/or self-harm this must be detailed on the referral form and reasons why they are deemed safe and appropriate for the intervention included.

4. Provision of one to one care not met.
   Please note that patients must have the mental and physical ability to be able to participate in group-based activity programmes. Patients with additional support needs must be accompanied by a carer (professional/voluntary). Branching Out is unable to give one to one tuition.

5. Current untreated/unstable problem with Drug/Alcohol Misuse

# Fieldwork IV

# IV Fieldwork

### IV A – Location & Duration

Based on the previous success of the British Trust of Conservation Volunteers (BTCV) Green Gym© (Reynolds, 1999; 2002) and the depiction of outdoor experiential therapies invoked by Ewert et al. (2001), it was decided that the intervention should be a weekly event consisting of around three hours of activity. Consideration was also given to the period of time likely to facilitate a change in mental and physical health without encouraging dependency on the programme. Discussions with clinicians led the number of sessions in the programme to be set at twelve weeks.

With the duration of the intervention set at three hours a week, it was considered that the maximum travel time acceptable would be an hour. The Woodland Officer for Glasgow City Council facilitated a field trip for steering group members, clinicians and prospective service users to five prospective sites in the south of Glasgow. These were: Pollok Park, Castlemilk, Lynn Park, Cathkin Braes, and Carmunnock. From the collective response, two adjacent sites were decided upon: Cathkin Braes and Carmunnock. (See Appendix A for a more detailed breakdown of the rationale behind the location and duration of the project.)

### IV B – Content of programme

"Ecotherapy" has been defined in the literature as interventions in which the use of greenspace have been central (Burls, 2006, p. 26), and has covered a vast array of activities from horticulture to walking in green areas (MIND, 2007). This is evidenced in the study of Pretty et al. (2005a) which covered a host of very different nature-based activities. With the input of the project steering group, Castlemilk Environmental Trust, and the Glasgow City Council's Woodland Unit, a list of activities was constructed, which could be conducted within the allocated three hour time frame and implemented on the pre-ascribed sites. (The criteria for the activities can be found in Appendix B, page 116.) Following the initial sessions, new activities were organised and added to the programme by The Forestry Commission Ranger with the permission of the Glasgow City Council's Woodlands Unit. The activities have been arbitrarily divided into seven categories which are listed below:

#### IV B1 – Conservation

The different natural configurations of the two sites facilitated a diverse range of activities within the programme. At Cathkin Braes, large amounts of non-native and invasive specieswere removed including large areas of rhododendron and broom. Other tasks included removing unwanted tree seedlings and transplanting oak. The presence of a willow coppice site in Carmunnock offered not only the opportunity to engage in conservation activities through the planting and harvesting of willow, but also the opportunity to construct platters, baskets, wreaths, chairs, fences/artwork and a shelter through the manipulation of the material. The presence of a young and overgrown orchard in Carmunnock enabled clients to restore and re-establish the site by removing invasive willowherb, pruning, and mulching the area.

#### IV B2 – Outdoor Leisure/Education

Map reading, orienteering, constructing shelters, fire building, outdoors cooking and knot work are skills common to the vast majority of outdoor activities. The inclusion of these activities in the programme therefore was thought to empower people to use natural areas for recreation.

#### IV B3 – Construction using natural materials

The construction of semi-permanent shelters, a willow fence and sculptures offered clients the opportunity to construct something longer lasting and it was felt this had the potential to instil a sense of achievement. Additionally, the construction of the semi-permanent structures provided protection from adverse weather conditions. The construction of bird boxes and willow platters also offered clients something they could take home, which potentially could reinforce clients' sense of achievement by providing mementos of programme experience. The construction of bird-boxes had the further conservational benefit of enhancing biodiversity in local woodlands.

#### IV B4 – Physical Activity

A health walk was intrinsic to the intervention as clients and equipment had to reach the site by foot. The transportation of equipment helped in addressing the balance of fitness levels as it was thought (and transpired) that those who were fitter would carry the majority of the heavier tools. The construction and conservation activities offered a further self-regulating mechanism in addressing the balance of physical fitness: clients could pace themselves depending on their fitness levels. In addition to these activities, the programme offered tai chi on four of the sessions.

### IV B5 – Natural Art Work

Natural art work included activities such as photography, wreath making, nature postcards, painting bird boxes, tree wrapping, work in clay and the aforementioned construction of a willow sculpture. While the latter activity provided an artwork to the local community, the other art activities provided something tangible the clients themselves could take home or hang up in the clinical space of the service they were engaged with. Samples of the artwork produced during the programme were displayed in The National Museum of Rural Life as part of the Scottish Mental Health Art and Film Festival 2008.

### IV B6 – Social Activities

At the mid-point of every session a lunch break orientated round a fire (or in the shelter if wet) provided a natural transition between activities. This offered the chance to socialise, relax and take in the surroundings, or provide respite in the event of unpleasant conditions.

### IV B7 – Contingency Plans

Although the provision of waterproofs made it possible to continue the project regardless of rain or snow, high winds were deemed to be problematic (e.g. high winds causing branches to fall). A visit to the National Museum of Rural Life situated within a mile of the site made for a suitable contingency plan. The museum provided education on the changing use of agriculture and contained a 1950's style working farm and dairy herd. A second contingency plan involved taking a trip to the Bullwood Project (a local woodwork and natural art project open to all members of the community). A third contingency plan involved a trip to a hardwood saw mill which demonstrated all aspects of timber production from start to finish.

## IV C – Programme construction

Once the activities were agreed upon they were arranged in order of best fit: Some of the activities were appropriate for the start of the programme (shelter building, campfire building). Some were season specific (planting in November). Some were sequential (willow cutting before weaving, etc) and others were more appropriate for concluding the programme (willow games/wreath making). An example of a programme can be viewed as part of the method statement brief in Appendix H.

## IV D – Recognition of achievements

In order to provide tangible recognition of the accomplishment of completing the programme, clients received a certificate of completion along with a further certificate demonstrating their training in the use of basic hand tools. Many of the clients in secondary and tertiary care rarely get the opportunity to complete academic courses and qualifications. Therefore a great potential existed to increase well-being through the recognition and celebration of success. From the second block onwards clients also worked towards attainment of the "John Muir Discovery Award", an internationally recognised certificate of achievement. The programme met the criteria stipulated: to discover a wild place, explore it, do something to conserve it and share those experiences with others. The programme also exceeded the amount of hours of work required to achieve it.

## IV E – Awards Ceremony

It was further decided that that the certificates should be presented as part of a graduation ceremony after the completion of the course. The importance of ritual in adding vitality and reality to events has long been documented (Cressman, 1930). The ceremony further provided clients with a chance to meet fellow attendees, share experiences as well as display and appreciate the art work of different groups.

Additionally, as the clients were to sample a number of different facets of outdoor/conservation activities, it was decided that links would be made to volunteering projects in the local area which could offer longer-term opportunities for clients. This was done in order to provide easier access to these projects and "maintain momentum" should clients wish to progress onto further voluntary projects. In order to facilitate such a transition, a presentation was included as part of the awards ceremony, detailing the related projects within the area. Where possible, members of staff from local projects were invited along to give a talk on the nature of the volunteering opportunities within their organisation.

# V Administration

# V Administration

The overall cost of £50 per head per session represents excellent value for money. This cost incorporates all aspects of the service, including transport to and from the site, provision of waterproofs and wellington boots, staff costs for the Rangers and sessional workers right down to the tea and coffee supplies. This costing also incorporates all the non contact time that the Rangers have between each block and would allow up to 144 patients to access the service over the course of 12 months.

### V A – Arrangements

Pieris & Craik (2004) in line with previous findings (Nagle et al. 2002), found that for those with severe mental health problems, factors hindering inclusion in leisure activities included transportation difficulties, and lack of finances, whilst factors enabling leisure participation included a sufficient network of people with whom to socialise and facilitate engagement. Pretty (2005a) echo this in stating that groups of people who are not independently mobile (e.g. disabled people) may have difficulty in accessing greenspace. The Countryside Recreation Network (2006) identified low participation rates in countryside recreation amongst disabled people.

#### V A1 – Social

As each set day of the project was used by a specific service it was assumed that many of the clients would be familiar with one another. Henceforth, the project was considered to provide a sufficient network of peers to support engagement.

#### V A2 – Financial

A list of what each client would need in order to partake in the activities was drawn up. While the service wished to, as far as possible, promote independence and impart responsibility to clients, clinicians identified that many clients would be ill equipped to spend several hours outdoors in all weathers. Wellington boots, waterproof jackets, waterproof trousers and gardening gloves, were all considered necessary items and purchased for use by all clients.

#### V A3 – Travel

For some, travelling to the sites would involve using three buses. While wishing to promote client independence, it was decided that the provision of transport would promote better attendance and engagement while reducing any financial strain on the clients. A mini-bus was therefore hired to transport clients to and from the sites each day. By staying on-site during the intervention when possible, the mini-bus also provided transport in an emergency. Generally the bus departed from, and returned to, the clinical space occupied by the client's regular service provider.

### V B – Equipment

Upon deciding the activities within the programme, loppers, secatures, bowsaws, spades, lawn shears, rope, hammers, nails, and wheel barrows were all purchased. Additionally, tarps/parachute with which to erect a shelter, tupperware containers for tea, coffee and sugar, storm kettles and flasks were all purchased. Risk assessments were completed for all activities by the Forestry Commission Scotland Ranger (Appendix C) and referred to the NHS Greater Glasgow and Clyde Health and Safety Team for consultation and approval.

### V C – Tool Count

After consultation with staff from the "Acorn" project at Leverndale Hospital, a tool counting procedure was drawn up (Appendix D) whereby all tools were signed in and out by the clients if deemed necessary. Otherwise, tools were counted in and out after each activity. Protocols for missing tools were agreed with each referring service as part of the service protocols (Appendix L, page 64).

### V D – First Aid

The first aid requirements were informed by information obtained from the operational guidance folders from NHS Greater Glasgow and Clyde and the operational guidance booklet "Accidents: Investigating & Reporting" from the Forestry Commission. When completed these were sent to the NHS Greater Glasgow and Clyde Health & Safety Team for approval (see Appendix E). The Forestry Commission Scotland Ranger was the designated first aider and was present on site at all times to deal with any medical incidents. The research assistant was trained in emergency first aid procedures (it is also likely that most of the clinicians had basic first aid training). A first aid box was purchased and the contents monitored weekly by the Ranger.

It was the Ranger's responsibility to take charge of the situation when the need for first aid arose. As such, they were able to call the emergency services, locate the first aid materials, and record their actions. Although there is not a statutory list of required first aid materials, those used and listed in Appendix E correspond to the first aid materials recommended by the Health and Safety Executive. They were stored in a mobile dedicated first aid box which was easily identifiable and accessible. The contents were maintained with due regard to expiry dates by the designated first aider. See Appendix E for first aid requirements/recording and risk assessment pertaining to the contents of the mobile first aid box.

### V E – Emergency Procedures

The nearest hospital was ascertained using a Multimap search. The address and phone number of the hospital, along with grid references of the nearest point at which an ambulance could access, was detailed on a laminated sheet contained within the first aid box. The first aid box further contained an acetated step by step breakdown of what to do in a medical emergency along with emergency contacts for the service. Further copies of the emergency procedures were distributed to the clinicians in the reference folders for each service. (The emergency contact details and procedures are contained in Appendix F.)

### V F – Site Specific Risk Assessments/Activity Risk Assessments

Site specific risk assessments were conducted by a member of the Woodland Unit within Glasgow City Council, detailing the potential hazards of each of the designated sites (see Appendix C). These risk assessments were then referred to the NHS greater Glasgow and Clyde Health & Safety Department for consultation and approval. Risk Assessments for each activity were written by the Forestry Commission Scotland ranger and forwarded to the NHS Greater Glasgow and Clyde Health and Safety Team for consultation.

### V G – Method Statement

A method statement was drawn up for each referring service detailing the bus times, a breakdown of the content of each week, the location on that particular week, what tools were to be used, and what the contingency plans were for each week. Following the first and second blocks, a brief of the method statement was used to make the information more manageable for clinicians. (An example of one day's outline is contained in Appendix H.)

### V H – Incident reporting

A system was devised in order to monitor all incidents that occurred during the project. In the event of an accident/ incident occurring, the facilitating staff from the referring service were required to complete an IR1 form and follow their current incident reporting procedures. In order to let NHS Greater Glasgow and Clyde Health & Safety Team track the incidents, it was agreed that while the site reference remained the same, a code denoting the project was entered in the box denoting site type. This code enabled the NHS Greater Glasgow and Clyde Health & Safety Team to monitor all incidents that occurred during the course of the project. A photocopy of this form was also sent to the assistant psychologist.

Similarly, the Forestry Commission Scotland Ranger completed an accident report from the report book held on site. The completed accident record was then to be detached from the book and kept securely before following the operational guidance from the Forestry Commission Scotland. A photocopy of the accident report was to be forwarded to the assistant psychologist. With both the IR1 forms and accident reports being forwarded to the assistant psychologist, a member of the project team was able to formally monitor the occurrence of incidents/accidents. These photocopies were kept in a secure fire proof container and reviewed every two weeks to monitor any repetitive patterns of low level incidents. Any change to the procedure resulting from the repetitive occurrence of an incident was reported separately to each of the referring services by way of a procedure change form (see Appendix I). A flow chart of the incident reporting procedure was produced with contact details for RIDDOR (in the event of a serious occurrence). Post incident procedures (including de-brief and post incident review) were also produced (see Appendix J). This flow chart for the reporting of incidents (page 61) was produced and sent to the referring service manager for approval. Following approval of this document from the service managers the flow chart was included in the reference folders given to each service. A joint agreement was then produced (Appendix K) between the Head of Service and the project manager.

### V I – Policies and Protocols

Polices and protocols were produced for each service in conjunction with the facilitating staff from each department and in line with the current health and safety procedures designated by each service. The protocols can be found in Appendix L and detail the policies and protocols with reference to:

- Smoking
- Toilet use
- Verbal aggression
- Physical aggression
- Injury
- Absconding
- Illicit substances
- Physical illness/mental state deterioration

### V J – Inclusion/Exclusion Criteria

The inclusion/exclusion criteria was produced with input from clinicians, the central Scotland health advisor from Forestry Commission Scotland (project manager), the NHS Greater Glasgow and Clyde Health & Safety Team, and following guidance from the NHS Greater Glasgow and Clyde clinical risk department and the Live Active exercise referral scheme. In order to ascertain whether a potential client was fit to exercise, the guidelines used for low risk referrals in the Live Active exercise referral scheme were used. These guidelines followed the SIGN guidelines (160/90mmHg) for blood pressure and thus a recent measure of blood pressure was required. Thus the research assistant was trained to take blood pressures and a sphygomamometer was purchased in order to do this. Following consultation with the NHS Greater Glasgow and Clyde clinical risk department the Glasgow Risk Screen was used to provide an indicator of the potential sources of risk (violence/suicide/self harm/neglect/addiction) where deemed appropriate.

### V K – Referral forms

The referral forms were constructed from those used for the Live Active exercise referral scheme in Glasgow, those used by the south east Community Mental Health Team, and the Esteem South early intervention service. A copy of the Glasgow risk accompanied referral forms where appropriate. The referral forms can be seen in Appendix M.

### V L – Reference folders

Each service was given a reference folder containing:

- The method statement
- Activity risk assessments
- Site specific risk assessments
- Emergency contact details
- Emergency procedures, the protocols for that particular service
- Directions from the service to each location and a map detailing the quickest routes
- Information on biological risks (plants and animals: Appendix N)
- A flow chart detailing incident reporting procedures

# VI Evaluation Method

# VI Evaluation Method

## VI A – Quantitative: Primary Outcome Measures

Despite methodological limitations, there does appear to be a growing evidence base demonstrating that viewing, and interacting with nature can facilitate improvements in general health as a result of positive changes in physical, psychological and, to a lesser extent, social functioning. The review also presents compelling evidence suggesting that interacting with greenspace may increase well-being by addressing both hedonic (affect, life satisfaction) and eudemonic (self-acceptance, environmental mastery, autonomy, purpose in life and personal growth) factors. Furthermore, there is evidence which suggests that greenspace appears to encourage physical activity, reduce stress and increase attentional capacity. From the parameters in which previous benefits had been evidenced, it was decided that the primary outcomes would be:

- General Health
- Physical Activity
- Well-being

It was decided that the remaining parameters: stress and attentional capacity would not be included as outcome measures. The rationale behind the exclusion of these two parameters as primary outcome variables can be seen in Appendix O, page 80.

With the service able to engage up to 144 clients, the evaluation team decided to adopt a quantitative approach to the measurement of the primary outcome measures. Thus pre- and post- measures of each outcome parameter were obtained using questionnaires administered before and after the programme. Follow-up measurements were considered in order to assess any longer-term change. However, as the project was only initially funded for six months, there was no expectation that this would be possible and consent for follow-up was not built into the consent forms. One stipulation of measurement in a severe and enduring population is in making the method of collection appropriate for those with lower levels of concentration. Consequently, brief questionnaires were used to measure each of the primary outcome variables.

### VI A1 – Short Form 12 Version 2 Health Survey (SF-12v2™)

Following identification of the primary outcome measures and the decision to measure them quantitatively, an appropriate tool to measure general health was selected. After considering several questionnaires, the evaluation team settled on the SF-12v2™ (Ware et al. 2007). Adapted from the most widely used health survey in the world (The SF-36®), the SF-2v2™ is a standardised instrument providing a generic measure of health.

The scale was considered an appropriate generic measure of health which encompassed the psychological, social and physical parameters of health under investigation. The SF-12v2™ also offers an eight scale health profile consisting of:

- Social Functioning
- Vitality
- Role Physical
- Role Emotional
- Mental Health
- General Health
- Physical Functioning
- Body Pain

The SF-12v2™ further offers mental component (MCS) and physical component (PCS) summary scales. Whilst fulfilling the requirements of brevity in consisting of twelve questions, the SF-12v2™ achieves good measures of reliability and validity through it's reliance on norm based scoring. The SF-12v2™ has up-to-date general U.S. population norms on which to base scoring. In this instance US derived norm based scoring has been used rather than UK specific scoring. This enables the form to be scored using the normative results from a larger population. The UK was one of nine countries in which high correlations were obtained (MCS = 0.94-0.96 & PCS = 0.94-0.97) between large general population samples and the US based scores, indicating the likelihood of near identical results.

| * | Reliability Coefficients | RV coefficients |
|---|---|---|
| PCS | 0.89 | 0.43 to 0.78 |
| MCS | 0.86 | 0.93 to 0.98 |

### VI A2 – Warwick Edinburgh Mental Well-being Scale (WEMWBS)

The indicators programme (Parkinson, 2007) reported a lack of a suitable UK validated scale for the assessment of mental well-being and developed the WEMWBS in order to address this gap (Tennant et al. 2007). Other than the lack of another validated scale measuring mental well-being, the scale was chosen for several reasons.

It was considered desirable to use a scale which measured mental well-being along both hedonic (affect, life satisfaction) and eudemonic (self-acceptance, environmental mastery, autonomy, purpose in life and personal growth) parameters. By considering positive mental health as comprising of subjective well-being and psychological well-being the designers of the WEMWBS fulfil this criteria. The parameters equate to the six elements from Ryff's psychological well-being (Ryff, 1989; Ryff and Keyes, 1996) covering both hedonic and eudemonic perspectives.

One additional advantage of the WEMWBS was that it was designed to be short enough to be used in population level surveys, and with fourteen questions, the brevity was suited to a severe and enduring population who typically experience low levels of concentration. The WEMWBS was validated in two national Scottish surveys, and from the data gathered therein analysis indicates that the WEMWBS is a psychometrically sound scale to measure the positive mental health of adults at the population level in the UK (Tennant et al., 2007). Moreover, the data from these surveys produced normative results for the population, providing a comparative measure for the evaluation results.

Although, at the time of writing, no attempt had been made to establish how sensitive the WEMWBS is to change, lack of other suitable instruments made it the instrument of choice for assessing mental well-being.

### VI A3 – Scottish Physical Activity Questionnaire (SPAQ)

It was decided to use a questionnaire to measure physical activity as this was regarded as less invasive and easier to administer than more objective measures of physical activity such as pedometers. The Scottish Physical Activity Questionnaire measures overall physical activity in minutes per week. This has been done by using the leisure component of the interview-led, Stanford seven day recall questionnaire, which has been restructured to account for current physical activity recommendations. The questionnaire also includes additional sections on leisure time and occupational physical activity in order to calculate total weekly physical activity.

The reliability and validity of the questionnaire was recently assessed and was shown to be reliable and hold strong concurrent validity and limited criterion validity (Lowther et al., 2008).

