

**THE IMPLEMENTATION AND EVALUATION OF A REHABILITATION
CO-ORDINATOR SERVICE FOR PERSONAL INJURY CLAIMANTS**

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For my father

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DECLARATION

I declare that this thesis was composed by myself and that all data collection and analysis are entirely my own work.

Signature

Date

28 June 1994

ABSTRACT

In Britain each year thousands of people are injured in accidents on the roads or at work and pursue claims for personal injury compensation. Previous research has indicated that a significant number will have difficulty returning to work, or may never return. Contrary to popular belief, failure to return to employment may not be due so much to "compensation neurosis" as to a complex interaction of many factors. However, whatever the factors involved, it is evident that the longer a person is away from work following injury or illness the less likely he or she is to return. Nevertheless it appears that employment issues frequently are not considered during the recovery period, or are addressed at such a late stage that any help is unlikely to be useful. Moreover contact with vocational rehabilitation services which might assist people to return to work is poor.

The aim of this study was to implement and evaluate a service specifically to help personal injury claimants return to work. The service comprised one person, acting as a co-ordinator, whose role was to help people identify and obtain assistance from those voluntary and statutory services which might facilitate their return to work. The service was evaluated within the context of a randomised controlled trial. People in the experimental group received help for six months during which time the control group received no help. An amendment to the design extended the period of help to the experimental group to 12 months and introduced a period of six months help for the control group after the six months re-assessment. Measures of outcome included perceived health status, level of anxiety and depression and various employment outcomes such as contact with services and return to work. Satisfaction with the service was also examined.

Fifty people were recruited to the study. Random allocation on a ratio of 2:1 resulted in 33 people being allocated to the experimental group and 17 to the control group. The main comparison of outcomes at six months showed no statistically significant differences between the two groups except the control group registered lower scores for depression. The satisfaction survey showed that a high percentage of people were very satisfied with the service and valued the help they had been given.

A number of factors were thought to contribute to the lack of positive findings at six months including a small sample size, which affected the ability to detect anything

other than large "treatment" effects. Six months appeared to be an inadequate length of time in which to achieve beneficial outcomes and exploratory analysis, indicating an improvement in employment status for the experimental group at 12 months compared with six months, suggested this might be the case though no causal inference could be made. A qualitative analysis of the study indicated that people required much more help than merely linking them to services and much of this help, such as good training or re-training programmes, was outside the scope of the coordinator service.

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CHAPTER ONE

REHABILITATION AND RETURN TO WORK AFTER INJURY

BACKGROUND TO THE STUDY

In March 1989 John Macgregor, a fabricator/welder, fell 16 feet from a ladder fracturing several bones in his right foot. The fractures healed after several weeks rest but the injury exacerbated a pre-existing arthritic condition in several joints, including his ankles and knees, which became stiff and painful. He experienced difficulty standing for long periods, walking, running, climbing, kneeling, and crouching. In June 1989 he commenced a claim for compensation against his employers.

Four months after the accident Mr Macgregor returned to work but for the next eight months required frequent periods of time off sick. At work he was on his feet throughout the day walking over rough, uneven ground and wearing rigid leather work boots which he found uncomfortable. He was expected to complete all aspects of his usual duties which included climbing scaffolding and ladders while carrying heavy steelwork and welding apparatus. In the eight months following his return to work the longest period he worked without taking sick leave was five weeks. A year after the accident he was on permanent sick leave and advised by a hospital rheumatologist to seek alternative employment - by this time Mr Macgregor was 46 years old and had worked as a fabricator/welder for 20 years. What was he to do and where could he find help?

This thesis describes the implementation and evaluation of a service to assist people to return to work following injury. People, such as Mr Macgregor, who had sustained moderately serious injuries and were pursuing claims for compensation under British law (personal injury claimants). The service comprised one person, acting as a co-ordinator, whose role was to work with claimants, helping them to obtain assistance from those voluntary and statutory services which might facilitate their return to work. This help was given the name "Rehabilitation Co-ordinator Service".

What was the rationale for developing a co-ordinator service to help people, who had been injured in accidents and were pursuing claims for compensation, return to work?

In Britain in 1989 there were 342,000 recorded casualties of road traffic accidents of whom 63,200 sustained serious injuries, 273,427 slight injuries and 5,373 fatal injuries (Department of Transport, 1990). Moreover, figures from the Health and Safety Commission (1985) showed that in 1983, 11,499 major injuries were sustained in accidents at work. In America it has been estimated that, every year, 560,000 workers sustain injuries or illnesses that disable them for at least five months and that approximately half never return to work. Moreover, in 1982 accidents alone accounted for 100 million lost workdays (National Institute of Handicapped Research, no date). Failure to return to work may result in significant financial, social and psychological costs to people who have been injured and their families, and also have significant implications for employers, insurance companies and the state. With regard to the latter, in Great Britain in 1989 the cost of road accidents alone was estimated at £6.4 billion (Department of Transport, 1990) and the Association of British Insurers have estimated that approximately 80% of this cost is related to accidents involving personal injury (Falush, 1990).

Return-to-work studies indicate that the longer a person is away from work following illness or injury the less likely it is that he or she will return to employment (Beals and Hickman, 1972; Cornes, 1988; Gallagher *et al*, 1989; Sheikh and Mattingly, 1984). This has led several authors to advocate early intervention (Behan and Hirschfeld, 1966; Hood and Downs, 1985). However a consistent conclusion of studies which have addressed this issue is that return to employment is not given early attention and, moreover, that contact with vocational rehabilitation services, which might assist people to return to work, is poor (Cornes, 1990; Johnson and Johnson, 1973; Ludkin, 1979; Watson, 1988). A principal reason for this failure to address employment issues is thought to lie in the complex and fragmented nature of health and employment services in Britain which results in poor communication and co-ordination. A suggested solution to this problem is the provision of a designated person to help identify problems and ensure people receive help from appropriate services.

With regard to people who have been injured and are pursuing claims for compensation, a common assumption is that "compensation neurosis" precludes them from taking action until claims are settled, from which moment symptoms disappear and they return to work. However there is little, if no, evidence to justify such an assumption (Weighill, 1983). It has also been suggested that the extent of "compensation neurosis" may be overstated or, at the very least, oversimplified. (Tait, Chibnall and Richardson, 1990). In one study of 818 personal injury claimants,

Cornes (1990) found little evidence of compensation neurosis, noting that most people had returned to work before settlement and of those who had not, many had made efforts to do so. Only 7% of the subjects were suspected of "malingering" or of being influenced by compensation neurosis.

Personal injury claimants, therefore, may not be that dissimilar to people who have been injured and are not pursuing claims, in the efforts they make to return to work and the difficulties they face. It is recognised, however, that the adversarial system, in which claims are negotiated and in which claimants are inextricably bound, might not provide the most conducive environment for rehabilitation (Ison, 1967). Hence personal injury claimants may be in even greater need to have employment issues tackled early.

This chapter will review the literature in a number of areas. The first section will try to determine the extent and type of work problems following injury and illness, the factors which influence return to work, and the potential consequences of unemployment should people fail to return to work. The second part of the chapter will be concerned with the services which are available to assist people to return to work, the use of such services, and how contact with them might be improved .

1. RETURNING TO WORK FOLLOWING ILLNESS OR INJURY

Work Problems Following Illness or Injury

It is difficult to obtain an estimate of the number of injured people in Britain who experience problems returning to work after accidents for although studies have examined the employment status of disabled people and prevalence of occupational handicap, for example Harris (1971); OPCS (1989); Prescott-Clarke (1990), they have surveyed large representative samples of the population and the findings relate to people with all disabilities regardless of cause. One study, which looked specifically at people injured in road traffic accidents or accidents at work who were pursuing claims for compensation, found that the majority of the sample had resumed work following their injuries, but a significant minority, 27%, were not working although they had been pronounced medically fit to do so. Included in this group were people who had attempted to return to work but failed to sustain employment and others who had returned only to be made redundant (Cornes, 1990).

In another study, Johnson and Johnson (1973) interviewed 50 people with paraplegia, some one to six years after onset (most had been injured in accidents).

On discharge from hospital 44 (88%) had been considered to have the potential of returning to employment however, at the time of follow up, only 7 (14%) were actually employed.

In a study of 112 patients with fractures of the femur or tibia Watson (1988) reported that a significant number had employment problems. Three quarters of the sample had returned to work within 9 months of injury but, of these, 49% had either had their job modified in some way or changed their work, and 17% still reported difficulty in performing their job, for example lifting heavy weights or climbing ladders. Twelve per cent had lost their jobs apparently as a direct result of the accident, some after they had returned to work.

In their study of claimants receiving worker's compensation in Australia, Encel and Johnston (1978) followed up 193 patients with low back pain after settlement of their claims, of whom 175 were younger than the statutory retiring age at follow up and 35% of whom had not returned to work. Moreover amongst those who had returned most never regained their pre-injury employment status, and there was a trend towards lighter type of work and lower wages.

Blaxter (1976) followed up 194 people of working age, discharged from four wards of a large teaching hospital, for 12 months. One hundred and sixty five of the sample were regarded as being in the labour market at the time of hospitalisation and 77 of that group (47%) experienced job problems during the survey year (this figure does not include a group of people who had "solved" their job problems by retiring). By the end of the year, 42 (26%) regarded their problems as solved and 35 (21%) felt their problems were ongoing. Each group had experienced similar problems. Thirty four of the 77 were in the situation of finding another job because they had been unemployed previously, had been dismissed, or had left the job either voluntarily or because they were physically incapable of doing it. The remaining 33 had returned to their previous jobs but had to do a lighter job for a short period, were doing a lighter job permanently or had been demoted to a job which was felt to be inferior. Two people had problems travelling to work.

Another study, carried out by Harris *et al* (1984), investigated and compared the experiences of people injured in accidents (most sustained trivial or minor injuries) and those disabled by other causes. In this study, 1,158 subjects were employed at the time of their illnesses or injuries, predominantly in full time work, of which 1,040

(90%) required time off work. Although the numbers remaining out of work at the time of follow up were relatively small, 70 (6%), some 20% of those who were at work or in full time education at the time of their injury considered that their present job situation, earnings or educational qualifications had been affected as a consequence of their illness or injury. Most notably, the study highlighted a significant degree of transition within the labour market for their study population. Harris and his co-authors found people taking early retirement, changing their employer, reducing the numbers of hours worked, changing the nature of their duties and taking a reduction in earnings. Although they made the point that it was difficult to know the extent to which these changes could be attributed to the illness or injury, the majority of people did cite their illness or injury as the reason for their changed circumstances.

Commenting on the work problems experienced by people after illness and injury Blaxter (1980) observed,

"The evidence is clear that many people who are capable of work do not find it, that others go back to even more unsuitable work than they may have had before, and that for very many people disablement or chronic illness begins a slow slide into underemployment, absenteeism and finally chronic unemployment."

Factors Influencing Return to Work

Much of the research on return to work has limited its focus on return to work *per se* and not the problems which may arise subsequently. Moreover, the main interest has been the identification of the factors which may influence return to work. Most of these studies have been interested in the return to work of patients with particular illnesses or injuries, for example, stroke (Howard *et al*, 1985), myocardial infarction (Cay *et al*, 1973; Garrity, 1973), low back pain (Gallagher *et al*, 1989); Milhous *et al*, 1989), and general injuries (Mackenzie *et al*, 1987). Among those authors who have looked at return to work following injury, some have focused on people with particular injuries, for example burns (Bowden, Thomson and Prasad, 1989), and head injuries (Brooks *et al*, 1987; McMordie, Barker and Paolo, 1990), while others have paid attention to people injured in particular settings, for example at work (Brewin, Robson and Shapiro, 1983). Yet others have used a combination of criteria investigating, for example, the return to work of people with injuries of the back and extremities sustained at work (Beals and Hickman, 1972), or following a traumatic amputation at work (Millstein, Bain and Hunter, 1985).

Bearing in mind the purpose of the study and the population who would be its focus, this review includes studies looking at return to work following injury and/or low back pain and chronic pain. Most studies have adopted the approach of examining particular variables which were felt might influence return to work and a broad range of factors have been investigated. These include demographic, clinical, psychological, psychosocial, and occupational variables. The influence of external factors such as labour market conditions, and compensation for personal injury will also be considered.

Demographic Factors

Among the various demographic characteristics which have been studied, age is cited as important by many authors who report lower and slower rates of return to work for older people (Cornes, 1988; Milhous *et al*, 1989; Millstein, Bain and Hunter, 1985). However other studies have not found an association between age and return to work (Brewin, Robson and Shapiro, 1983; Mackenzie *et al*, 1987). The effect of gender has also been investigated with some studies indicating lower rates of return to work for women compared with men (Better *et al*, 1979; Millstein, Bain and Hunter, 1985; Sandstrom, 1986), yet others showing higher rates of return for women (Brooks *et al*, 1987; McMordie, Barker and Paolo, 1990) and still others finding no association at all between gender and return to work (Cornes, 1988; Mackenzie *et al*, 1987).

Clinical Factors

Many studies have looked for a link between clinical factors, for example severity of injury or degree of residual disablement, and return to work, perhaps because common sense suggests that clinical factors should be important. In the case of severity of injury, it can be assumed, quite reasonably, that the more severe the injury the longer the recovery time and therefore the longer the time off work. However once again the research findings are mixed. Johns (1981) concluded that nature and severity of injury were major factors determining time off work in his study of patients with hand injuries, as did Lee (1982) in a study of patients with fractures of the wrist, hand or foot. Similarly, Bowden, Thomson and Prasad, (1989) reported the significance of severity of injury on return to work for their sample of patients with burns. Severity of injury has also been identified as an important influence on return to work in a population of patients with different types of injury. For example in a study of patients hospitalised for traumatic injury, Mackenzie *et al* (1987), compared return to work rates for people with injuries in the same body region but of different severity and concluded that people with the least severe injuries returned to work soonest. Other

studies, however, have not found severity of injury relevant to return to work. For example, Cornes (1992) found no association between severity of injury and return to work in his study of road accident victims.

Other clinical factors which have been studied include site of injury. For example Mackenzie *et al* (1987) reported that people in their study with injuries to the head or spinal cord had lower or slower rates of return to work than people who had sustained injuries to the thorax and abdomen or extremities, even though they were rated as being of similar severity. However Sheikh (1985) reported that return to work was unrelated to the type or site of injury in his patients with limb injuries.

Psychological and Psychosocial Factors

Psychological problems and, in particular, psychological reactions to injury have been the focus of several studies. It is not uncommon for some degree of psychological distress to occur following an injury and early theories proposed that these problems had an organic basis. However, these did not explain the fact that often levels of distress were not commensurate with severity of injury, and other explanations were sought. Most notable among these was the notion of secondary gain, that is the injured person had something to gain by exaggerating his symptoms, his disability or by prolonging his period of time out of work, albeit unconsciously (Derebery and Tullis, 1983). Such gains might be psychological, for example a person's need for dependency might be met by having his family look after him so he continues in a role which produces this "reward" (Culpan and Taylor 1973; Ellard, 1970). It also may provide an opportunity to avoid responsibilities (Bokan, Ries & Katon, 1981; Versluys, 1980), or a means of resolving interpersonal conflict (Tuck, 1983), or of obtaining revenge (Ellard, 1970; Ross, 1977).

Other psychological and psychosocial factors have been included in studies of return to work. Factors such as job satisfaction (Allodi and Montgomery, 1979), culpability (Brewin, Robson and Shapiro, 1983), motivation (Sheikh, 1985), the patients' own prediction about return to work (Sandstrom and Esbjornsson, 1986), perceived ease of changing occupations (Gallagher *et al*, 1989) and the presence of psychological problems (Cornes, 1992; Milhous *et al*, 1989) are just some of the variables which have been examined and reported as influencing return to work.

Occupational Factors

Several studies have reported that occupational skill level and type of work influence return to employment. For example in their study of injured patients, Mackenzie *et al* (1987), reported an association between type of work prior to injury and return to work. Bowden, Thomson and Prasad, (1989), in their study of patients with burn injuries, found that people with "blue collar" jobs, such as labouring, took longer to return to work than those with "white collar" occupations, as did Johns (1981) in his study of patients with hand injuries. Similarly Lee (1982), also found that the patients in his sample who had physically lighter jobs returned to work sooner than those with heavier jobs.

The Complexity of Return to Work

What is evident from reviewing the return to work studies is that there is no consensus on the factors which influence return to work for factors which are found to be significant in some studies are dismissed by others, but why are the findings so different? One explanation for this difference lies in the studies themselves for they examine different populations under different circumstances and employ different measures. This does not negate the studies, however, rather it points to the complicated nature of return to work. Indeed it is acknowledged that return to work is very complex and influenced by the interrelation of many factors (Sheikh and Mattingly, 1984) and, moreover, that in different situations different factors may come into play or interact. These points may best be explained by highlighting clinical factors, such as severity of injury, and one demographic variable, age, where research findings have been mixed.

Differences in the findings of studies looking at the effect of severity of injury on return to work may be explained by differences in the range of severity represented in the samples. In other words, if a broad spectrum of severity is represented in the study population, from trivial or minor injuries to very severe or serious injuries, then it is likely that severity of injury will emerge as a potent factor. Whereas in studies where a narrow range of severity is represented it is unlikely to be significant. Severity of injury, then, may emerge as an important mediating factor if one is comparing return to work among people who have injuries of widely differing severity but may be less important when comparing groups of people with injuries of similar severity. However difference in return to work rates exist even for people with injuries of a similar severity (Johns, 1981) so clearly other factors must come into play. One such factor may be site of injury, for example Mackenzie *et al* (1987), found that people

who had sustained injuries to the head or spinal cord took longer to return to work than those with equally severe injuries to the abdomen and thorax.

An important issue here is the consequence of injuries to different regions. Injuries to the abdomen or thorax, although they may be of equal severity to injuries of the head or spinal cord, may be associated with little functional disability (Mackenzie *et al*, 1987) whereas injuries to the head and spinal cord may result in severe limitation of functional capacity. This point is illustrated by several papers which find no link between severity of injury and return to work but do find an association between residual disability and return to work. For example, in their study of return to work amongst patients with head injury, Brooks *et al*, (1987) found that severity of head injury, as measured by duration of post traumatic amnesia, was not a predictor of return to work but the presence of cognitive, behavioural and personality changes were related significantly to a failure to return to work. Yet again, however, one cannot assume that the more severe the residual disability the greater the difficulty in returning to work. Rather what may be important is the relationship between the degree and nature of the disability and the requirements of the work. In her study of impairment amongst a group of people discharged from a large teaching hospital, Blaxter (1976, p140) noted,

"There were many similar cases of people with a considerable degree of disability who were nevertheless at work without problems. On the other hand, quite minor impairments might frequently result in serious work difficulties"

and also

"Excluding the two extremes of very slight impairment and total functional incapacity, however, it was noticeable that there was no simple and direct relationship between degree of impairment and job problems."

Age also has been found by some authors to be associated with return to work but not by others and there may be a number of possible explanations for this. First, it may be that age does not become relevant to return to work until a certain range is reached so that the age range of the population studied will have an important bearing. For example, Mackenzie *et al* (1987), who found no association between age and return to work, studied a population whose age range was 16 - 45 years, whereas Cornes (1988), Harris *et al* (1984), and Millstein, Bain and Hunter (1985), who did find an association, studied a population whose age range was 16 - 65 years or older. In the

latter study, of industrial amputees, the authors noted specifically that patients who sustained their amputation at 45 years of age or older were less likely to return to work. This would seem to suggest that age plays a relatively small role in influencing return to work under the age of 45 years, but becomes increasingly relevant over and above that age. Secondly, whether age is important in influencing return to work may depend on other factors. For example, in some studies where age was found not to be a predictor of return to work, the injuries were minor, requiring fairly short periods of time off work. For example in John's study of patients the average time off work was 7.9 weeks (Johns, 1981). It is well known that older workers face discrimination in the labour market (Myers, 1985) and perhaps age is not relevant to people with minor injuries because they are away from work for a relatively short period and it is likely their pre-accident jobs are still available for them to return to. In other words they are not in the position of losing of their jobs and having to compete in a labour market where older workers are placed at a disadvantage.

External Influences on Return to Work

In the studies reviewed above, as indeed in most return to work studies, attention has focused almost exclusively on characteristics of individuals such as severity of injury or motivation. However, some studies have looked beyond individual characteristics and, while not denying that these factors may be important, have recognised that an injured person is part of a milieu which will exert its own influences. For example families and friends might discourage return to work, albeit unconsciously or with the best of motives. Some authors have also discussed the notion of "tertiary gain", that is that someone other than the injured person stands to benefit from prolonged disability and absence from work and therefore encourages this situation to continue. Tuck (1983) mentions three possibilities; families, physicians and legal representatives.

Rehabilitation may be impeded not only by what another party might have to gain from continuing disability or absence from work, but also by what their attitudes may suggest to the injured person about his or her ability to work. In drawing attention to the influence that health professionals may exert on a person's return to work Brewerton and Daniel (1971) commented,

"We are also aware that previously we have looked critically at the patients, their attitudes, their intelligence, and their compensation claims and not enough at ourselves."

and Derebery and Tullis (1983) observed,

"keeping the patient off work not only leads to a general physical weakening, but also may have adverse psychological effects such that the patient may perceive that his injury is more severe and disabling than it actually is."

Another important consideration in return to work is the labour market conditions in the area where the person lives (Cornes, 1992). In their study of the employment status of Employment Rehabilitation Centre (ERC) clients, Sheikh, Meade and Mattingly (1980) found that levels of unemployment in the home areas of the ERC clients were related to re-employment and concluded "general unemployment is a significant factor influencing the outcome of rehabilitation."