## VI B – Qualitative

In addition to a quantitative component, the evaluation team also decided to include a qualitative element. There were several reasons behind the decision:

- To discover if the quantitative data measuring the primary outcome measures were supported by comparable qualitative evidence.
- To discover what elements of the programme appeared to be facilitating change (in either direction) in any of the primary outcome variables.
- To discover if there were any perceived changes from clients and staff to any other variables other than the primary outcomes.
- To discover what aspects of the service appeared to be working and what aspects appeared not to be functioning so well.

The qualitative method comprised of three elements listed in the table below:

| Method | Source |
|---|---|
| Semi-structured interviews | Clients |
| Observational journals | Project Staff (Ranger/Assistant psychologist) |
| Focus groups | All facilitating staff (NHS Staff/Project Staff) |

### VI B1 – Semi-structured Interviews

In each block, during one of the sessions between the 7th and 12th weeks, semi-structured interviews were conducted on site with a sub-set of the clients (N=29). A maximum of three interviews were conducted per group with those interviewed being randomly selected from clients who had consented to take part in this aspect of the evaluation. Interview participation was voluntary and there were occasions where less than three clients wished to take part in an interview.

The interview lasted approximately 20 minutes. In order to remove potential sources of interviewer bias, interviews were conducted by researchers previously unknown to service users. The interviews were conducted by either a member of the "Public Health Resource Unit, NHS Greater Glasgow and Clyde" or researchers from "The Glasgow Centre for Population Health". The interviews were recorded on a portable tape recorder and later transcribed verbatim.

All clients were informed that their participation was entirely voluntary and they were free to discontinue the interview at any given point without providing an explanation. The client's were further assured that they did not have to answer a question if they did not wish to do so and confidentiality was assured with the caveat that quotes from the interview may appear in a public journal or in the evaluation report, with anonymity retained. Any personal information or information relating to others would not be included. The clients were then given an information sheet and consent form to complete (Appendix P).

The interview schedule was constructed and the interview conducted, following guidance outlined in chapter 2 of Rethinking Methods in Psychology (Smith et al., 1995, p.p 9-25) The main points of guidance used in the construction of the interview schedule and in the conducting of the interview itself are contained in table 1 and table 2 respectively in Appendix Q. The interview schedule is listed below.

### Interview Schedule

1. What made you decide you would like to take part in the programme?

2. What did you hope to gain from the programme?

3. What do you think about the activities you have taken part in up until now?

4. What activities have you liked the most?

5. What activities have you liked the least?

6. If possible, would you like to continue with any of the activities after the programme has ended? *Prompt: If yes, which activities?*

7. Have you gained what you expected from the programme? *Prompts: mentally, physically, socially?*

8. Has attending the programme affected your day to day life in any way? *Prompt: If yes, in what ways mentally, physically, socially?*

9. Is there anything you think could be done to improve the service?

10. Have you any other comments you would like to make about the programme and how it has affected you?

### VI B2 – Observational Journals

Throughout the project both the Ranger and assistant psychologist kept an electronic diary tracking the logistical problems they encountered, changes made to the fieldwork, a record of the weather conditions and observations of client's behaviour and interactions. Care was taken to make sure that clients could not be identified from diary entries. In cases where a client was referred to directly, a pseudonym was used: e.g. "*X seemed to have trouble understanding the map*".

### VI B3 – Focus Group

Following completion of the programme two focus groups were held with clinicians/facilitating staff (Focus group 1: N=5 and Focus group 2: N=3). Again, in an effort to remove potential sources of interviewer bias the focus groups were chaired by a researcher from either the "Public Health Resource Unit, NHS Greater Glasgow and Clyde" or a researcher from "The Glasgow Centre for Population Health".

The questions addressed in the focus group were arrived at using the same process outlined in the construction of the interview schedule (See table 1 Appendix Q). In addition to the guidance on conducting an interview (table 2 Appendix Q) further information specific to conducting a focus group was given to the host. Specific guidance was given with regard to ensuring all respondents had an equal opportunity to respond to the questions and points raised during the discussion. All attending staff ensured client confidentiality by never referring to a client by name. The focus groups were recorded on a mini-disk player and transcribed verbatim before being thematically analysed by a researcher from the Public Health Resource Unit; NHS Greater Glasgow and Clyde. The Focus group schedule is given below:

### Focus group questions

1. What feedback have you received from clients in relation to the Branching Out service?

2. Are you aware of any changes (either positive or negative) to clients as a result of attending the Branching Out service? *Prompt: These may be e.g. physically, psychologically, socially?*

3. Has the Branching Out project impacted in any way on normal service provision? *Prompt: (e.g. staffing, overtime, patient care, other available activities etc).*

4. What do you believe to be the main barriers to attending the Branching Out service? Prompt: How do you think these barriers could be overcome?

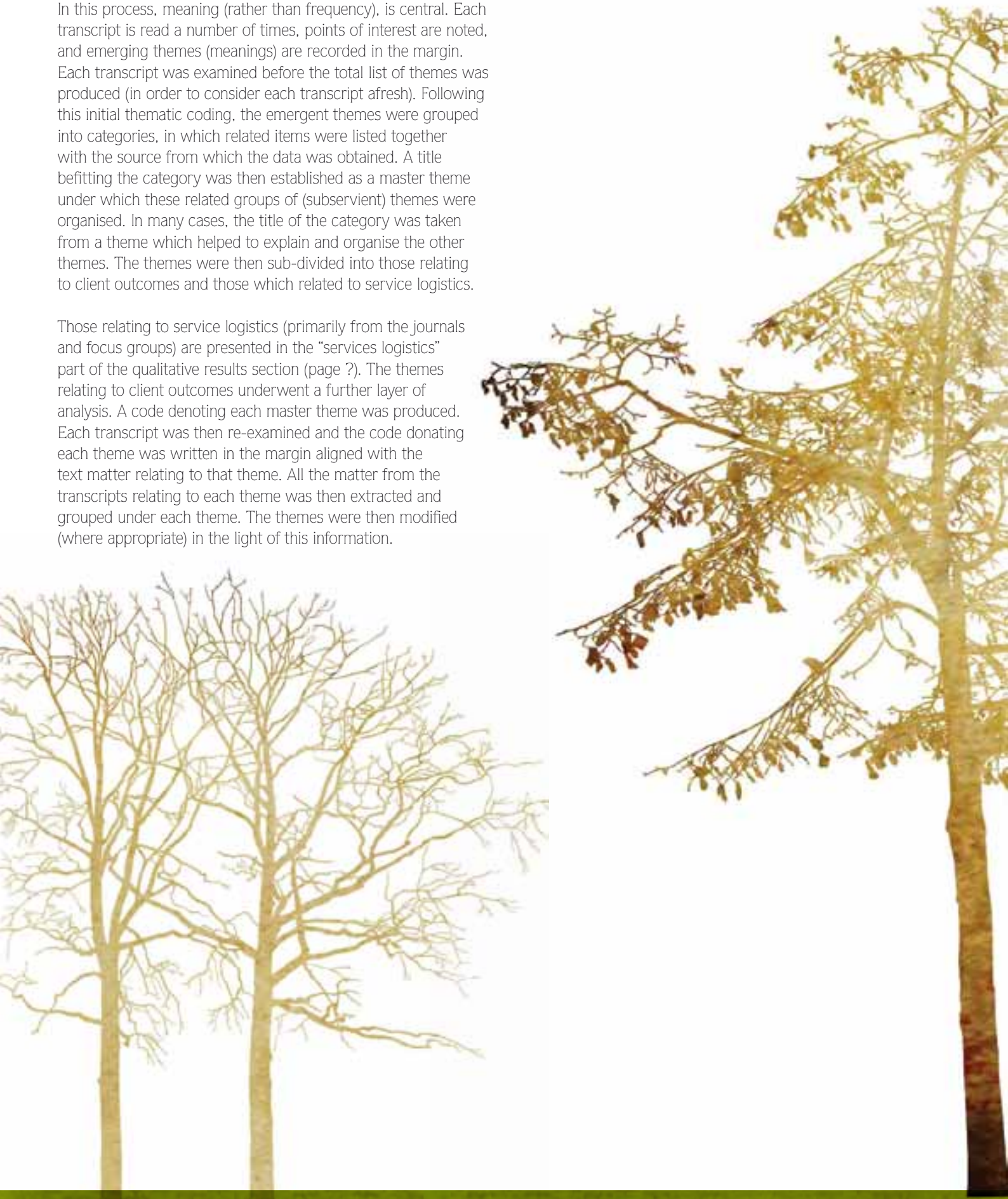
5. Are there any other comments you would like to make about the Branching Out service?

### VI B4 – Qualitative Analysis

Data from client interviews, observational journals and staff focus groups were all analysed thematically by a member of NHS Greater Glasgow and Clyde Research and Evaluation, Public Health Resource Unit. The process used herein takes considerable direction from the depiction of "interpretive phenomenological analysis" described by Smith et al. (2005, p.p. 19-26).

In this process, meaning (rather than frequency), is central. Each transcript is read a number of times, points of interest are noted, and emerging themes (meanings) are recorded in the margin. Each transcript was examined before the total list of themes was produced (in order to consider each transcript afresh). Following this initial thematic coding, the emergent themes were grouped into categories, in which related items were listed together with the source from which the data was obtained. A title befitting the category was then established as a master theme under which these related groups of (subservient) themes were organised. In many cases, the title of the category was taken from a theme which helped to explain and organise the other themes. The themes were then sub-divided into those relating to client outcomes and those which related to service logistics.

Those relating to service logistics (primarily from the journals and focus groups) are presented in the "services logistics" part of the qualitative results section (page ?). The themes relating to client outcomes underwent a further layer of analysis. A code denoting each master theme was produced. Each transcript was then re-examined and the code donating each theme was written in the margin aligned with the text matter relating to that theme. All the matter from the transcripts relating to each theme was then extracted and grouped under each theme. The themes were then modified (where appropriate) in the light of this information.



# VII Procedure

# VII Procedure

### VII A – Initial Engagement with Potential Referrers

Short information sessions were arranged with the potential referring services whereupon the assistant psychologist gave a short presentation detailing the logistics of the programme. If a service then chose to participate in Branching Out, health care professionals were given the inclusion criteria, referral forms and information leaflets to disperse to appropriate clients who they felt would benefit from the programme.

Thus, potential clients were informed about the programme through distribution of an information leaflet via their regular service provider. Potential clients who were interested in the project could at this point phone the contact number on the leaflet for more information if they wished. If they did so, they were given a brief of the project including the programme location and activities. If they were interested and met the inclusion criteria, then the health professional could refer the client to the project.

### VII B – Completion of Referral Form

Referrals were made by completing the referral form and the Glasgow Risk Screen, where appropriate. (See Appendix M for referral form and the Glasgow Risk Screen and Appendix T for the referral pathway). On completion of the referral form and the Glasgow Risk Screen the referring health professional photocopied the forms and retained a photocopy for their own records before sending the original to the assistant psychologist.

The referral form included a section detailing whether any additional arrangements had to be made for the client, such as the provision of an interpreter or one-to-one support. These provisions were made by the referring body and all forms included the referrer's contact information so representatives of Branching Out could phone to check that this had been done. Branching Out was unable to provide one-to-one assistance.

If the referral form/risk screen did not contain all the required information it was returned to the referring health professional with a letter outlining the information to be completed. If the client did not meet the inclusion criteria the health professional was contacted to check that the information was correct and the information was either amended or a letter returned to the health professional detailing the reasons for exclusion.

### VII C – Baseline appointments

If the referral form was complete and the client considered suitable for the project, they were contacted to attend a further information session. Dates for further information sessions were agreed with the referring services and took place on the referring services' premises. The further information sessions consisted of a more detailed presentation of the service. The information therein included:

- Activities involved
- Evaluation procedures

#### VII C1 – Completion of questionnaires, possible interviews if interested

- Expected benefits of the programme
- Advised clothing (and the availability of clothing to anyone who does not have suitable attire)
- Advised footwear (and the availability of footwear to anyone who does not have suitable boots)
- Waterproofs (and the availability to those who can not provide their own)
- Equipment provided – gloves/waterproofs/tools, etc
- Pick up times/dates of intervention
- Lack of availability of toilet facilities and rules regarding sanitation
- Freedom to discontinue attendance of the service at any point without giving explanation
- Expectations of the participant – bring along a packed lunch, etc
- Ground rules for the project
  – No arranging to meet anyone whilst on the programme
  – No violence, alcohol or drugs

### VII D – Opt-in/Opt-out

Following this presentation, clients read over an information sheet and signed a consent form to opt-in/opt-out of the evaluation study. Voluntary written consent complied with the Nuremberg code: i.e. informed consent detailing assurance about appropriate risk/benefit ratio for the client. (See Appendix P for the information sheet and consent form.)

#### VII D1 – Opt-out

If clients chose to opt out at this point they were debriefed and informed about other services which they might find more useful. An anonymous demographic record (Age, gender, etc) with no personal information was kept of those who chose to opt out.

#### VII D2 – Opt-in

If a client chose to opt-in, their blood pressure was monitored and they were asked to complete a pre-exercise questionnaire at the same meeting. If a client's blood pressure was over 180/90 mmHg and they did not have an accompanying letter from their G.P. or an RMO they were not admitted to the programme until such time as a letter was obtained reassuring they were safe to exercise. If at the baseline appointment any client's behaviour caused concern, "Branching Out" retained the right to exclude them from the programme. In this event, a letter was sent to the referrer detailing the reason for exclusion and stating the rationale for the concern.

Following the completion of the consent form, the blood pressure check, and completion of the pre-exercise questionnaire, clients were asked to fill out the SF-12v2™, WEMWBS, SPAQ and a form on their allergies and what clothing they required. (Boot size, etc.) Baseline appointments took place at the location of the referring services (who were asked to provide a room for an hour). Potential clients were required to make their own way to the information sessions. Travel expenses were not reimbursed (although many clients were likely to have bus passes). For services with no clinical space (Esteem only), baseline appointments were held on an individual basis at the client's abode. Following completion of the baseline questionnaires, clients were reminded of the location, time and date of the minibus pick up on the first week of the programme.

#### VII D3 – Data Protection

All information was kept in a secure password protected computer. Names were required to ensure information matches for subject's pre/post data but was kept separately to the flat file. The data within the flat file assigned clients by numbers. (Giving a client an identification number.) All questionnaire returns were solely viewed by the principal investigator (assistant psychologist). The questionnaires were stored in a locked filing cabinet within the assistant psychologist's work base and retained for future evaluation purposes. All information complied with the Data Protection Act and was stored in a fire proof container following the study.

### VII E – Intervention

There were three groups running concurrently. For each group, the intervention ran once a week for twelve weeks. Both the low and medium secure forensic groups consisted of a maximum of 6 clients. A maximum of 12 clients were allocated to all other groups. Thus each group had between two and three hours contact with the service on one afternoon per week for up to 12 weeks. A week by week breakdown of the activities for each group can be seen in the method statement in Appendix H. Attendance was taken at the beginning of each day and retained for evaluation purposes.

### VII F – Awards Ceremony

A mini-bus was arranged to take the clients from the referring bodies' premises to the awards ceremony. The ceremony consisted of a talk recapping the activities that the clients had partaken in whilst on the programme. This was followed by a further presentation on the local projects in the area which related to the programme. Where possible, local environmental projects were invited to talk about the work they do and the volunteering opportunities they offer. This included the British Trust for Conservation Volunteers (BTCV), Bullwood Project, Coach House Trust and Castlemilk Environmental Trust.

The certificates (including in the latter three blocks the John Muir Discovery Award) were then presented by a senior member of Forestry Commission Scotland. A suggestion box was also provided along with paper and pens in order for staff and clients to feedback any suggestions they had for the project anonymously. The awards ceremony concluded with tea/coffee and a buffet lunch before the mini-buses returned clients and staff to the referring services.

### VII G – Follow-up

Within a week of completion of the programme, a room was again attained on the referring body's premises and the primary outcome measures re-administered. For the Esteem South service, follow-up appointments were held on an individual basis at the client's abode.


# VIII Results

# VIII Results

## VIII A – Age & Gender

From those that completed (N=77), the mean age of the clients was 41.42 years with a standard deviation of 10.24 years. The youngest client was 21 and the oldest 61 years of age. 57 (74%) of the clients were male and 20 (26%) were female.

## VIII B – Attrition Rates

The number of referrals received, the number of clients from those referrals who attended at least once, and the number of clients from those referrals who completed the programme are displayed in the table below. One client was declined access to the programme by the referring service they were engaged with due to their behaviour out-with the programme. One further client was declined access due to their behaviour whilst on the programme.

## VIII C – Attendance

Of those that did not attend the programme (N=15), 6 did not attend the initial information session and 8 attended the information session and declined from participating. One person was declined access to the programme as they had high blood pressure (>180/90 mmHg) and could not provide a letter from their G.P. indicating they were safe to exercise without medical supervision. (A table detailing this is included in Appendix S.)

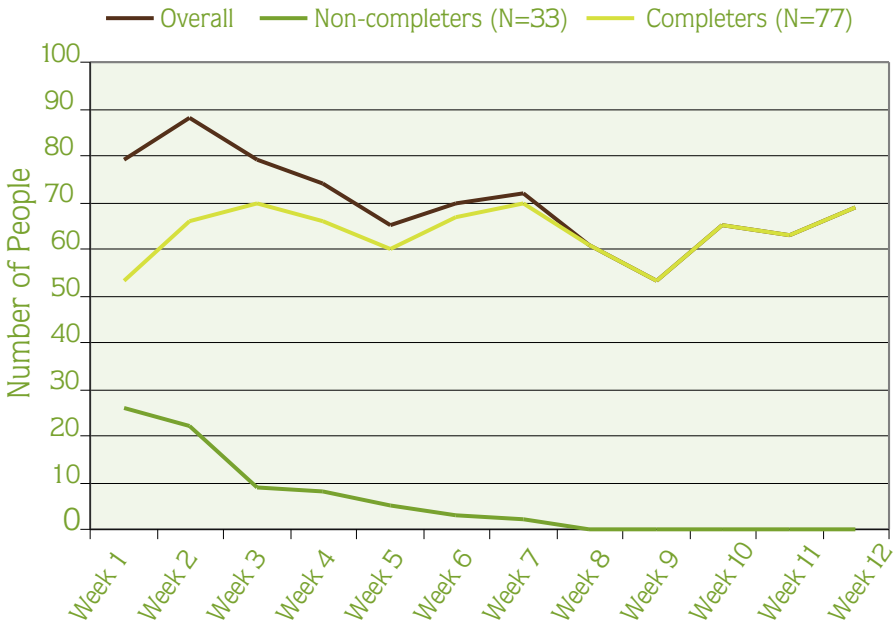
In total 110 clients attended the programme. The mean attendance was 7.04 weeks with a standard deviation of 4.20 weeks. The maximum attendance was the full twelve weeks and the minimum just one week.

| | Number of referrals received | Number of clients who attended at least one session | | Number of Completers | |
|---|---|---|---|---|---|
| | | | | | 70% |
| Total | 125 | 110 | 88% | 77 | 62% |
| Forensic Services (Low & Medium Secure Units) | 24 | 23 | 96% | 19 | 83%<br>79% |
| Community Mental Health Teams | 40 | 34 | 85% | 18 | 52%<br>45% |
| Employability | 36 | 33 | 92% | 26 | 79%<br>72% |
| Other Tertiary Care Services | 25 | 20 | 80% | 14 | 70%<br>56% |

A more complete break down of each service can be seen in Appendix R. % from referral % of attendees

The table below lists the referral and completion rates by gender.