Labour market conditions may be especially pertinent for people disabled by injury or illness because of the well recognised fact that disabled people are at a disadvantage in the labour market (Muir, 1978) and are over represented amongst the unemployed (Smith, 1985). In Britain in 1983 there were 147,500 disabled people (56,800 registered and 90,700 unregistered) who were suitable for ordinary employment and who were looking for jobs. Eighty eight per cent of those who were registered and 84% of those who were unregistered were unemployed (Anon, 1985). The situation may be even worse in periods of high unemployment, Lahelma (1984) commented,

"In times of good employment, many persons regarded as disabled can be offered paid employment, whereas during periods of severe unemployment, many of them remain without a job. They are the 'last hired and first fired'."

Age is also recognised as a significant factor in finding employment, with older workers placed in a position of disadvantage. Myers (1985), noting a progressive and marked decline in the employment of older people commented, "The decreased proportion of older workers is essentially an unemployment problem, rather than the result of individual choice." Recent evidence also suggests that the age at which people may experience discrimination is disturbingly low. In a Gallup survey on "ageism" in the workplace, the employment agency Brook Street found that eight out of 10 employers regarded people under 35 years as being the ideal age for all jobs except cleaner and company director. Clearly if an older person is also disabled it is likely he or she will experience considerable difficulty finding work.

Compensation and Return to Work

Compensation Neurosis

The issue which has dominated much of the literature on return to work is the negative influence of financial incentives on recovery and rehabilitation. In examining this issue, studies have looked at people in receipt of regular payments under schemes such as Social Security Disability Insurance (SSDI) in the United States, and the payment of lump sums, either as a result of litigation, or provided as part of a Workers' Compensation Scheme such as that in Australia.

With regard to people pursuing litigation there is a frequently held assumption that they do not return to work before their claims are completed in an effort to maximise financial settlements. In 1946 the term "compensation neurosis" was coined and described as:

"A state of mind, born out of fear, kept alive by avarice, stimulated by lawyers, and cured by a verdict." (Kennedy 1946)

The characteristics of compensation neurosis are thought to be an exaggeration of symptoms, lack of motivation, passivity in seeking treatment, lack of response to treatment and delay in returning to work. In a paper, which was to remain influential for many years, Miller proposed that when settlements were concluded people's symptoms abated and they returned to work (Miller, 1961).

The results of studies which have followed up compensation claimants suggest that Miller's assumptions about financial settlement being accompanied by resolution of symptoms and/or return to work were not justified. In a retrospective follow up of 82 patients Balla and Moraitis (1970) found that settlement of legal matters had little influence on return to work and that symptoms remained largely unaltered. Tarsh and Royston (1985) followed up 35 claimants who had been seen for psychiatric evaluation following injury, and also found little evidence of improvement noting,

"lack of improvement after compensation should of course be appreciated as the main single argument against the insurance company view that many of these people are consciously simulating for financial gain."

Encel and Johnston (1978) also found continuing disability and handicap for claimants in their study following receipt of lump sum payments under the Australian Worker's Compensation Scheme.

In a review of literature on compensation neurosis Weighill (1983) concluded that there was little research evidence to support the view that problems resolve on settlement. Mendelson (1982), in another review of follow-up studies, went so far as to state that to the best of his knowledge all the studies published in the previous 20 year had shown Miller's conclusions to be incorrect. Bogduk (1986), in a discussion of whiplash injuries and litigation neurosis commented, in similar vein,

"Whereas it may be tempting to ascribe persisting symptoms to 'litigation neurosis' the published evidence demonstrates that substantial numbers of patients suffer persisting symptoms despite and regardless of settlement of litigation."

Some studies have adopted a more sophisticated approach to follow up and have compared outcomes for people pursuing compensation claims against others who were not involved with litigation. In a study of 386 cases of "cervical syndrome", DePalma and Subin (1965) found that the response to treatment of the 25% of their sample who were pursuing claims did not differ from the response of those who were not involved in litigation. Similarly, in a comparison of patients with and without compensation claims attending a rehabilitation centre, Sommerville (1970) found no significant difference in the number who returned to employment or training in each of the two groups, however the paper does not make clear whether the compensation and non-compensation groups were similar in their characteristics.

Research on financial disincentives has been criticised for not distinguishing between people who were in receipt of different types of regular benefits, for example SSDI or regular payments under Worker's Compensation schemes, and people who received lump sum payments, either through litigation or Worker's Compensation. It has been suggested that this failure may have led to unwanted variability in research effects (Tait *et al*, 1988). A recent study took account of this shortcoming and attempted to unravel outcomes for patients receiving regular disability benefits and those who received lump sum payments. Greenough and Fraser (1989) undertook a retrospective study in which outcomes for 150 patients with low back pain who had pursued or received financial compensation were compared against outcomes for 150 people also with low back pain who had not received financial compensation. They found that there were large and significant differences in the employment status of the two groups and that this difference was almost entirely due to the sub-group of patients who had received lump sum payments. Greenough and Fraser concluded that

compensation was associated with a higher rate of unemployment and prolonged time off work.

There is clearly a distinction between authors in the way that "compensation neurosis" is viewed. Some authors seem to regard the "problem" as one of conscious financial greed (e.g. Miller 1961) and there are references to people finding it "quite appropriate to carry on near normal activities while receiving disability checks" or wishing to "beat the system" (Tuck, 1983). Others seem to regard it as an identifiable neurotic disorder (e.g. Culpan and Taylor, 1973; Levy, 1992) and yet others take a more pragmatic view, arguing that people who are in receipt of disability benefits or pursuing claims for compensation face very real dilemmas,

"...often employment provides clients with little gain in income over insurance payments. this, coupled with apprehension concerning loss of employment, offers little incentive to renounce steady, secure dependable payment." (Schlenoff, 1979)

and

"All those who advise the disabled can do is acknowledge that the system presents the client with real dilemmas, and refrain from unnecessary reliance of psychological explanations for his perplexities." (Blaxter, 1981)

Effects of the Adversarial System

Quite apart from any financial incentive associated with pursuit of a compensation claim, several people have observed that the adversarial system in which negotiation about claims takes place encourages people to dwell on their disabilities (Ison, 1967; Harris et al, 1984) and may discourage them from seeking rehabilitation (Creek et al, no date). It has even been suggested that attorneys/solicitors may impede rehabilitation and return to work (Eaton, 1979) "in both subtle and obvious ways once it becomes clear that successful rehabilitation will endanger their lawsuit" (Tuck 1983). However Sir Walker Carter, while chairman of the Criminal Injuries Compensation Board, observed "no reputable or competent solicitor would ever advise a man to stay away from work until his claim is settled (Walker Carter, 1970).

It has also been observed that the knowledge that a patient has an ongoing claim for personal injury compensation may influence the medical treatment he or she is given. Sommerville (1970) commented,

"...many have been rejected by the hospital concerned and the action has been rationalised by the observation that they are unlikely to progress until their compensation case has been settled. This defeatist attitude swells the ranks of the disabled unemployables."

The Importance of Work and the Effects of Unemployment

There is no doubt that work commands an important place in our lives and that unemployment can have far reaching consequences, affecting not only the individual concerned but also his family and society. Work provides a means of occupation, accounting for a third of the daily activity of an average wage earner (Matkin, 1985 p1) and is one of the principal ways in which man satisfies a variety of psychological, financial and social needs (Menninger, 1964 pxiv; Quey, 1968).

The significance of work to physical and psychological well-being has been demonstrated by many studies which document an association between unemployment and poverty, ill-health, psychological distress, and suicide or parasuicide (Arber, 1987; Eales, 1988; Leeflang, Klein-Hesselink and Spruit, 1992; Platt, 1983). A study group convened by the Council of Europe commented that while some people coped well with unemployment "the detrimental effects on well-being, health and social network caused by unemployment (especially in the long term) applies to a great majority of unemployed people" (Council of Europe, 1987 p 42). Moreover, certain groups of people have been identified as being particularly at risk from the consequences of unemployment. These include middle-aged men -especially in the age group 45-55 years and if they are the wage earner in the family (Warr and Jackson, 1984); single men and women without a social network of relatives and/or friends; and older or disabled people in general (Council of Europe, 1987). With regard to disabled people one study, which compared employment status with levels of psychological distress, showed that those who were unable to work because of illness or disability showed the highest levels of psychological distress of all the groups tested (Whelan, Hannan and Creighton 1991, p33).

It is evident, however, that the potential detrimental effects of unemployment are mediated by a number of individual, social and economic factors (Layton 1988, Warr and Jackson, 1987). For example, Linn, Sandifer and Stein (1985) found that perceived amounts of stress in their sample of unemployed men varied significantly between those with high and low self-esteem and that greater support from families was related to higher self-esteem. Another factor which has been shown to be important is personal control. Although control and social support, as such, do not

appear to have been studied in relation to injury and return to work, they are likely to have an influence on the way in which people respond to these particular events and therefore will be discussed in more detail below.

Response to Stressful Events

When faced with difficult situations, such as unemployment, illness and disability, people can respond in a number of ways and adopt a variety of coping strategies. These may enhance or reduce adaptation to the situation (Ben-Sira, 1981; Layton, 1988; Schussler, 1992). Broadly speaking responses can be divided into "emotion-focused" responses in which a person attempts to reduce the emotional distress of a situation by devaluing the importance of it. Such responses might involve telling oneself that it could have been much worse or that there are people who are in a worse situation. The second type of coping is "problem-focused" in which a person directly attempts to solve the problem by making decisions or taking action (Folkman, 1984). Two of the factors which appear to have a significant influence on responses to stress and coping mechanisms are personal control, and psychosocial support (Swanson, Cronin-Stubbs and Sheldon, 1989).

Personal control, that is the control a person perceives themselves to have, is influenced by the person's own generalised control beliefs (locus of control) and the specific situation, i.e. whether he or she perceives that the situation is "controllable" (situational appraisal of control). Locus of control is defined as the extent to which a person perceives the events that happen to him or her as dependent on his/her own behaviour or occurring as a result of chance, fate, or powers outwith personal control (Rotter, 1966; Strickland, 1978). People who tend to adopt the former view are said to have an internal locus of control and those who attribute control to powers outside themselves are said to have an external locus of control. Some authors have linked an internal locus of control with persistent effort and exertion (Lefcourt, 1982 provides a review of literature in this area) and with the type of coping strategy adopted. For example Anderson (1977) reported that people with internal rather than external locus of controls adopted more problem-focused than emotion-focused strategies. Locus of control has also been associated with a variety of health-related behaviours. In particular, people with an internal locus of control have been reported as more likely to take action which will improve or have a beneficial effect on their physical well-being (Lau, 1982; Strickland, 1978; Wallston and Wallston, 1978).

In contrast, "externality" has been linked with mood disturbance, depression, and general lack of mental well-being (Benassi, Sweeney and Dufour, 1988; Lee *et al*, 1985; Watson, 1967).

It has been suggested that locus of control is not a fixed attribute but influenced by experience and therefore susceptible to change (Lefcourt, 1982 p 166). Moreover Anderson (*op cit.*) showed that people with an internal locus of control whose performance improved or whose action produced results became more "internal", whereas those with an external locus of control whose action produced poor results became more "external."

With regard to the "controllability" of an event Seligman (1975) advanced the theory that if a situation is uncontrollable this may produce "learned helplessness" and depression. However Folkman (1984) argued that successful adaptation to uncontrollable events can occur if appropriate coping strategies are adopted. Such strategies might result in a lessening of the importance the person gives to the situation, or finding something positive in it, or abandoning old goals in favour of new ones. Folkman (*op cit.*) suggested that what is more likely to result in maladaptation is if there is a mismatch between the perceived and actual controllability of a situation. For example, if a person perceives a controllable situation to be uncontrollable he or she is unlikely to adopt the problem-focused strategies which may be required to improve the situation. Alternatively a person who regards a situation as controllable when it is uncontrollable, and persists in taking action, will get no reward for his efforts and is likely to become disappointed and frustrated. As Folkman (*op cit.*) commented,

"A time-honored principle of effective coping is to know when to appraise a situation as uncontrollable and hence abandon efforts directed at altering that situation and turn to emotion-focused processes in order to tolerate or accept the situation."

Here, Warr and Jackson's comment about unemployment is apposite,

"After months of unsuccessful job seeking, many unemployed people come to view regaining a job as beyond their personal control. With no realistic prospect of re-employment, they see it as realistic to withdraw, at least temporarily, from the labour market. By reducing the value attached to having a job, an unemployed person can limit the pain of failing to obtain one." (Warr and Jackson, 1987)

Another factor which may influence the experience of a difficult situation is social support. This has been defined as "the person's perception of the supportive value of social interactions" (Schaefer, Coyne and Lazarus, 1981). Hence social support refers to the quality of interactions rather than the quantity, the latter usually referred to as "social network". Several authors have demonstrated that it is social support i.e. the perceived quality of interactions that is important rather than quantity (Porritt, 1979). Indeed some social interactions may actually be detrimental (Revenson, Schiaffino, Majerovitz and Gibofsky, 1991).

Clearly social interactions spread wider than a person's family and friends and, in particular, may include contact with health professionals. In a study of crisis intervention for men hospitalised after road traffic accidents, Porritt (*op cit.*) noted that professional care givers appeared to lack skills in conveying respect and understanding and therefore provided inadequate social support. The topic of health-professional client relationships will be considered in more detail in chapter two.

Summary of Section 1

This first section of chapter one has reviewed the literature relating to work problems following illness and injury, factors which may influence return to work, the potential effects of unemployment should people fail to return to work, and factors influencing responses to stressful situations. It is apparent from the literature that a substantial number of people experience difficulty returning to work, and that this may herald a downward spiral in employment status culminating in unemployment which, for many people, has undesirable financial, social and psychological consequences. The return-to-work literature suggests that return to work is very complex and influenced by many interrelating factors. However, of most significance for this study, is the indication that the extent of "compensation neurosis" is overstated and that personal injury claimants experience very similar difficulties to people who are not pursuing claims. Indeed they may be in greater need of having employment issues addressed because of the potential effects of the adversarial system and professional attitudes towards their recovery and treatment.

The following section of this chapter will look at vocational rehabilitation. Two issues appear to be important. First, that despite the existence of vocational rehabilitation services few people have contact with them. Secondly, that employment issues are frequently overlooked by health professionals, or are considered at such a late stage in people's recoveries that any assistance is unlikely to be helpful. Section two will

examine contact with vocational rehabilitation services and how this might be improved. However the section begins with a brief description of the vocational rehabilitation services in Great Britain at the time the project was carried out so that the other issues can be placed in context.

2. VOCATIONAL REHABILITATION FOLLOWING ILLNESS OR INJURY

Vocational Rehabilitation Services in Britain

The foundations of statutory vocational rehabilitation policy and services in Great Britain were laid in the aftermath of the first and second world wars. Following the first world war there was a need to make provision for disabled ex-servicemen within the labour market and after the second world war there was a need not only to cater for disabled ex-servicemen, but also for the many civilians who had been injured. Coupled with that need was a gradual recognition that disabled people could be as efficient and effective employees as their non-disabled counterparts, a recognition that had arisen from their employment in industry and commerce during the second world war (Cornes, 1987^a).

When the requirement to have a comprehensive system of training and resettlement for all disabled people was established, the Tomlinson Committee was convened. This was given a remit to examine the already existing Interim Scheme for Training and Resettlement and report whether it was sufficient to meet needs, or whether new arrangements should be made. The subsequent recommendations of the Tomlinson Committee, embodied in the 1944 Disabled Persons (Employment) Act, provided the blueprint for the development of vocational rehabilitation policy and services in Great Britain. Despite subsequent reviews of policy and services the legacy of Tomlinson can be seen still in current provision. For example, Disablement Resettlement Officers, Employment Rehabilitation Centres and the Quota Scheme, introduced shortly after acceptance of the Act, remained in existence at the time this project was carried out.

During the period the project was carried out, statutory vocational rehabilitation services came under the auspices of The Department of Employment with the exception of the Employment Medical Advisory Service (EMAS) which came under the umbrella of the Health and Safety Executive. Both provided a number of services and schemes to help people disabled by illness or injury. They embraced a range of functions such as offering advice, and providing assessment and rehabilitation,

practical assistance with finding employment and funding for special equipment or adapting premises.

The central figures of the Department of Employment services were the Disablement Resettlement Officers (DROs). They were based in Job Centres and provided "a specialist service for people whose health problems or disabilities pose a particular problems in getting a job" (Department of Employment, 1988). They were the first point of contact for most people approaching the Department of Employment for help, and acted mostly as gatekeepers to other services or schemes. For example they might refer clients to Employment Rehabilitation Centres for assessment and or rehabilitation, or to the Training Agency for placement on the Employment Training Scheme. They managed the Disabled Person's Register which documented the names of people whose disabilities handicapped them in obtaining or keeping employment, and oversaw the Quota Scheme. They could provide help also in linking disabled people to suitable jobs. In particular two occupations, lift attendant and car-park attendant were reserved for registered disabled workers (Blaxter, 1976).

Employment Rehabilitation Centres (ERCs), of which there were 23 throughout Great Britain at the time of the study, and their mobile equivalents, ASSET Centres, offered assessment to people who, because of their illness or injury, had difficulty returning to their previous job or type of occupation and gave recommendations about capabilities for future work. At the time of the project ERCs could also offer rehabilitation, in what they deemed appropriate circumstances. For example, a person could attend an ERC for several weeks to gain training in, or experience of, a particular job-related skill.

The Disablement Advisory Service also provided help and advice to disabled people, particularly those in work, assisting them to retain their jobs after sickness absence due to illness or injury. It also offered help to employers, encouraging them to improve job opportunities for people with disabilities.

The various schemes included the Quota Scheme, Adaptations to Premises and Equipment, Fares to Work, and Job Introduction. The Quota Scheme obliged all employers with a work force of more than 20 people to employ registered disabled people (that is people who were on the Disabled Persons' Register administered by the DRO) as 3% of their workforce, providing suitable candidates were available from the register.

The Adaptations to Premises and Equipment Scheme allowed employers, grants of up to £6000 to help them adapt premises, or buy equipment, in order to employ a particular disabled person and under the Job Introduction Scheme employers could receive a subsidy from the Department of Employment if they gave a disabled person a trial period in a job. Fares to Work provided assistance with fares for those people who were unable to use public transport to travel to work.

In addition to these schemes there was also help for people who were able to work, but not at the rate demanded in open employment. The Sheltered Placement Scheme enabled people to be employed in open employment within their capabilities. They were paid the going rate for the job but the employer only paid a wage proportional to the work that was done and any shortfall was met by a "sponsor", usually a charity, or local authority.

In addition to the specialist schemes all people with disabilities were eligible for the other services and schemes provided by the Department of Employment, for example, Job Clubs and the Employment Training Scheme. The Job Club provided help with job search and job applications. The Employment Training Scheme provided training placements either at a training centre or with an employer for periods of up to 12 months. Other vocational assistance comes from outwith the Department of Employment. For example there are several residential training colleges for people with disabilities, such as Finchale Training College in Durham and Queen Elizabeth's Training College in Leatherhead. Moreover in most areas, colleges of further education make provision for people with disabilities, for example by waiving fees for people who are in receipt of Invalidity Benefit.

Contact with Vocational Rehabilitation Services

Given the extent of job problems, highlighted previously, and the fact that many problems remain unsolved one might expect that people disabled by illness or injury would receive help from the employment rehabilitation services in Great Britain. However this does not seem to be the case. Studies which have examined contact with these services suggest that very few of the people who might benefit from such services are in contact with, or have even heard of, them (Blaxter, 1976; Cornes 1990; Storey and Scott, 1989; Watson, 1988). In an audit of one rehabilitation medicine service it was reported that only 20 of the 1400 patients (1%) seen during the audit year were referred to employment rehabilitation services (Hunter, 1989). Ludkin (1979), writing about the use of Department of Employment services, noted,

"It is evident that in many - possibly most - places the services are still sadly under-used, with the result that many people of working age who could return to work after some disabling illness or accident do not do so, or achieve a working compromise that is less good than it might be."

One reason for this lack of contact with services appears to be a failure of health professionals to address employment issues and, even if these are tackled, that it occurs at such a late stage in the recovery process that any help which might be given is compromised. In one study of 77 patients with brachial plexus injuries, it was reported that only 40% of the sample remembered a doctor asking about their work or referring them to someone who could help. In most cases this did not take place until the second year following the injury, or even later (Brewerton and Daniel, 1971). Blaxter (1980) also noted the lack of early attention to employment,

"The actions of doctors, may, because of their lack of knowledge about the timetables, requirements and possibilities of the employment system actually run counter to the patient's best interests."

Of particular relevance here is the finding of many studies investigating return to work which show that the longer a person is off work following illness or injury the less likely he or she is to return to employment (Beals and Hickman, 1972; Cornes, 1988; Gallagher *et al*, 1989; Sandstrom, 1986), but why is it that delay in dealing with employment issues can have an adverse effect on return to work? In discussing the problems associated with delay, Phillips (1964) observed,

"Delay, per se, is not viewed as a causative factor, but as one that may allow for the deterioration of attitude and morale, the establishment of indigent work habits and increased uncertainty about the possibility of partial or total restoration"

and Eaton (1979) made the following observation about the period of medical recuperation,

"During this period of unemployment the individual may become accustomed to an inactive life-style which excludes vocational responsibility."

Here the research literature on stressful events, coping strategies and personal control, discussed in section one on pages 16 to 18, appear apposite.

Early Intervention

The recognition that a delay in addressing employment issues can compromise a successful return to work has led to the advocating of early intervention. Chamberlain (1984), urged doctors to be alert to the gaps between medical and employment rehabilitation and to try to return their patients to work rapidly "enlisting whatever help is required sooner rather than later." Behan and Hirschfeld (1966), advanced the theory that an industrially injured worker often enters a highly suggestible state just after an accident and it has been proposed that making use of this so called "window of suggestibility" is the key to successful return to work,

"...the [vocational] rehabilitation process begins immediately at the time of injury from both the psychological and medical aspect...The longer the 'non-work' situation exists, the easier it becomes for the injured worker to respond negatively to it and the chances of successfully returning to a productive, meaningful life are significantly decreased." (Stout Vocational Rehabilitation Institute, 1983, Chap IV p 9)

Other authors support this contention. Hood and Downs (1985, p23), in a commentary on return to work studies, stated that a consistent conclusion of these studies was that the timing of employment rehabilitation was crucial to positive outcomes,

"Indications are that early interventions would not only help more people to return to work but also quicken the return of many who would otherwise require more time away from productive employment."

The case for early intervention also gains support from studies which have compared return to work outcomes for groups of people who received early employment advice or help against people who did not. Hood and Downs (1985, p22) reported the results of a nation-wide study of 5,620 cases referred to an American vocational rehabilitation association which demonstrated a link between the timing of assistance and return to work, regardless of the type of disability. When the referral was within three months of injury, 47% of the injured workers returned to employment. Between four and six months the proportion returning was 33% and if referral was made a year or so after injury only 18% returned to work. In a further study also carried out in the United States, (Dennis *et al*, 1988), time taken to return to work after myocardial infarction was less for patients who received advice and recommendation from their doctor to return to work, than for those who received no such intervention. Those in the former group returned after a median of 51 days, whereas those in the latter group returned after a median of 75 days.

Improving Contact with Vocational Rehabilitation Services

It is evident that successful return to work is by no means a sure outcome, even after a fairly minor or moderate injury, and that many people who could benefit from employment rehabilitation services are never referred for assistance, or are referred at such a late stage in their recovery that any help is of limited value. Why does this situation exist? One reason for the poor referral to, and use of, employment rehabilitation services is thought to lie in the nature of the services which are provided for people disabled, either permanently or temporarily, by illness or injury.

In Great Britain there is a vast network of services, for example Blaxter (1976) identified 59 different agencies in the one city where her survey was based. The sheer quantity of services alone would create confusion but this is heightened by differences in organisation and underlying philosophy. Some services are provided by voluntary organisations while others come under the auspices of statutory bodies such as the National Health Service (NHS) or the Department of Employment. Some services are disease specific, that is they offer help to people with particular illnesses such as multiple sclerosis, while others focus on particular difficulties such as work related problems. In addition services are frequently accessed by different referral routes.

Given such a complex system perhaps it is not surprising that people may not receive the help they require. The common finding of studies investigating the problems experienced by disabled people is of lack of information, confused lines of referral, duplication in some services and, paradoxically, unmet need in others (Blaxter, 1980). Many studies have shown that the complexity of the system is such that both patients and doctors find it difficult to comprehend. This situation has been recognised for many years. As early as 1956 the Piercy Committee identified a need to improve liaison between medical, rehabilitation and resettlement services (Piercy, 1956), but there is little evidence to suggest any improvement since that time. Sixteen years after the Piercy Committee, in 1972, the Tunbridge Committee reported on rehabilitation services in England and Wales and noted,

"A major complaint in all the evidence was the general failure in co-ordination and communication between the hospital, the general practitioner, the community services and the services of the Department of Employment, and the unnecessary delays in starting rehabilitative treatment which result from this." (Tunbridge Report, 1972, p 23 para 57)

In the same year its sister committee, reporting on rehabilitation in Scotland, also commented on the general lack of co-ordination, especially between health and employment services:

"Communication between the Department of Employment services, and all branches of the health service is varied, and frequently poor." (Mair Report, 1972, p 22, para 2.7)

In 1980, The National Advisory Council on Employment of Disabled People (NACEDP) also upheld the contention that liaison between services was poor. A NACEDP working party, convened to examine the arrangements for liaison between health, social and employment services in Great Britain, reported,

"Communication is a key factor in successful rehabilitation, both between the employer, the disabled person and his advisers and between the advisers themselves. When communication between those responsible for rehabilitation is inadequate, disabled people may fail to get the right sort of help at the right time, and some may get no help at all." (NACEDP 1980, p 7, para 1.4)

There seems no doubt that many of the problems experienced by disabled people in receiving help, and at the appropriate time, are related to the complex and fragmented nature of service provision in this country. Three government committees, a national advisory committee and numerous research projects all attest to the poor co-ordination and communication between services. Clearly it would not be feasible to alter - in any dramatic way- the structure of the services but something needs to be done to improve co-ordination of services and liaison between service providers.

A potential solution to this problem was suggested by NACEDP in 1980. They recommended the appointment of a specific person to identify patients' employment problems and refer them to the appropriate services for help,

"...in order to facilitate health services referrals to employment services, and to ensure as far as possible, that patients with employment problems receive appropriate help at the right time, existing officers in the health, social and employment services should be drawn together in a new scheme, Health Employment Liaison for Patients (HELP). A key person in the scheme would be the Health Employment Liaison Officer (HELO) who would act as a focal point for referrals." (NACEDP 1980, p 29, para 7.1)

Unfortunately this scheme was not adopted but the concept of a person to co-ordinate care has not been forgotten. In the United States "case management" has been developed to counteract the very fragmentation of services described here, and in recent years case management has been introduced into Great Britain with, for example, the Case Manager Project in London for people with severe physical disabilities (Banks, 1988). The concept of case management will be examined in more depth in the following chapter.

SUMMARY

In this chapter the background to the rehabilitation co-ordinator project has been described. It has been argued that a substantial number of people face difficulty returning to work following illness or injury. Return to work appears to be complex and influenced by a number of factors, not only related to the characteristics of individuals but also to a number of external influences such as other people's attitudes, aspects of the benefit, medical and legal systems and labour market conditions. With regard to personal injury claimants, research suggests that, contrary to popular opinion, a failure to return to work is not simply motivated by the prospect of financial gain but that claimants are subject to a number of influences, as are other injured workers, and that these may have undesirable consequences,

"...research findings show that most (injured workers) want to return to work, at least until delays and other flaws in the benefits and rehabilitation systems stifle their desires and entangle them in dependency-fostering situations."
(National Institute of Handicapped Research, no date)

Despite people's difficulties, contact with vocational rehabilitation services appears to be poor. The literature indicates that a major reason for people's failure to receive help with return to work is a lack of attention to employment issues and poor co-ordination and communication between services. A potential solution to this problem is the provision of a designated person to ensure that employment issues are addressed and to undertake a co-ordinating role.

Clearly identification of a potential solution to a problem is of little value, one needs to know whether it works. Hence the aim of this project - to implement and evaluate a rehabilitation co-ordinator service for personal injury claimants. It was decided to evaluate the service within the context of a randomised controlled trial and the methods used will be described in Chapters Three and Four. However in developing a new service important decisions also had to be made about the nature of that service.

The following chapter will explore models of service delivery and describe the approach adopted for the rehabilitation co-ordinator service together with the principles underpinning its operation.

CHAPTER TWO

THE REHABILITATION CO-ORDINATOR SERVICE

INTRODUCTION

In developing and implementing a new service decisions had to be made about the nature of that service and the principles which would underpin its operation. The literature reviewed in the first chapter gave an indication of some factors to be taken into account, for example early intervention. However, further information was required in order to make an informed decision about the practical operation of the rehabilitation co-ordinator service.

The service aimed to help people who had sustained injuries in road traffic or work accidents and who were pursuing claims for compensation (personal injury claimants). Its primary focus was vocational rehabilitation, that is to help personal injury claimants return to work. Previous research suggested that contact with rehabilitation services which might assist return to work was poor, and that one of the principal causes for this failure was a lack of communication and co-ordination especially between health and employment services.

Taking account of this background to the rehabilitation co-ordinator service, two categories of the research literature are relevant and will be reviewed here. First, models of service delivery for improving co-ordination between services, and for providing a vocational rehabilitation service within an insurance setting will be examined. Secondly, research on health professional-client relationships will be reviewed as there is unequivocal evidence of the influence this relationship has on various outcomes of health care. In the third and final part of the chapter, a model for the rehabilitation co-ordinator service will be chosen and the structure and process of the service described.

1. MODELS OF SERVICE DELIVERY

Improving Co-ordination

During the past thirty years there has been growing recognition of the need for better co-ordination of health care and related services. As services have grown and

developed so, frequently, have the number of professionals to whom one person may be in contact with during the course of an illness or disability. Frequently this causes confusion and people fail to receive the help they require. A solution to this problem is the provision of a designated person to act as a co-ordinator. Indeed, as discussed in Chapter 1, such a solution was proposed by the National Advisory Council on the Employment of Disabled People (NACEDP) in order to improve co-ordination between health and employment services in Great Britain (NACEDP, 1980).

The concept of one person helping a client to relate to the health care system so that services are offered in a timely and appropriate fashion is accepted and well established in the United States (Franklin *et al*, 1987). Referred to as "case management" it developed from a recognition that people with chronic illnesses or disabilities were frequently unable to access services because of a complex system of provision (Kerr and Birk, 1988; Rapp and Chamberlain, 1985)

"Case management is used in a variety of settings to co-ordinate the delivery of services for people with functional limitations. This co-ordinative role is important because so many of the services currently available to elderly and disabled people are fragmented, duplicative, and difficult to access." (Netting *et al*, 1990)

Much of the literature on case management concerns the situation in North America, which is regarded as being the birthplace of case management (Bergen, 1992). This section will look first at case management in the United States and secondly at the situation in Great Britain where case management, although in existence, is not yet as established.

Case Management in the United States

The American literature on case management is diverse in focus and content. Some studies discuss case management in general terms (e.g. Knollmueller, 1989; Shueman, 1987), others describe specific case management programmes (e.g. Kerr and Birk, 1988), and yet others address aspects of quality assurance (Henderson and Collard, 1988), audit (MacAdam *et al*, 1989), and outcome (Borland, McRae and Lycan, 1989; Goering *et al*, 1988). The first part of this section will examine the literature concerning the structure and process of case management services, and the second will be concerned with studies which have looked at outcome.

Structure and Process of Case Management Services

It is evident from reading the literature that the role of "case manager", also referred to as "resource manager", "resource collaborator" or "service co-ordinator" (Evans, 1984), has been developed within both the public and private sector (Shueman, 1987), in a number of different settings, for example in hospitals and in the community, and with a range of client groups. These include people with mental illness (Bigelow and Young, 1991; Franklin *et al*, 1987), physical disability (Evans, 1984; McBride, 1992), cervical spinal cord injury (Hoeman and Winters, 1989) and the elderly (MacAdam *et al*, 1989; Sizemore, Bennett and Anderson, 1989). Reasons for developing case management services appear to be similar, that is to overcome the effects of fragmented services, but in the United States another prevailing theme of case management is cost containment, in other words the control of health care costs particularly related to expensive illnesses or disabilities (Collard, Bergman and Henderson, 1990; Knollmueller, 1989).

Although case management services in the United States appear to have been set up for similar reasons there are many differences between them, even amongst those schemes serving the same client groups. This is particularly evident in the definitions of case management which have been adopted and the manner in which the services operate. For example Bachrach (1989) described two approaches to case management for people with mental illness. These were referred to as "intensive case management" and "clinical case management." The former was based on a perception of case management as co-ordination of services in order to "assists eligible persons in gaining access to needed resources such as medical, social, educational and other services." The latter approach however, regarded case management as predominantly a clinical process with great importance attached to the relationship between the case manager and his or her client, and co-ordination of services very much a secondary function. In commenting on these two approaches to case management Bachrach (1989) commented,

"The purpose ... is not to comment on the relative merits of these two views of case management. It is rather to illustrate that tremendous variations in concept may be subsumed under a single title. The two examples present competing philosophies that are sufficiently far apart that it is difficult to envision a simple compromise between them."

In a review of case management services for people with mental illness, Chamberlain and Rapp (1991), identified five different models of case management intervention.

These were described as the Clinical, Generalist, Program of Assertive Community Treatment (PACT), Rehabilitation, and Strengths models. Differences between the models were seen in a number of key areas including assessment procedures, the role of the case manager, and the nature of the relationship between the client and the case manager. For example, some assessment procedures focused on clients' problems and deficits (PACT and Generalist models) whereas others emphasised strengths (Strengths model). The role of the case manager was perceived as one of linking clients to a formal service system (Generalist model), utilising informal community resources (Strengths model), or using the case management team as an alternative for existing services and resources (PACT model). The relationship between the case manager and the client was also perceived differently with the case manager adopting an authoritarian approach in some models (PACT and Generalist) while others chose client self-determination as their preferred method (Rehabilitation and Strengths). In yet others, the relationship between the client and the case manager was seen as the essential ingredient of the programme (Clinical), (Chamberlain and Rapp, 1991).

Differences in structure are also apparent from papers which describe specific case management programmes (e.g. Kerr and Birk, 1988), and studies which have obtained information about a number of services. For example Parker and Secord (1988) surveyed 117 private case management firms working with the elderly, and MacAdam *et al* (1989) looked at 24 hospital-based case management services for the frail elderly. Studies have reported caseloads as low as 3 active cases at any one time for patients with severe illnesses or injuries (Henderson and Collard, 1988) to as many as 60 - 80 clients per manager (Kerr and Birk, 1988) with other studies quoting caseloads between these two. Parker and Secord (1988) reported an average of 20 cases or less, per manager, per month and Goering *et al* (1988), 15 - 20 active patients at any one time. It is difficult to compare caseloads however because some studies did not make it clear how many of the cases were "active."

The literature indicates that there are case management services working with a number of client groups in a range of settings. The services have adopted different philosophies and use a variety of approaches, however they do appear to have some common factors. Nurses or social workers are most likely to be in the role of case manager (Knollmueller, 1989) and similar functions are carried out namely; targeting appropriate clients, undertaking comprehensive assessments, developing care plans, documenting and monitoring activities, and evaluating client outcomes (Goering *et al*, 1988; Steinberg and Carter 1983, p x-xi).

Outcome Studies

Several authors have commented on the importance of quality assurance and made suggestions as to what should be included when evaluating a case management service (e.g. Hoeman and Winters, 1989; Shueman, 1987). However, there appears to be little research on the outcome of case management programmes, even within those specialities such as mental health where case management has been established the longest. Franklin *et al* (1987) commented that although the concept of case management was widely accepted "evidence of its effectiveness and its cost compared with the usual and customary services ... are (sic) not available." Chamberlain and Rapp (1991) also commented on the lack of outcome research on case management. In their review of outcome research in mental health case management, they identified only six studies which had sought to determine the effectiveness of case management using an experimental or quasi-experimental design.

Not only has there been little research carried out into the effectiveness of case management, but it is not possible to reach any firm conclusions about the effectiveness of case management from the studies which had been carried out. These have been described by Anthony and Blanch (1988) as "sparse and contradictory." Some researchers have concluded that the service they evaluated was effective, at least to some extent (e.g. Bond *et al*, 1988; Goering *et al*, 1988) while others have reported they were not (e.g. Franklin *et al*, 1987). Moreover it is difficult to compare the various studies because of differences in study design, clients and outcome measures. Different methods of case management were also used and in some studies it is not possible to determine the exact intervention because this is not described. In addition, the results from some studies have to be interpreted with caution because of weaknesses in the design. Some of these points will be illustrated by looking at three studies in depth.

Bigelow and Young (1991) compared outcomes for a group of 21 clients with mental illness who received a case management service with a group of 21 similar clients who did not. They reported that those clients who received case management were in contact with more services, had fewer unmet needs with regard to receipt of services, used hospitals less and had a greater quality of life than those who had not. However, clients who did not receive the service were not a true control group as no random allocation was employed. Rather they were clients who met the criteria for entering the study but who, due to administrative arrangements, were discharged from hospital before they were enrolled in the case management programme. Their use as a

comparison group was, therefore, fortuitous. Moreover, this group of discharged patients had been quite large and from this social workers had selected clients "they knew and whom they believed to be good candidates for case management." The authors noted the potential for "self and clinician selection" of clients in this study but contended that the groups were comparable although not strictly equivalent. Nevertheless the results have to be treated with caution.

Two studies which both adopted a more formal experimental design, and which came to different conclusions about the success of case management were those carried out by Goering et al (1988) and Franklin et al (1987). In the former study, outcomes for 92 patients with chronic psychiatric illnesses were assessed six and 24 months after they began to receive a case management programme, against outcomes for a matched control group. The authors reported significant differences between the two groups for "occupational functioning", independence in housing arrangements, and social isolation at 24 months with the case management group performing better than their counterparts. At six months the only significant difference was in occupational functioning. This included all possible roles, i.e. not just employment but also roles as homemaker, student and volunteer. The researchers justified the use of this broad definition of occupation as being more appropriate for a severely disabled population than only considering paid employment. Interestingly when employment outcomes were compared there were no significant differences between the two groups, with 20% of the case managed group in full or part time employment at 24 months compared to 13% of the control group.

Franklin et al (1987) examined the outcome of a case management service for people with mental illnesses, employing a formal experimental design in which 417 patients were randomly allocated to either an experimental or control group. The former received a case management service and the latter group, "usual services." Assessments carried out at 12 months involved a number of objective indicators such as housing and living arrangements, number of friends, number of leisure activities, level of income and employment status, the latter comprising two categories - employed or unemployed. Clients' satisfaction with each of these areas of their lives were also recorded. The authors found that the clients who received the case management service had a higher utilisation of hospitals and community based services but also concluded that the case management service had not had "any substantial or important effect on the quality of life" except for some improvement in employment status and total monthly income. Franklin and his co-authors suggested

that the lack of improvement in quality of life may have been due to the time scales involved, specifically that 12 months may have been too short a time for significant improvement to occur. They also noted that case management cannot be divorced from the setting in which it is provided and therefore its effectiveness is dependent on availability of local resources. It is also important to add that despite the randomisation procedure used in this study the researchers identified differences in the characteristics of the experimental and control groups which seemed to favour the control group e.g. fewer people in the experimental group than in the control group were in employment at the outset of the project.

Despite the conclusion of Goering *et al* (1988) that their service was effective, and that of Franklin *et al* (1987) that their service was not so, it is impossible to conclude that the case management service in the Goering study was better than the service in the Franklin study. Quite apart from possible differences in the study populations, which may have influenced the results, there are a number of other important distinctions. Perhaps most obvious is that in the Franklin study outcomes were measured at 12 months and in the Goering study at six months and 24 months - with most of the significant outcomes only becoming apparent at 24 months. It is interesting to speculate what the results would have been in the Franklin study had outcomes been assessed at 24 months and likewise in the Goering study if the researchers had reported outcomes at 12 months. Secondly, criteria adopted for occupational functioning were much broader in the Goering study than in the Franklin study, the former including all types of occupational roles whereas the latter study only included employment. An interesting observation is that if the Goering study had only considered employment outcome they too would have found no significant difference between their two groups.

The comparison of two of the more sophisticated outcome studies which have been carried out demonstrates the difficulty in reaching any firm conclusions about the effectiveness of case management services from the current research. Chamberlain and Rapp (1991) made this same point but nevertheless recorded several observations. First, they considered that case management was no longer seen as merely linking people to services. Secondly, that the relationship between the client and case manager and the intensity of the involvement were regarded as important aspects of the intervention. Thirdly, they noted that effects seemed to be discernible after a year but not before. Finally, they commented that, with the exception of the "Generalist" model, studies had reported some positive effects for all models of case management

and "warrant further development and testing." However Chamberlain and Rapp may be harsh in dismissing the Generalist model. This was the approach adopted by Franklin and his co-workers in the study described above (Franklin *et al*, 1987) and, as discussed above, the failure of the authors to record any significant improvement in their case-managed client group may have had more to do with features of the research design than the ineffectiveness of the service.

Case Management in Great Britain

In recent years case management has reached Great Britain, imported from the United States because it was seen as a potential solution to a problem Britain shares with the United States - fragmented delivery of health care. The adoption of case management practices was included in pilot Care in the Community projects (Knapp, 1988) and case management was mentioned in the government white paper "Caring for People" (Bergen, 1992). At the time of writing this thesis Care in the Community had been established as a nationwide policy, however at the time the rehabilitation co-ordinator project was being undertaken case management, or as it is often called now "care management" (Gilbert and Russell Hodgson 1991; Richardson 1991) was not extensively available and literature pertaining to the British situation was sparse. This review of case management practice in Britain is, therefore, limited to a discussion of two of the early initiatives, though reference will be made to some papers which were published after the implementation of the rehabilitation co-ordinator service.

Two pioneering examples of case manager services were the Kent Community Care Scheme and the Case Manager Project. The former scheme was a case management project for frail elderly people living in the community in Kent (Challis and Davies, 1985), and the latter a service for people with physical disabilities living in the boroughs of Camden and Islington in London (Banks 1988; Pilling [David], 1988). Both services were set up as short term projects and evaluated.

In describing the Kent Community Care Scheme, Challis and Davies (1985) confirmed that the basis for the scheme was an attempt to reduce fragmentation and lack of co-ordination between services, and that one of the main strategies for achieving this was "improved case-management through the clear responsibility of a key worker for a defined caseload to integrate services into a coherent package of care." Experienced social work personnel were used, each of whom had a budget which could be used to provide or develop services. Caseloads were in the region of 25 to 30 clients per key worker. The case-management process adopted for the

scheme matched the process described in the American literature, which was briefly outlined at the foot of page 31 of this chapter.