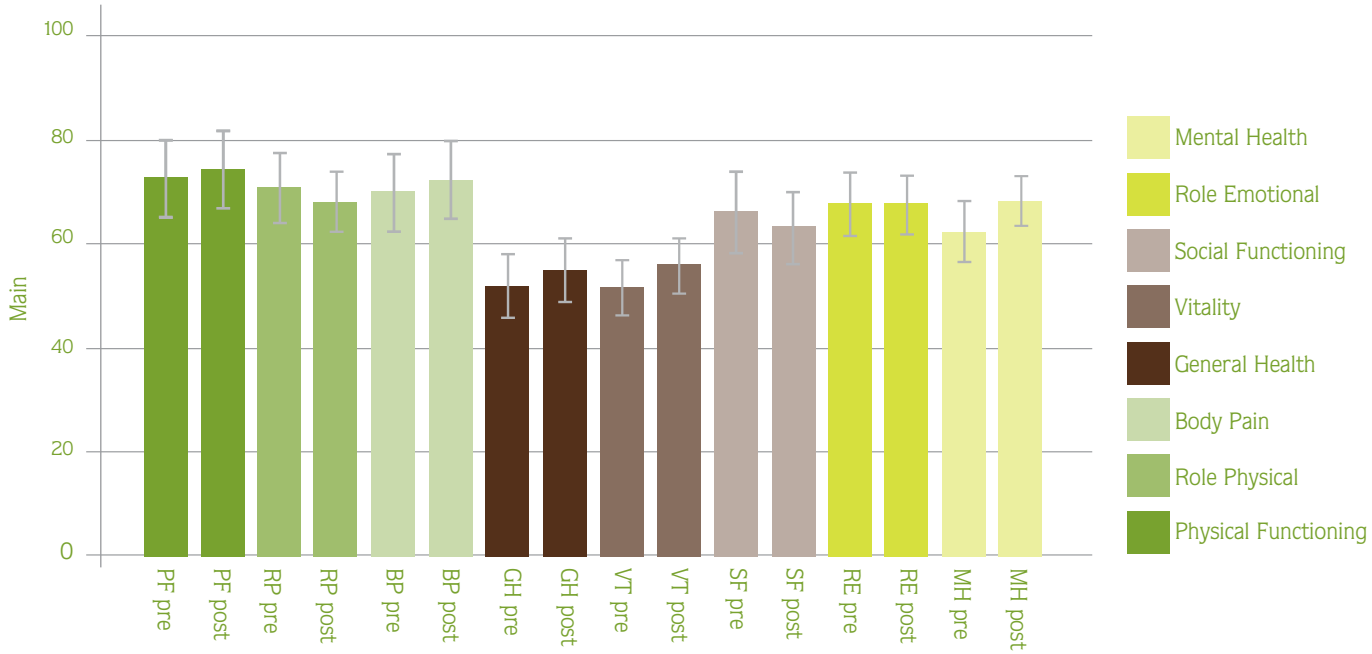
| | Male | Female |
|---|---|---|
| Number of Referrals | 100 (80% of total referrals) | 25 (20% of total referrals) |
| Number of completers | 57 (74% of completers)<br>(57% of males referred) | 20 (26% of completers)<br>(80% of females referred) |




Attendance has been split into those that completed the course and those that did not. The non completers (N=33) tended to drop out quickly with a mean attendance of 2.15 weeks and a standard deviation 1.21 weeks. The minimum number of weeks non completers attended was one and the maximum five. Of the completers (N=77) the mean attendance was 9.84 weeks with a standard deviation of 1.89 weeks. The minimum number of sessions attended for completers was six and the maximum twelve.

The graph below shows total attendance (the attendance for every group added together) for each week of the programme as well as the pattern of attendance for completers and non-completers.

[Note: The sharp rise in attendance from the first to second weeks is the result of two of the employability groups (N=24) being unable to attend the first week due to staffing issues. The slight dip in week nine is the result of clients from the low secure forensic service (N=6) being unable to attend due to staffing issues].




## VIII D – SF-12v2™ Health Survey

The graph below details the mean pre- and post- intervention sores for each of the items on SF-12v2™ eight scale health profile.

The mean scores of five of the eight items increased from the pre- to post- intervention measures. These were:

**Physical Functioning**
Pre: Mean 72.7, Std 32.2
Post: Mean 73.7, Std 33.9: t (74)=-0.09; p=0.93

**Body Pain**
Pre: Mean 70.1, Std 32.7
Post: Mean 71.8, Std 33.3: t (74)=-0.24; p=0.81

**General Health**
Pre: Mean 52.4, Std 26.9
Post: Mean 54.7, Std 27.4: t (74)=-0.62; p=0.54

**Vitality**
Pre: Mean 51.9, Std 23.2
Post: Mean 55.5, Std 23.9: t (74)=-1.24; p=0.22

**Mental Health**
Pre: Mean 62.7, Std 25.4
Post: Mean 68.8, Std 21.2: t (74)=-1.44; p=0.15

The mean scores of three of the eight items decreased from the pre- to post- intervention measures. These were:

**Role Physical**
Pre: Mean 70.9, Std 29.2
Post: 67.5, Std 26.5) t (74)=1.34; p=0.185

**Social Functioning**
Pre: Mean 65.9, Std 34.4
Post: 62.7, Std 30.5) T (74)=0.96; p=0.34

**Role Emotional**
Pre: Mean 68.2, Std 26.8
Post: 67.0, Std 25.4) t (74)=1.34; p=0.19

All of the changes in score from the pre- to post- measures lay within the standard error for each parameter.

### SF-12v2™ Mental Component Summary Scale (MCS)

The mean pre-intervention score on the SF-12v2™ MCS for the clients who completed the programme (N=76) was 46.96 with a standard deviation of 8.37. The minimum score was 22.42 and the maximum score 62.54. (Missing data: N=1).

The mean post-intervention score on the SF-12v2™ MCS for the clients who completed the intervention (N=76) was 46.80 with a standard deviation of 9.85. The minimum score was 22.59 and the maximum score was 65.90. (Missing data: N=1.)

A graph depicting these results which includes a line representing the US population norm (Score=50) is detailed below.

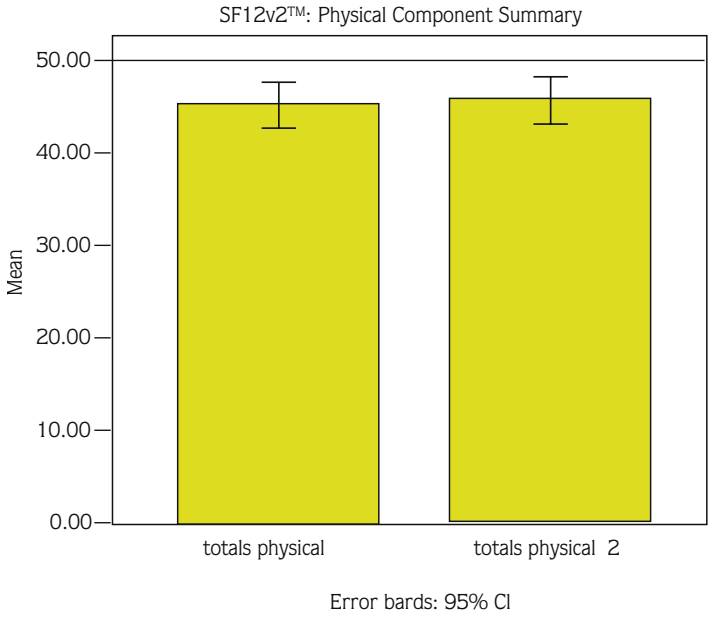

A paired sample t-test was conducted to determine if there was a significant difference between baseline and post intervention scores on the SF-12v2™ Mental Component Summary Scale. No significant difference was found between baseline and post intervention scores of the SF-12v2™ Mental Component Summary Scale (t (74)=0.37; p=0.72).

### SF-12v2™ Physical Component Summary Scale

The mean pre-intervention score on the SF-12v2™ PCS for the clients who completed the programme (N=76) was 45.06 with a standard deviation of 10.70. The minimum score was 18.60 and the maximum score 66.36. (Missing data: N=1).

The mean post-intervention score on the SF-12v2™ PCS for the clients who completed the intervention (N=76) was 45.79 with a standard deviation of 10.57 The minimum score was 19.19 and the maximum score 64.22 (Missing data: N=1.)

A graph depicting these results which includes a line representing the US population norm (Score=50) is detailed below.




A paired sample t-test was conducted to determine if there was a significant difference between baseline and post intervention scores on the SF-12v2™ Physical Component Summary Scale. No significant difference was found between baseline and post intervention scores of the SF-12v2™ Physical Component Summary Scale (t (74)=-0.56; p=0.58).

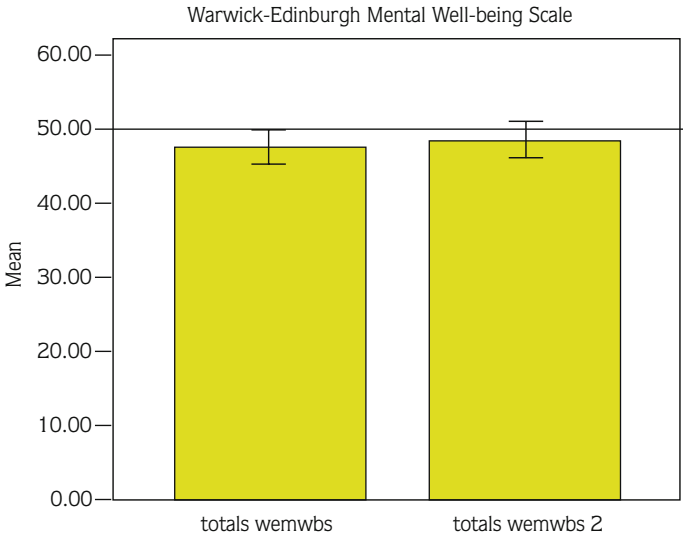
### VIII E – Warwick-Edinburgh Mental Well-being Scale (WEMWBS)

The mean pre-intervention score on the WEMWBS for the clients who completed the programme (N=77) was 48.26 with a standard deviation of 10.61. The minimum score was 20 and the maximum score 70. Missing data: (N=0.)

The mean post-intervention score on the WEMWBS for the clients who completed the intervention (N=75) was 49.19 with a standard deviation of 11.14. The minimum score was 23 and the maximum score 70. Missing data (N=3.)

A graph depicting these results which includes a line representing a provisional Scottish population norm* (Score=50.7) is detailed below.

*The provisional Scottish population mean score is 50.7 with a 95% confidence interval of 50.3 to 51.1, obtained from a combined national dataset comprising data from the Health Education Population Survey 2006 (wave 12) and the Well? What do you think? 2006 Survey (Tenant et al. 2007).



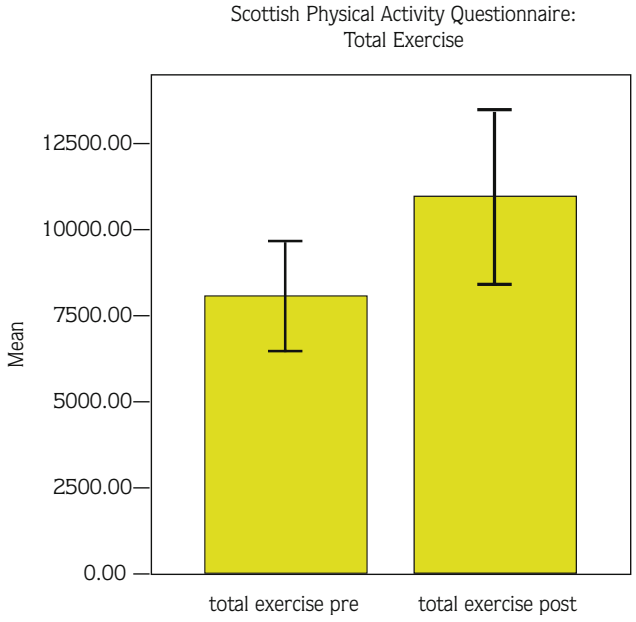

A paired sample t-test was conducted to determine if there was a significant difference between baseline and post-intervention scores on the Warwick-Edinburgh Mental Well-being Scale. No significant difference was found between baseline and post-intervention scores of the Warwick-Edinburgh Mental Well-being Scale (t (74)=-0.75 ; p=0.45).

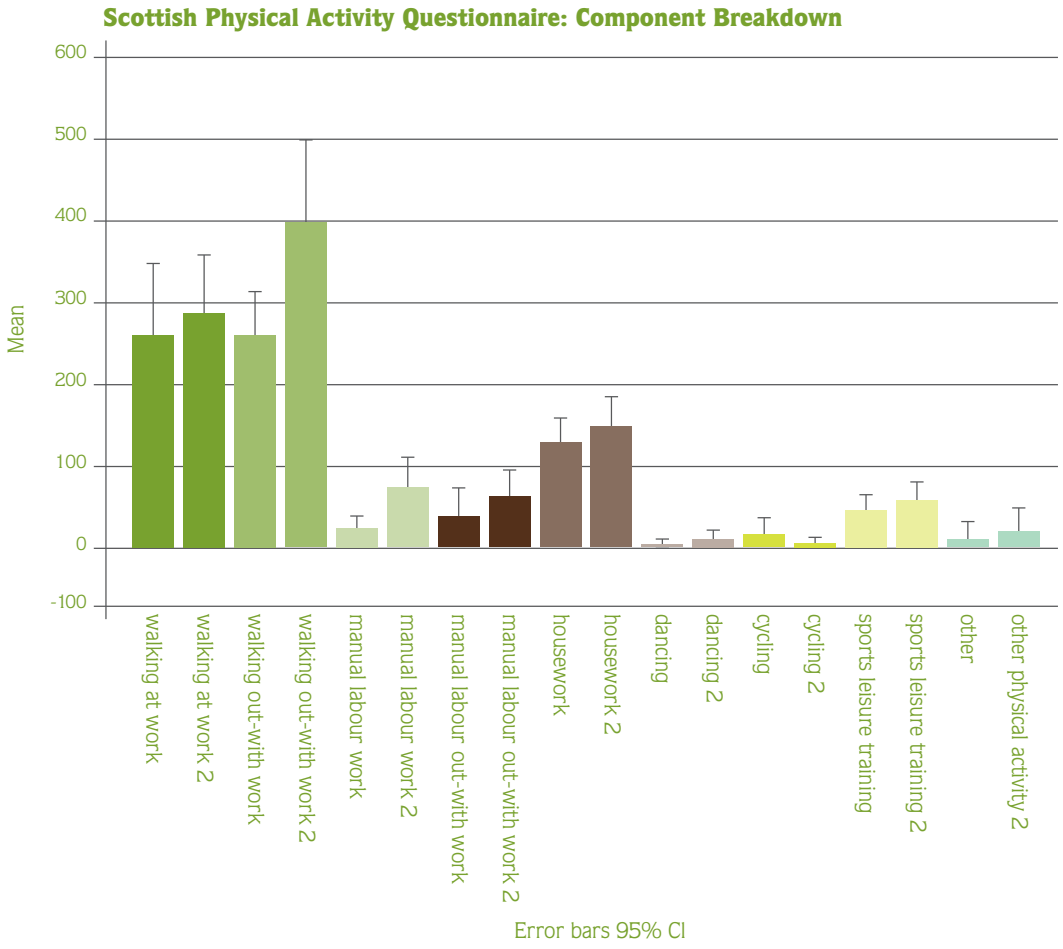
### VIII F – The Scottish Physical Activity Questionnaire (SPAQ)

#### Physical Activity

The mean pre-intervention score on the SPAQ for the clients who completed the programme (N=72) was 788 minutes with a standard deviation of 589 minutes The minimum score was 80 minutes and the maximum score 2685 minutes. (Missing data: N=5).

The mean post-intervention score on the SPAQ for the clients who completed the programme (N=74) was 1046 minutes with a standard deviation of 778 minutes. The minimum score was 130 minutes and the maximum score 3120 minutes. (Missing data: N=3.)






A paired sample t-test was conducted to determine if there was a significant difference between baseline and post-intervention scores on the Scottish Physical Activity Questionnaire: 7 Day recall. A significant increase was found between baseline and post-intervention scores of the Scottish Physical Activity Questionnaire: 7 Day recall (t (69)=-3.14 ; p=0.003).

The graph above shows mean pre- and post- intervention scores for the different aspects of physical exercise reported in the Scottish Physical Activity Questionnaire.

(Note: In this case "Walking at work" refers to "Walking indoors" (on ward, at home, in day centre, etc) "Walking out-with work" refers to "walking outdoors", "manual labour at work" refers to manual labour outwith the home environment.)

### VIII G – Analysis by Group & Season

The results from each of the four client groups (Forensic, Community Mental Health Teams, Employability, and Other Tertiary Care) were analysed separately in order to determine whether the intervention benefited some groups more than others. The pre- to post- score differences in the SF-12v2™ MCS, SF-12v2™ PCS, and WEMWBS showed a high degree of stability across all the groups. The pre- to post- scores on the SPAQ increased dramatically in every group bar the "Other Tertiary Care Group" (N=14) in which it decreased very slightly.

The results were then examined by season (Block 1, Autumn–Winter/Block 2, Winter–Spring/Block 3, Spring–Summer/Block 4, Summer– Autumn), Again the pre- to post- score differences in the SF-12v2™ MCS, SF-12v2™ PCS, and WEMWBS showed a high degree of stability across all the groups. The pre- to post- scores on the SPAQ increased in every group, though the increase was less dramatic in the Autumn–Winter Block (1).

### VIII H – Analysis by severity

After the completion of the first two blocks of fieldwork the data was analysed and a notable increase was found in the minimum scores of the SF-12v2™ MCS, SF-12v2™ PCS, and WEMWEBS. Comments had also been made during the first focus group by accompanying health professionals indicating that they had noticed physical health improvements in some of the most unfit clients. Following these observations, the results were split into three equal groups for each measure (or in the case of the SF-12v2TM: component measure) by the ranking of their score (High-scoring, mid-scoring and low scoring) on the pre-intervention questionnaire. The results were then tracked for the post-intervention questionnaire. Although the numbers in each group were too low to employ inferential statistics, the pattern of pre- to post- scores were notably different in each group. The number of clients, pre- and post- means, and standard deviations for each group are shown below.

Low Scoring

| | N | Mean | Std. Deviation |
|---|---|---|---|
| SF-12v2™ MCS PRE | 25 | 36.93 | 5.68 |
| SF-12v2™ MCS POST | 25 | 40.09 | 11.00 |
| SF-12v2™ PCS vPRE | 25 | 32.75 | 6.18 |
| SF-12v2™ PCS POST | 25 | 37.53 | 9.51 |
| WEMWBS PRE | 25 | 36.48 | 6.20 |
| WEMWBS POST | 25 | 39.12 | 7.64 |
| SPAQ PRE | 23 | 280.83 | 94.37 |
| SPAQ POST | 23 | 684.70 | 623.40 |

Mid-Scoring

| | N | Mean | Std. Deviation |
|---|---|---|---|
| SF-12v2™ MCS PRE | 25 | 48.11 | 2.48 |
| SF-12v2™ MCS POST | 25 | 47.98 | 6.48 |
| SF-12v2™ PCS PRE | 25 | 46.15 | 3.07 |
| SF-12v2™ PCS POST | 25 | 47.13 | 8.39 |
| WEMWBS PRE | 26 | 49.42 | 3.51 |
| WEMWBS POST | 26 | 50.54 | 7.83 |
| SPAQ PRE | 24 | 617.25 | 136.53 |
| SPAQ POST | 24 | 1029.67 | 642.70 |

High-Scoring

| | N | Mean | Std. Deviation |
|---|---|---|---|
| SF-12v2™ MCS PRE | 25 | 55.40 | 0.56 |
| SF-12v2™ MCS POST | 25 | 51.82 | 1.68 |
| SF-12v2™ PCS PRE | 25 | 56.43 | 3.99 |
| SF-12v2™ PCS POST | 25 | 52.55 | 8.17 |
| WEMWBS PRE | 24 | 60.00 | 3.74 |
| WEMWBS POST | 24 | 58.21 | 8.62 |
| SPAQ PRE | 23 | 1474.48 | 532.73 |
| SPAQ POST | 23 | 1493.70 | 871.75 |

## VIII I – Qualitative

From the qualitative data gathered from the client interviews (N=29), the focus groups (N=8) and the observational journals (N=2) five master themes emerged relating to client outcomes. These were:

1. Improvements to mental well-being
2. Improvements to physical health
3. Provision of daily structure/routine
4. Transferable skill acquisition
5. Social networking/social skills development

### Improvements to mental well-being

Within the master theme "Improvements to mental well-being" the data clustered around two subordinate themes "Increased confidence" and "Increased self-esteem".

### Increased confidence

Ten of the clients interviewed reported increased confidence as a result of taking part in the programme. This trend was also observed by two of the clinicians and the Forestry Commission Scotland Ranger and reported during the focus groups. Three quotes relating to this finding are included below.

> *"They're good, exciting, challenging (Branching Out tasks) and it makes you build more confidence you know. Cause they say "that's great" or "that's good you've done that" you get happy about it you know … "*
>
> – Participant: 21

> *"It's just nice to get out, it's nice to do things and it makes you feel better and hopefully when you feel better you tend to feel, well I feel more confident and able to do things. "*
>
> – Participant: 26

> *"I just think this is a good way of trying to build up your confidence and meet new folk, it's been brilliant. I think I have kind of got a lot more confident, I think it's just getting to know folk and obviously the staff have been excellent as well. It's just been really really friendly and informal and there's been like no pressure on you to do stuff … "*
>
> – Participant 16,

### Increased Self-Esteem

Ten of the clients interviewed reported improvements in self-esteem as a result of taking part in the programme. This trend was also observed by three of the clinicians and reported during the focus groups. Two quotes relating to this theme are contained below:

> *"Aye it's been great I've thoroughly enjoyed it, Aye. I wouldn't say I've been great at it. I've tried it anyway; I've came along and tried it. I wasn't too good at it (willow weaving) but at the end I done it. At least I tried … I feel in myself I've achieved something … Like see when I gae home after leaving here I'm puffed oot and I feel as if I've achieved something. I'm knackered and I'm quite proud of myself cause I've done it."*
>
> – Participant 25

*"I think probably they (Branching Out clients) actually flourished when I (Occupational Therapist) wasn't there controlling them to be honest. Just being given the opportunity to try things more without me meddling in it … The people I work with are chronically psychotic so all of the people in our group (Branching Out clients) hear voices most of the time, despite their medication and all of them feel excluded from society and none of them really mentioned anything in twelve weeks about their mental state affecting anything at all. I think it was just so varied that they could engage at any level and their symptoms were a lot better as a result actually. Just from that chance to get out and do something really positive and feel good about themselves. They've noticed that they're capable of things and they've now moved on to volunteering and they're doing that reasonably independently. That's a big, big step for them."*

CMHT representative, Focus Group 2

### Improvements to Physical Health

Eight of the clients interviewed reported improvements in their physical health. These included: feeling generally fitter, improvements in breathing problems, weight reduction and reduced body pain. Three of the clinicians, the FCS Ranger and the assistant psychologist reported observed improvements in physical health of the least fit clients (primarily resultant from objectified performance on physical activities).

*"The first two or three weeks I was getting nervous finding it difficult. Getting back in again and feeling pain longer than I normally do. But I think my body's getting accustomed to it. I can do a wee bit more every week, I've been doing a wee bit more and it's not been as severe at night so I've got better that way."*

– Participant 19

*"I feel it's actually benefited my health, because I do suffer from asthma. It seems as if I'm getting more fresh air and I feel a wee bit healthier and plus some of the work that they dae. I feel that, in a way it is making me lose a wee bit of weight. I used to be twenty stone now I'm only eighteen."*

– Participant 11

*"You noticed a difference in people's physical capacity especially with the walk to and from the site what I noticed initially was that some people were having to stop several times on the way back from the base to the mini bus and certainly towards the end of the project people were much more improved and they themselves said they noticed a difference in being able to get up to the top of the hill without having to stop so that was a definite physical improvement"*

Recreational Therapy representative: Focus Group 1

### Provision of daily structure/routine

Twelve of the clients reported positive improvements in their daily (or weekly) routine and commented that Branching Out gave them something to focus on. Two clinicians and the FCS Ranger also relayed related comments which the clients had reported to them, within the focus groups. These included factors such as: getting out of bed earlier, getting out of the house, sleeping better, improved structure to their day and week and activity on what would be an otherwise 'empty' day. Three quotes relating to these themes are included below.

*"I sleep better and it's something I look forward to. So my week I think oh gosh, you know the weekend comes and I enjoy my weekend you've got Monday, mundane and then Tuesday you're out. And the time the rest of the weeks passed you're thinking about what you've done on the Tuesday and telling your friends and your family what you've done and they're all asking now you know. "How did you get on, on the Tuesday, How was Branching Out?" And you know they know you're out in the forest and they're like how's the forest and you're like: "great" you know."*

– Participant17

*"…giving much more structure than I normally would, I don't go and have a little nap or anything like that."*

– Participant 26

*"It helped me a lot, a great deal, cause if it wasn't for this I wouldn't have got out that door. I wouldn't have come out. So it's done a great deal for me …"*

– Participant 12

### Transferable skill acquisition

Within the master theme "transferable skill" acquisition data tended to cluster around two points: the "acquisition of knowledge relating to, and interest in, nature activities" and the "learning of new skills".

### Acquisition of knowledge relating to, and interest in, nature activities

Seven of the clients mentioned improved knowledge and/or interest in nature and outdoor activities. Three quotes relating to this theme are given below:

*"Well it makes me look at things in the woods and things look a bit differently. Things I didn't know anything about. Like why they left the trees lying about it was nice to know little bits about the wild life. So I've passed on bits to my son as well."*

– Participant 18

*"I've learnt more about things I didn't know about and done things I've never done before … The first couple of weeks opened my eyes to the outside sort of thing; eh I just enjoyed it from there … I've thoroughly enjoyed them, the different kinds of trees and other parts of the forest. The woods that we're going to. Not everybody knows about eh there's a lot more activity can be done outside than what I thought about."*

– Participant 19

*"We've learned a lot about the wildlife, different trees, how to work with different trees, cutting back different trees and where the poisonous trees were, poison bushes were and that's it."*

– Participant 8

### Learning new skills

Twelve of the client's interviewed reported benefiting from learning new skills. Three clinicians and the FCS Ranger also commented on these aspects during the focus group. Beneficial aspects included enjoyment, novelty, being able to pass these skills on to children, thinking about other possibilities for activities, sense of achievement and helping break down the power imbalance between clinicians and clients. Three quotes relating to this theme are given below:

*"Most of the stuff that we did I would have never had the opportunity to do before like the map reading and trees and the other sort of wild flowers and stuff like that … Photography. I enjoyed it a lot basically."*

– Participant 10

*"I think it's stuff as well that you would have never have thought of doing and I know it's simple as well but see the tree identification I absolutely loved that and I was out with my son and we were doing the identification … it's been a positive thing cause I'm coming out and doing stuff I'd never thought I'd do and it hasn't really felt daunting you know, they've just made it so relaxed."*

– Participant 16

*"I think me being one of them made the team stronger instead of that feeling of them and us which there is sometimes … I think people felt very equal and that would be one of the big assets of it (Branching Out) … those things are really good in uniting people. There was a lot of sort of sharing in between us (Regular service providers and clients) than there usually would be … I think that idea of we're all the same (regular service providers and clients) none of us have got a clue and we're all learning (tasks in Branching Out programme) together it's been good"*

– CMHT representative, Focus Group 2

### Social networking/social skills development

Twelve clients reported benefits to their social skills and or increased levels of socialisation during their interviews. three clinicians the FCS Ranger and the assistant psychologist also reported on this aspect. One client reported increased confidence due to socialisation throughout the course but a subsequent decrease in confidence due to a disagreement with another client prior to interview.

*"Everybody seems to get on and muck in together and if somebody was struggling you'd try to help them along. So I feel that's a help for, you know getting to know people as well. I just seem to get on a lot better with people and it's being in a group. So eh, I think I've picked that up and, eh, well the position I've been in I've not really been in groups on a regular basis so it's been good that way. I seem to be communicating a bit better with people. over the past two months I feel I'm getting involved in conversations more so."*

– Participant 19

*"And then you get to know the people and you get to know how to talk to them and eh, what to say to them and how sensitive they are and what not to say."*

– Participant 12

*"It's helped me immensely; it's just unbelievable they did this. It's just something am, am right into it now and I'm no a 100% into it yet, but I'm getting there, I'm getting there slowly but surely. I'm very near, it takes a lot for me to trust people, it's very, very hard for me to trust people. I'm getting there slowly but surely … I'm mixing with people now that, you know, it's something I've never done before."*

– Participant 4

## VIII J – Branching Out main theme(s)

### Logistics re qualitative data

From the qualitative data gathered from the client interviews (N=28), the focus groups (N=8) and the observational journals (N=2) six master themes emerged relating to the logistics of the service. These were:

- Promoted team building
- Novelty
- Social inclusion
- Achievement
- Purpose
- Stepping stone to further community engagement

### Promoted team building

Group work on tasks, the relaxed atmosphere and inclusion of clinicians as part of the group appeared to promote 'rapid' team building and high levels of altruistic/supportive behaviour amongst group members. A quote relating to this is included below:

*"The team work was amazing, that was kind of one of the big wow factors for me. If one guy couldn't quite manage there was another guy in there to give him a hand with it. They were very supportive of each other … Getting the dynamics going, getting the guys (Branching Out clients) to show a bit of leadership … Those things I could spend ten weeks trying to do with a group when I start one up so that came immediately with this and I think just because it was so motivating … we (Clinicians) are all saying that the team part of this (Branching Out programme) is one of the most important parts of it and probably one of the most important bits for benefiting people."*

– CMHT representative, Focus Group 2

### Novelty

Branching Out was considered novel (in terms of location and task variation) for the client group, i.e. different from any other types of activities clients are usually offered. Key to the apparent success of the programme was considered to be:

#### 1. It was delivered in a non-institutional setting.

The delivery of the programme out with an institutional setting and out with the day-to-day environments of the clients appeared to be one of the attractions of the programme. A quote relating to this issue is included below:

***Client*** *"It's been very therapeutic I think"*

***Interviewer*** *"How do you mean therapeutic?"*

***Client:*** *"Eh,. all the different sights and sounds and smells is very different from the hospital environment that I'm used to, you know and the city environment of course, and I've really enjoyed being out in the countryside."*

– Participant 20

#### 2. Every week had different tasks and this contrasted with set hospital and household routines.

*"I think it's been brilliant. There's been a few weeks where I haven't been feeling great and I don't know if I've got the motivation but it's that kind of thinking at the back of your head, what I'm am going to be missing? You know it's just because it has been so varied and slightly different."*

– Participant 16

*"I'm in the house all the time and that's just basically it, I'm in the house. There's nae enthusiasm tae dae nothing, there's no incentive to go out … Coming here is like slowly, but surely I'm starting to think about things differently than what I did."*

– Participant 4

#### 3. Tasks/goals were achievable and pitched at the right level for the client group (irrespective of their mental state).

*"The people I work with are chronically psychotic … and none of them really mentioned anything in twelve weeks about their mental state affecting anything at all. They felt normal, they felt the same as everyone else and I think the tasks were chosen so they didn't feel any different they weren't unable to do it. So I think it was just so varied that they could engage at any level and their symptoms were a lot better as a result actually."*

– CMHT representative, Focus Group 2

### Promoted Social Inclusion

The nature of the programme (i.e. that regular service providers 'mucked in' with service users re task completion) improved the nature of the therapeutic relationship (i.e. no 'us and them': more 'equal' relationship as a result of shared experience/ learning new tasks together). There was the perception that this contributed to improvements in client's self-esteem.

The task orientated focus of Branching Out meant clients who felt 'socially awkward' could participate within the group but 'dip in and out' of the social element of group dynamics without appearing antisocial.

Clients felt able to pace themselves depending on their physical/mental capability.

Literacy issues were not perceived as a barrier to participation.

*"Obviously the staff have been excellent as well. It's just been really really friendly and informal and there's been like no pressure on you to do stuff"*

– Participant 16

*"It must be really empowering, even the recent one (Branching Out 12 week programme) we're out at the now. Some of the patients were building the benches and I'd say "Right you're the foreman" and they're going about telling the staff what to do. But it must be really empowering for patients who don't always get the opportunity to be empowered to make decisions to do that you know."*

– Forensic representative, Focus Group 2

### Sense of achievement

The laid back, all inclusive nature of the programme increased clients confidence by increasing their initiative and thereby the number of occasions in which they competently and independently performed well on tasks. This was sustained/maximised by positive reinforcement through praise for, and recognition of, their achievements / efforts from both service providers and fellow clients.

There was a sense of pride and achievement gained from completing the course and the creation of items whilst attending the programme. Clients displayed pride in receiving the John Muir Award. Clinicians felt the main aspects of the programme which affected sense of achievement were:

1. The fact that some clients had probably had mental health problems/issues since childhood/ adolescence and consequently underachieved academically/classified at school as disruptive. Therefore for some, this was the first time they had received positive recognition for their efforts/achievements.

2. The John Muir Award is a 'mainstream' award and not 'a mental health thing' i.e. it was not just a token gesture but recognition of an actual 'achievement'.

3. Photographs and mementos from Branching Out could resurrect a sense of achievement/pride and motivation even after the programme had ended.

4. External facilitators/Branching Out staff made tasks look easy/do-able which motivated clients to attempt tasks that they would never usually have tried.

Two related quotes are contained below:

> *"You know even the awards ceremony (on completion of the 12 week Branching Out programme) that means so much to them to actually go down and pick up an award. I know our clients still put them up on the walls cause they really cherish them."*
>
> Forensic representative, Focus Group 2

> *"You're right about them cherishing it (award from Branching Out) and I think, see, because it was The John Muir Award (award obtainable on the Branching Out programme)and it was a mainstream award and it wasn't a mental health service thing; it's not me saying here's a wee thing cause you came to the group. They'd worked for it, and they had to be tested on it, and they achieved it, and some of them were amazing. And we had a guy in the group who say's very little and you're never very sure if he's liking it em, and I know he came home from the award ceremony and I know he put a suit on and his family took pictures of him."*
>
> – CMHT representative, Focus Group 2

### Sense of achievement reflected in language

Sense of achievement was also evidenced in the language the client's used describing the project and their role within it. Clients often referred to their activity within the project as "work". Clients also used the word "purpose" in describing reasons for getting up/attending the project and many of the reports in increases in self-esteem/pride reported, related to the accomplishment of tasks/production of goods. Related quotes below:

> *"Since I've been here I've enjoyed the Branching Out. I usually do voluntary work, which is always indoors, as I say I've enjoyed working outside and working as part of a team also."*
>
> – Participant 8

> *"Ah, well I've always enjoyed the outdoors. But since I've became not well, it's just as if I've been housed. Just locked up in the house which is not me. So this was a chance to get out, get fresh air, some exercise and do something for the community and that."*
>
> – Participant 11

> *"It's getting me out the house and to me that in itself is a task, but it's a task worth doing, you know. I like to see the fruits of my labour."*
>
> – Participant 4

> *"When you get back from the Branching Out it's as if you've just done a day's work or something like that which is quite satisfying in a way, cause you just get tucked into your dinner, relax and have a good night's sleep."*
>
> – Participant 20

### Stepping stone to further community engagement

There was an impression that, for some clients, Branching Out served as a 'half-way house' bridging the gap between self-imposed isolation and re-introduction to 'the big wide world'.

> *"It got to a stage where all I would do was just look outside ma window and my stomach was* going into knots, it tightened up. I don't know why, I don't know why. I'm lacking in confidence that's something that I'm very, very short on at the moment. Coming here is like slowly, but surely I'm starting to think about things differently than what I did."
>
> – Participant 4

> *"I didn't think I would achieve such a long journey, it's been a long journey for me because when you're caged up for so long and so many years it's so hard and this has just opened my life and it's made me really appreciate life and appreciate people again and love my life and love myself and I think if you love yourself you love everybody else."*
>
> – Participant 12

> *They've noticed that they're capable of things and they're now moved on to volunteering and they're doing that reasonably independently. That's a big, big step for them.*
>
> – CMHT representative, Focus Group 2

Some clients felt the 'great outdoors' had not been open to them prior to Branching Out and Branching Out had opened their eyes to 'nature' and what was available on their 'own doorstep'. Related quotes are contained below:

> *"It's made me think more about the outdoors and being in the outdoors … and these trees and all that, things like that. Appreciate it more."*
>
> – Participant 6

> *"I've loved the activities, you know, finding out about the trees and, and you know, the plants and things. I love all that."*
>
> – Participant 17

> *"It's opened my eyes to the outside a bit more and eh, it's not all hustle and bustle. You can do things at your own pace."*
>
> – Participant 19

## VIII K – Negative aspects of programme

Overall no negative outcomes (i.e. effects on the clients) were reported bar one client reporting a lull in their increasing confidence due to a disagreement with another client. Several aspects of the programme, however, were reported as being problematic by staff and clinicians alike.

### Weather/Activity planning

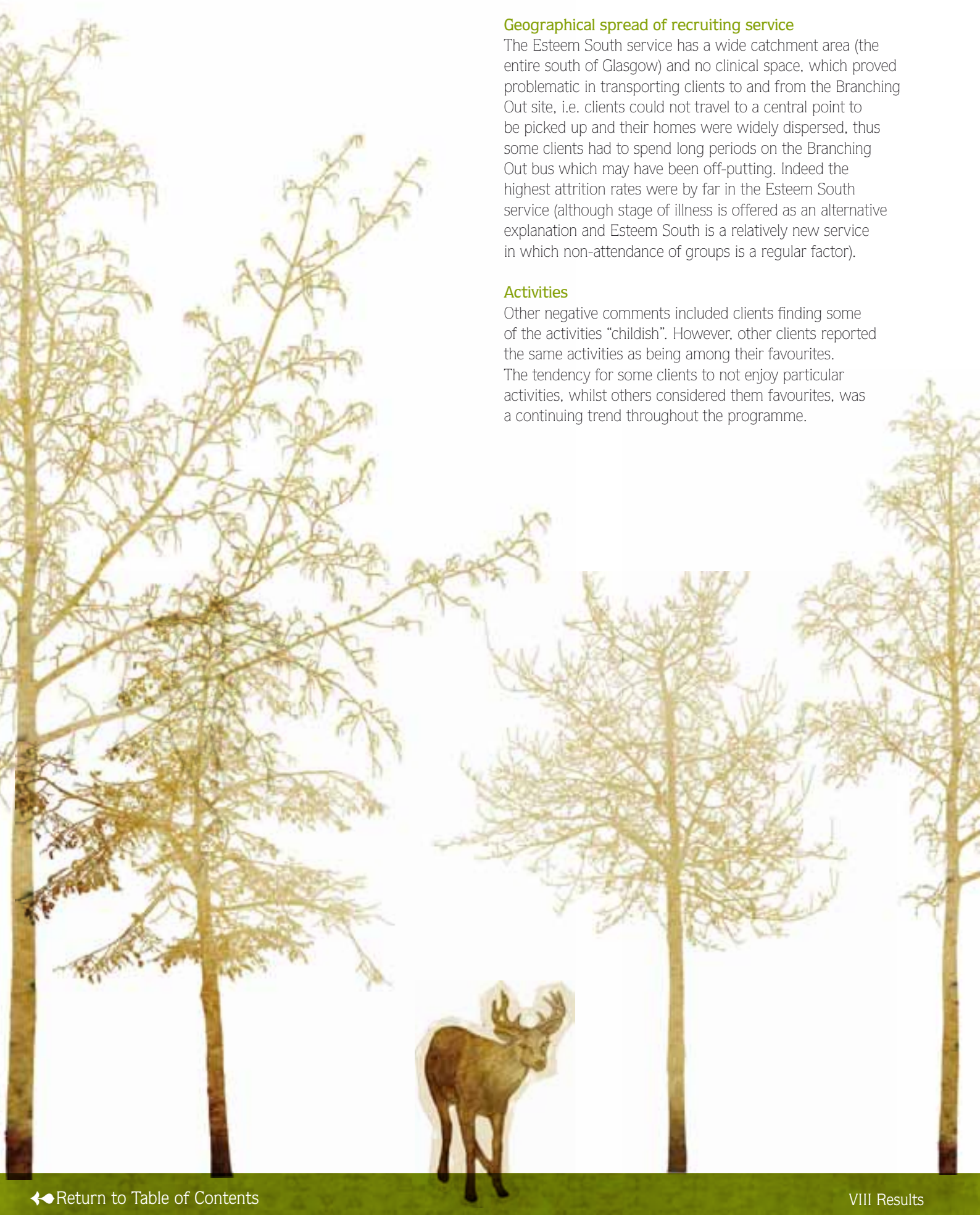
The most often reported concern was weather. In the first block (12 week programme) clinicians, staff (FCS Ranger and assistant psychologist) and clients all regarded the waterproofs and tarps (temporary shelter) as inadequate for the conditions (the first block occurring over autumn/winter).

Additionally, clinicians and clients commented on lulls in activity during the first block (12 week programme). This resulted from a variety of problems: A non-Forestry Commission employee (assistant psychologist) writing the initial programme, time taken to boil storm kettles, light fire and erect shelter and resource provider failing to provide staff and/or materials. This lack of structured activities, the repetition of previous tasks in combination with bad weather and a lack of an adequate shelter and waterproofs lead to boredom/apathy in some and interest/enthusiasm appeared to wane. However, whilst impacting negatively on activities/motivation, weather did not appear to be a barrier to attendance.

In the second, third and fourth blocks the provision of higher quality waterproofs (that were lined and did not rip), an FCS vehicle (to aid transportation of equipment), flasks (negating the necessity to boil the storm kettles), the planning of additional activities, the addition of a waterproof parachute (an easily erected temporary shelter) and a permanent shelter in Cathkin Braes as well as better weather, appeared to negate the initial problems. Consequently subsequent feedback from clinicians and staff regarding the weather (not being a problem) and structure of the programme was positive.

### External facilitators

Other negative feedback included external activity facilitators (i.e. not regular Branching Out staff) using non-PC language. However, this gained a mixed reaction with some clients finding the enthusiasm and down to earth approach of external facilitators a normalising experience. There was also concern over sessional workers/external facilitators monitoring the whereabouts of their equipment/tools (i.e. no tool counting procedures) although again this was addressed by staff when this issue was raised. Some clients had difficulty following the instructions provided by external facilitators. Problems were also reported with the bus service used to transport the clients to and from the resource centre (driver unsure of destination, driving too fast) and were addressed with the bus company.



### Geographical spread of recruiting service

The Esteem South service has a wide catchment area (the entire south of Glasgow) and no clinical space, which proved problematic in transporting clients to and from the Branching Out site, i.e. clients could not travel to a central point to be picked up and their homes were widely dispersed, thus some clients had to spend long periods on the Branching Out bus which may have been off-putting. Indeed the highest attrition rates were by far in the Esteem South service (although stage of illness is offered as an alternative explanation and Esteem South is a relatively new service in which non-attendance of groups is a regular factor).