The scheme was evaluated using a quasi-experimental design, in which outcomes for a group of 74 elderly people who received the service were compared with outcomes for a matched group of 74 people living in the same health and social service areas. Assessment interviews were carried out with the elderly people and their carers immediately prior to implementation of the service and after one year. Measures of outcome included quality of care issues such as increase in social contact and need for additional services, and quality of life factors including anxiety, loneliness, and morale. Outcomes for principal carers and cost effectiveness were also examined. The results of the study showed that at 12 months more people who were involved in the scheme remained in their own homes than those who were not involved, and that there were significant improvements in subjective well-being and quality of care for the recipients of the service than for their matched counterparts. The results also suggested that there was a slight cost advantage associated with the community care scheme. (Challis and Davies, 1985)

A second case manager service, The Case Manager project based in Camden and Islington, was influenced by case management services in the United States, the project team leader having visited America and seen case management services there in action (Banks, 1988). Set up in 1986 and funded by the King's Fund, the two case managers were social workers and saw 142 clients during the 16 months that referrals were accepted. The functions of the service were similar to those described previously and involved assessment, drawing up a plan of action, connecting clients to required services, representing clients and monitoring receipt of services (Banks 1988; Pilling [Doria], 1988).

An evaluation of the project, carried out independently, sought to determine whether the project met its objectives, whether it was responsible for the provision of better services, and whether case management practices were used (Pilling [Doria], 1988). The evaluation was carried out by means of a questionnaire, completed by 66% of the project's clients, and an examination of a proportion of the case managers' files. The evaluator concluded that there was a need for such a service in the geographical area where it operated, that the project had met its objectives and that, on the whole, it had put the model it adopted into practice. Pilling [Doria] (*op cit.*) reported that 75% of the clients were satisfied with the service, half stating that all the agreed tasks had

been completed and a third that tasks had been partially completed. Interestingly when services had not been obtained clients apportioned responsibility for this to the scarcity or unavailability of resources rather than to the case manager. The project also seems to have achieved recognition from, and been approved by, other service providers in the locality.

Clearly the two case management initiatives described operated in different ways. The Kent Community Care Scheme operated from within a Social Service Department and the case managers were budget holders, whereas the Case Manager Project was an independent service operating outwith an agency and the case managers were not service providers or budget holders. Beardshaw and Towell (1990, p18-19) described three models of case management. These were:

1. the social entrepreneurship model in which case managers operated from within an agency such as social services, and held a budget which could be used to purchase tailor-made packages from service providers;
2. the service brokerage model in which the case manager stood outside any funding or service provider agency and acted as a client advocate linking services to need;
3. an extension of the key worker role where members of multi-disciplinary teams assumed responsibility for co-ordinating the care of specific clients in addition to their own professional roles.

With these three models in mind it appears that the Kent Care in the Community Scheme fitted the social entrepreneurship model and the Case Manager Project was similar to the service brokerage model.

Thornicroft (1991) suggested that in view of the many differences in case management programmes it was useful to document their precise characteristics and suggested twelve axes. These covered such aspects as the status of the case managers, staff-client ratio, the level of intervention, and the point of contact. Such precise definition clearly has advantages not only for people who are wishing to set up services and look to previous programmes for information, but also in research where the ability to replicate a study depends on precise information of what the study involved. Moreover, a frequent criticism of studies which evaluate a new service is that they fail to describe adequately the service provided (Pollock *et al*, 1993).

Thornicroft's axes will be used in the last section of this chapter to describe the features of the rehabilitation co-ordinator service.

Rehabilitation Services in Insurance Settings

In the previous chapter vocational rehabilitation services in Great Britain were described. These services are statutory and available to any person disabled, temporarily or permanently, by illness or injury and make no distinction between those who are eligible to pursue a claim for compensation and those who are not. Similar services are provided in most countries, however some, such as the United States, have also developed private vocational rehabilitation services provided under the auspices of insurance companies or in the form of independent services which contract out their services to several different companies.

The impetus for such services came from within the American insurance industry. In the United States all states require employers to hold workers' compensation insurance for their employees. When a person is injured in the course of his or her work, the insurance company acting for the employer is responsible for paying full medical costs and wage replacement to the injured worker. (Latus, 1982).

Many different professionals are employed within the private vocational rehabilitation service in the United States, including Rehabilitation Administrators, Counsellors and Nurses (Matkin, 1985). However the role of the Rehabilitation Nurse is perhaps the most pertinent to this present study because it developed in response to poor communication and co-ordination between services and to prevent the subsequent delays in rehabilitation this caused. In particular, the rehabilitation nurses role was to follow patients through after discharge from hospital in an attempt "to bridge this perplexing gap in the treatment process" (Latus, 1982). In supporting, and ensuring, the continuance of rehabilitation after discharge in this way, it was anticipated that people would return to work more quickly.

The Role of the Insurance Rehabilitation Nurse

The role of the insurance rehabilitation nurse has been described and discussed by several authors, for example the Alliance of American Insurers (1978) and Latus (1982). In an investigation of the roles of private vocational rehabilitation specialists Matkin reported that rehabilitation nurses, more than any other occupational group, were responsible for planning and co-ordinating client services. He described six components of their role (Matkin, 1985 p 83-85):

- a) client orientation and service planning
- b) resource identification and referral
- c) service co-ordination
- d) gathering and synthesising information
- e) guidance and counselling
- f) disseminating information

Clearly the functions of the rehabilitation nurse are very similar to those described for case managers, the difference being that rehabilitation nurses are working in insurance settings with people who have ongoing claims for disability insurance benefits and/or compensation. In view of the similarity of this client group with the group of people the rehabilitation co-ordinator would be working with, the components of a rehabilitation nurse's role will be considered more fully.

a) Client orientation and service planning

Among the activities included in this area were explaining the nature of the rehabilitation service and the role of the nurse; evaluating the clients' needs in relation to rehabilitation services, developing intermediate rehabilitation objectives, establishing time scales for rehabilitation and monitoring progress. Matkin also noted clients' involvement in the decision making process.

b) Resource identification and referral

This aspect of the work included identifying rehabilitation facilities within the area where a person lived and referring the client to appropriate services.

c) Service co-ordination

Duties of a rehabilitation nurse in service co-ordination involve arranging appointment with the client, meeting with all the professionals involved in his care for example physicians, rehabilitation staff and legal representatives in order to co-ordinate the rehabilitation activities, working with medical and rehabilitation staff to determine and monitor the rehabilitation plan.

d) Gathering and synthesising information

The major component of this activity was developing an understanding of the clients' needs so that a rehabilitation plan could be formulated. Important information would include the consequences of the disability to work, family and self-sufficiency,

together with a comprehensive review of a client's past training, work experience and other factors likely to influence the choice of a vocational goal.

e) Guidance and counselling

The role of the rehabilitation nurse was seen to incorporate concern for the physical and mental well-being of clients, therefore guidance and counselling were seen to be important vehicles for helping clients to identify 'methods to solve personal conflicts', and "methods of coping with their disability."

f) Disseminating information

This aspect of the work included verbal and written communication with other members of the rehabilitation team.

Outcome Studies in Insurance Rehabilitation Nursing

There appears to have been no outcome studies published on the effectiveness of insurance rehabilitation nurses. However other, anecdotal evidence, could be taken as support for their efficacy. Most notably, many insurance companies employ their own rehabilitation nurses, indeed Matkin (1985 p83) noted that most rehabilitation nurses working within the workers' compensation scheme in the United States were employed by large insurance companies. The number of rehabilitation nurses employed in this way continues to grow and it is reasonable to suppose that in terms of cost effectiveness, at least, their worth must have been demonstrated in order for this situation to exist.

2. THE HEALTH PROFESSIONAL-CLIENT RELATIONSHIP

It is evident that some case management approaches pay particular attention to the relationship between case manager and client regarding this as an important vehicle for enhancing outcomes, and some authors have argued that the case manager should consciously develop the therapeutic aspects of relationships with clients (Harris and Bergman, 1987). Shepherd (1990) commented that there was little evidence to determine how important this aspect might be in case management. However, the relationship between health professionals and clients, and in particular doctors and patients, has been the focus of much theoretical and empirical research and this will now be reviewed. This section will discuss the importance of this helping relationship, and examine the factors within the relationship which appear to contribute to positive outcomes.

The Importance of the Health Professional-Client Relationship

While health care professionals must be knowledgeable and have good technical skills in order to provide an effective service, the health professional-client relationship is also important for, as indicated in Chapter One, it provides a potential means of social support for ill and injured people. Several authors have commented on the importance of the doctor-patient relationship,

"The significance of the intimate personal relationship between physician and patient cannot be too strongly emphasised, for in an extraordinarily large number of cases, both diagnosis and treatment are directly dependent on it, and the failure of the young physician to establish this relationship accounts for much of his ineffectiveness in the care of patients." (Peabody, 1927)

In similar vein, Speedling and Rose (1985) commented,

"The physician's expertise in curing the illness is rarely seen to count more than his or her facility to care for the patient's psychosocial needs."

The relationship between health care professionals and their clients may also determine the manner in which a person perceives their illness or disability,

"There is no question, however, that the doctor-patient relationship is often the context in which negotiations about illness and disability take place, and the management of these negotiations, and the rehabilitative steps taken, play an important role in the future trajectory of the patient's illness and disability." Mechanic (1992)

or influence the outcome of rehabilitation:

"...relationships between patients and providers do matter, and when they are poor, rehabilitation is adversely affected." (Bury, 1985)

Many studies have indicated the influence of the health professional-client relationship on satisfaction with services and the influence of satisfaction on a number of health care behaviours. Such behaviours include use of alternative practitioners (Koos 1955; Cobb, 1958), doctor shopping (Kasteler *et al* 1976) and suing for malpractice (Vaccarino, 1977). Speedling and Rose (1985) commented that the strongest evidence linked satisfaction and utilisation of services, such as those described above, however other authors have noted links between satisfaction and other behaviours such as compliance with treatment (Freemon *et al*, (1971). Roter

(1977), in particular, commented that the "patient-provider" relationship appeared to be the variable most consistently related to patient compliance.

If, then, the health professional-client relationship has such an important influence on satisfaction with services and other health care behaviours, what factors within the relationship appear to have a positive influence? The following section will look at important aspects of the health professional-client relationship and, in particular, discuss the issue of power within the relationship and patient participation in decision making.

Important Aspects of the Health Professional-Client Relationship

Empirical studies have repeatedly mentioned two factors as being important, first the presence of a warm, caring atmosphere and, secondly, the provision of information about illness and treatment (Stiles *et al*, 1979; Whitcher-Alagna, 1983). Many studies have demonstrated that when patients express satisfaction with medical services they are basing their evaluation on the physician's ability to relate to them in a warm, sympathetic and personal manner (Ben-Sira, 1980; DiMatteo, Prince and Taranta, 1979; Freemon *et al*, 1971; Geertsen, Gray and Ward, 1973; Ware and Synder, 1975). Moreover, Reader, Pratt and Mudd (1957) reported that 50% of the respondents in their study listed empathy as the most important quality of a physician, as opposed to 20% of the sample who rated technical ability as the most important attribute. Similarly Doyle and Ware (1977) found that patients' perceptions of doctors' conduct accounted for 41% of the variance in satisfaction with care.

In other studies the focus has been patient-centred behaviour - defined as the physician actively seeking the patients' point of view. This has been associated with patient satisfaction and compliance (Stewart, 1984) and with resolution of symptoms, satisfaction with the consultation, and feelings of being understood (Henbest and Stewart, 1990).

Power and Control Within the Health Professional-Client Relationship

Several authors have developed theories about the use of power within the health professional-client relationship. French and Raven (1959) and Raven (1965) identified six sources of power which they suggested doctors and other health care professionals exercised over patients. These are a) expert power, b) informational power, c) legitimate power, d) coercive power, e) reward power, and f) referent power.

Expert, informational and legitimate powers are most frequently used and based on health care professionals' skill, superior knowledge and the legitimacy which society affords to their roles (Rodin and Janis, 1982). Reward and coercive power can be exercised when the health care professional is able to mediate punishment or reward what they regard as respectively "undesirable" or "desirable" behaviour. For example, praise, warmth, time and availability are some of the rewards which either can be given or withheld.

Referent power is the influence arising from a person's wish to identify with someone whom they perceive to be admirable, accepting, benevolent and likeable. Rodin and Janis (1982) suggested that it is the least used form of power in health care and yet potentially is the most effective. They argued that it could be fostered by developing relationships with patients with certain features. These include sharing beliefs, attitudes and values, acting in a benevolent manner, and having a willingness to help out of a genuine sense of caring. Furthermore, they suggested that the health professional should be accepting of the client as this conveys to the client that they are worthwhile.

Researchers suggest that the type of power exercised by health professionals is important for two reasons. First, power influences the amount of control people perceive themselves to have and, secondly, perceptions of control have been shown to have a significant impact on health-related outcomes (empirical studies demonstrating the influence of control or perceived control will be discussed in a later section of this chapter). Using social psychological theories, these researchers proposed that when patients comply with treatment because of expert, legitimate, coercive or reward powers they attribute their compliance to external incentives and are less likely to perceive themselves as having personal responsibility or control over their own health related actions. This has particular consequences when patients are no longer under health care and have to take action for themselves (Rodin and Janis, 1982). In similar vein, these authors suggested it is likely that referent and informational power "promote internalization of recommendations" such that patients' feelings of choice and control are increased because they perceive themselves to be acting on internal, self-motivated norms and goals.

Models of Health Professional- Client Relationships

The degree of autonomy or control given to patients within the health professional-client relationship has been the cause of much debate. Traditionally the doctor-patient

relationship has been regarded as paternalistic with the doctor taking an active role and the patient a passive one. Such a relationship does not apply only to doctors and patients for many health care professionals, such as nurses and physiotherapists, have been trained in medical settings and consequently have tended to adopt such a model in their relationships with patients. Anderson (1975) described several features of what he termed "the medical model." These included the professional identifying the problem, giving directions to the patient, assuming that the patient understands and is willing to accept those directions, and the patient following those directions. The trust in the relationship is based on expertise and authority.

Some authors, while not totally rejecting such a relationship, have questioned its suitability for certain areas of health care. Szasz and Hollender (1956) argued that different types of relationships were needed for different areas of medical practice and described three models. The first model, described as "activity-passivity", was seen as one in which the doctor did something to the patient in a situation in which the patient was unable to respond, for example if the patient was anaesthetised or in a coma. The second model, "guidance-co-operation" was conceived as the doctor telling the patient what to do and the patient obeying. This was for use in situations such as acute infection. The third model, "mutual participation" was regarded as a partnership in which the patient helped himself, with assistance from the professional. This was regarded as most appropriate for patients with chronic illnesses.

Anderson (1975) questioned the suitability of the medical model relationship for use in rehabilitation. Rather he saw a "helping process" as more appropriate. This was similar to Szasz and Hollender's "mutual participation" model, as the emphasis was on assisting patients to do tasks for themselves. This relationship was characterised by a joint exploration of the problem and potential solutions; the patient having responsibility for making decisions and choosing the solution he wanted; and trust based on a personal relationship and mutuality. The expected benefit of such a relationship was that patients would develop the ability to solve problems themselves rather than become dependent on the health care professional. Some would describe this as an "educational" model.

More recently, Emanuel and Emanuel (1992) also described several models of the doctor - patient relationship. While acknowledging, in keeping with other writers, that different relationships were appropriate for different circumstances, their preferred relationship was what they called the "deliberative" model. This shared many of the

features of the "mutual participation" model described by Szasz and Hollender (op cit.) and the "helping" model outlined by Anderson (op cit.).

Control and Perceived Control

In recent years, empirical studies have contributed to the debate about the degree of autonomy patients should have in the health professional-client relationship. Of particular importance is the research indicating the influence that a person's control, or perceived control can have on outcomes in various situations. This is linked to the issue of personal control which was introduced in Chapter One.

Laboratory experiments indicate that physiological and psychological responses to noxious stimuli, such as noise or electric shocks, vary according to the amount of control individuals perceive themselves to have over the particular stimulus. Greater physical symptoms have been recorded in subjects who perceived themselves to have no control over a burst of noise than in those who did perceive some control (Pennebaker et al, 1977); and higher discomfort was noted in a group who perceived themselves to have no control over exposure to white noise compared to a group who did think they had control (Corah and Boffa, 1970).

The importance of an individual's control, or perception of control, in situations outside the laboratory have also been demonstrated, for example Gordon (1976) and Thompson and Wankel (1980). In the latter study, subjects taking part in an exercise programme were given the activities they had previously indicated they preferred. However, half the group were told they had been given these exercises by chance while the remainder were told their choices had influenced the programme. Subsequently, attendance by the former group was noticeably poorer than that of the latter group. What is evident is that actual control is not required, perception that one has control is sufficient to make a difference.

The effect of control, or perceived control, over decisions in medical care has been less frequently studied however some studies do exist (e.g. Greenfield et al, 1988). In one study, Brody et al (1989) examined patients' perceptions of their involvement in medical care and their subsequent attitudes about their illness and improvement. They concluded that patients who regarded themselves as having an active role in their care reported less discomfort, greater alleviation of symptoms and greater improvement, one week after a doctor's appointment, than people who saw themselves as having a passive role. In another study, Mahler and Kulik, (1990), looked at perceptions of

control over recovery and desires for involvement in, and information about, care in a group of patients undergoing coronary bypass surgery. The results indicated that pre-operative beliefs about control and desires for involvement in health care predicted several important aspects of outcome such as a shorter hospital stay. The authors concluded that when the patients believed they could influence their recovery and wanted to be involved in their treatment, positive outcomes followed even when there was no specific intervention designed to encourage their active involvement. Schulman (1979) also reported a link between patients involvement in care and outcome. She found that the degree to which a hypertension treatment clinic involved patients in decision making, in monitoring their own progress and in learning about their illness was positively correlated to reduction in blood pressure.

Patient Participation

The demonstration that outcomes may be influenced by the degree of control patients feel they have in their treatment has encouraged some authors to suggest that patients should actively be encouraged to take a role in decision making (Legg England and Evans, 1992). However it is not only on clinical grounds that such recommendations are being made, but for ethical reasons also. In other words, from the belief that patients have "a right and a responsibility to be involved in decisions affecting their health" (Clayton, 1988). Hence patient autonomy and participation in decisions about treatment have recently become important issues in health care.

While these principles have gained general acceptance (Wilson-Barnett, 1989), they are not without their difficulties. For example there is evidence to suggest that neither perception of control nor becoming actively involved in treatment are associated with uniformly beneficial effects. Miller and Mangan (1983) followed 40 patients who were about to undergo a diagnostic gynaecological procedure. The patients were categorised as information seekers or information avoiders and half in each group were given either substantial information or the "usual" level of information about the operation. Measures of arousal and discomfort, such as pulse rate, muscular tension, and self-reported anxiety, were taken before and after the procedure. The results indicated that patients given the lower level of information showed less subjective arousal than women given a high degree of information. However arousal was lowest when the level of information given to the patient matched the level of information she preferred to receive.

Some researchers have also questioned the degree to which patients want to be involved in medical decision making (e.g. Haugh and Lavin, 1981) and studies have demonstrated that patients do differ in the degree of control they would like. In one study patients expressed a wish to have some degree of participation but direct participation was rated as unimportant (Vertinsky, Thompson and Uyeno, 1974). In another study, 50 clinicians and 210 of their patients with hypertension were surveyed about various aspects of patient participation in health care. Clinicians' responses indicated that they believed about 78% of their patients wished to be involved in decisions whereas only 53% of those patients stated a wish to be involved. (Strull, Lo and Charles, 1984).

3. A MODEL FOR THE REHABILITATION CO-ORDINATOR SERVICE

Choice of a Service Model

The problem identified at the outset of this study was the difficulty experienced by some personal injury claimants in returning to work. Previous research indicated that contact with the vocational rehabilitation services in Great Britain was poor and that one of the main reasons for this low level of contact appeared to be a lack of communication and co-ordination between health and employment services. A potential solution to this problem had been suggested by NACEDP in 1980, but never implemented, namely a designated person to address employment issues and improve co-ordination between services.

The research reviewed in this chapter indicates that the concept of having one person responsible for co-ordinating care so that services are received at an appropriate time, is accepted and well established in the United States and is now being implemented in Great Britain. This concept, "case management" has not been evaluated extensively and the outcome research that does exist tends to be contradictory. However there is sufficient evidence to suggest that it may be an effective means of helping people to receive assistance from a fragmented health care system. Moreover in the United States there has been the introduction, over a number of years, of rehabilitation nurses working in insurance settings. Their function is very similar to that of case managers but they work specifically with people who have claims for disability benefits and /or compensation - a similar client group to personal injury claimants in Britain. While there appears to be no scientific evaluation of this role, the continuing development and appointment of rehabilitation nurses by insurance companies suggests that, to some degree at least, they achieve effective outcomes.

The research literature appeared to support the adoption of a rehabilitation co-ordinator service to try to improve the help offered to personal injury claimants and, in addition, there appeared to be no previous evaluation of a co-ordinator or "case manager" service for this client group. Therefore the implementation and evaluation of a rehabilitation co-ordinator service for personal injury claimants could be justified.

Having established that a rehabilitation co-ordinator was an appropriate means of trying to help personal injury claimants return to work further decisions had to be made. First about the rehabilitation co-ordinator's role, secondly, the nature of the relationship between the rehabilitation co-ordinator and the clients of the service and, thirdly, how the service would operate. In reaching these decisions studies concerning case management, insurance rehabilitation nursing and health professional-client relationships were reviewed. The author considered it important that the model for the service was based on the experience of services with similar aims and objectives, evaluative studies of those services and current knowledge, principles and values about helping relationships.

The literature on case management offered little assistance in choice of a model or approach for the rehabilitation co-ordinator service. There were a variety of case management models in operation at the time the project was being implemented, however many of these were ill-defined. Moreover, the few outcome studies which had been carried out did not indicate that any particular approach was superior. In addition, there was clearly no model which fitted the circumstances of the rehabilitation co-ordinator project in that the majority of the published studies concerned case management services for people with mental illness, or the elderly. Many services were also hospital based. Hence there was insufficient information to enable or justify adoption of one particular case management model or approach.

The literature on rehabilitation nursing in insurance settings clearly defined and described this role and its functions, and in many respects this appeared to be very similar to those described for case managers. There appeared to be considerable similarity between the insurance rehabilitation nursing role and that of the proposed rehabilitation co-ordinator in terms of purpose, client group and setting.

Studies regarding the helping relationship tended to support a participative, patient-centred relationship over the more traditional relationship in which the health care professional is dominant, and the former was the approach chosen. In such a

relationship, perhaps more accurately described as a partnership, there is a recognition that both client and health-professional have important contributions to make and that decision making is joint and based on negotiation and mutual agreement. Not only does this seem desirable in terms of improving outcomes but it is in keeping with current widely-held values about self determination and people's right to make their own decisions about issues which affect their lives. Clearly for a service whose aim was to try to help people return to work it was imperative that the co-ordinator and client work together.

Description of the Rehabilitation Co-ordinator Service

The main characteristics of the rehabilitation co-ordinator service, and the rehabilitation co-ordinator, at the time of implementation are described below. The features of the service are then outlined using the twelve axes described by Thornicroft (1991). People receiving the service are referred to as clients.

The Rehabilitation Co-ordinator

One person acted as the co-ordinator for this study. She was a state-registered, chartered physiotherapist who was a graduate with a master's degree in rehabilitation studies. Her clinical experience included eight years working with disabled children and their families, predominantly in the community, during which time she had worked within a multi-disciplinary team who had used an informal "key-worker" approach. Prior to implementing the service she underwent a three month induction programme.

Operation of the Service

An initial visit to the client's home to discuss participation in the project and confirm people's eligibility also served to introduce the rehabilitation co-ordinator, provided the opportunity to explain what would be involved, and enabled people to ask questions. No information was collected at this first visit.

A second visit took place shortly afterwards, at which an assessment was carried out. The assessment involved a thorough review of the person's situation and included details about their social and financial circumstances; injuries; treatment; contact with services; physical capabilities and disabilities; employment history, including the current situation with his or her pre-accident job; education; and the claimant's perception of their work situation. Topics included in the assessment were indicated by literature on vocational assessment (Matkin, 1985 p105-106; Stewart and Vander

Kolk, 1989). Information was gathered using a semi-structured questionnaire (described in Chapter Four). Timetabling of the assessment visit was arranged so that the co-ordinator could spend as much time with the person as he or she wished.

Following the assessment visit a report was written by the co-ordinator summarising each person's situation, with particular emphasis on employment and possible courses of action. The report was reviewed by the co-ordinator, a psychologist and a consultant in rehabilitation medicine at a brainstorming session in which ideas and possible courses of action were identified.

Following this review of the client's situation the co-ordinator returned to see the client. The various ideas identified earlier acted as a basis for discussion and an interim goal and plan of action were identified. Action was then implemented, monitored and changes made as required. Clients were visited and telephoned on a regular basis. The frequency of the visits were dictated by need but visits took place approximately once a month. Planning and monitoring documents recording objectives, activities, results of actions and any other important events were devised specifically for the service. These documents are described more fully in Chapter Four and copies are contained in Appendix A.

The specific feature of the rehabilitation co-ordinator service are outlined below using the twelve axes described by Thornicroft (1991).

1. Individual/team management

The co-ordinator operated independently from her base within an academic rehabilitation unit. She had support from a psychologist and a consultant in rehabilitation medicine but was not connected to any unit purchasing or providing services for the people she was visiting.

2. Direct care/brokerage

The rehabilitation co-ordinator acted mainly as a broker of services but had direct client contact for assessment, setting rehabilitation goals, taking action and monitoring progress.

3. Intensity of interventions

The majority of time was client-oriented.

4. Degree of budgetary control

The co-ordinator had no budget for purchasing services.

5. Health/social service function

The co-ordinator had no health or social service function other than occasional contact with appropriate health/social services on individual client's behalf.

6. Status of case managers

One person acted as the rehabilitation co-ordinator for this study. She was a state-registered, chartered physiotherapist with experience of working as a key worker in a previous post.

7. Specialisation of case managers

All clients were served by the same co-ordinator. However all clients were people who had sustained serious injuries in road traffic accidents or accidents at work and were pursuing claims for compensation.

8. Staff-client ratio

The co-ordinator had a maximum of 25 clients at any one time.

9. Patient/client participation

Clients were actively involved in assessment, in decisions about rehabilitation goals, and in taking action to try to achieve goals.

10. Point of contact

All clients were visited at home.

11. Level of intervention

All intervention was at an individual level.

12. Target population

People who had sustained injuries in road traffic accidents or accidents at work who were pursuing claims for personal injury compensation. Clients lived in Scotland, North East England or Yorkshire.

SUMMARY

In this chapter models of service delivery for improving co-ordination between services and for providing rehabilitation in insurance settings have been reviewed, together with literature concerning health professional-client relationships, perceived control, and patient participation in decision-making and treatment. A rehabilitation co-ordinator service, modelled on the role of case managers and insurance rehabilitation nurses, was considered an appropriate strategy for helping personal injury claimants obtain assistance from employment rehabilitation services. The features of the rehabilitation co-ordinator service have also been described.

CHAPTER THREE

EVALUATING MEDICAL AND REHABILITATION SERVICES

INTRODUCTION

The process of evaluation has been described as,

"... the formal determination of the effectiveness, efficiency and acceptability of a planned intervention in achieving stated objectives." (Holland, 1983^a, p8)

and Long and Harrison extended this definition, describing effectiveness, efficiency and acceptability in the following terms,

"Effectiveness can then be defined as a measure of the technical outcome of health services, in medical, social and/or psychological terms, efficiency as the ratio of the product produced to resource input, and acceptability as the judgement of an intervention as professionally and/or socially satisfactory and adequate." (Long and Harrison, 1985, p2)

It has been argued that in order to be comprehensive an evaluation must address the three aspects of effectiveness, efficiency, and acceptability (for example, Long and Harrison, 1985). However such an extensive evaluation is not always feasible and in these circumstances it has been suggested that attention should be paid to establishing whether a service is effective (Long, 1985).

The resources which were available for assessing the performance of the rehabilitation co-ordinator service did not permit an evaluation of the extent suggested by Long and Harrison (*op cit.*). Assessing effectiveness was considered the most important aspect of the evaluation, and this was in keeping with Long's suggestion (*op cit.*). However, of almost equal importance was to try to determine whether the service was acceptable to the client group who received it. The "consumer viewpoint" has been noted to be an area of neglect by several authors (for example, Holland, 1983^a, Lebow, 1974; Long, 1985), yet, as discussed in Chapter One, satisfaction has been identified as a key determinant of service utilisation (Speedling and Rose, 1985). Acceptability was particularly important in this study because, to our knowledge, this was the first time in Britain that a service had been provided within an insurance setting for people who were pursuing compensation claims. If the service was found to be effective and there

was the possibility of developing it on a more permanent basis, it was important to know whether people were likely to use it.

In summary, the evaluation of the rehabilitation co-ordinator service aimed to assess whether the service was effective and if it was acceptable to the claimants who received it. The remainder of this chapter will be devoted, principally, to these two issues. The first part will be concerned with methods of evaluating effectiveness and will consider such issues as appropriate research designs and the measurement of outcome. The specific methods chosen to measure the outcomes for the study will also be described. Secondly, issues concerning the measurement of patients' satisfaction with services will be discussed and the method chosen to obtain people's views in this study will be outlined. A final section of the chapter will look briefly at a perceived shortcoming of quantitative research, that is its inability to provide an understanding of the context in which a service operates, and describe how this study attempted to address this issue.

1. EVALUATING SERVICE EFFECTIVENESS

Research Designs

In order to assess the effectiveness of a health care programme or service certain minimum requirements have been proposed. These are, first, that there are two groups of patients one of whom participates in the programme and another who do not. Secondly, the outcome is measured for both groups on a minimum of two occasions, that is prior to the treatment and after it. Thirdly, the two groups must be comparable in every respect. Fourthly, reliable and valid measurements must be made of the outcomes and, finally, the difference between the two groups must be inferred as being solely due to the programme or service offered (Long, 1985). This final requirement is important because changes may occur for a variety of reasons quite unconnected with the service. For example improvement may occur naturally, or as a result of interest being shown in the person - the so called Hawthorne effect (Polgar and Thomas, 1988, p65).

Some of these requirements demand particular attention and thought. First, it may be difficult not only to measure outcomes but also to identify indicators which adequately reflect the impact of a service - these issues will be discussed in a later part of this section. A second problem is how to ensure that the two groups of patients are identical and that any change which occurs can be attributed to the service being

evaluated. Here choice of research design is important but once again this is not without its difficulties,

"...establishing a sound research design to study effectiveness is problematic ... the evaluator needs to be aware of potential threats and thus to take steps to minimise (eradication may be impossible) their effect in a particular study."
(Long, 1985, p43)

In evaluating the effectiveness of treatment programmes or services the most popular and accepted method of research design has been the randomised controlled trial (Reilly and Findley, 1989). Its purpose and procedures are well known and it is regarded as having the advantage of providing factual, reliable outcome data that usually can be applied to a wider population. Traditionally it is regarded as being the most powerful research design when looking at cause-effect relationships (Ottenbacher, 1990). Indeed when Chamberlain and Rapp (1991) reviewed studies which had evaluated case management services (see previous chapter) they gave greatest weight to those studies which they regarded as adopting a true experimental design.

A randomised controlled trial (RCT) has many of the attributes which are necessary for a sound evaluation. It matches the minimum requirements stipulated by Long (1985) - for example it involves comparing outcomes for two groups of patients, one of whom receives the service or treatment and one who does not. Randomisation should also ensure that any factors or characteristics which might affect the outcome are evenly distributed between the two groups (in other words they are comparable). Therefore, in principle, an RCT is free from confounding factors (Holland, 1983^b).

However it is recognised that randomised controlled trials are not always possible to implement. For example, randomisation may be difficult because of organisational difficulties, and there may be ethical concerns over the perceived "withholding" of a treatment or programme. Consequently other designs are frequently used to evaluate programmes for example controlled non-randomised trials, and cohort or case-control studies (Holland, 1983^b). These latter designs, and RCTs, all involve comparison of outcomes between groups and some authors have also voiced criticisms about the "between-subject" or "group comparison design" (e.g. Ottenbacher, 1990). One frequently quoted criticism is that comparison of average performance across a group of patients does not provide any information about the relevance of a treatment programme or service for a particular individual. As Barlow and Hersen (1984) stated,

"some patients will improve and others will not. The average response, however, will not represent the performance of any individual in the group."

Indeed it has been suggested that the difficulty in extrapolating whether a treatment or service is successful for a particular individual from a "between-subject design" is one reason why clinical practitioners have not readily incorporated research findings into their practice. This has led to the introduction of the so called "idiographic model" or "within-subject design" in which outcomes for the same person are measured repeatedly during several phases of intervention and non-intervention.

The various "between-subjects" designs and the "within-subject" design each have advantages and disadvantages and a choice of design must be based on which is considered the most appropriate for the study being carried out. For clinical settings in which patient numbers may be few and the principal interest is "what treatment, by whom, is most effective for this individual, with that specific problem, and under which set of circumstances" (Strupp and Bergin, 1969), the within-subject design may be the most appropriate. However this was not the context for the rehabilitation co-ordinator service. Moreover, the aim of the evaluation was to be able to attribute any changes that occurred to the rehabilitation co-ordinator service and, hopefully, to be able to extrapolate the findings to a wider population.

In choosing a group comparison design, neither a non-randomised nor a case-control/cohort design were considered to be suitable. For this study organising a randomisation procedure was not perceived to be a problem and, with regard to ethical problems, it has been observed that ethical difficulties associated with the use of an unproven new "treatment" are greater than those associated with a trial (Altman, 1980^a). Moreover, case control/cohort designs, are usually applied in situations where the service is pre-existing, and this was not the case for the rehabilitation co-ordinator service. It was also noted that despite some of the difficulties associated with an RCT it is still regarded as the best available design for an evaluative study (The Lancet, 1980), and the design which may produce the most useful results (Altman, 1980^a). Hence a randomised controlled trial was chosen as the research design for the evaluation of the rehabilitation co-ordinator service.

There is another criticism of using randomised controlled trials for evaluating services, but this applies equally to other experimental and quasi-experimental designs. Briefly, this criticism focuses on the inability of "quantitative approaches" to provide any contextual understanding of services and the way they operate. This

criticism will be discussed more fully in the last part of this chapter because attempts were made to address this issue in the evaluation of the rehabilitation co-ordinator service.

Measuring Outcomes

Outcomes or "the end result of care in terms of its effect on the patient/client" (Luker, 1981) are regarded as the principal indicators of effectiveness,

"Outcomes, by and large, remain the ultimate validation of the effectiveness and quality of medical care" (Donabedian, 1966)

and

"In our definition of the evaluation of service effectiveness ... we have stressed that the ultimate goal is to assess the outcome or impact." (St Leger, Schnieden and Walsworth-Bell, 1992, p13)

Choice of outcome measures, however, demands considerable thought. Not only may it be difficult to identify outcomes which will adequately reflect the impact of a service or treatment, but a means must be found to measure those outcomes accurately. Moreover, for certain functional, psychological or psychosocial outcomes a decision has to be made about whether to develop a scale to measure these or to use an existing one. If the latter is the case, there is a plethora to choose from - one author has indicated there are several hundred in the rehabilitation field alone (Bolton, 1985).

Previous studies which have evaluated case management services using an experimental design, have adopted a number of outcome measures such as utilisation of services, return to work and quality of life (Franklin *et al*, 1987; Goering *et al*, 1988), the latter being conceptualised and measured in a number of different ways. Glueckauf (1990) suggested that the choice of outcome indicators should be based on the aims of the service being evaluated and on the behaviours targeted for change. Applying this to the present study, the principal aim of the rehabilitation co-ordinator service was to help personal injury claimants return to work by putting them in contact with appropriate voluntary and statutory services. However, it was hoped that in helping people to address the problems they perceived themselves to have, the service would also have an impact on improving the quality of their lives. While return to work status and contact with services could be measured by recording or number counts, albeit within precise guidelines, quality of life could not. Indeed, the

measurement of quality of life is fraught with difficulty and a review of the issues involved is necessary before the outcome measures chosen for the study are described.

Measuring "Quality of Life"

In recent years there has been increasing interest in monitoring changes in "quality of life" as a means of evaluating treatment programmes or services. Indeed, as noted earlier, quality of life measures have been a feature of previous studies which sought to evaluate case management services, some of which were reviewed in chapter two (Bigelow and Young, 1991; Franklin et al, 1987).

However, measuring quality of life has proved extremely difficult and at the present time there is no universally accepted method (Kind, no date [nd]),

"The question is no longer whether these factors (quality of life) should be measured but what is the most reliable and practical means of obtaining these essential data." (Slevin et al, 1988)

One of the difficulties of measuring quality of life arises from the nebulous nature of the concept. Everyone knows what it is, but it seems impossible to define,

"Quality of life, like so many socially important concepts, has considerable intuitive meaning and broad appeal. At the same time, however, even a cursory look at the various literatures and contexts in which quality of life is evoked reveals that there is no agreement as to what quality of life is or how it should be defined" (Faden and Leplege, 1992)

and

"Acceptance of the idea that we should consider the quality of life as well as the simple fact of survival has not shown us how to define it. One difficulty arises because the concept is intuitively familiar and therefore appears undeserving of close definition." (McDowell and Newell, 1987, p206)

Despite the difficulty in defining quality of life, and the assertion that without a definition it is impossible to measure (Wade, 1992), researchers have attempted to do so and various approaches have been adopted.

Many studies have adopted what Kind (nd) described as "shadow or proxy" measurement. Rather than attempting to measure quality of life directly a factor which is deemed to contribute to, or be indicative of, a certain quality of life is chosen and

measured. Such a factor might be days lost through sickness, or hospitalisation, or participation in leisure activities. However as Kind (nd) also commented "the linkage between these variables and QOL (quality of life) is often a matter of conjecture."

A second approach to measuring quality of life has been to use one of a limited number of instruments which purport to measure this phenomenon. However, it is debatable whether these instruments are, in fact, measuring quality of life. The measures usually consist of two elements, a means of describing health states and a method of weighting those states. The difficulty here is the assumption that certain health states are more desirable than others, or that certain features either add to, or detract from, quality of life. Implicit in this approach is the assumption that the "better" the health state or the "higher" the level of physical functioning, the greater the quality of life. However empirical studies tend not to support this hypothesis (for example, Ramund and Stensman, 1988). McDowell and Newell (1987, p206) noted,

"There has been little theoretical work that justifies the assumption that normal functioning is necessary for a high quality of life, and evidence of high levels of satisfaction among physically disabled persons may cast doubt on this view implicit in many measurements of life quality."

It is likely that the debate about quality of life and how it should be measured will continue for some time. In the meantime, several authors have suggested solutions to this dilemma. Bergner (1989) concluded that there was no single measure of quality of life and that it must be assessed specifically using a number of dimensions,

"Each investigator must think about his or her own study, the study population, and the intervention and decide what should be assessed. In general, the assessments should examine factors that are *likely* to be affected by the intervention or have been troubling to patients in the past, factors that *may* be affected, and factors that are *very unlikely* to occur but are possible."

This approach of measuring different aspects of a person's life, does have its critics,

"Where this technique is used, however, it may be difficult to set improvements measured on one indicator against deterioration as measured on another, and to produce an assessment of overall benefit" (Kind, nd),

however, a multi-dimensional approach to the measurement of quality of life does appear to be the favoured approach. Recently Wade (1992, p95) suggested "it might be best...to accept that quality of life cannot be measured, certainly in the context of

clinical practice or research." He proposed, like Bergner (*op cit.*), that rather than use one measure, the researcher should decide what outcomes he or she is interested in and use a battery of instruments to measure each of the different aspects,

"It is necessary to resist the natural constant desire to summarise and quantify quality of life as a single number or result. Decide what aspects of life are of interest - social adaptation, income, physical functioning, emotional stress and measure them individually." (Wade, 1992, p96)

A multi-dimensional approach to the measurement of quality of life was the approach chosen for the rehabilitation co-ordinator study. As suggested by Bergner, and later reiterated by Wade, factors were chosen which it was thought the service might influence. It was envisaged that in linking people to appropriate services, helping them to address their employment problems and (hopefully) providing positive social support, the service might have an impact on perceived health status, levels of anxiety and depression, and people's satisfaction with their lives. In deciding which factors would be used as indicators of "quality of life", further decisions had to be made about how they would be measured. The following section will look at the task of choosing research instruments.

Choosing Research Instruments

The general consensus among authors seems to be that given the considerable resources required to develop a new measure it is most appropriate, wherever possible, to use an existing scale (for example, Wade, 1992; Streiner and Norman, 1989). As noted earlier in this chapter, a plethora of scales have been developed and consequently it is necessary to make a choice by applying certain criteria. Streiner and Norman (1989) have suggested that the choice of a scale should be made according to a number of criteria such as its appropriateness for the study being undertaken, its acceptability, ease of use, and a critical review of its psychometric properties, namely reliability, validity, and sensitivity. Before describing the scales chosen for this study, a brief outline of these latter features will be given.

Reliability

Reliability is the extent to which a scale or measure consistently produces the same or similar results (Holland, 1983^c), for example when administered to the same individual on different occasions or when applied by different researchers. There are a number of ways in which measures of reliability can be obtained.

Internal consistency refers to the correlation between items on a scale which address the same dimension i.e. whether they are measuring the same idea or concept. For example, where one has a number of items each looking at physical functioning whether each item correlates with the other. Internal consistency is usually determined by a single administration of a scale and therefore it does not take into account fluctuations which may occur from day to day or between observers.

Stability refers to the extent to which scores recorded on a scale are reproducible, and there are three kinds of stability/reliability. Inter-observer reliability is the extent to which scores obtained by different observers are stable; intra-observer reliability, the stability of scores obtained by the same researcher on different occasions, and test-retest reliability is the extent to which similar results are recorded when a scale is completed by the same person on different occasions. Opinions about acceptable levels of reliability vary but the general consensus seems to be that internal consistency, inter-rater reliability, intra-rater reliability and test-retest reliability should exceed 0.8 (for example, Bryman and Cramer, 1990; McDowell and Newell, 1987; Streiner and Norman, 1989).

Validity

Validity is the extent to which a test or scale measures what it is intended to measure (McDowell and Newell, 1987). Several forms of validity exist and these can be classified into two groups according to whether they are determined by peer review or by empirical evidence.

Face and content validity indicate that "on the face of it" a scale appears to be suitable for its intended purpose i.e. that the items chosen to represent the attribute being examined are both relevant and comprehensive. Face and content validity are usually based on judgements by experts in an appropriate field and have been described as "validity by assumption." (Guilford, 1956)

Other forms of validity require empirical evidence that a scale or test measures what it was intended to measure. This can be achieved either by comparing a scale against a criterion or a "gold standard" (e.g. an existing scale whose properties have already been demonstrated) to see if there is a correlation between them. This is called criterion validity (Bryman and Cramer, 1990). Criterion validity can be divided into two types, concurrent validity and predictive validity. In both instances the new scale or test is correlated against a criterion but in the former this correlation is made at the

same time, e.g. a new scale and the gold standard with which it is compared are administered at the same interview, while in the latter the criterion may not be available until some time in the future, e.g. the criterion on which a diagnostic test will be correlated may only be available at autopsy.

If no gold standard or criterion exists then construct validity can be determined by developing a hypothesis or construct and using the scale to test this. For example, the scale can be used to examine the distribution of an attribute in two different populations, one of whom is expected to have the attribute and the other of whom is not. If the expected relationship is confirmed then it can be concluded that both the hypothesis is correct and that the scale measures the attribute it purports to measure. However, if the relationship is not confirmed one may not know whether it is the hypothesis or the scale which is at fault (Streiner and Norman, 1989).