### Activities

Other negative comments included clients finding some of the activities "childish". However, other clients reported the same activities as being among their favourites. The tendency for some clients to not enjoy particular activities, whilst others considered them favourites, was a continuing trend throughout the programme.

# IX Discussion

# IX Discussion

The programme was able to accept a maximum of 132 referrals over the course of the four blocks. As 125 (94.7% of absolute capacity) were referred, the programme could clearly be seen to meet an unidentified need within the services involved. For many of the services, demand outweighed supply and some potential clients were unable to attend the project (9 out the 12 groups involved being full to capacity).

From the 125 referrals received, 110 clients (88%) attended the programme on at least one occasion. Of those that did not attend the programme, 6 did not attend the initial information session (indicating an inappropriate referral) and 8 attended the information session and declined to participate. One person was declined access to the programme as they had high blood pressure (>180/90 mmHg) and could not provide a letter from their G.P. indicating they were safe to exercise without medical supervision.

As 110 of the 118 clients, that attended. the initial information session, went on to attend the project, the initial session was viewed as being a key element in recruitment. By outlining the content of the programme the session also served to allow clients to make an informed choice about attending. Therefore, clients who had no interest in the activities were able to decline the intervention without having to partake in these activities.

Of the 110 clients who attended 33 (30%) did not complete the programme. Around two thirds of the non-completers dropped out within the first three weeks (mean attendance was 2.15 weeks, std, 1.21 weeks). If this pattern of attrition was to repeat itself in future groups, client numbers could be replenished from a waiting list, providing the non-attendee had relayed their intention to discontinue. The client replacing the non-attendee would only be able to participate in the latter ten weeks of the programme. However, this would offer the opportunity for a client (perhaps one more likely to attend) to complete the majority of the programme rather than not be offered any service.

77 (70%) completed the course and attained their certificates at the end. Such a low attrition rate is uncommon in secondary and tertiary care mental health services as the population is typically hard to engage. The mean attendance for completers was 9.84 weeks with a standard deviation of 1.89 weeks. Attendance of groups in secondary and tertiary care services is typically sporadic, being largely dependant on mood and motivation the stability of which tends to be low in those with severe and enduring mental health problems.

Attendance, however, remained stable throughout the programme. Other than enjoyment of the activities, two factors are thought to underlie the high attrition and attendance rates: Namely the variety provided by the diverse activities within the programme was thought to maintain interest. The requirement to complete a certain number of sessions in order to obtain relevant certificates (and in the latter three blocks the John Muir Award) was also viewed as providing motivation.

From those that completed (N=77), the mean age of the clients was 41.42 years with a standard deviation of 10.24 years. The youngest client was 21 and the oldest 61 years of age. This demographic factor demonstrates the intergenerational appeal of the project.

A disproportionately (74%) high number of males (N=57) participated in the programme. Part of this figure is skewed by the inclusion of the low secure forensic service (N=14), which is a male-only service. Overall, 100 males (80%) were referred to the service with a completion rate of 57%. 20% (N=25) of those referred to the programme were females. From the 25 females referred, 20 (80%) completed the programme and thus 26% of the completers were female. It is unknown whether these findings represent a referral bias favouring males, a gender bias in the projects appeal, or reflects a proportional representation of Male : Female ratios within the referring services. However, these findings tentatively suggest that females, if engaged with the service, are more likely than males to complete the programme.

The pre- to post- intervention results from the SF-12v2™ eight scale health profile showed increases in physical functioning, body pain, general health, vitality and mental health. The mean scores of three of the eight items decreased from the pre- to post- intervention measures. These were role physical, social functioning, and role emotional. The difference between pre- and post- scores, were most substantial in the mental health measure: (Pre 62.7 std 25.4, Post 68.8 std 21.2,) although t-tests showed that none of the values were significant. Both the SF-12v2™'s Mental Component Summary and Physical Component Summary showed a high degree of stability overall between the pre- and post- scores.

The scores indicated that not only is the mental health of this population lower than the norm (as we would expect) but that self-ratings of physical health are lower and further removed from the population norm. This is consistent with previous findings as the Disability Rights Commission Report, Equal Treatment: Closing the gap (2006) shows that people with mental health problems are far more likely to have major physical health problems.

Pre- to post-intervention scores on the WEMWBS appeared to increase only slightly and again occurred well within the confines of natural variation. Once again, the mean value was below the (Scottish) population norm and out-with the confidence interval for that norm. Overall, the results appear to reflect a high degree of stability. These findings suggest that the WEMWBS is sensitive enough to identify variations in population norms as evidenced by the expected mean values below the population norm.

There was a statistically significant increase in the pre- to post- intervention measures in the Scottish Physical Activity Questionnaire: t (69)=-3.14; p=0.003. The component break down of this measure showed that all of the aspects of physical activity increased, bar cycling, from pre to post. The largest increase by far was in the section walking out-with work. As none of the clientele were employed, clients were instructed to fill in the sections "Walking at work" with the activity "Walking indoors" (On ward/at home / in day centre, etc) and the section "Walking out with work" with "walking outdoors". Therefore, the increase appeared to be primarily in the section denoting outdoor walking. This indicated that not only was there an increase in physical activity but that this activity was occurring primarily outdoors. Although the follow-up occurred within a week of the completion of the programme, the clients had been instructed not to include any activity which they partook in during the Branching Out programme.

Physical exercise has been proven to be effective in treating depression, lowering levels of distress, increasing well-being, and decreasing the occurrence of and favourability of prognosis with numerous chronic diseases (Blumenthal et al., 1999; Halliwell, 2005; Iwaski, et al., 2001; Department of Health, 2004; US Department of Health and Human Services, 1996). Other interventions which seek to improve levels of physical activity include exercise referral schemes. Although using a different population, an evaluation of the Glasgow GP exercise referral scheme demonstrated that only 12% of those referred (15% from those that attended a baseline appointment) were still attending after three months (FMR Research, 2002). The reported increase in minutes of physical activity from baseline to three months in the GP exercise referral scheme was 92 minutes (mean at baseline: 354 minutes : Std 433 minutes/mean at three months: 446 minutes : Std 480 minutes). This allows a comparisonwhithe the results from Branching Out. The standard deviations here are far too large to base any firm conclusions on.

These findings indicate that Branching Out not only engages hard to reach groups (i.e. those with severe and enduring mental health problems, predominantly males) but has an attendance rate more than four times that of the Glasgow referral scheme (70% of attendee's completed the programme) and was considerably more effective in raising activity levels.

### IX A – Severity

When the results were split by the pre-intervention scores into low-scoring, mid-scoring and high-scoring groups a polarisation of the pre- to post- results can be seen in the SF-12v2™ component scores. The high-scoring groups on both the PCS and MCS declined. Several explanations exist for this. The decline may be due to negative effects of the project. The clients may not feel comfortable sharing details of their health impairments with someone (albeit via a form) that they have just met, whereas by the time they complete the follow-up data they are familiar with the person administering the questionnaires and are thus more inclined to reveal aspects of any health impairments. The results may also reflect natural variation in the population as the numbers in the groups were too low to use inferential statistics and therefore to make predictions which may be generalised to the population in question. It is likely that for those who already have high scores of mental and physical health functioning that a twelve week programme would not have a dramatic impact on them when they are already engaged with secondary or tertiary care mental health services.

There was a high degree of stability between the pre- and post- changes in the WEMWBS (increased slightly), SF-12v2™ MCS (decreased slightly), and SF-12v2™ PCS (increased slightly) in the mid-scoring group although a dramatic increase in the SPAQ measures can be seen.

The lowest scoring groups on the WEMWBS, SF-12v2™ MCS, SF-12v2™ PCS and SPAQ, showed strong positive trends from their pre- to post- intervention score. This indicated that for those reporting the poorest mental health, the poorest physical health, the poorest mental well-being and the lowest levels of physical activity, the intervention appeared to have a dramatic effect on those parameters. However, higher standard deviations were associated with the post SPAQ score. This suggests that exponential improvements in weekly moderate activity levels existed for some initially inactive clients, whilst for others that were initially inactive, weekly moderate physical activity remained largely unaffected by the intervention.

For secondary and tertiary care mental health services, stability is often an outcome goal as these services tend to engage those with the poorest and most unstable conditions. Evidence supports the SF-12v2™ MCS as a valid measure of mental health for use in distinguishing between psychiatric conditions (Ware et al., 2007). Psychiatric conditions that present a very large burden on mental health status (at least 10 points or one Std lower on SF-12v2™ MCS) compared to general population norms have included depression, bipolar disorder anxiety and in-patients with severe mental illness (Andrews, Henderson and Hall, 2001; Slayers, Bosworth, Sawnson et al., 2000; Wells and Sherbourne, 1999; Vojta, Kinosian, Glick et al., 2001; Wells and Sherbourne, 1999; Andrews, Henderson, and Hall, 2001; Sanderson, Andrews and Jelsma, 2001; Salyers, Bosworth, Swanson et al., 2000). These being conditions typical of the clientele engaged in the project the initial pre-intervention mean on the SF-12v2™ MCS of 46.96 (std 8.37) seems comparably high. The overall stability in the results of the SF-12v2™ MCS may therefore reflect the effectiveness of the services they are already engaged in. [e.g. Previous studies using the SF-12v2™ in a sample of clinically depressed patients (N=78) had found an initial MCS baseline of 37.46 (std 1.4) with a recovery to 46.91 (std,1.0) after two years (Ware et al., 2007)]

For the lowest-scoring third on the SF-12v2™ MCS, (who are either newly acquainted with secondary and tertiary care services or their scores on the MCS are resistant to change by engagement with the service) the pre- to post-intervention scores showed dramatic increase. The increase is even more dramatic in those that scored under 40 (ten points below the mean). Thus, although the sample size is too low to make wider generalisations, there does appear to be a trend whereby the poorer the mental health status of the patient the more dramatic the improvement on the MCS between the pre- and post- intervention scores.

A similar pattern existed for the WEMWBS. In both the mid- and high- scoring groups little change could be witnessed between the pre- and post- intervention scores whilst the low-scoring group demonstrated strong trends towards improvement. In the dual continuum model outlined in "Towards a Mentally Flourishing Scotland" this low scoring group represents the bottom left quadrant: e.g. "a person experiencing a mental illness who has a low level of mental well-being". (Scottish Executive, 2007 P.2). According to recent research this group experience higher levels of dysfunction (Keyes, 2005) and suicidality (Keyes & Eisenberg, 2007) than adults with a mental illness who have higher ratings of mental well-being. The latter risk factor is particularly important in busy, city centre, secondary care services, where due to the volume of referrals, risk management is an important clinical role.

The pattern of improvement in the SF-12v2™ PCS was the same as the SF-12v2™ MCS, the higher scoring third decreased pre to post, the mid-scoring group remained stable (slight increase) and the lowest scoring third showed strong trends towards improvement. Improving the physical health of people with mental illness is one of the objectives outlined in "Delivering for mental Health" (Scottish Executive, 2006) and people with severe mental illnesses often experience difficulties accessing services appropriate to their physical health needs (Scottish Executive, 2006).

Analysis by both season and type of service showed a similar pattern for all the clientele with the exception that the "other tertiary care" group did not show the dramatic increase in physical activity typical of the other groups. (The numbers in this group, however, were small N=14.) The high completion rates in the different groups (53 - 83%) and stability from pre- to post- measures in the SF-12v2™ and WEMWBS along with the increases in the SPAQ imply that ecotherapy is an inclusive intervention equally relevant to a variety of secondary and tertiary care mental health services. Thus it appears ecotherapy can be effectively used as a trans-diagnostic adjunct form of treatment in a secondary and tertiary care mental health population.

### IX B – Qualitiaitive

A disparity exists between the self-reported increases in well-being from the qualitative data and the relative stability of the pre- to post-interventions in the WEMWBS. This could reflect several realities: the qualitative data is an accurate representation of the client's well-being whilst on the project and the quantitative data an accurate measure of the client's well-being whilst not engaged in the programme. Henceforth, the positive effects of the programme on well-being do not extend to time spent out with the programme. The qualitative and quantitative data may both accurately represent well-being although due to selection bias the qualitative data may have used only those in the lower-scoring group on the WEMWBS. Or, the qualitative data is not a good reflection of well-being overall (due perhaps to selection bias) and well-being remained stable. Or, the quantitative data is not an accurate reflection of well-being (due to lack of sensitivity/acquiescent response bias) and well-being increased. Or, the data reflect different aspects of well-being.

The latter point seems to fit most aptly as the qualitative data relating to well-being clustered around two subordinate themes: "Confidence" and "Self-Esteem" whilst the WEMWBS measured wider aspects of well-being. Confidence and Self-Esteem are themselves important parameters in a secondary care population and relate heavily to social functioning and motivation (increases in which are also reported within qualitative data).

The observations of the clinicians echoed the findings of the SF-12v2™ PCS in that fitness levels in some of the least fit clients appeared to increase. The reduction in body pain reported also reflected overall trends reported within the SF-12v2™ eight scale health profile (improvement in body pain parameter). Other findings included feeling generally fitter, improvements in breathing problems, and weight reduction. These findings may be resultant of the programme itself but are most likely given the limited time period (three hours per week for twelve weeks) to be at least partially effected by the apparent knock on effects on physical activity out-with the confines of the programme.

Twelve of the clients reported positive improvements in their daily (or weekly) routine and regarded the programme as providing something for them to focus on. The reported improvements included factors such as: getting out of bed earlier, getting out of the house, sleeping better, improved structure to their day (and week) and activity on what would otherwise be an 'empty' day. The vast majority of clients in secondary and tertiary care services are unemployed and thus have little routine around which to structure their day. Behavioural activation theory (Jacobson et al., 2001) suggests the significance of work and routine in accomplishing goals and providing anti-depressant reinforcers. In a similar vein, Seligman (2006) stresses the importance of engagement in work and leisure stating that "a lack of engagement may cause depression" (Seligman, 2006, p 777).

The idea of having something to focus on and providing purpose was also evident in the data relating to the service logistics under "sense of achievement" and particularly the language which the clients used in describing their activities (work) on the project. Without work most secondary and tertiary care patients are not provided with the opportunity to contribute to society in a meaningful way. Turner (1976) stresses the importance of working towards a desirable societal goal in promoting social integration, ambition and discipline. Seligman (2006, p.777) echoes this notion in stating that serving an institution such as the community can provide "a sense of satisfaction and the belief that one has lived well". Burls (2007) points out that by conserving and maintaining natural areas, ecotherapy programmes offer such an opportunity and notes that behavioural interventions tend to have better outcomes when both parties stand to gain from the outcome (Halpern and Bates, 2004). Therefore, one of the most important effects of an ecotherapy group could be offering clients an opportunity to structure their day and build routine by providing civic engagement without the, potentially detrimental, time and pressure demands of work (Davey, 1993). The master theme "stepping stone to community engagement" shows that clients appeared to view the programme as providing this role.

Within the master theme "transferable skills acquisition" data tended to cluster around two subordinate themes: the "acquisition of knowledge relating to, and interest in, nature activities" and the "learning of new skills". Again the importance of these facets can be related to the absence of work, the absence of routine and the absence of any other activity around which to structure a day.

Pegg (2000) suggests that by moving those with severe and enduring mental health problems from in-patient to community settings, a wide range of needs (including the availability of therapeutic leisure-based programmes) can be left unfulfilled. In order to meet this need and address the disproportionate number of people with mental health problems who do not engage in leisure activities, Section 26 of the Mental Health Act (2003) was established. Rudnick (2005), Heasman and Atwal (2004) and McMurry (1992) suggest that inclusion in leisure activities can be of specific importance to those with mental health problems, especially for those unable to work. Despite a lack of empirical studies on leisure as a therapeutic intervention for people with severe mental health problems (Suto, 1998), UK research has shown leisure to be one of the most frequently used interventions among occupational therapy practitioners (Meeson 1998, Criak et al., 1998). Frances (2006) suggests that outdoor recreation can be used as a viable therapeutic medium for people with enduring mental health problems.

There is evidence that social activity can buffer the harmful effects of stress, and is one of the key elements of good mental health (House et al., 1988; WHO, 2004). Previous studies suggest the role greenspace can have in bringing together communities, increasing social activities and improving social skills (Armstong, 2000; Milligan, 2004; Lewis, 1990, 1992; Coley et al., 1997; Kweon, et al., 1998; Kuo, et al., 1998; Walsh and Golins 1976; Miles, 1993; Schleien et al., 1993; Witman, 1993; Furnass, 1979; Humberstone, 1991 Crisp, 1998, Vogel, 1989; Kaplan, S. and Talbot, J. F. 1983, Kaplan, 1984; Hattie et al. 1997, Carson and Gillis, 1994).

The social benefits of Branching Out were clearly reflected in the qualitative data and reported by clients, clinicians and Branching Out staff alike. The only partially negative finding in the qualitative data resulted from one client who reported a decrease in confidence due to a disagreement with another client prior to interview but increased confidence due to socialisation throughout the course. This is perhaps an unavoidable and acceptable consequence of working in groups: Not every social interaction will go well. The benefits, however, appear to outweigh the risks.

The social benefits appear to result, at least in part, from the dynamics of the programme namely that: regular service providers 'mucked in' (improving the therapeutic relationship) and the task oriented focus enabled 'socially awkward' clients to control the social element of group dynamics without appearing antisocial. The social benefits may also result in part from the tendency for individuals to behave in specific ways due to their environment (and in the absence of their usual environment behavior adapts) and certainly the previous findings from wilderness and adventure therapy echo this notion. Not only was the intervention not in an institutional setting but the environment (including the role of the clinicians) was radically different in that it was removed from the cityscape typical of the client's normal environment. The interest in this environment can be seen in the section "acquisition of knowledge relating to, and interest in, nature activities" where clients appear to display a certain level of fascination with their new environment.

### IX C – Recovery

The recovery movement originated in the USA. Recovery can be defined as a personal process of tackling the adverse impact of experiencing mental health problems, despite their continuing or long-term presence. Although the Branching Out ecotherapy programme was not deliberately constructed as a recovery-oriented service many of the findings from the qualitative data reflect the principles of a recovery approach. According to recent policy from the Sainsbury Centre "The most powerful evidence for recovery lies in the narrative accounts of individuals" (Shepherd, et al. 2008, p.3). Recovery has been adopted as an approach in Scotland (Scotland Government, 2006) and elsewhere throughout the world (Shepherd, 2008).

The recovery approach emphasizes a different relationship between service users and professionals. Roberts & Wolfson (2004) have characterized this as a power shift from staff who are seen as remote and in a position of expertise and authority, to the increased valuing of service users experiential expertise. This power shift clearly mirrors the findings summarized by the section "promoted social inclusion". Therein the dynamics of the programme, which involved a clinician providing a supporting rather than lead role are described. The dynamics may have been further aided by the non-institutional settings. Not only could the non-institutional settings affect clients behaviour but (as the tendency to act differently in different surroundings is not a phenomena confined to the clients) they could be a factor in enabling clinicians to readjust their institutional (authoritative) role. The recovery approach also emphasizes the importance of social inclusion and the programme's dynamics appeared to result in benefits to clients social skills and increased levels of socialisation.

Additionally, "finding you have something to give, as well as needing help is central to building a positive sense of self-esteem and this is at the heart of recovery." (Shepherd, 2008, p5). From the qualitative data "sense of achievement" and increases in both "confidence" and "self-esteem" were found. The origins of the "sense of achievement" reported appeared to be at least partially a consequence of clients being given the opportunity to demonstrate a variety of abilities. This may have been aided by the selection of activities which were "pitched at the right level for the client group (irrespective of their mental state)". Other contributing factors to "sense of achievement" included the contribution clients were making to the community, and the acquisition of a mainstream award. The inclusion of this award again reflects a recovery approach which emphasises the importance of involvement in "mainstream community activities" (Shepherd, 2008, p10).

The sections "Stepping stone to further community engagement" and "provision of daily structure and routine" can be seen to reflect a movement in the client's recovery journey from the stage of "Moratorium" (a period of isolation and withdrawal) to the more positive stages of recovery (Andresen, Caputi and Oades, 2006). This apparent movement is arguably the most important finding from the evaluation and is likely to be a contributing factor to the increased confidence, self-esteem and socialisation reported.

The movement away from moratorium may be a product of the programme's ability to offer clients the opportunity to structure their day and build routine by providing civic engagement without the, potentially detrimental, time and pressure demands of work (Davey, 1993). This is echoed by Shepherd, (2008, p.5) who states "There is clearly an important balance to be struck here between the dangers of forcing people back to work and the dangers of excluding them from it through a combination of ignorance, prejudice and lack of effective help". The theme "stepping stone to further community engagement" demonstrates that this balance seems to be achieved within the confines of the programme. The recovery approach also emphasizes the pursuit of interests and again, both "learning new skills" and the "opportunity to pursue interests" were emergent themes from the qualitative data.

### IX D – Limitations

There are several limitations of this evaluation. As concentration levels were an important consideration, the quantitative data is derived from responses to short (population level) questionnaires and consequently the ability to generalize the findings (the power) in such small numbers (n=77) is limited. As a service evaluation there is no control group and thus it is difficult to determine what change in the pre- to post-measures are attributable to the programme and what are attributable to other factors. Other factors include engagement with the referring services themselves and engagement in other activities (and projects) out-with the programme.

The qualitative component used only a sub-set of the clients who volunteered and therefore a selection bias may have existed. It is unclear whether those who volunteered, viewed the programme in a more positive or negative light than the clients who completed overall. 28 (36%) of the completing clients were interviewed and this included at least one person from each group. The responses were consistent with those from the other clients interviewed, and with the responses of the clinicians in the focus groups.

One major limitation is that no data was collected from those who dropped out of the programme as the interviews took place in the latter half of each block. This group would have been most likely to have shed light on the negative aspects of the programme and the overwhelmingly positive response to the programme reported in the interviews may be a reflection of this limitation. Such a limitation is common within service evaluations and raises ethical considerations: i.e. the clients are explicitly told at the outset that they may "discontinue attendance of the programme without giving any explanation".

The issue of being unable to go back to ask clients for further information when they have not consented to follow up was a further limitation of the evaluation. The evaluation was initially funded for six months and thus no caveat was written into the consent forms requesting follow-up measures on any of the primary outcome variables.

Feedback was received from some of the voluntary projects which were referred to during the awards ceremony. Some of the projects reported that previous clients had gone on to attend their service. The CMHT representative reported, during the second focus group, that some of the clients had progressed on to attending voluntary projects independently. The Employability representative also reported during the second focus group, that some clients had progressed onto higher education. The Forensic services involved established a woodwork group with the Bullwood Project and employed the tai chi instructor for ward-based activity. There was however, no robust method of recording this information, and hence it is difficult to quantify how the programme affected client's progression onto, or involvement in, other community activities following attending the Branching Out programme.

Physical activity was the only parameter in which a significant difference was witnessed between pre- and post-measures. Follow-up measures would have allowed us to establish if the increases in physical activity were sustained. As previously stated, physical activity, if sustained has positive knock on effects on mental and physical health.

Thus, follow-up measures on the primary outcome variables may have led to a sleeper effect, with the increased physical activity leading to gradual increases in the SF-12v2™ and WEMWBS over time. Increases in eudemonic aspects of well-being following participation in outdoor activity programmes have previously been reported (Hattie et al., 1997).

### IX E – Conclusion

From this evaluation, it appears that there were several positive outcomes of the Branching Out programme. These were:

- Low attrition rates in a hard to reach population (secondary/tertiary care: predominantly men)
- Significant increases in physical activity.
- Strong trends towards improvement in the SF-12v2™ (PCS), SF-12v2™ (MCS), and WEMWBS for high severity groups on each scale.
- Self-reported improvements in confidence and self-esteem from participating clients.
- Intergenerational appeal/appeal to both sexes

Additionally, several aspects of the programme were reported which reflect the contribution Branching Out can make as part of a recovery-based approach to health care. These were:

- The dynamics of the programme and its delivery in an outdoor environment/non-clinical setting, appeared to aid in redressing the patient-health professional power imbalance, promoting team building and promoting social inclusion. As a result of this, improvements in social networking and social skills development were reported by clinicians and clients alike.
- The opportunity to demonstrate competence in tasks, the contribution of the work to the community, the attainment of new skills, and the acquisition of the John Muir Discovery Award (and other certificates), appeared to provide clients with a sense of achievement/pride.
- Clients reported increased structure and routine within their day/week and the provision of something to focus on. As a result, many of the clients and clinicians viewed the programme as representing a half-way house between a self-imposed isolation, inactivity and a reintroduction to community engagement.

It appears from the results of this evaluation that Branching Out can be effectively used as a trans-diagnostic adjunct form of treatment in a secondary and tertiary care mental health population. These positive outcomes demonstrate the benefits of the environmental and health sectors working together to deliver health outcomes for mental health service users. As the programme did not require any additional premises beyond the work-base of the NHS and FCS staff, cost per head per day was under fifty pounds. The programme therefore appears to offer excellent value for money. Mental health services providers and clinical practitioners should give due consideration to adopting and supporting Branching Out type programmes as part of a wider menu of adjunct treatment options.

### IX F – Future directions

Increased partnership working between the environmental and health sectors to deliver health outcomes for patients in natural settings.

A multi-disciplinary, multi-agency, team should be established to develop a communications plan, secure future funding and further develop the Branching Out programme as an adjunct form of treatment for those who use secondary and tertiary care mental health services in Greater Glasgow and Clyde and across other health boards.

Future ecotherapy programmes, for those who use secondary and tertiary care mental health services, should utilize and further develop the model described herein. To this end a resource guide has been produced to share good practice with and aid other organisations in setting up their own programmes. It can be downloaded at www.forestry.gov.uk/branchingout

Future evaluations of, and research into, ecotherapy programmes should examine the effect of programme length, frequency and duration on the primary outcomes used here, as well as investigating the effects on other parameters such as social and interpersonal skills, levels of social activity, routine and structure, anxiety, depression, self-esteem, confidence and pride. Follow-up measurements and a record of clients' further participation in voluntary projects/work/other activities, should also be recorded in an effort to establish what the long-term benefits of ecotherapy are. It is recommended that both qualitative and quantitative methods are used to establish both outcomes and the causal mechanisms behind these outcomes.

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# Appendix A Location and Duration

## Duration

Several elements preceded this decision: Previous literature had shown that even brief exposure to natural or rural surroundings had invoked a stress reducing effect (Parsons et al., 1998; Shimomura, 2002; Morita et al., 2007; Hartig et al., 2003) whilst lengthy interventions, particularly if they were too physically demanding could have a detrimental effect on self-esteem (Pretty et al., 2005). Other considerations included the amount of time the intervention would take out of a clinician's and client's day: both would have to travel to and from the site requiring a period of over five hours for a three hour intervention. Furthermore, a large proportion of the literature on greenspace has involved those who are physically fit (e.g. Bodin, & Hartig, 2003) or have an interest in greenspace (e.g Morita, et al., 2007). Those with severe and enduring mental health problems tend to have levels of concentration and physical health which are lower than the general population.

## Location

With the duration of the intervention set at three hours a week, it was considered that the maximum travel time acceptable was an hour (or one third of the intervention time). This reduced the possible sites of the intervention to Glasgow and the surrounding areas. With the involvement of Glasgow City Council woodlands unit, five prospective sites on the south side of Glasgow were considered. These being: Pollock Park, Castlemilk, Lynn Park, Cathkin Braes, and Carmunnock.

A day was arranged for the clinicians and prospective service users in which to view the five prospective sites on the south side of Glasgow. In the event, only one service user could attend along with four clinicians, the assistant psychologist, project manager and an officer from the Glasgow City Council woodlands unit who introduced the sites and gave a description of the conservation work to be done on the sites and the potential for further activities. A vote was cast on the preferred sites and the two most popular: "Cathkin Braes" and "Carmmunock" were therein decided upon.

Both these sites were beyond the edge of the city (in terms of housing rather than the city boundaries) and thus involved greater travelling time. However, the locations were thought to be advantageous in providing a sense of what Kaplan & Kaplan (1989) describe as "being away" – a feeling of escape from the ordinary aspects of one's life. While the sites were situated within a mile of each other they provided stark contrast: Cathkin Braes is a mature woodland consisting primarily of Oak and Beech, whilst Carmunnock is a willow coppice site which had only two years growth. Thus, while the topography of both sites were thought to aid relaxation by providing picturesque views of Glasgow, Ben Lomond and the Campsies, their differing natural habitats provided increased usage options..

# Appendix B Activity Criteria

- That the activities were beneficial to the area and fitted in line with the plans for the site. (e.g: no creation of permanent structures from non natural materials' no introducing of invasive plants / all plants to be checked with the site's biodiversity officer before planting' removal of plants or vegetation only from a designated list / areas; fires to be lit only in designated areas, etc)

- That the activities could be completed using a limited array of hand tools. These being: loppers, secatures, bowsaws, spades, rope, hammers and nails. (Reasons: Constraints of health and safety, concerns over tool monitoring with a forensic population, limitation of budget, transportation of tools to and from site and limitations on which tools the Ranger could provide instruction on.)

- That the activities were varied. (In order to introduce as many aspects of ecotherapy as possible and provide clients with a greater chance of finding an aspect of such activities which particularly appealed to them. To reduce possible tedium through monotony.)

- That the activities were not considered too physically demanding for all clients meeting the inclusion / exclusion criteria and provided a mix of mentally and physically stimulating tasks. (In order to provide a balance between engaging and overstimulating /exhausting clients.)

- That the activities could be easily manipulated or extended to suit the clients' ability or physical and mental reaction to them. (In order to provide different clients and client groups with activities which are appropriate to their activity levels.)

- That the conservation activities were season specific (e.g. planting only appropriate in November, willow cutting only between November and March).

# Appendix C Example Activity Risk Assesments

**Time Period Covered:** 2008 Review Dec 2008 or as required **Location:** Cathkin Braes Country Park Curmunnock Willow Coppice

**Job:** Branching Out – Campfire Cooking **Employees covered by risk assessment:** Ranger, Assistant Psychologist, facilitating staff and clients

| The Hazard | Location of the Hazard | Who could be harmed? | Level of risk | Controls | Implementation/ Monitoring | Check by |
|---|---|---|---|---|---|---|
| Falls / tripping into fire. | Fire pit – base camp. | Leaders and participants | Med | Ensure safe practice around the fire at all times.<br>No running round the fire<br>Emergency and first aid procedures followed if required. | High staff : participant ratio<br>First aid kit available | |
| Fire getting out of control | Fire pit – base camp. | Leaders and participants | Low | Only experienced leaders / adult to light the fire<br>No diesel or petrol to be used.<br>No fire lighting in high winds. | High staff : participant ratio | |
| Ignition of surrounding vegetation | Forest site | Leaders and participants | Low | Fire positioned well away from vegetation.<br>Fire position on cleared soil base.<br>Cut logs in place to surround fire.<br>Water available to put out any smouldering vegetation. | Designated water container, and fire blanket on site | |
| Hair or clothing catching fire | Base camp | Leaders and participants | Low | Remove loose clothing<br>Tie long hair back when appropriate<br>Do not lean over fire or throw things into it. | High staff : participant ratio<br>First aid kit available | |
| Eye / lung irritation from smoke | Base camp | Leaders and participants | Low | Remove people from smoke path. Only burn untreated wood or paper – no toxic materials. | High staff : participant ratio<br>First aid kit available | |
| Small burns from ash / embers | Base camp | Leaders and participants | Low | Disturb fire as little as possible<br>Cover up skin. | High staff : participant ratio<br>First aid kit available | |
| Safety after fire | Fire pit – base camp. | Leaders and participants | Low | Water used to cool down fire.<br>Ensure fire is fully extinguished before leaving.<br>Return to check and remove any traces. | Designated water container, and fire blanket on site | |
| Burned mouth from eating cooked food. | Base camp | Leaders and participants | Med | Advise participants to count to ten and blow on food before eating. | Water available in case of burns.<br>First aid kit available. | |
| Poisoning / upset stomach from undercooked food. | Base camp | Leaders and participants | Low | No meat / fish products to be cooked.<br>Member of staff must hold health and food hygiene certificate.<br>Project to supply all cooking ingredients.<br>Hands to be washed thoroughly before cooking.<br>Participants to be supervised while cooking. | Leader certificate updated when required.<br>Hand wash, wipes and hand gel available.<br>High staff : participant ratio<br>Cooking equipment cleaned and stored away. | |

Assessment by: [Ranger] _____ Signed: _____ Date_____

Approved by: [Project Manager] _____ Signed: _____ Date_____

The generic risk assessments have been discussed with all the above employees and they have been advised if they come across a hazard not covered by the risk assessment on a particular site they should contact: [ranger or project manager]

# Appendix D General Requirements for Tools

### Programme Administrators shall ensure:

1. The storage of tools in a secure area.
2. The accountability of tools is maintained at all times.
3. Only minimal amounts of tools are kept on hand.
4. Small hand held tools when transferred to site will be done so in locked tool boxes.
5. Service Users check-out and return all tools using Form 11 Tool Check-Out; Before returning to base. Tools will be assigned to individuals.
6. Tools will be counted in/out on a daily basis by the ranger and assistant psychologist and the check kept for a period of one week.
7. Form 11 will be amended in the event tools are added and/or deleted from the inventory.
8. Ensure service users are supervised during tool usage.

### Tool Boxes:

9. Each tool box will have attached a laminated inventory of it's contents with which to easily identify the presence absence of a tool.
10. No other tools will be stored in the tool box.
11. The laminated inventory is immediately updated when tools are added or deleted.
12. Staff account for all tools prior to the return of service users after each day.

### Any member of staff who discovers that a tool is lost or missing shall:

1. Immediately report the loss to the Ranger.
2. Complete an Accident Report form which includes:
   (1) Identification of the tool(s) lost or missing;
   (2) Circumstances surrounding the disappearance;
   (3) All measures taken to investigate and search for the tool(s).

### Form 11

| Tool | (i) | Date | Out | Return |
|---|---|---|---|---|
| Loppers 1 | | | | |
| Loppers 2 | | | | |
| Loppers 3 | | | | |
| Loppers 4 | | | | |
| Secatures 1 | | | | |
| Secatures 2 | | | | |
| Secatures 3 | | | | |
| Secatures 4 | | | | |

**All Tools In**

Signature of Ranger _____

Signature of Research Assistant _____

# Appendix E First Aid Requirements

## First Aid Requirements

An appointed person, the Ranger, trained in first aid will be present on site at all times to deal with any medical incidents. It is the Ranger's responsibility to take charge of the situation when the need for first aid arises. As such, they are able to call the emergency services, locate the first aid materials, and record their actions. In addition to this the research assistant is trained in emergency first aid measures and has been instructed on the management of bleeding, unconsciousness and the application of CPR.

*Although there is not a statutory list of required first aid materials, those used are listed in the table below and correspond to the first aid materials recommended by the Health and Safety Executive. They will be stored in a mobile dedicated first aid box which is easily identifiable and accessible The contents will be maintained with due regard to expiry dates.*

| RECOMMENDED FIRST AID MATERIALS | Static Box | Mobile First Aid Box |
|---|---|---|
| A leaflet giving general guidance on first aid (cost item from HSE) | 1 | 1 |
| Individually wrapped sterile adhesive dressings of assorted sizes (for food handlers these should be of a non-skin colour, usually blue) | 20 | 6 |
| Sterile eye pads | 2 | |
| Triangular sterile bandages | 4 | 2 |
| Safety pins | 6 | 2 |
| Sterile individually wrapped wound dressings (medium/large) | 8 | 1 |
| Disposable gloves (pair) | 2 | 1 |
| Individually wrapped moist cleansing wipes | | 2 |
| Yellow bag for clinical waste | 1 | 1 |
| Resusciade | 1 | 1 |

The following items will also be in the mobile first aid box:

- Scissors
- Adhesive tape
- Disposable aprons
- Moist wipes (individually wrapped) if there is no ready access to tap water
- Sterile normal saline (0.9%) only if there is a risk of eye contamination and there is no readily available tap water. If required 3 x 0.5L should be stocked. If tap water is available this should not be necessary. The shelf life of the saline must be acknowledged.

## Recording of First Aid Activities

### There will be a dual incident reporting method:

All incidents will be recorded by the ranger in the accident report book. The completed accident record will then be detached from the book and kept securely. The procedure for reporting incidents will follow the operational guidance from the Forestry Commission. A flow chart detailing this procedure is given in Appendix J. The Ranger will keep an accident report book along with the medical box on site.

### If the incident involves a person or member of staff from the referring service

If the incident involves a service user or member of staff from the referring service, the facilitating staff from the referring service will complete an IR1 form and follow their current incident reporting procedures. In order to let the NHS Greater Glasgow and Clyde, health and safety team track the incidents: it has been agreed that the while the **site reference** will remain the same, "STEPS" should be entered in the box denoting site type. Furthermore a photocopy should be sent to:

Neil Wilson, Branching Out
C/O STEPS
Govanhill Workspace, 69 DIXION ROAD
Govanhill, G42 8AT

## First Aid Risk Assessment

| WORKSITE HAZARDS OF INJURY OR ILL-HEALTH | RISK OF INJURY OR ILL-HEALTH OCCURRING (SIGNIFICANT/ POSSIBLE/UNLIKELY) |
|---|---|
| Does IR1 information indicate a tendency to injury or ill health from work activities? | No |
| Are there specific worksite hazards in my area of responsibility? | |
| Sharps injury | Low |
| Exposure to infection | Low |
| Use of chemicals/drugs which could cause ill health | Low |
| Exposure to dusts which could cause ill health | Low |
| Violence | Low |
| Electric shock | |
| Lifting and handling injury | Med |
| Equipment or tools which could be dangerous | Med |
| Burns | Low |
| Slips, trips and falls | Med |
| Is the workplace spread over a large geographic area or many floors? | Yes |
| Is the workplace remote from the emergency services? | Yes |
| Do the public have access to the premises? | Yes |

# Appendix F Emergencey Procedures and Contact Details

## Emergency Contact Details

Project Manager & Forestry Commission Lead
Kevin Lafferty/Hugh McNish
Central Scotland Health Advisor
Central Scotland Conservancy
Bothwell House
Hamilton Business Park
Caird Park
Hamilton
ML3 0QA
01698 368 555

Emergency Services: Dial 999
Forensic: 0141 211 6448
Esteem: 0141 303 8924
Leverndale: 0141 211 6400

**Nearest Hospital:** Hairmyres Hospital, Eaglesham Road East Kilbride, Lanarkshire, Scotland, G75 8RG.
01355 585 000

## Emergency Procedures

In case of emergency dial 999 for ambulance/police/fire brigade. Ask for required service and give as many details as possible:

- Telephone number you are calling from
- Details of location:

### 1. Carmunnock Wood

Vehicle Entrance off the Carmunnock road between Carmunnock and Castlemilk: GRID REFFERENCE: NS 597 577

### 2. Cathkin Braes Country Park

Nearest Ambulance point would be on Arden Craig Road between Castlemilk Drive and Carmunnock Road. (Very near the end of Castlemilk Drive) GRID REFERENCE: NS 601 583

Vehicle access in the car park left of Cathkin Road (B759) if heading from Carmunnock to Cathkin GRID REFERENCE: NS 609 579

- Your name
- Description of problem/symptoms of injury
- State that the crew will be met at the road barrier
- Speak clearly and slowly and be ready to repeat information if asked

### Ambulance:

- If required, give as much information about the condition of the patient as possible and where on the site the accident happened
- If possible, arrange for someone to wait at the road entrance to flag them down (entrance can be hard to spot)

### Fire Brigade:

- In the case of a fire withdraw to the assembly point site (To be directed by ranger)
- If possible arrange for someone to wait at the road entrance to flag them down

# Appendix G Site specific Risk Assessment

**Time Period Covered:** 2008 Review Dec 2008 or as required

**Location:** Branching Out site at Cathkin Braes Country Park Map grid reference: NS 609582

**Job:** Branching Out – GENERIC SITE RISK ASSESSMENT

**Employees covered by risk assessment:** Ranger and Assistant Ranger

**Emergency contact details:** [i.e. referral services, local hospital, project manager etc]

| The Hazard | Location of the hazard | Who could be harmed? | Level of risk | Controls | Implementation/ Monitoring | Checked by |
|---|---|---|---|---|---|---|
| Trips, slips, falls, | Everywhere | All | Low | Keep to paths and trails where possible in woodland areas<br>First aid kit carried in case of accidents<br>Mobile phone for emergency<br>Verbal warning to all participants | Route planned and checked for hazards in advance by Ranger<br>First Aid kit carried by Ranger | |
| Getting lost | Everywhere | Participants | Low | Numbers checked before starting<br>Regular head counts throughout walk<br>Speed of walk that of slowest participant | Ranger to lead, and control speed<br>Map of area carried in kit | |
| Weather conditions | Everywhere | All | Low | Participants to wear appropriate clothing- waterproofs, warm layers and suitable footwear | Ranger to check wind speeds at forest site prior to group visit<br>Ranger to monitor participants comfort- include warm up activities if participants are getting cold, and shorten visit if required<br>Ranger to cancel session if high winds / storm | |
| Poisonous plant materials | Within wood | Participants | Low | Hazardous plants identified in pre event check<br>Participants warned before handling any plant material | Ranger to check routes and inform participants of any danger | |
| Irresponsible behaviour | Everywhere | Participants | Low | Ground rules are set at the start of each day and reinforced throughout the day. If participants choose not to stick to the rules they will not be allowed to do the activity<br>If behaviour is persistently bad we will review with referring service | Ranger and facilitating staff to review and enforce rules<br>Positive behaviour praised | |
| General accidents | Everywhere | All | Low | Regular tool & safety talks given to groups | Vehicle will be parked near the site at all times<br>Both the Ranger and Research Assistant are qualified first aiders<br>A first aid kit is at hand at all times The site is inspected before the day for unsafe trees/branches, uneven ground and any other hazards that leaders and clients need to be made aware of<br>Mobile phones carried | |