When choosing a scale it has been suggested that the minimum requirement should be that content validity has been demonstrated. However empirical forms of validity are recognised as being preferable to those established by peer review. Criterion validity is regarded as being most desirable but Streiner and Norman (*op cit.*) comment that if is absent then some evidence of construct validity should be available.

Sensitivity

Sensitivity is the measure of a test's ability to detect those individuals affected by a health problem and specificity, closely related to sensitivity, is a measure of its ability to identify people who do not have the problem (Holland, 1983^c). A scale may also be sensitive to change, that is able to detect differences in the same individual when administered repeatedly. The latter may seem contradictory to the earlier reference to stability and test-retest reliability. However both properties are assessed differently (Streiner and Norman, 1989).

Outcome Measures Chosen for the Rehabilitation Co-ordinator Service

Outcomes were divided into two categories, employment outcomes and quality of life outcomes.

Employment Outcomes

Employment outcomes comprised:

1. The number of new contacts with vocational rehabilitation services.

New contacts were defined as those which had been achieved since entry to the project in relation to new problems or situations, i.e. ongoing contacts which were related to action taken before entry to the project were excluded from consideration.

2. Return to employment.

Return to employment was defined as a return to paid employment. In addition a number of other features about the jobs people returned to were recorded, for example the nature of the jobs and whether there was any difficulty coping with them. The use of a variety of work attitude scales also allowed views about the jobs to be examined. The work attitude scales will be described later in this chapter, and the means of recording the other features of the jobs will be outlined in chapter four.

3. Action taken to return to work.

Initially it was intended to record the action that people took during the project as part of the documentation of the service but it was not identified as one of the outcome measures. However, when it became apparent that return to paid employment might take some time to achieve it was decided to include "action taken" as an outcome measure in order to reflect more accurately the situation in which people found themselves.

An overall qualitative outcome, encompassing return to work and action taken towards returning to work, was determined by analysing the qualitative aspects of the jobs people returned to, or the action they took, and using this information to classify outcomes as successful, partially successful or unsuccessful. This is described more fully in the results chapter.

4. Attitudes to work: Work involvement

Implicit in the rationale of the rehabilitation co-ordinator service was that it would help people to have a positive attitude towards returning to work, and it was decided to include "work involvement" or the extent to which someone wants to be engaged in work (Warr, Cook and Wall, 1979), as one of the employment outcomes. Work involvement was measured using a scale developed by Warr, Cook and Wall (op.cit.) and it will be described in the next section of this chapter.

Quality of Life Outcomes

As noted previously, "quality of life" was taken to comprise perceived health status, levels of anxiety and depression, and life satisfaction. The following section outlines the instruments used to measure these features. The choice of instruments was based on the recommendations discussed in a previous section of this chapter.

Perceived Health Status

The Nottingham Health Profile

The Nottingham Health Profile (NHP), (Hunt, McEwen and McKenna, 1986), was designed as a measure of perceived health status. It comprises two sections. The first consists of 38 statements relating to problems which may be experienced by people disabled by illness or injury. Six areas of functioning are represented; energy levels, emotional reactions, pain, physical mobility, sleep, and social isolation. Example of statements include;

I'm tired all the time (energy)

I've forgotten what its like to enjoy myself (emotional reactions)

I'm in pain when I walk (pain)

I have trouble getting up or down stairs or steps (physical mobility)

I sleep badly at night (sleep)

I feel lonely (social isolation)

Each area of functioning is represented by a different number of statements ranging from eight for pain and physical mobility to three for energy levels. Respondents are required to answer "yes" or "no" to each statement by ticking an appropriate box. The answer they choose is dependent on whether they perceive themselves to have the problem described in the statement. Each statement has a score, (these are weighted according to the perceived severity of the problem). Scores are awarded for a "yes" response, i.e. a "no" response scores 0. Scores within each area of functioning are added to give a total score for that specific area. The maximum score attainable for each area of functioning is 100. This is regardless of the number of statements it includes. There is no overall score, hence the NHP gives a profile rather than a single measure of health status.

The second part of the NHP lists seven activities and asks respondents to indicate whether their present state of health causes problems with these activities. They are asked to tick 'yes' if the activity is affected and 'no' if it is not. Activities include, job

of work, social life and interests and hobbies - examples are given under each activity. One point is given for each 'yes' response, giving a maximum total score of 7. Completion of the NHP, therefore, gives a profile of seven scores. One for each area of functioning, and one for the number of activities which are affected by the respondent's state of health.

The NHP has been used with several different groups of people, some of which are highly relevant to the present study, for example patients with fractures (McKenna *et al*, 1984) and unemployed men (McKenna and Payne, 1989). Validity, reliability and sensitivity have all been addressed.

Content, construct and criterion validity have all been examined and established. In development of the NHP considerable attention was paid to content validity. This was achieved by interviewing a heterogeneous group of patients about the problems they experienced and basing the items chosen for the measure on their statements (Hunt and McEwen, 1980). Furthermore, Wade (1992) has suggested that content validity of a measure can be ensured by checking that all component items are focusing on the same level of measurement i.e. impairment, disability, or handicap. The NHP passes this test as all items in part one ask about disability and in part two, handicap. Construct validity has been demonstrated using groups of elderly people with differing health status (Hunt *et al*, 1980), and criterion validity with GP consultants and non consultants (Hunt *et al*, 1981).

With regard to reliability, four week test-retest reliability was reported for patients with arthritis, coefficients ranging from 0.77 to 0.85 over the separate dimensions (Hunt, McKenna and Williams, 1981). Eight week test-retest reliability was examined using people with peripheral vascular disease, coefficients for the six sections in part one, ranging from 0.77 to 0.88 (Hunt *et al*, 1982).

The NHP has also been shown to be sensitive to changes in perceived health status within the same people. A study by McKenna *et al* (1984) investigated changes in perceived health status of a group of patients recovering from fractures and reported marked improvements in perceived physical health eight weeks after first administration of the scale. With regard to recording change over time, it has been noted that the profile is unlikely to fulfil this requirement if used for healthy populations or those with minor ailments because groups such as these would register low scores. The statements included in the profile were intended to represent quite

severe problems in an attempt to avoid false positives (McDowell and Newell, 1987, p289). Discussion with one of the developers of the NHP in the design stages of the rehabilitation co-ordinator project, however, confirmed that it was likely to be appropriate for use with the study sample (Hunt, 1988 - personal communication).

Levels of Anxiety and Depression

The Hospital Anxiety and Depression Scale

The Hospital Anxiety and Depression (HAD) Scale (Zigmond and Snaith, 1983) was developed as an instrument for detecting emotional disorders in non-psychiatric patients attending medical outpatient clinics and Snaith has suggested that it may also be used with equal reliability in community and general practice settings. The authors have indicated that the HAD Scale is a valid measure of the severity of anxiety and depression and therefore can be used repeatedly to assess change.

The HAD Scale is a self-assessment scale which comprises 14 statements. Seven relate to anxiety and seven to depression. They are presented in alternate order. Each statement is accompanied by four replies. For each statement the respondent is asked to choose whichever one of the replies most corresponds to how he or she has been feeling in the past week, and to place a tick in the box opposite his or her choice. Examples of statements and responses for anxiety and depression are:

Anxiety

"I feel tense or wound up"	Most of the time
	A lot of the time
	Time to time, occasionally
	Not at all

Depression

"I feel cheerful"	Not at all
	Not often
	Sometimes
	Most of the time

Scores are assigned to each reply with 3 the maximum score and 0 the minimum score. Scores for each statement are summated to give two total scores, one for anxiety and one for depression. The minimum total score is 0 and the maximum score, 21, the higher the score the greater the level of anxiety or depression. The scale also gives an indication of the significance of the scores. The authors suggest three score

bands which indicate normal (scores 0 - 7); borderline (scores 8-10), or 'case' (scores 11-21) levels of anxiety and depression.

The HAD Scale differs from other mood scales in a number of important respects. First, a differentiation is made between anxiety and depression, unlike some scales which combine the two concepts. It also has the advantage, particularly important if it is to be used with patients who have physical illnesses, of focusing on psychic manifestations of mood disorder rather than somatic symptoms such as insomnia or lack of appetite. In addition it is brief and easy to complete, and has been judged to be very acceptable to patients because it does not include any items which suggest they are suffering from a psychiatric disorder.

The reliability, validity and sensitivity of the HAD Scale have been examined in a number of studies. Evidence of the concurrent validity of the scale was reported in a heterogeneous group of patients with physical illnesses (Aylard *et al*, 1987). The HAD Scale was compared against two scales, the Montgomery-Asberg Depression Rating Scale (MADRS - Montgomery and Asberg, 1979) and the Clinical Anxiety Scale (Snaith *et al*, 1982). In a sub-group of patients with mood disorder, the correlation between the HAD depression subscale and the MADRS was +0.77 and the correlation between the HAD anxiety subscale and the Clinical Anxiety Scale was +0.67. Both correlations were significant at the $P < 0.01$ level. Zigmond and Snaith (1983) also reported significant correlations between the HAD Scale and assessment by a psychiatrist (depression: $r = +0.70$; anxiety: $r = +0.74 - P < 0.001$).

Internal consistency of the HAD Scale was addressed by Zigmond and Snaith (1983) and Moorey *et al*, (1991) and both studies obtained significant correlations within the anxiety and depression subscales. The former study, using item-total correlation, reported correlations on the anxiety subscale ranging from +0.76 to +0.41 and on the depression subscale from +0.60 to +0.30, all correlations significant beyond $P < 0.02$. In the latter study, which involved patients with cancer, the authors computed Cronbach's alpha, and reported coefficients of 0.93 for anxiety and 0.90 for depression. Both of the latter coefficients are above the recommended levels for using a scale for research purposes and as a screening tool.

Sensitivity and specificity of the HAD Scale were tested by (Zigmond and Snaith (1983), and they reported 1% false positives and 1% false negatives for the depression subscale and 5% false positives and 1% false negatives for the anxiety subscale.

There has been some debate about whether the HAD Scale is two dimensional or one dimensional, in other words whether it does distinguish between anxiety and depression or whether it is just a measure of general emotional distress (Razavi *et al*, 1990). However, Aylard *et al* (1987) reported a correlation of -0.04 between the two subscales, which was not statistically significant, and using factor analysis Moorey *et al* (1991), demonstrated that the HAD Scale is two dimensional.

Life Satisfaction

The scale used to measure life satisfaction is one of a series of eight scales developed by Warr, Cook and Wall (1979), which encompass several different aspects of psychological well-being and attitudes to work. The Life Satisfaction scale is part of a sub group of three scales measuring psychological well-being, the other two scales covering self-rated anxiety and happiness. It was decided to include these latter two scales in the "quality of life" outcomes as these were also pertinent outcomes for the evaluation. Previously it had been decided to use the other five scales in the series, all measuring various aspects of working life, in order to compare various work attitudes of the two groups at entry to the project, and to use one scale, work involvement, as a specific employment outcome. Although the work attitude scales were not part of the quality of life outcomes they will be described here as the authors discuss the psychometric properties of the eight scales as a whole.

Life Satisfaction Scale

The Life Satisfaction Scale asks about satisfaction with 15 aspects of life such as "Your standard of living: the things you can buy and do" and "What the future seems to hold for you." For each aspect respondents have to choose one of seven replies ranging from "I'm extremely dissatisfied" to "I'm extremely satisfied." Scores are assigned to each reply, from 1 to 7, the higher the satisfaction the higher the score. The minimum score attainable is 15 and the highest score is 105.

Self-Rated Anxiety Scale

This scale reports the degree to which a person is anxious about certain aspects of life such as "Not having enough money for day to day living", therefore it focused on different aspects of anxiety than the HAD Scale. Six aspects are represented and the degree of anxiety is noted by choosing one of seven replies ordered from "Not at all concerned" to "Extremely concerned." Scores are assigned from 1 to 7, the higher the score, the higher the level of concern. The minimum score attainable is 6 and the

highest, 42. The person is also asked to rate how worried or concerned he or she feels in general.

Happiness Scale

Happiness is defined as the degree to which a person reports that he or she is happy. It is rated on a three point scale; "Very happy", "Fairly happy" and "Not too happy" with scores assigned, 3,2,1, respectively."

Work Involvement Scale

The authors define work involvement as "the extent to which a person wants to be involved in work." The scale comprises six statements, for example, "Having a job is very important to me" and "I would soon get very bored if I had no work to do." For each statement the respondent has to choose one of seven responses, ranging from "No, I strongly disagree" to "Yes, I strongly agree." A score of 1 is assigned if the person strongly disagrees with the statement through to 7 if they strongly agree with the statement. The minimum score recordable on this scale is 6 and the maximum score is 42.

Higher Order Need Strength Scale

Higher order need strength is seen as the need for satisfaction and achievement through skilled and autonomous work. It is akin to intrinsic job motivation, however while the latter refers to a specific job situation, higher order need strength is regarded as a dispositional characteristic. The scale to assess higher order need strength asks the respondent to rate how important six work conditions would be to him or her when seeking a job. These conditions include "Challenging work" and "The opportunity to learn new things." The seven ratings range from "Not at all important" to "Extremely important." As with the other scales, the minimum score is 6 and the maximum score is 42, the higher the score the higher the importance attached to achievement through skilled and autonomous work.

Intrinsic Job Motivation

Intrinsic job motivation is conceived as "the degree to which a person's work performance affects his self-esteem." Again there are six statements, an example of which is "I take pride in doing my job well." The choice of responses is the same as for work involvement. The scale applies to a specific job and the person is asked to complete it in the light of their present, or last, job. The minimum score is 6 and the

maximum score is 42. The higher the score the higher the level of intrinsic job motivation.

Perceived Intrinsic Job Characteristics

This scale covers various work motivating factors such as job variety and autonomy and asks the respondent how much these factors are, or were, a feature of his or her current or previous job. The choice of five replies range from "There's none of that in my job" to "There's a great deal of that in my job." The minimum score is 10 and the maximum score is 50.

Job Satisfaction Scale

The Job Satisfaction Scale comprises 15 statements about various aspects of working life such as "Your fellow workers" and "Your job security" and asks the respondent how satisfied they are, or were, with these aspects of their job. The satisfaction scale has seven levels from "I'm extremely dissatisfied" to "I'm extremely satisfied." The minimum score is 15 and the maximum score, 105. Higher scores are associated with higher levels of job satisfaction.

This series of work and life attitudes scales were developed with "blue-collar" workers and are relevant to anyone who has been in paid employment. In other words the respondent does not have to be in paid employment at the time the scales are completed. This made the scales particularly suitable for this study. They have face and content validity being based on a considerable review of work in the area, and the dimensions have been shown to be factorially separate and to have good internal consistency. The scales were also found to be acceptable to "blue collar" workers (Warr, Cook and Wall, 1979).

Test-retest reliability was examined at six months and coefficients were reported ranging from 0.26 for the Higher Order Need Strength Scale to 0.69 for the Perceived Intrinsic Job Characteristics Scale. Coefficients for the other scales were in the 0.56 to 0.65 range. The authors commented on the low level of the coefficients, which at first appear unacceptably low, but commented that in comparison to other scales measuring similar attributes and features, the coefficients were high and therefore concluded that the reliability of the scales was acceptable (Warr, Cook and Wall, *op cit.*). Taking this into account together with the wish to include attitudes to work in the study, the fact that the scales were developed with "blue collar" workers (whom it was thought would comprise the majority of the people recruited to the study) and that

people did not have to be in paid employment in order to complete the scales it was decided to use them. It could be argued that other scales could have been used for life satisfaction or psychological well-being, however the study already involved two questionnaires and the compactness of the eight scales, and the possibility of presenting them on the same questionnaire for ease of use, also influenced the decision to use them in the study.

Copies of the Nottingham Health Profile, the Hospital Anxiety and Depression Scale and the work and life attitudes scales are included in Appendix B.

Achievement of Objectives

Initially it was intended to look at achievement of individual objectives and determine the number of objectives which were totally achieved, partially achieved or not achieved for the people in each group. However it became very difficult to continue with this outcome measure because objectives were frequently changed as people's circumstances altered. In most cases it was very difficult, if not impossible, to determine whether objectives had or had not been achieved and without a consideration of the reasons why they had been changed this measure became difficult to interpret. Moreover, the researcher had no means of confirming that the change of objective was reasonable and could have been open to the criticism of downgrading objectives in order to achieve a higher percentage of positive outcomes. Consequently this outcome measure was abandoned.

2. CLAIMANTS' VIEWS OF THE REHABILITATION CO-ORDINATOR SERVICE

As indicated previously, a second aim of the evaluation was to determine people's satisfaction with, and views about, the rehabilitation co-ordinator service. Many different approaches and ways of measuring satisfaction have been employed however there does appear to be general consensus on several points. The first is that satisfaction with services is a multidimensional concept (for example, Davis and Hobbs, 1989; El-Guebaly *et al*, 1983; McMillan, 1987; Ware, 1981). In other words patients can have varying degrees of satisfaction with different aspects of a service. Consequently it is insufficient to merely ask people whether or not they are satisfied with a service, one has to ask about different features of the service. Clearly features will vary from service to service but typically would include: quality of care; accessibility; availability and the physical environment.

Other points concern potential sources of bias in people's replies. For example there is the well documented social desirability or yea-sayers' response in which participants give the answer they think the researchers will want to hear (McMillan, 1987; El-Guebaly *et al*, 1983) or the influence that may be exerted by patients feeling that the service they receive will be affected if they express negative views about it. It is also well recognised that satisfied patients are more likely to reply to a satisfaction survey than those patients who are dissatisfied.

As with other measures of outcome, the general advice when measuring patient satisfaction is to use an existing scale wherever possible (Ware, 1981). However, with regard to the rehabilitation co-ordinator service this proved difficult. The satisfaction instruments which were identified had been developed for inpatient and outpatient hospital services and therefore asked about features which were not relevant to the rehabilitation co-ordinator service, for example physical environment (claimants were visited at home). Moreover, many of the instrument had been developed in the United States and therefore include substantial sections on financial aspects of health services which were not relevant.

Because it was difficult to identify an existing measure a questionnaire was designed specifically for the study. The questionnaire consisted of a combination of open and closed questions which asked about various features of the service, such as whether people thought they had received sufficient visits from the co-ordinator. Questions were intended to be as simple as possible and efforts were made to avoid such problems as the use of double negatives, (Oppenheim, 1966). Each closed question had a choice of three replies, one positive, one neutral and one negative. Presentation of the replies was varied, i.e. so that the first reply was not always a positive (or negative) response, to try to avoid response bias. Open questions asked people to comment on what aspects of the service they were most satisfied with, least satisfied with, and to suggest any ways in which the service might be improved.

The questionnaire was designed to be used in a telephone survey. However, some people in the project were not on the telephone and therefore a postal questionnaire was also prepared. Copies of both questionnaires are contained in Appendix B. The exact method used to carry out the satisfaction survey will be described in Chapter Four.

3. OTHER APPROACHES TO SERVICE EVALUATION

Some researchers have criticised the dependence on quantitative research methods for evaluating services. They have argued that an exclusive focus on objectives or outcomes does not provide any understanding of the context in which a service operates - information which may be of great value when trying to ascertain how a service might be changed and developed. Here qualitative methods, for example participant observation or the examination of personal and public documents, (Bulmer, 1984; Burgess, 1984) are considered to be useful.

For many years researchers have tended to adopt either quantitative or qualitative approaches and to remain firmly within one or other of these paradigms, treating them as contrasting ideologies (Schwandt, 1989). However, amongst some researchers, a change in attitude has become apparent and this is particularly evident in the educational research literature. Addis (1987) noted a shift from the position where educational researchers adopted either one paradigm or the other and argued about which was the "better" approach, to recognition that both qualitative and quantitative approaches have their advantages and disadvantages. The following comments illustrate this point,

"Interpretive social science certainly offers a brand of insight that positivism cannot achieve, but on the other hand, positivism can also generate forms of knowledge that elude the interpretive approach." (Morgan, 1983, p397)

and

"from the positivistic end, we should note that it is typical for the hardest of hypothetico-deductive noses to engage in inductive sniffing in data sets." (Miles and Huberman quoted in Addis, 1987)

Other researchers have taken this even further and suggested that quantitative and qualitative approaches might be combined (Howe, 1985),

"It (ethnographic research) is a vital and viable tradition which is constantly being evaluated and refined. The techniques ... can be co-ordinated with other methods into an excellent research design that could elicit information not accessible to researchers using more quantitative techniques." (Wilson, 1977)

The proposition to combine quantitative and qualitative approaches is an interesting one, particularly for service evaluation, for it would enable the use of a randomised

controlled trial to assess effectiveness while allowing qualitative methods to be employed which would give contextual understanding. In evaluating the rehabilitation co-ordinator service an understanding of the milieu in which it operated was considered important. This was not only because it was a new service, and to our knowledge the first time in Britain that a service of this nature had been provided for personal injury claimants, but also because it operated in unusual circumstances - i.e. in the midst of the adversarial system. Moreover, in keeping records for the clients who received the service, a source of information was available which could be used to help expand and illuminate the quantitative findings, for example reasons why particular courses of action were taken, the results of action taken, and reasons why a positive outcome was not achieved. In addition the co-ordinator also kept a record of other experiences, for example the interest that solicitors expressed in the project

The decision to include some qualitative data and analysis in the study has recently been vindicated by Steckler and his colleagues. In an article discussing health education research, they put forward the view that quantitative and qualitative approaches have weaknesses which, to some extent, can be met by the strengths of the other (Steckler et al, 1992). They go on to discuss a number of ways in which quantitative and qualitative methods can be combined and suggest that even in an essentially quantitative study, qualitative methods can be used to help interpret and explain the results (Steckler et al, 1992).