Assessment by: [Ranger] _____ Signed: _____ Date_____

Approved by: [Project Manager] _____ Signed: _____ Date_____

# Appendix H Method Statement

**Method Statement** Tuesday the 25th of September
Week 1 – CathkinWalk through site – Identify base

| | |
|---|---|
| 9.00am | Assistant psychologist arrives at Leverndale. Liaise with facilitating staff accompanying the service users for the day. |
| 9.15am | Mini-Bus arrives at Leverndale: Outside Ward 5 & 6. Assistant psychologist will transfer clothing box to mini - bus. |
| 9.00am | Ranger arrives at Cathkin Braes: Begins risk assessment.<br>Constructs fire.<br>In the unlikely event that the site is considered too dangerous for the days activities the ranger will contact the assistant psychologist by telephone and inform them of the situation. If the reasons for cancellation are site specific, the possibility of doing the second weeks activities will be explored and the ranger will move on to Carmunnock to risk assess the site. In both instances the assistant psychologist will inform the facilitating member of staff as to the situation. |
| 9.15am - 9.30am | Service Users get on the mini-bus along with facilitating member of staff and assistant psychologist. |
| 9.30am – 10.15am | Mini - bus leaves Leverndale and makes it's way to Catkin Braes |
| 10.15am | Bus decants |
| 10.15am - 10.17am | Clothing/footwear is signed out to the service users from the equipment stored in the mini-bus: Any item that the service user is swapping for these items will be kept in the mini-bus. Service users are asked to remove any valuable items form the clothes they are leaving in the mini-bus and carry with them. |
| 10.17am - 10.20 | Cigarette break |
| 10.20am - 10.30am | Walk to site of days intervention |
| 10.30am - 10.35am | The ranger is already present on the site and introduces herself. There is a brief talk form the ranger and the assistant psychologist about the program. Discussion surrounding toilets and identification of toilet areas |
| 10.35am - 10.45am | Ranger introduces the services users to the woodland. Talks about the history of the woodland: when planted, what type of woodland it is how this differs form other types what other types there are in the south side: I.e. Pollock park Lynn park etc. How the landscape has influenced the woodland development. What has been done so far in terms of managing the woodland: How the dabble shading has come about. And what the current issues are and how they are being dealt with, what the project will contribute to the woodland. Further talk about the tasks we will be doing and how they relate to the current site management issues. Introduce the idea of the art sculpture and ask the service users to start to think about what this could be and suggest any ideas for this. |
| 10.45am - 10.55.am | Identify a site suitable for operational base. Discuss site requirements; space required and level of protection/ shelter required. Identify work needed to establish site i.e. litter clearance, Any litter to be picked up will be done so with a "Litter Picker" and black plastic beanbags to ensure hygiene and minimise the chances of cuts, etc |
| 10.55am§ | Tool count out: Litter pickers |
| 10.55am - 11.03am | Litter clearance around the site to be used for the base |
| 11.03am - 11.05 | Tool count in: Litter pickers |
| 11.05am - 11.30am | Lunch - Spare sandwiches are available to those who have forgot to take a packed lunch: In this event it will be checked that the service user is not allergic to any of the contents of the sandwich. |
| 11.25am | Cigarette break |
| 11.30am - 11.33am | Tool count out: pegs rope/cord |
| 11.33am - 12.00pm | Construction of temporary make shift shelter a temporary shelter maybe constructed using a waterproof poncho and sticks/pegs and rope/cord. |
| 11.55pm | Cigarette break |
| 12.00pm - 12.03pm | Tool count in: pegs rope/cord |
| 12.03pm - 12.05pm | Concluding talk by ranger and tool count pack up |
| 12.05pm - 12.15pm | Walk back to mini bus |
| 12.15pm – 12.17pm | Equipment/clothing counted back in |
| 12.16pm | Bus leaves Cathkin Braes |
| 12.16pm - 1.00pm | Bus travels from Cathkin Braes to Leverndale |
| 1.00pm - 1.30pm | Bus Driver takes a break |
| 1.30pm | Mini-Bus arrives at Leverndale: Outside Ward 5. Assistant Psychologist will transfer clothing box to mini - bus. |
| 1.30am - 1.45pm | Service Users get on the mini-bus along with facilitating member of staff and assistant psychologist. |
| 1.45pm – 2.30pm | Mini - bus leaves Leverndale and makes it's way to Catkin Braes |
| 2.30pm - 2.32pm | Clothing/footwear is signed out to the service users from the equipment stored in the mini-bus:<br>Any item that the service user is swapping for these items will be kept in the mini-bus. Service users are asked to remove any valuable items form the clothes they are leaving in the mini-bus and carry with them. |

| | |
|---|---|
| 2.32pm - 2.35pm | Cigarette break |
| 2.35pm - 2.45pm | Walk to site of days intervention |
| 2.45pm - 2.50pm | The ranger is already present on the site and introduces herself. There is a brief talk form the ranger and the assistant psychologist about the program. Discussion surrounding toilets and identification of toilet areas |
| 2.50pm - 3.00pm | Ranger introduces the services users to the woodland. Talks about the history of the woodland: when planted, what type of woodland it is how this differs form other types what other types there are in the south side: I.e. Pollock park Lynn park etc. How the landscape has influenced the woodland development. What has been done so far in terms of managing the woodland: How the dabble shading has come about. And what the current issues are and how they are being dealt with, what the project will contribute to the woodland: etc. Further talk about the tasks we will be doing and how they relate to the current site management issues. Introduce the idea of the art sculpture and ask the service users to start to think about what this could be and suggest any ideas for this. |
| 3.00pm - 3.10pm | Identify a site suitable for operational base. Discuss site requirements; space required and level of protection/ shelter required. Identify work needed to establish site i.e. litter clearance. Any litter to be picked up will be done so with a "Litter Picker" and black plastic beanbags to ensure hygiene and minimise the chances of cuts, etc |
| 3.10pm | Tool count out: Litter pickers |
| 3.10pm - 3.18pm | Litter clearance around the site to be used for the base |
| 3.18pm - 3.20pm | Tool count in: Litter pickers |
| 3.20pm - 3.45pm | Lunch Spare sandwiches are available to those who have forgot to take a packed lunch: In this event it will be checked that the service user is not allergic to any of the contents of the sandwich. |
| 3.40pm | Cigarette break |
| 3.40pm - 3.43pm | Tool count out: pegs rope/cord |
| 3.43pm– 4.10pm | Construction of temporary make shift shelter a temporary shelter maybe constructed using a waterproof poncho and sticks/pegs and rope/cord. |
| 4.05pm | Cigarette break |
| 4.10pm - 4.13pm | Tool count in: pegs rope/cord |
| 4.13pm - 4.15pm | Concluding talk by ranger and tool count pack up |
| 4.15pm - 4.27pm | Walk back to mini bus |
| 4.27pm - 4.30pm | Equipment/clothing counted back in |
| 4.30pm - 5.20pm | Bus travels from Cathkin Braes to Leverndale |

## Rain contingency

Water proofs signed out.
Ranger will already have constructed a temporary shelter. And the second part of the days activities will look at how this was done and replicating it.

## Tools signed out

Litter pickers
Cord
Pegs

## Other tools to be used

Sticks is surrounding area.

## Relevant Risk Assessments

Generic Risk Assessment
Den building Risk Assessment
Health Walks Risk Assessment

# Appendix I Branching Out Change of Procedure (Form 3)

Branching Out Change of Procedure (Form 3)

.....

**Change to:** (e.g. Activities, Evaluation procedure, groups times etc)

.....

.....

.....

**Reason for change:**

.....

.....

.....

**Description of change:**

.....

.....

.....

**Information dispersed to:**

| Organisation/Individual | Dispersed by | Date of dispersion |
|---|---|---|
| | | |
| | | |
| | | |

**Signature of manager**..... **Date** .....

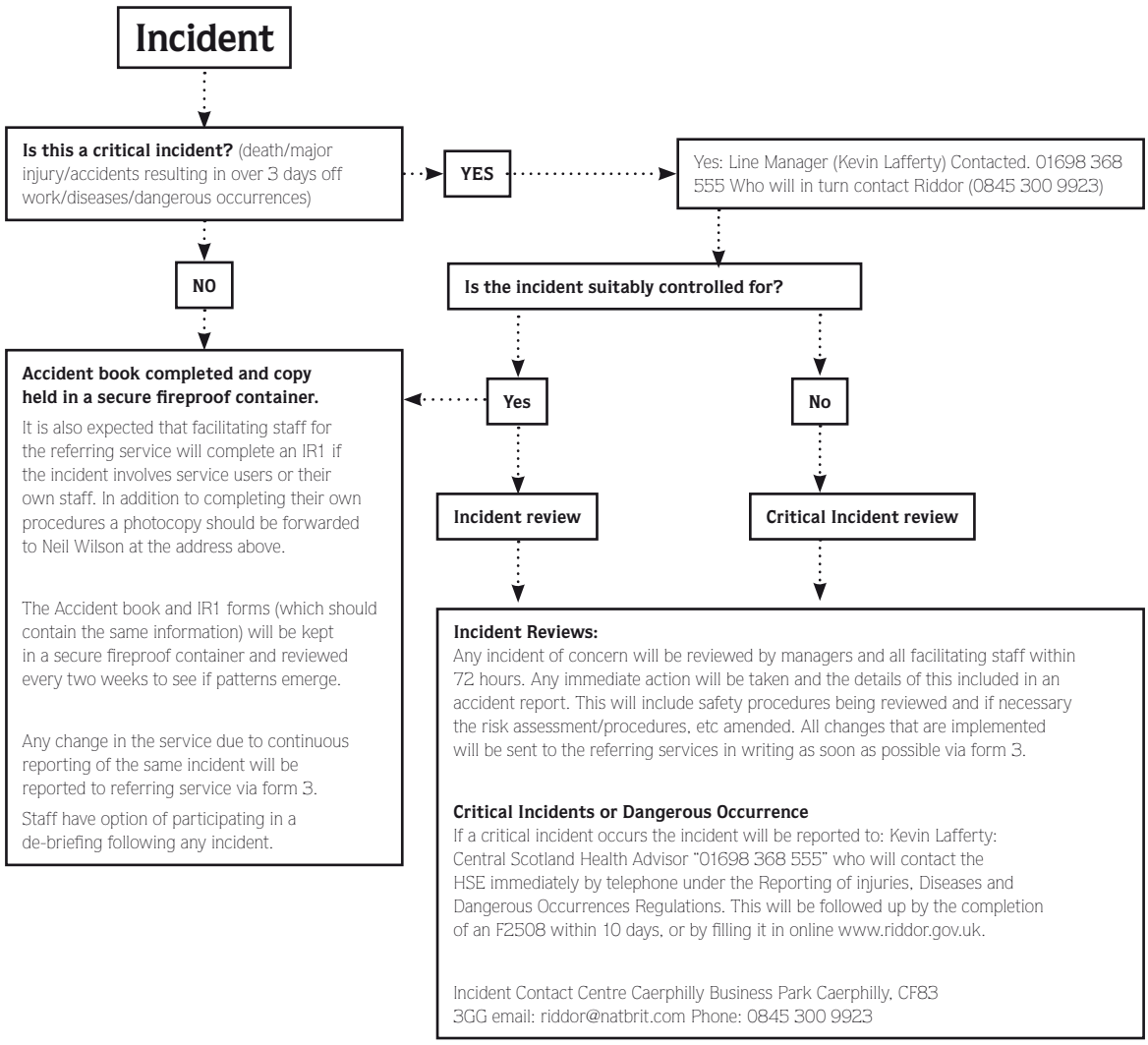
**Signature of research assistant / Ranger**..... **Date** .....

# Appendix J Incident Reporting

**There will be a dual incident reporting method:**
All incidents will be recorded by the Ranger in the accident report book. The completed accident record will then be detached from the book and kept securely. The procedure for reporting incidents will follow the operational guidance from the Forestry Commission. A flow chart detailing this procedure is given below. The Ranger will keep an accident report book along with the medical box on site.

**If the incident involves a person or member of staff from the referring service**
If the incident involves a service user or member of staff from the referring service, the facilitating staff from the referring service will complete an IR1 form and follow their current incident reporting procedures. In order to let the NHS Greater Glasgow and Clyde, health and safety team track the incidents: it has been agreed that the while the **site reference** will remain the same, "STEPS" should be entered in the box denoting site type. Furthermore a photocopy should be sent to:

Neil Wilson, Branching Out
C/O STEPS
Govanhill Workspace, 69 DIXION ROAD
Govanhill, G42 8AT




**"Accident" as defined here can be viewed as the equivalent of "incident" as it refers to:**

- An Accident where people are injured and it is reported to the HSE.
- An Accident where people are injured, but it does not need to be reported to the HSE.
- A dangerous Occurrence that is reported to the HSE.
- A dangerous occurrence that does not need to be reposrted to the HSE.
- Any incident where a person is verbally and or physically abused, threatened or assaulted in any circumstances that are related to the project.

### Post Incident Procedures

Incidents will be reported, that include verbal as well as physical aggression from whatever source, and incidents that were potentially dangerous but were resolved.

Current accident report forms will be filled out and discussed at management level to enable patterns of incidents to be identified and acted upon. If any action is taken the referring services will be informed in writing of the changes to take place. Minor incidents will also be reported using the same method: being aware both of the adverse effects of repeated exposure to "low level" violence and of the possibility that minor problems can lead to development of systems to respond to more serious incidents.

### Post Incident De-brief

Following any incident staff have the option of participating in a de-briefing session with their peers (or if the situation warrants it: support will be sought from the Occupational Health Service). The de-brief is in order to minimise the development of any adverse reactions and provide an opportunity for staff to expre ss concerns and ventilate their feelings following an incident.

### Post Incident Review

Following any major incident an independent party will carry out a review arranged via the Forestry Commission, identifying those involved, and what actually happened preceding and during the incident. The review will collect relevant information, which may assist in the future management of incidents. The review will be held as near as practicable to the time of the incident, where the events and its antecedents are discussed. The aim is not to apportion blame, but offer support to staff concerned and to learn ways in which such incidents might be avoided in the future.

# Appendix K Joint Agreement

## 1. Parties to the agreement
This agreement is made between Forestry Commission Scotland and [referring service]

## 2. The agreement
The following documentation 'Branching Out Partnership Agreement' and 'Services to be provided' composes "the agreement".

## 3. Defined Terms
Branching Out is a joint mental health and well-being initiative between [referring service] and Forestry Commission Scotland.

## 4. Agreement period
The agreement shall commence on (dd/mm/yy) and shall remain in force until (dd/mm/yy). The parties may extend the agreement period upon giving at least one month's notice prior to the expiry of the initial term on mutually acceptable terms and conditions, and for a period to be agreed between the two parties.

## 5. The service development
The Parties undertake:
To support Branching Out for a 3-month period, as specified in the 'Services to be Provided' (attached).

The parties accept shared responsibility for all aspects of service development including providing staff, record keeping, risk assessments and overarching management of the service development.

Lead responsibility will be equally shared between:

- Hugh McNish, Health Advisor, Forestry Commission Scotland (project lead)
- [NHS referring service lead]

Other roles and responsibilities:

To lead fieldwork and risk assessments:

Community & Environment Ranger: Kirsty Cathrine

To provide staff for Branching Out fieldwork sessions, make referrals and support clients whilst at the service:

[NHS appointed staff]

## 6. Project Steering Group
A project steering group has been established to oversee the day to day running of Branching Out, and will meet approximately bi-monthly. Hugh McNish, Health Advisor for Forestry Commission Scotland, will chair this group.

All staff and participants involved in Branching Out fieldwork will be responsible for their own actions, and will be expected to act in a professional and responsible manner at all times.

## 7. Variation
No term of the agreement may be varied without the express written agreement of both parties.

For and on behalf of [Forestry Commission Scotland]

Signed by: _____

Designation: _____

Signature: _____

Date: _____

For and on the behalf of [referring service]

Signed by: _____

Designation: _____

Signature: _____

Date _____

# Appendix L Policies and Protocols (Example)

**NHS Greater Glasgow and Clyde, Branching Out Project Contingency Planning**

Polices and protocols for participants from the Directorate of Forensic Mental Health & Learning Disabilities

- Tools unaccounted for
- Smoking
- Toilet use
- Verbal aggression
- Physical aggression
- Injury
- Absconding
- Illicit substances
- Physical illness/mental state deterioration

### Subject: Tools unaccounted for

- If a tool is unaccounted for during the session, immediate area will be searched and all facilitating staff informed. Neil Wilson and the Ranger will decide which areas will be searched.
- Participants should be given every opportunity to hand over any tools secreted upon their person prior to leaving the site.
- If the unaccounted for tool is not found after the preliminary area search the remaining tools will be checked, countersigned and stored in their locked storage units.
- The facilitating OT and nursing staff will phone the wards and inform them of the situation. The ward will plan for the participants returned to the reception of wards 5 and 6 using the project transport.
- On arrival at the reception of wards 5 and 6 nursing staff will be telephoned by reception staff. Patients will return to each ward one at a time with remaining patients waiting with facilitating staff in the airlock.
- Prior to entering the main communal area of the ward a rub down search will be carried out as they will be suspected of secreting the unaccounted for tool.
- The rub down search will adhere to the Directorates Search Policy Section 10 rub down search items a-u.
- If it is found that a participant has attempted to secrete on their person or hide a tool which prevents adherence to the tool use policy their participation will be suspended throughout the remainder of the project. The participant's RMO and ward manager will be notified on return to the ward.
- Once all participants are returned to the wards the facilitating OT and nursing staff will carry out a systematic search of the Branching Out transport. This will start at the back of the transport and work towards the front.
- Neil Wilson and the Ranger will return to the site and systematically check the area for a second time.
- If the tool remains unaccounted for the facilitating OT and nurse will complete an IR1 (the box denoting site location should be completed as STEPS and a photocopy to allow for monitoring of incidents should be forwarded to Neil Wilson.

### Subject: Smoking

- Participants will be notified of breaks at which time smoking will be permitted at the start of each Branching Out session.
- Facilitating OT and Nursing staff will carry a lighter
- Participants will not sign out lighters from the ward
- Participants will be made aware of the procedure for disposing of their cigarettes in accordance with the conversation ethos of the project

### Subject: Use of toilets

- Prior to leaving the ward participants will be reminded of the basic nature of the toilet facilities.
- During the session participants will use the toilet one at a time. Participants will be escorted to the toilet area by a member of the facilitating staff the same sex as the participant from Leverndale Hospital.

### Subject: Verbal and Physical Aggression

#### Verbal:

- In the event of a participant being verbally aggressive they will be removed from the main working group. A member of the facilitating staff from Leverndale will speak to the participant with the aim of de-escalating the situation.
- If the participant is viewed as being able to carry on the session they will return to the group.
- If the participant is viewed as being unable to return to the session the facilitating staff will review the situation and the ward will be informed.
- If appropriate the session will be terminated and the group returned to the ward in the project transport.
- If it is not appropriate for the participant to travel with the group the ward will send staff in the hospital transport to collect the patient using the directions left at reception to locate the group.

- On return to Leverndale Hospital the facilitating OT and nurse will complete an IR1 form (the box denoting site location should be completed with "STEPS" and a photocopy, to allow monitoring of incidents should be forwarded to Neil Wilson.

- After an incident of verbal aggression the Branching Out staff and facilitating staff from Leverndale Hospital (Nursing and OT) will review the incident and decide if it is appropriate for the individual to continue or whether they should be suspended from the project.

- The participants RMO and ward manager will be notified on return to the ward and the incident will be reviewed at the clinical team meeting.

### Physical Aggression:

- In the event of a participant being physically aggressive they will be removed form the main working group. Facilitating staff from Leverndale will speak to the participant with the aim of de-escalating the situation.

- The nurse in charge of the ward will be contacted immediately and informed of the situation. The nurse in charge of the ward will contact Police and Ambulance services notifying them of the situation, location and facilitating staff mobile number.

- Injuries sustained during the incident will be dealt with according to the injury protocol.

- The session will be terminated and the tools returned following the tool check policy.

- The group will be returned to the ward in the project transport and appropriate support and reassurance provided to the participants.

- If it is not appropriate for the participant to travel with the group the ward will send staff or police, depending on the severity of the incident to collect the participant using the directions left at reception (contained within this folder) to locate the group.

- On return to Leverndale Hospital the facilitating OT and nurse will complete an IR1 (The box denoting site location should be completed as STEPS and a photocopy, to allow for monitoring of incidents should be forwarded to Neil Wilson).