SUMMARY

Chapter three has been concerned with methodological issues relating to the evaluation of services, specifically the assessment of effectiveness and client satisfaction. Research designs, and measurement of outcomes have been discussed and the outcome measures chosen for the study described. The final part of the chapter examined the possibility of including a qualitative aspect to the evaluation of the rehabilitation co-ordinator service and this was incorporated into the research design. The next chapter will describe the specific methods and procedures used.

CHAPTER FOUR

AIMS, METHODS AND PROCEDURES

INTRODUCTION

This chapter will describe the aims and hypotheses of the rehabilitation co-ordinator project and examine the methods and procedures employed during the course of the study.

1. AIMS AND HYPOTHESES

The aims of the project were to implement and evaluate a rehabilitation co-ordinator service for personal injury claimants. The specific aims of the evaluation, as outlined in the previous chapter were, first, to determine whether the rehabilitation co-ordinator service was effective and, secondly, to see if it was acceptable to the people who received help from it. Effectiveness was assessed by measuring a number of employment and quality of life outcomes. The former included contact with vocational rehabilitation services, action taken towards returning to work, return to work and attitudes about work involvement. Quality of life outcomes comprised perceived health status, levels of anxiety and depression, self-rated anxiety, life satisfaction and happiness. Acceptability was judged by asking people for their views about the service and their satisfaction with the help they received.

The null hypotheses for the study were as follows:

1. Provision of a rehabilitation co-ordinator service does not increase contact with vocational rehabilitation services.
2. Provision of a rehabilitation co-ordinator service does not increase the number of people returning to work.
3. Provision of a rehabilitation co-ordinator service does not increase the number of people taking action towards returning to work.
4. Provision of a rehabilitation co-ordinator service does not change people's attitudes about work involvement.

5. Provision of a rehabilitation co-ordinator service does not improve people's perceived health status.
6. Provision of a rehabilitation co-ordinator service does not improve people's levels of anxiety and depression.
7. Provision of a rehabilitation co-ordinator service does not improve people's satisfaction with their lives.
8. Provision of a rehabilitation co-ordinator service does not improve anxiety about day to day problems.
9. Provision of a rehabilitation co-ordinator service does not improve levels of happiness
10. People perceive a rehabilitation co-ordinator service to be of no value

2. METHODS

Subjects

The rehabilitation co-ordinator service aimed to help personal injury claimants who were likely to experience difficulty returning to work, but whom it might be possible to help in the time available for the project. Consequently people who had sustained very severe injuries, such as spinal cord or head injuries, were excluded from consideration. People were approached to take part in the study if they met the following criteria:

- They were resident in Scotland or North East England
- They were aged 16-65 years and in the labour market at the time of injury
- They had sustained injuries likely to result in absences from work of six months or more and/or permanent disability (excluding people with catastrophic injuries)

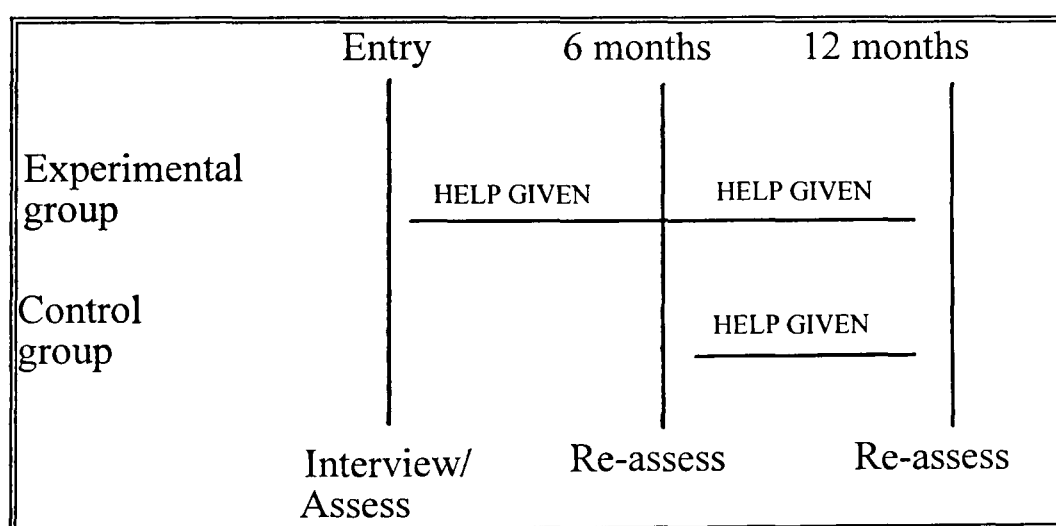
In order for people to be accepted into the study they also had to give informed consent to take part.

Project Design

An experimental design was employed with random allocation of subjects to an experimental or control group on a sampling ratio of 2:1. In the initial project design people in both groups were assessed on entry to the project. Thereafter the members of the experimental group received help from the co-ordinator for six months, while members of the control group received no help from the co-ordinator service but were free to seek whatever help was available from other sources. People in both groups were then re-assessed at six months. In this design the control group received no active help from the co-ordinator but it was envisaged that, on completion of the project, members of the group would be given advice about possible sources of help.

Shortly after fieldwork began the project design was changed. In the amended design the period of intervention for the experimental group was extended from six months to twelve months, and a period of help was introduced for the control group at six months. Hence the experimental group received help for a period of 12 months in total and the control group received help for six months after a six month deferment. Re-assessments took place at six months and twelve months for members of both groups (Figure 1).

Figure 1. Amended project design



These changes were incorporated because it was quickly realised that six months was an unrealistic time for employment outcomes to be achieved. At the time the project was set up there was no reason to suppose that six months would not be an adequate length of time for evaluation of the service. The few case management studies which had been published at this time alluded to lengthy intervention periods being required.

However, these studies were concerned with people who had severe mental illnesses and therefore were considered likely to have more problems than our study population of people with physical disabilities.

Although the main purpose of the amendment was to increase the intervention period to 12 months for the experimental group there was debate about also increasing the length of non-intervention for the control group. The insurance industry, who funded the project, were anxious for the service to be offered to as many people as possible. Therefore it was decided to introduce a period of intervention for the control group beginning at six months. Amending the project design extended the scope and timescale of the project but these could be accommodated within the time available. As the amendments were made in the very early stages of the project few people had been recruited to the project, and those who had entered the study agreed to the changes. Subjects who were subsequently recruited to the project were given information about the new design before entry.

Research Instruments

Data collected for the project had to fulfil several purposes. First, data had to be collected which described the sample and which allowed members of the experimental and control groups to be compared. A random allocation should ensure that any factors or characteristics which might affect the results are spread between the two groups. Nevertheless, in order to be sure that the results would not be biased by differences in the characteristics of the two groups, it was important to confirm that members of the experimental and control groups were not significantly different from one another (Fowkes and Fulton, 1991).

Members of the two groups could have been compared on a wide range of variables. However, given that the focus of the project was return to work, variables were chosen which the studies reviewed in Chapter One indicated may influence return to employment. These included various demographic variables such as age and gender; accident and injury details such as time since accident and type of claim; clinical factors such as type and severity of injury; and occupational variables such as skill level and availability of pre-accident job. In addition a variety of work attitudes were also examined.

Secondly, information about a subject's particular circumstances was required in order for a service to be provided.

Thirdly, outcomes chosen as measures of the effectiveness and acceptability of the service had to be documented and recorded.

Fourthly, information about the operation of the service had to be recorded.

In order to fulfil these requirements a combination of documents devised by the author were used, together with a number of standardised scales. Information about the claimants was mostly obtained by semi-structured interview. However relevant, information such as age, date of accident and nature of injuries was also recorded from notes and medical records in the insurance company's claims file at the time of recruitment, if available. A second review of the relevant claims files at the end of the project, when more information was available, allowed the information which was obtained earlier, either from the notes or from interview, to be cross-checked. The instruments used to collect data were;

Data collection sheets (information from claims files)

Interview schedules (used at entry, six months and twelve months)

Activity checklist

The Nottingham Health Profile

The Hospital Anxiety and Depression Scale

Work and Life Attitudes Scales

Satisfaction questionnaire

Planning document/record used for the rehabilitation co-ordinator service

In addition, a coding frame was also designed to allow data to be coded before it was entered onto the statistical software package which would be used for data analysis.

The standardised questionnaires which were used in the study, namely the Nottingham Health Profile, The Hospital Anxiety and Depression Scale and the Work and Life Attitudes Scales were described in Chapter Three, as was the questionnaire designed to measure claimants' views about the rehabilitation co-ordinator service. Copies of all these questionnaires are contained in Appendix B. This section will be devoted to a description of the interview schedules, activity checklist, planning document and the coding frame. Copies of all these instruments will be found in Appendix C, except for the planning document which will be found in Appendix A.

Interview Schedule

A semi-structured interview approach was chosen to allow people the opportunity to explain their circumstances in their own words. It was hoped that such an approach would help to develop rapport, which would be important for the provision of the rehabilitation co-ordinator service. The interview schedule was therefore semi-structured. It was designed to obtain information about various demographic characteristics and a number of other details about the person's circumstances. The schedule was divided into a number of sections: personal details, accident details, injuries and impairments, medical treatment, other treatment, current situation, medical history, employment, and education. Each section was divided into subsections and contained notes for the interviewer which listed the points to be covered. Each section of the schedule contained a blank space for writing down the information obtained.

Interview schedules used to obtain information at six months and twelve months were similar in design to the interview schedule used at entry. Copies are contained in Appendix C.

Activity Checklist

The activity checklist was a structured checklist used by the researcher to obtain information from people about specific functional activities. It was divided into two sections. In the first section specific functional activities such as prolonged standing, lifting/carrying and remembering things were listed and the interviewer asked people to comment on how much difficulty they had accomplishing each particular activity, and if the function was necessary for their pre-accident job, or for other reasons e.g. for hobbies. The second section covered areas of activity such as household tasks, seeing relatives and friends, and personal care. The interviewer noted any difficulties people reported in carrying out these tasks. The final section of the checklist covered job hunting activities, or other attempts people had made to try to return to work.

Planning Document

The planning document consisted of seven sections. The first section contained a summary of the person's demographic, clinical, employment and social and financial circumstances. The second part contained the rehabilitation co-ordinator's review report. Part three allowed objectives, action taken and the results of that action to be recorded while section four was concerned with outcomes and documented achievement of rehabilitation objectives, return to work, and scores obtained on the

various scales. Section five of the planning document recorded the health and other professionals who people had contact with, and section six contained notes which the co-ordinator kept during the course of working with the client. The final part of the document was an appointments schedule which was used to record the appointments made and whether they were fulfilled.

With regard to documenting return to work, the job returned to was classified according to a hierarchy suggested by Matkin (1985, p 73-74). In this hierarchy, return to work outcomes are ranked in order of desirability, the most favourable outcome, a return to the same job with the same employer being listed first. The hierarchy is as follows:

- Returned to work performing the same job with the same employer
- Returned to work performing the same (but modified) job with the same employer
- Returned to work performing a different job, that capitalises on transferable skills, with the same employer
- Returned to work performing the same or modified job with a different employer
- Returned to work performing a different job, that capitalises on transferable skills, with a different employer.
- Returned to work performing a different job, that requires extensive and prolonged training, with the same or different employer.
- Returned to work in a self-employed capacity.

A further level was added to this hierarchy. This was a return to work under the Sheltered Placement Scheme, or attendance at a sheltered workshop.

Coding Frame

Data obtained from the various sources was coded before they were entered onto a database. A draft of the coding frame was developed in the initial stages of the project and, although it was not used directly to collect information during interviews, acted as an additional aide memoire for the interviewer. As the project progressed, and more information was obtained, the coding frame was refined to suit the study population. For example initially a wide range of types of accident were included in the frame but several of the categories were not appropriate to anyone in the project and therefore those categories were excluded. A copy of the coding frame is included in Appendix C. Most classifications or categories are self-explanatory but some data were coded using standardised or specific classifications and these require further explanation. A

fuller description is given in the results chapter, where the classifications can be placed in context.

Type of Accident

The coding of type of accident was based on the relevant sections of the Health and Safety Executive's official classification of accidents and types of injury (e.g. see Health and Safety Executive, 1981).

Severity of Primary Injury

Severity of primary injury was coded according to the Abbreviated Injury Scale (American Medical Association, 1975). This is a six point scale where 0 is no injury and 6 is maximum severity.

Impairments and Disabilities

Impairments and disabilities were recorded using the International Classification of Impairments, Disabilities and Handicaps, or ICIDH (WHO, 1980). The two digit list of classifications for both impairments and disabilities was used and people were recorded as either having or not having the particular impairment or disability.

Severity of Most Significant Disability

Severity of the person's most significant disability was classified according to the ICIDH's Severity of Disability Scale (WHO, 1980).

Industry in Which Employed

The industry in which people were employed at the time of their accidents was classified according to the industrial classification for the 1981 census (OPCS, 1980 - Appendix D)

Occupational Skill Level

Occupational skill level at time of accident was categorised using the OPCS occupational status groupings (OPCS, 1980).

Need for Vocational Rehabilitation

An indication of the level of assistance people were likely to require in returning to work was assessed using the Vocational Rehabilitation Index (VRI). This is a seven item scale which was developed from an analysis of variables associated with early return to work in a representative sample of personal injury claimants (Cornes, 1990).

Scores are grouped into four bands; 7-11, 12-14, 15-17, 18-22, each successive band signifying more potential difficulty returning to work and hence more help being required to achieve a successful return to work.

Methods for the Satisfaction Survey

Claimants' views of the rehabilitation co-ordinator service were obtained by means of a telephone/postal survey using the questionnaire described in Chapter Three. Telephone interviews were chosen as the method of obtaining people's view (postal questionnaires were only used if people were not on the phone) because it was thought this would ensure replies were received from as many people as possible. This was considered important given the observation that people who are satisfied with a service are more likely to reply to a satisfaction survey than those who are dissatisfied (Davis and Hobbs, 1989). Moreover, telephone interviews have been used in other studies which found people with disabilities responsive to this method of data collection (Glueckauf, 1990).

The survey was carried out by an person unconnected with the project to try to ensure that people felt able to give their honest views about the service. This person held an Honorary Fellowship in the Rehabilitation Studies Unit but had many years experience in the personal injury field as the claims manager for a large insurance company.

3. PROCEDURES

Implementation of the Project

The rehabilitation co-ordinator project took place within the adversarial context of person injury claims litigation, therefore implementation of the project required considerable effort and is worthy of detailed description.

The project was funded by the Association of British Insurers (ABI) with whom procedures for liaison were already in place, having been established for previous ABI funded projects. These took the form of two advisory committees, the Rehabilitation Studies Panel (RSP) and the Personal Injury Rehabilitation Unit (PIRU). Committee members comprised ABI personnel and representatives of ABI member companies together with staff from the Rehabilitation Studies Unit at the University of Edinburgh (RSU). Both committees were involved in early negotiations and plans for the rehabilitation co-ordinator project, carried out prior to the appointment of the author. In these early stages two decisions were reached. First, four insurance companies,

represented on one of the advisory committees, agreed to allow access to their personal injury claims files for the purposes of identifying potential subjects for the study. Secondly, it was agreed that the project would be carried out in Scotland and North East England (including Yorkshire). Initially the intention had been to confine the project to Scotland because of the RSU's base in Edinburgh. However, ABI colleagues suggested that the situation in Scotland may not reflect that in England, therefore they wished to include Yorkshire and the North East of England also. Given that the service was being provided by one person and that a large geographical area would be covered, it was agreed that the service would be implemented in two phases. Phase one in Scotland, and phase two in Yorkshire and the North East of England.

Following appointment of the author a third committee, the Consultative Panel, was convened. Committee members comprised a personal injury claims manager from each of the four participating insurance companies, the author and the Professor and Senior Research Fellow of the RSU. The remit of the committee was to discuss and agree procedures for the practical implementation and operation of the project in Scotland. In the second phase of the project a similar committee was convened to advise on implementation of the project in Yorkshire and the North East of England. The membership of this committee also included a personal injury solicitor.

The author, a Research Associate/physiotherapist, took up post in October 1988. A three month induction programme was organised to acquaint her with the personal injury compensation field. During this time she spent one week at the head office of one of the four participating insurance companies and several weeks visiting the regional offices of three of the insurance companies in the areas where the project would be carried out. Activities during this time included examination of personal injury files, discussions with claims staff, and accompanying claims inspectors on visits to examine accident sites and negotiate settlements with plaintiffs' solicitors. The induction period was not only educational but also provided an opportunity to establish cordial relationships with insurance company staff who would be involved in the identification and recruitment of subjects at a later stage.

Identification of Subjects

Potential clients for the rehabilitation co-ordinator service, i.e. those people who met the inclusion criteria, were identified from the personal injury claims files of the four participating insurance companies. Each of these companies had large portfolios of

employer's liability or motor policies and consequently handled a considerable number of personal injury claims.

Thousands of ongoing personal injury claims were being handled by each of the four insurance companies and the length of time required to review all these files in order to identify people who met the inclusion criteria would have been considerable. This approach was considered impractical, therefore, and an initial screening process was used to exclude claimants whose injuries would be unlikely to result in permanent disability.

It is the practice of insurance companies who handle personal injury claims to place an estimate on the likely cost of each claim that is intimated. Advice from colleagues in the insurance industry suggested that an estimate of £5,000 or less indicated an injury which was unlikely to result in permanent disability. Moreover, a previous review undertaken by RSU staff of injury claims files from one of the participating insurance companies, showed that 96% of the claimants who received awards of £5,000 or less, and who were in employment at the time of their injury, returned to work before settlement of their claims (Cornes, 1987^b). In other words, people who fell into this bracket were extremely unlikely to require the services of a rehabilitation co-ordinator.

Files of outstanding personal injury claims estimated at £5000 or more were extracted from all the personal injury files by staff at the four participating insurance companies. The author visited each insurance company to review the extracted files in order to identify claimants who fulfilled the criteria for inclusion in the project. Initially this procedure was carried out under the guidance of the Senior Research Fellow. His presence in the early stages of reviewing claims files was regarded as crucial in order to establish the credentials of the research and the author. Three of the insurance companies had no previous experience of people outside the company having access to their files, but the Senior Research Fellow was well known to them and known to have previous experience of reviewing personal injury claims files.

Identifying potential subjects for the study was not without its difficulties. Occasionally files contained insufficient information for a decision to be made about a person's eligibility for the project. For example, information about a person's injuries might not be available, especially if the claim had been notified only recently. Details of this nature were not available until medical reports were commissioned, and

sometimes this did not occur until several months after intimation of the claim. In situations where it was not possible to determine if claimants met the eligibility criteria, but the information at hand suggested they might, they were included in the recruitment procedure.

Recruitment of Subjects - Phase One

People identified as potential subjects for the study were approached through the solicitors handling their personal injury claims. Letters were addressed to the solicitors concerned, written on the headed notepaper of the insurance company concerned, and signed by the company's personal injury claims manager. This strategy was adopted because it was thought that an approach from a person known to the solicitor, i.e. the insurance company's personal injury claims manager, would be more appropriate and effective than a letter from the RSU, at that time unknown to personal injury solicitors. Given the adversarial nature of personal injury claims compensation, the possibility had to be faced that approaching solicitors via insurance companies would jeopardise the perceived impartiality of the RSU and the project. However, on balance this method of approach was preferred.

The initial letter introduced the RSU and the rehabilitation co-ordinator project. It included a request for the solicitor's participation in giving information about the project to his or her client and to seek the client's consent to take part in the study (Appendix C). It was accompanied by a copy of a paper on RSU headed paper giving further information about the project for those who wished to have a more detailed description and explanation (Appendix C).

It was crucial to have solicitors' support in order to recruit subjects to the study and therefore every effort was made to give as much information as possible and to provide a means for queries to be answered. Prior to the launch of the project in Scotland a paper describing the project was accepted and published by the Scots Law Times, a leading Scottish legal journal. In addition, solicitors were advised that they were most welcome to phone the author to discuss any queries about the project or that, alternatively, she would be willing to visit them, or their clients, free of any obligation to take part in the study. This offer was taken up by several solicitors.

Despite a request to indicate whether clients were willing, or not, to take part in the project, several solicitors were slow to respond to the introductory letter. It was known that timescales in personal injury claims compensation were protracted but,

even allowing for this, some responses were very slow. Therefore, approximately three months after recruitment began, follow up letters were sent from the author, on RSU headed notepaper, to those solicitors who had failed to reply. In this letter the author offered to make direct contact with the solicitor's client and proposed that if she did not hear from the solicitor by a given date (usually two weeks hence), then she would assume that she had permission to proceed and would contact the client (Appendix C). In those cases where no response was received within the stated time, a third letter was sent indicating that the co-ordinator was proceeding to contact the client, and a copy of the letter to the client was enclosed (Appendix C). However, claimants were not contacted for several days after dispatch of this second follow-up letter to allow delayed replies from solicitors to be received.

The letter to clients enclosed a form which claimants were asked to complete and return in a stamped addressed envelope. Completing the form involved ticking one of two boxes to indicate whether or not they would like a visit from the co-ordinator. It was made clear that a visit would place them under no obligation to take part in the project (Appendix C).

Recruitment of Subjects - Phase Two

Experience gained from the Scottish phase of the project led to changes being made in the recruitment procedure adopted for the second phase of the project in Yorkshire and North East England.

For this phase of the project the senior partner of a firm of solicitors well known in the personal injury field in England had accepted an invitation to sit on the consultative panel. The initial mailing to solicitors included a letter from him, reiterating several important features of the project and giving his personal endorsement (Appendix C). The first mailing also included a printed pamphlet giving information about the project in a question and answer form (Appendix C). Two copies were enclosed in each mailing, one for the solicitor and one to be forwarded to his or her client.