- After an incident of physical aggression the Branching Out staff and facilitating staff from Leverndale Hospital (Nursing and OT) will review the incident and suspend the individual from the project.

- The participant's RMO and ward manager will be notified on return to the ward and the incident will be reviewed at the clinical team meeting.

- The Critical Incident Review Policy will be adhered to.

### A. Subject: Injury

- In the event of an injury the designated First Aiders will manage the incident. All staff will have knowledge of the HIV and Hep status of each participant. The appropriate protective materials will be available to treating staff.

- If required, an ambulance will be called and provided with the co-ordinates for ease of locating the project.

- The ward will be contacted and the nurse in charge informed and regularly updated of the situation.

- If appropriate the session will be terminated tools checked and participants returned to the ward.

- On return to Leverndale Hospital the facilitating OT and nurse will complete an IR1 (the box denoting site location should be completed as STEPS and a photocopy to allow for monitoring of incidents should be forwarded to Neil Wilson).

- After an incident of physical injury the Branching Out staff and facilitating staff from Leverndale Hospital (Nursing and OT will review the incident and determine if any measures could be put in place to prevent this occurring in the future. The specific activity which caused the incident will be reviewed to determine if it should remain part of the programme.

- The participant's RMO and ward manager will be notified on return to the ward and the incident will be discussed at the clinical team meeting.

### 1. Subject Absconding

- If a patient absconds (absence without leave) from the project the ward will be contacted by the facilitating staff and the nurse in charge informed of the circumstances and the last known location and presentation at this time.

- The nurse in charge will notify the RMO and the Police and follow the existing policy.

- The session will continue for the remaining participants.

- On return to Leverndale Hospital the facilitating OT and nurse will complete an IR1 form (The box denoting site location should be completed as STEPS and a photocopy, to allow for monitoring of incidents should be forwarded to Neil Wilson).

- After an incident of a participant absconding the Branching Out staff and facilitating staff from Leverndale Hospital (Nursing and OT) will review the incident and suspend the individual from the project. The incident will be reviewed at the clinical team Meeting.

- The Critical Incident Review Policy will be implemented.

### VII. Subject: Illicit Substances

- If illicit substances are found the substance will be placed in a secure container.

- The facilitating OT and nursing staff will phone the wards and inform them of the situation. The ward will plan for the participant's return.

- The session will be suspended and participants returned to the reception of wards 5 and 6 using the project transport.

- On arrival at the reception of wards 5 and 6 nursing staff will be telephoned by reception staff. Patients will return to each ward one at a time with the remaining patients waiting with facilitating staff in the airlock.

- Prior to entering the main communal area of the ward a rub down search will be carried out as they will be suspected of secreting the illicit substance.

- The rub down search will adhere to the Directorates Search and Policy Section 10 rub down search, items a-u.

- If it is found that a participant has attempted to secrete on their person or hide illicit substances contravening the Greater Glasgow and Clyde "Illicit Substance Policy" policy their participation will be suspended for the remainder of the project.

- The participant's RMO and ward manager will be notified on the return to the ward.

- Once all participants are returned to the wards the facilitating OT and nursing staff will carry out a systematic search of the Branching Out transport. This will start at the back of the transport and work towards the front.

- Neil Wilson and the Ranger will return to the site and systematically check the area.

### VIII. Subject: Physical Illness/Mental State Deterioration

- In the event of a participant becoming physically unwell the designated First Aiders and facilitating staff will manage the incident. All staff will have knowledge of the HIV and Hep C status of each participant. The appropriate protective materials will be available for treating staff.

- If required, an ambulance will be called and provided with the coordinates for ease of locating the project.

- The ward will be contacted and the nurse in charge informed and regularly updated of the situation.

- If appropriate, the session will be terminated, tools checked and participants returned to the ward.

#### Mental State Deterioration:

- In the event of a participant's mental health deteriorating the facilitating staff (Nurse and OT) will assess and manage the incident.

- The ward will be contacted and the nurse in charge informed and regularly updated of the situation.

- If appropriate, the session will be terminated, tools checked and participants returned to the ward.

- If it is not appropriate for the participant to travel with the group the ward will send staff or police depending on the severity of the deterioration to collect the participant using the directions left at reception (within this folder) to locate the group.

- The participant's RMO and ward manager will be notified on return to the ward and the incident will be discussed at the clinical team meeting.

# Appendix M Branching Out Referral form

**Branching Out** Referral form

## XI.Patient Details

Name _____

Gender _____

D.O.B. _____

Address _____

_____

Postcode _____

Tel _____

## XII.GP Details

Name _____

Practice address _____

_____

_____

Postcode _____

Tel _____

Fax _____

## Referrer

Print name _____

Emai _____

RMO _____

Keyworker _____

Next of kin/sig other _____

Tel _____

Job title _____

Tel _____

Tel _____

Tel _____

Address _____

_____

_____

_____

Relationship detials _____

_____

_____

_____

Proposed benefits from project and current presentation _____

_____

_____

Patients' perceived benefits _____

_____

_____

| Condition | Yes/No | Medication | Comments |
|---|---|---|---|
| Back Pain | | | |
| Blood Pressure | | | |
| MS (Multiple sclerosis) | | | |
| OS (Osteoarthritis) | | | |
| RA (Rheumatoid Arthritis) | | | |
| Amputation | | | |
| Osteoporosis | | | |
| Injury | | | |
| Chronic Fatigue | | | |
| Joint Replacement | | | |
| Obesity | | | |
| Other joint pain | | | |
| Functional Post Stroke | | | |
| Other | | | |
| Sensory Impairment | | | |
| Allergies | | | |
| Cognitive impairment | | | |
| Alcohol/Rec. drug use: | | | |
| Epilepsy | | | |
| Diabetes | | | |
| Hyper/hypotension | | | |
| Respiratory problems | | | |
| Deep Vein Thrombosis | | | |
| Other | | | |

Include post script notes regarding BP and diabetes as per Branching Out guidelines, other medication and known side effects. Please inform "Branching Out" of any changes in medication (Contact details at the bottom of this form)

_____

_____

Any language difficulties: Reading/Writing etc? Yes / No Please give details: _____

_____

_____

Are any extra staff required e.g. provision of one-to-one care/interpreter etc? Yes / No _____

*Help will be available to those who have difficulties filling in forms. Please note that Branching Out is unable to give one to one tuition and any additional needs must be met by the referring body.*

*This programme involves group work, environmental activities and moderate exercise. Based on this health profile, and my knowledge of the patient, I know of no reason why this patient should not join "Branching Out". All information will be stored securely Please note all unsigned forms will be returned to the referrer.*

**Glasgow Risk Screen Must Accompany Referral**

Referrer's signature: _____ Date: _____

Participant's signature: _____ Date: _____

Please keep a photocopy of the completed form for your own records.
To order more referral forms please contact "Branching Out"
Tel: 01698 368 530 Email: neilwilson2@nhs.net Fax: 01698 368 531

Patient _____ DoB _____ Ward _____

**Context of Assessment:**

On admission ☐ MDT review ☐ Emergency review ☐ On discharge ☐ C.P.A. review ☐ Annual update ☐ Other ☐

A. This document should form an integral part of a comprehensive mental health assessment and care planning process.

B. This is not an exhaustive list of safety issues / risk factors. It is merely intended to provide an initial indicator of the potential sources of risk, and hence inform clinical management.

C. The expectation that all safety risks can be predicted is unrealistic, and initial assessment may be based on incomplete information.

D. If completed by one person (eg. out of hours), this assessment should be discussed as soon as is practicable with the Consultant and multi-disciplinary team (inc. users and carers where appropriate).

| **Suicide/Self-Harm** | ✓ | **Violence** | ✓ | **Neglect / other risk** | ✓ |
|---|---|---|---|---|---|
| HISTORICAL | | | | | |
| 1. Previous self-harm | | 1. Previous violent acts | | 1. History of self-neglect | |
| 2. Use of violent methods | | 2. Use of weapons | | 2. Lives alone | |
| 3. Major psychiatric diagnosis | | 3. Admission to secure units or IPCU | | 3. Lacks basic housing amenities | |
| 4. Past diagnosis of personality disorder | | 4. Convictions for violence / assault | | 4. Socially or culturally isolated | |
| 5. Socially isolated | | 5. Past diagnosis personality disorder / psychopathic traits | | 5. History of being exploited | |
| 6. Major physical illness | | 6. Alcohol or drug misuse | | Other Risks | |
| 7. Alcohol/drug misuse | | 7. Male under 35 | | 6. Has neglected dependent others | |
| 8. Family history of suicide | | 8. Prior supervision failure | | 7. Previous fire risk | |
| SHORT-TERM OR PRECIPITATING | | | | | |
| 9. Planning suicide | | 9. Intoxicated | | 8. Current self-neglect | |
| 10. Access to lethal method | | 10. Active positive psychosis | | 9. Difficulty communicating needs | |
| 11. Hopeless / helpless | | 11. Violent fantasies | | 10. Confusion or disorientation | |
| 12. Recent major loss | | 12. Identified target | | 11. Sexually inappropriate / assaultative | |
| 13. Recent psych in-patient discharge | | 13. Access to weapons | | 12. Significant financial problems | |
| PROTECTIVE | | | | | |
| 14. Willing to respond to advice/carers | | 14. Willing to respond to advice/carers | | 13. Willing to respond to advice/carers | |
| 15. Has close relationship (or loved pet) | | 15. Availability of appropriate services | | 14. Availability of appropriate services | |
| 16. Religious beliefs | | | | | |
| | | | | | |

Summary Formulation, including safety concerns identified:

Confirm Risk Management Plan is recorded in case notes (see overleaf): ☐

Date of Assessment: _____ Date of Review:_____Keyworker: _____

Legal Status: Informal ☐ Detained ☐ Consultant Psychiatrist:_____

Involved in risk assessment: Patient / Carer / Consultant / Other Dr. / CPN / Ward Nurse / SW / OT / Psychology

Completed by (sign):_____

Print name: _____

# Appendix N Information on biological risks (plants and animals)

There are numerous potential biological hazards to be aware of which should be mentioned to groups or staff if deemed appropriate.

## 1. Animals

### Adders

- The adder is the only poisonous snake in Britain.
- It prefers dry heath, dune systems and the margins of forestry plantations and moorland.
- Adders are well-camouflaged, and will not always move out of the way of people.
- Wear stout footwear with ankle protection when walking through heather.
- Snake bites should be treated by lying the casualty down, washing the wound, keeping the bitten area immobilised and calling the emergency services.
- Adder bites are rarely fatal, the last recorded fatality was 30 years ago.

### Bees and wasps

- Although painful, stings from bees and wasps are not usually dangerous.
- Some people are unusually sensitive and may develop anaphylactic shock, which is life threatening and requires urgent medical attention.
- People who know they are allergic to stings may carry an epipen for use in an emergency.
- Stings in the mouth or throat can cause swelling that will obstruct the airway.

### Midges and biting insects

- Midges and blackflies can be a problem in woodland, coastal and moorland areas.
- People vary in their sensitivity, and participants should be advised to bring insect spray.

### Ticks

- Ticks are a temporary parasite of warm-blooded creatures including sheep deer, mice, dogs and humans.
- Ticks can be carriers of Lyme disease, which is a rare but serious disease
- As such, it is sensible to advise groups of the following precautions:
- Wear suitable clothing (long sleeves/trousers if possible).
- Use insect repellent.
- Check regularly for ticks.
- Carefully remove ticks as soon as possible with fine forceps, ensuring all parts of the tick have been removed.
- See your GP or GMO if a rash occurs around the bite area or other symptoms occur (e.g. fever, joint pains and tiredness, flu-like symptoms).

## 2. Plants

Many plants found in Britain are poisonous. These include:

- Yew: all parts are highly poisonous, including the red berries.
- Monkshood: all parts highly poisonous.
- Laburnum: all parts highly poisonous.
- Cowbane: all parts highly poisonous.
- Hemlock water dropwort: all parts highly poisonous.
- Hemlock: all parts highly poisonous, especially the leaves and seeds.
- Deadly nightshade: all parts highly poisonous, especially the berries
- Foxglove: all parts highly poisonous.

Care should be taken when selecting sticks to use in campfire cooking (e.g. roasting marshmallows).

### Other plants to be aware of include:

### Giant hogweed

The sap of this plant causes severe dermatitis, which is initially activated by bright sunlight. Dangers are greatest during the summer months. All contact with this plant should be avoided if possible.

### Stinging nettles

Nettles can cause painful stings, and dermatitis following nettle stings has been known. Applying crushed dock leaves may help relieve pain. When working near nettles gloves should be worn, and limbs should be covered with long-sleeved tops and trousers.

### Toxic fungi
No fungi should be consumed on site or taken away for consumption. If fungus poisoning is suspected, the victim should be taken to a hospital immediately, along with any remains of the fungus consumed.

## 3. Infections
### Leptospirosis (Weil's Disease)
Humans can become infected with Weil's Disease when their mucous membranes, or open cuts, are exposed to contaminated water. The disease is associated mainly with urban water bodies and slow-moving lowland rivers, but could be present on any inland water. The following precautions are required:

- Cover all cuts and abrasions with waterproof plaster.
- Wear waterproof footwear.
- Prevent water coming into contact with mucous membranes (eyes, mouth, nose, etc.).
- Wash hands before eating or handling food.
- Wash all body areas that come into contact with the water.
- See a doctor immediately if any of the following symptoms occur after possible exposure: fever, joint pain (especially calves), flu symptoms.

### Sporotrichosis
The yeast-like fungus Sporothrix schenckii, causes sporotrichosis. The fungus is sometimes associated with Sphagnum spp. moss, particularly where the moss is stored, e.g. for horticulture. More rarely, infections may result from pricking by rose thorns or conifer needles. Any open wounds should be cleaned and covered with plasters. If an infection does arise (generally starting with a bump or bumps on the skin), medical attention should be sought as soon as possible.

### Tetanus (lockjaw)
Spores of the bacterium Clostridium can be present in dung or in soil contaminated by droppings. Infection can occur through even small cuts, and can cause facial muscle spasms, arching of the back and neck and sweating. All cuts should be cleaned and protected, and clients should be sent to hospital for a tetanus booster if any cuts are deep, or possible tetanus symptoms develop.

### Giardiasis
Giardiasis is an infection caused by protozoan parasites, which reproduce in the small intestines of many mammals. Infection is either water-borne or caused by person-to-person transmission. Symptoms including abdominal cramps, diarrhoea, vomiting, fatigue and anorexia can start 1-2 weeks after infection, and last 2-6 weeks. Giardiasis may also be present without symptoms. Prevention involves good hygiene, and not drinking untreated water. If symptoms occur, testing and antibiotic treatment is recommended.

# Appendix O Rationale behind the exclusion of stress and attentional capacity as primary outcome variables

- It was decided to limit the number of questionnaires (and therefore the number of outcome variables) administered to the clients in order not to overburden clients with paperwork. Clients already had to complete a further three forms (a consent form, a pre-exercise questionnaire and a form on the clients needs) as well as a blood pressure check, before acceptance on to the programme. Moreover concerns of overburdening the clients with assessment tools were raised as similar complaints had been noted in previous conservation projects (Reynolds, 2002).

- Both stress and attentional capacity were subject to the state-trait argument and thus were not regarded as stable parameters as the primary outcomes.

- Clients in a secondary and tertiary care population would be subject to changes in medication and treatment which would likely affect the measures of stress and attentional capacity before the primary outcome variables. Therefore any change in these variables would be more difficult to ascribe to the effects of Branching Out rather than clinical treatment.

# Appendix P Info/Consent forms

**Information Sheet**
**Branching Out Service**

Branching Out Forestry Commission Scotland
Central Scotland Conservancy
Bothwell House
Hamilton Business Park
Caird Park
Hamilton
ML3 0QA
Tel: 01698 368 530
Fax: 01698 368 531

You are being invited to take part in the evaluation of the Branching Out service. Before you decide, it is important for you to understand why the evaluation is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

**What is the purpose of the evaluation?**
We are conducting an evaluation of the Branching Out service. We would like to know the views of the people who have used the service.

**Why have I been chosen?**
You are one of the people who have utilised the Branching Out service. We would like to learn more about your experience of the service.

**Do I have to take part?**
It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason. Any decision to withdraw **will not** affect your future involvement with the service.

**What will happen to me if I take part?**
We would like to take about 20 minutes of your time to conduct an interview. We will do this at the Branching Out site or at another time if this doesn't suit. The interview will take no more than about 20 minutes.

**Will my taking part in the study be confidential?**
All information which is collected about you during the course of the evaluation will be kept strictly confidential. Your responses will be identified by number only, and your name won't appear alongside this information. This information will be stored in a locked cabinet on NHS premises.

What will happen to the results of the evaluation?

This information will be used to help us make decisions about future service provision.

Thank you for taking the time to read this sheet. Please keep it for your information.

**Consent Form**
Branching Out service evaluation

Branching Out Forestry Commission Scotland
Central Scotland Conservancy
Bothwell House
Hamilton Business Park
Caird Park
Hamilton
ML3 0QA
Tel: 01698 368 530
Fax: 01698 368 531

☐ I have read the information sheet and have been given a copy to keep.

☐ I understand that all information collected about me during the course of the evaluation will be kept strictly confidential.

☐ I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my volunteer work being affected.

Signed _____ Date _____

*Client please print*

*Signed* _____ *Date* _____

*Name of person taking consent*

Signed _____ Date _____

*Chief Investigator*

# Appendix Q Interview guidance

Table 1

| | Construction of the Interview Schedule/Focus Group Questions |
|---|---|
| 1 | Identify Broad range of themes. |
| 2 | Put themes in the most important sequence. |
| 3 | Write explorative questions under each theme. |
| 4 | Questions should be open, neutral rather than value laden, and avoid jargon. |
| 5 | Questions should be as non – directive as possible. |
| 6 | Prompts can be constructed if the initial question is too vague to get the respondent talking. |
| 7 | Funnelling – This combination of general and more specific questions should be repeated where necessary. |

Table 2

| | Conducting the Interview |
|---|---|
| 1 | The interviewer uses the schedule to indicate the general area of interest and to provide cues when the respondent is having difficulties but the respondent should be allowed a strong role in determining how the interview proceeds. |
| 2 | The interview does not have to follow the sequence on the schedule nor does every question have to be asked. |
| 3 | The interviewer may decide to ask a question earlier than it appears on the schedule because it follows from what the respondent has said. How a question is phrased or how explicit it is will depend on how the interviewer feels the person is responding. |
| 4 | Try not to rush in too quickly: In order to give the respondent time to finish a question and time to think about complex answers. |
| 5 | Keep probes minimal in order to keep the respondent talking while being nondirective. |
| 6 | Ask one question ate a time: In order to retain clarity in the response. |
| 7 | Monitor the effect of the interview on the respondent: In order to make sure the respondent is comfortable with the particular line of questioning. |

The table above details the processes outlined in "Rethinking methods in Psychology" (Smith et al., 2005, p.p. 9 – 26)

# Appendix R Completion rates

| | Number of referrals received | Number of clients who attended at least one session | | Number of Completers | |
|---|---|---|---|---|---|
| | | | | | 70% |
| Total | 125 | 110 | 88% | 77 | 62% |
| Recreational Therapy | | | | | 90% |
| Leverndale | 10 | 10 | 100% | 9 | 90% |
| | | | | | 40% |
| Esteem Service South | 10 | 5 | 50% | 2 | 20% |
| | | | | | 73% |
| Forensic | 12 | 11 | 92% | 8 | 67% |
| | | | | | 75% |
| ESF South | 12 | 12 | 100% | 9 | 75% |
| | | | | | 100% |
| Forensic | 6 | 6 | 100% | 6 | 100% |
| | | | | | 70% |
| ESF North | 12 | 10 | 83% | 7 | 58% |
| | | | | | 90% |
| ESF Combination | 12 | 11 | 92% | 10 | 83% |
| Arran | | | | | 55% |
| Resource Centre | 12 | 11 | 92% | 6 | 50% |
| Anvil | | | | | 50% |
| Resource Centre | 9 | 8 | 89% | 4 | 44% |
| | | | | | 83% |
| Forensic (Medium secure) | 6 | 6 | 100% | 5 | 83% |
| Auchinlea Resource Centre (Ref 7 comp 1) | | | | | 50% |
| DART team (Ref 5 comp 3) | 12 | 8 | 67% | 4 | 33% |
| Eastwood | | | | | 58% |
| Resource Centre | 12 | 12 | 100% | 7 | 58% |

# Appendix S Attendance of Baseline for non-attendees

## Service

| Point of Drop out | Esteem | Forensic | ESF North | ESF Com | Arran | Anvil | Auchinlea |
|---|---|---|---|---|---|---|---|
| Referrals made DNA | | 1 | | 1 | 1 | 3 | |
| Attended baseline DNA | 5 | 1 | 1 | | | | 1 |
| BP too high & without G.P./R.M.O. | | | | 1 | | | |

# Appendix T Referral Pathway