The decision to design and include such a pamphlet arose directly from experience in the Scottish phase. The consultative panel for phase one had expected that solicitors would discuss the project with their clients, their participation in it, and answer any queries they had, either face to face or over the telephone. However, after the author had visited claimants who expressed interest in the project, it became evident that although this had been the case in some instances, in others, people had merely been

sent a copy of the background paper through the post. Perhaps not surprisingly, for the paper was not intended to be used in this way, people who had this experience commented that they had great difficulty understanding what the project involved. Clearly, although they had not been deterred from seeking further information about the project, it was possible that others had. The pamphlet was intended to prevent such a situation arising again for solicitors were requested to send this to their clients. The pamphlet was based on questions which the co-ordinator had been asked about the project by claimants in phase one.

With the experience of delayed responses in the Scottish phase of the project, follow up was more pro-active and letters were sent routinely between four and six weeks after dispatch of the introductory letter. Some changes were made to the text of the follow up letters. Most notably solicitors were invited to telephone the consultative panel's solicitor if they had specific queries or required further information (Appendix C).

People who expressed interest in taking part in the project either through their solicitors, or by returning the form requesting a visit, were seen at home by the co-ordinator. This visit provided an opportunity for the author to answer any queries claimants might have about the project and also to check that people met the entry criteria. This was important, particularly in those instances where insufficient information had been available in the claims files to make a prior decision about eligibility. It also emerged that some people who had been thought to meet the criteria, did not, and therefore had to be excluded. For example in one instance it was clear that the person concerned was not able to give informed consent.

Following the preliminary visit by the co-ordinator those people who gave their consent to take part in the project, and could be confirmed as meeting the eligibility criteria, were formally entered into the project.

Advice obtained before appointment of the author indicated that a minimum number of 45 people should be recruited to the study. It was hoped to exceed this number, however recruiting sufficient subjects proved difficult, and time consuming, and several steps were taken to try to improve the recruitment rate. These included returning to the insurance companies to ensure that all claimants who appeared to meet the inclusion criteria had been contacted, and extending the geographical area to include the whole of Scotland rather than just the central belt. In addition, several

claimants were recruited from the clientele of a firm of personal injury solicitors who acted for a major trade union. These solicitors expressed interest in the project and, after discussion, identified ten claimants who met the eligibility criteria. After agreement had been given by the insurance companies handling their claims, these claimants were approached and three agreed to participate in the study.

Recruitment figures for project are given in Chapter Five.

Random Allocation

Random allocation was organised on a ratio of 2:1, that is for every two people admitted to the experimental group, one person was allocated to the control group. This ratio was chosen to allow more people to receive the rehabilitation co-ordinator service.

Allocation to groups was achieved by means of computer-generated, sealed envelopes prepared by the Medical Statistics Unit at the University of Edinburgh. The envelopes were joined in a string and numbered sequentially from 1 through to 80 (this latter figure was the maximum number of people who could have been accepted into the study). The envelopes had an abstract pattern so the contents could not be read prior to opening. The words experimental or control were typed on the inside face.

When claimants were entered formally into the project they were given a number. This corresponded to the order in which they had entered the project. For example the first person who gave consent to take part was number one, and so on. As people were admitted to the project, the Senior Research Fellow wrote the person's name on the correspondingly numbered envelope. This was detached from the string and opened to reveal the allocated group. A second person was involved in the randomisation procedure to ensure that no "altruistic" adjustment of randomisation could take place (Altman, 1980^c).

Data Collection

Data were collected at three stages in the project - when the claimant entered the project and at six and twelve months after entry, using the combination of interview schedules and questionnaires described previously. A semi-structured interview approach was chosen to obtain information from claimants. People's circumstances and experiences were anticipated as being so diverse that it was difficult to design a structured questionnaire. Moreover, a semi-structured approach provided the

opportunity for people to explain their circumstances in their own words. It was hoped that such an approach would help to develop rapport, which would be important for the provision of the rehabilitation co-ordinator service.

In addition to these formal stages of data collection, information in the rehabilitation co-ordinator service planning document was updated at regular intervals throughout the period of intervention. This allowed events or changing circumstances to be recorded as they occurred. At each stage of the project, the following instruments were used,

Entry

Interview schedule

Activity checklist

Nottingham Health Profile

Hospital Anxiety and Depression Scale

Work and Life Attitudes Scales

Six Months

Six month interview schedule

Activity checklist

Nottingham Health Profile

Hospital Anxiety and Depression Scale

Work and Life Attitudes Scales

Twelve Months

Twelve month interview schedule

Activity checklist

Nottingham Health Profile

Hospital Anxiety and Depression Scale

Work and Life Attitudes Scales

During the data collection phase of the project a number of steps were taken to try to ensure the completeness of the data, for example checking that questionnaires had been completed fully at time of administration.

Data Handling

Data obtained during the course of the study were coded, using the coding frame described earlier, and entered onto the database software package dBASE III Plus (Ashton Tate, 1985-1986), before being transferred to the statistical software package SPSS/PC+, Version 4.0.1 (SPSS Inc. 1984-90). Both packages were installed on a personal computer.

A number of steps were taken to try to ensure the completeness and quality of the data. First SPSS/PC+ has a cleaning facility which can be used, for example, to check that values for a certain variable fall within the appropriate range and this check was carried out on suitable data. For those variables where data were not coded, for example, age, time since accident, or scores recorded on the various scales, figures were checked by hand, by printing out the data and checking them off against the coding frames for each person. Variables were also cross checked against other relevant information (Altman 1980^c), for example type of accident was checked against type of claim. In this instance most claims for injuries sustained in road traffic accidents were expected to come under motor insurance policies and work accidents under employer's liability policies. Where matches were not as expected, data were checked to ensure that they were correct.

Data Analysis

Principal analysis of the data were carried out using the statistical software package SPSS/PC+ (*op cit.*). Some further analysis was carried out using the software package MINITAB, Release 7.1 (Minitab Inc, 1989) and confidence intervals for proportions were calculated by hand, using the formula given by Gardner and Altman (1989, p29). Scores from the various standardised questionnaires were treated as ordinal data and were analysed using non-parametric tests. The tests used to analysis data in specific situations are described more fully in the results chapter.

Procedures for the Satisfaction Survey

At the end of each phase of the project, when the co-ordinator had ceased visiting all the people involved in that phase, she wrote to each one telling them that a person (who was named) would be contacting them to ask their views about the service (Appendix C). They were assured that their names would not be linked to their replies. It was hoped this would encourage people to give their honest views of the service. After allowing several days for the initial letter to arrive, the interviewer, a retired personal injury claims manager, contacted people by phone, or sent a postal

questionnaire to those who did not have a telephone. A standard introduction was used in each telephone interview (Appendix C).

When replies for each phase were completed they were sent to the Senior Research Fellow in the Rehabilitation Studies Unit. He analysed responses from the closed questions and combined replies to the open questions before passing the results to the writer. In other words the initial questionnaires were not seen by the co-ordinator and therefore responses could not be linked to specific people.

SUMMARY

In Chapter Four the specific aims and hypotheses of the evaluation of the rehabilitation co-ordinator service have been outlined, together with a detailed description of the methods and procedures which were used. In the next chapter the results of the evaluation will be presented.

CHAPTER FIVE

RESULTS

INTRODUCTION

The results are presented in six parts. In part one the outcome of recruiting people to the project is reported. Part two describes the various characteristics of those who consented to take part in the study, and part three outlines the scores obtained on the standardised quality of life and attitudes to work measures at entry to the project. The results of the evaluation are reported in section four. In the fifth part exploratory analyses are presented and in the sixth, and final, section the experience of providing the service is described.

The statistical methods used to analyse the data are reported at the beginning of each relevant section. With regard to numerical precision in the presentation of, for example, means, standard deviations and P values the recommendations of Altman (1980^b) have been followed and no more than three significant figures (excluding leading and trailing zeros) are quoted. Medians and interquartile ranges have been quoted for continuous data, in addition to means and standard deviations, when the data had an asymmetrical distribution.

1. RECRUITMENT TO THE STUDY

A review of the current personal injury claims files of the four participating insurance companies identified 223 claimants who were thought to be eligible for entry to the project. In addition, a firm of solicitors in Scotland who acted for the Union of Shop, Distributive and Allied Workers, expressed interest in the project and identified nine of their clients who met the eligibility criteria. Agreement to include this group of claimants in the study was obtained from the Association of British Insurers (ABI) and the insurance companies involved in their claims. In total, 232 claimants were contacted. Figure 2 shows the outcome of recruitment.

One hundred and nine people (47%) did not meet the eligibility criteria for entry to the project. This included 74 claimants who were already back at work at the time of contact and 35 who were ineligible for other reasons. This latter group included people whose injuries were too severe for inclusion, or who were unable to give

informed consent to take part, or who were out of the labour market at the time of their accidents.

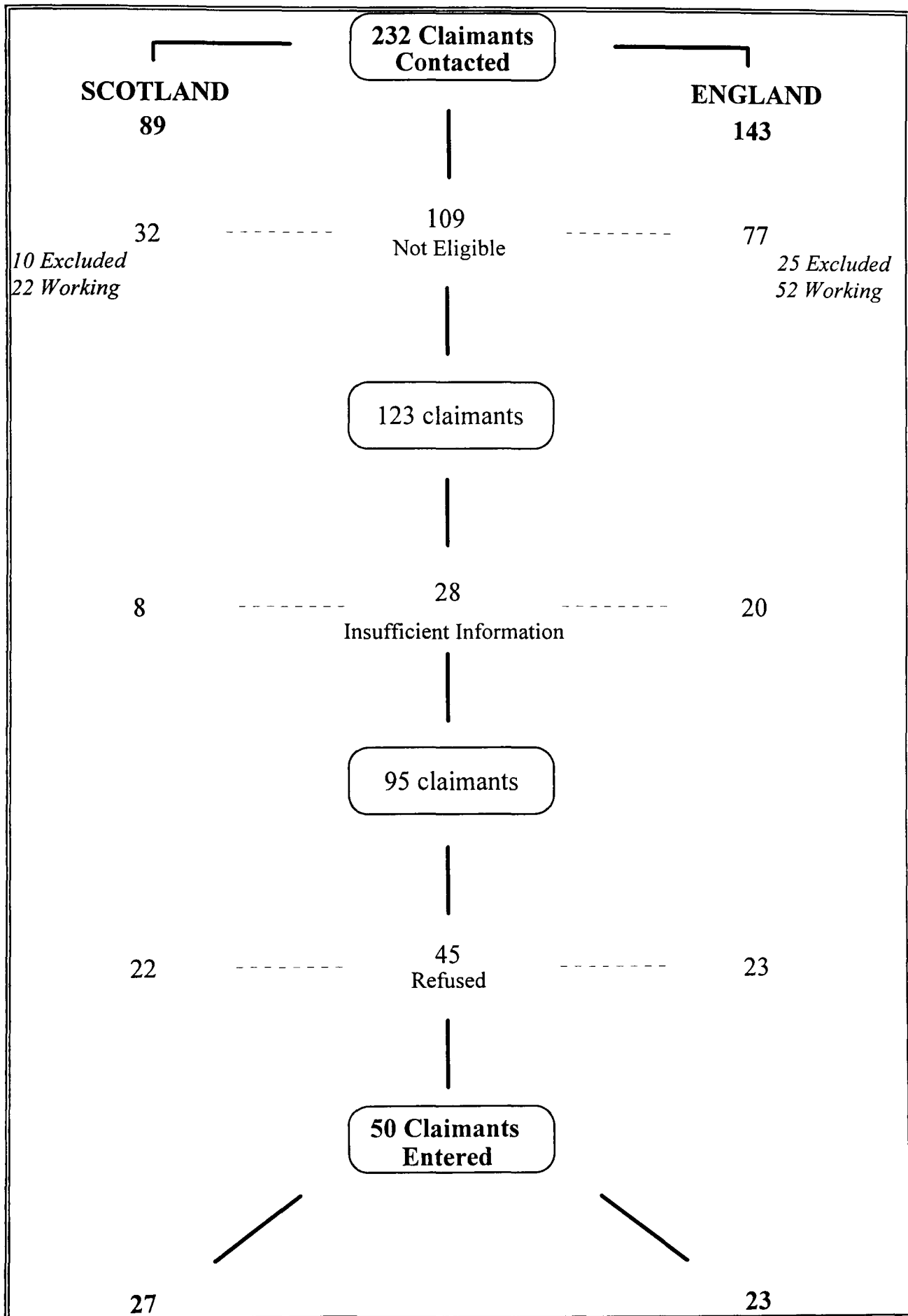


Figure 2: Outcome of recruitment to the Rehabilitation Co-ordinator Project

For 28 claimants (12%) insufficient information was available, even after a review of insurance company files at the end of the project, to determine whether they would have been eligible to take part in the project. Eligibility was confirmed for 95 claimants, that is 41% of those initially contacted. Of these 95, 45 (47%) declined to become involved in the project and 50 (53%) consented to take part.

2. CHARACTERISTICS OF CLAIMANTS IN THE STUDY

In the following section the characteristics of the people who took part in the project are described as at entry to the project. Characteristics are given for members of the experimental and control groups separately.

Comparisons were made between the experimental and control groups to check there were no significant differences in their characteristics. For, as Fowkes and Fulton (1991) noted,

"random allocation usually leads to comparability, but not necessarily so, ...and the distributions of age, sex and other prognostic variables should therefore be compared between the two groups."

A chi-squared test was employed for nominal data and Mann-Whitney U test for ordinal/interval data. With small sample sizes care must be taken that the use of a chi-squared test is valid. In this study the conventions recommended by Bland (1987, p245), Kirkwood (1988, p90) and Siegel and Castellan (1988, p123) were employed. For 2 x 2 contingency tables the chi-squared test, corrected for continuity, was employed for sample sizes greater than 40 and for sample sizes between 40 and 20 when all expected frequencies were five or more. For sample sizes between 40 and 20 with expected frequencies of five or less, and for sample sizes below 20, Fisher's exact test was used.

In contingency tables larger than 2 x 2, a chi-squared test was used if fewer than 20% of the expected frequencies were less than five and no expected frequency was less than one. Where this requirement was not met the recommendation of Siegel and Castellan (1988, p123) and others (Bland, 1987 p245; Kirkwood, 1988 p91) was followed and, wherever appropriate, categories were combined to reduce the number of cells to a 2 x 2 table thus increasing the expected frequencies. The test used for each comparison is indicated in the text.

Location of Claimants and Group Allocation

Phase 1 - Scotland: Twenty seven people consented to take part in the Scottish phase of the project. Of these, 18 were randomly allocated to the experimental group and nine to the control group.

Phase 2 - England: Twenty three people were recruited to the study. Fifteen were allocated to the experimental group and eight to the control group (Table 1).

The proportion of claimants randomly allocated to the experimental and control groups was consistent with the 2:1 ratio adopted for the study (see Chapter Four).

Table 1: Number of claimants allocated to the experimental and control groups by location

Location	Experimental group	Control group	Total
Scotland	18	9	27
England	15	8	23
Total	33	17	50

Personal Details

Age

The age of the claimants, at entry to the project, ranged from a minimum of 18 years to a maximum of 60 years for the experimental group and from 19 years to 61 years for the control group with standard deviations of 10.5 and 13.1 respectively. The mean age of the experimental group was 40.4 years and of the control group, 36.4 years (Table 2). Comparison of the ages of the two groups using a Mann-Whitney U test showed there was no statistically significant difference: $U = 216.0$; $P = 0.19$.

Table 2 : Age of claimants at entry to the project by group: minimum and maximum ages, means, standard deviations, medians and inter-quartile ranges

	Min - Max	Mean	Standard deviation	Median	Inter-quartile range
Experimental group n = 33	18 - 60	40.4	10.5	41.0	15.5
Control group n = 17	19 - 61	36.4	13.1	34.0	21.0

Examination of the ages of both groups at time of accident also revealed no significant difference: $U = 218.5$; $P = 0.20$. Table 3 gives details of the summary statistics.

Table 3: Age of claimants at time of accident by group: minimum and maximum ages, means, standard deviations, medians and interquartile ranges

	Min - Max	Mean	Standard deviation	Median	Inter-quartile range
Experimental group n = 33	17 - 57	38.4	10.4	39.0	15.5
Control group n = 17	18 - 60	34.7	13.4	33.0	22.0

Gender

The majority of the people recruited to the study were men. This accounted for 88% of the experimental group and 71% of the control group (Table 4). Using a chi-squared test there was no statistically significant difference in gender distribution for the two groups: $X^2 = 1.25$; $DF = 1$; $P = 0.26$.

Table 4: Gender distribution in the experimental and control groups

	Male		Female	
Experimental group n = 33	29	88%	4	12%
Control group n = 17	12	71%	5	29%

Family Composition

Twenty one of the experimental group (64%) and 12 of the control group (70%) were married or lived with partners. Three experimental group members (9%) and three control group members (18%) lived with adult family members and two of the experimental group (6%) and one of the control group (6%) with children under 18 years of age. Seven experimental group members (21%) and one member of the control group (6%) lived alone. To enable comparisons to be made between the two groups, categories were combined to create two - a) living with a partner or adult (family member or friend) and b) living alone or with children under 18 years of age

(Table 5). Comparing the two groups on this basis there was no statistically significant difference in family composition: $X^2 = 0.80$; $DF = 1$; $P = 0.37$.

Table 5: Family composition of experimental and control groups

	Living with partner/adult		Living alone/ with children	
Experimental group n = 33	24	73%	9	27%
Control group n = 17	15	88%	2	12%

Financial Circumstances

At entry to the project the vast majority of claimants in both experimental and control groups relied on Social Security benefits as the main source of their incomes (88% and 94% respectively). Three people in the experimental group (9%) received their main incomes from other sources such as maintenance from a divorce settlement or accident insurance policy. One person in the experimental group and one member of the control group (3% and 6% respectively) were working (albeit in unsatisfactory jobs) and therefore receiving wages.

Table 6 shows the number of claimants in each group whose income at entry to the project was either reduced, maintained, or increased compared to their pre-accident incomes. Data for seven people were missing, but for the majority of the remaining claimants their incomes had reduced (86% of the experimental group and 67% of the control group)

Table 6: Comparison of income before accident and at entry to project, by group

	Income reduced		Income maintained		Income increased	
Experimental group n = 28*	24	86%	0	0%	4	14%
Control group n = 15**	10	67%	1	7%	4	26%

* 5 missing; ** 2 missing

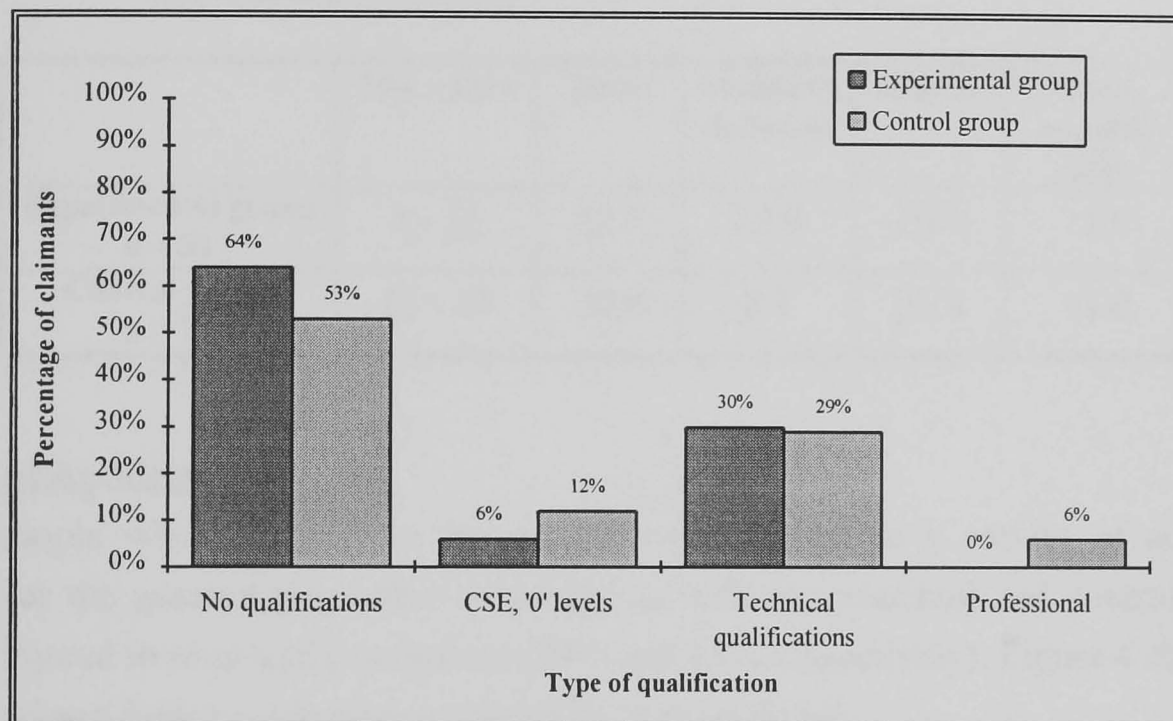
Comparing the income levels for the experimental and control groups (for those for whom data were available) by reducing Table 6 to two categories - "Income reduced"

and "Income maintained/increased" revealed no statistically significant difference between the two groups: $X^2 = 1.15$; $DF = 1$; $P = 0.28$.

Educational Qualifications

The majority of people in both groups had left school when aged 15 or 16 years old (88% of the experimental group and 71% of the control group). Educational qualifications ranged from none, for 64% of the experimental group and 53% of the control group, to a professional qualification for one member of the control group (6%) (Figure 3). Of those with qualifications, most had earned technical qualifications as a result of apprenticeships and schemes such as City and Guilds awards.

Figure 3: Educational qualifications of the experimental and control groups



To compare the numbers of people with educational qualifications in the experimental and control groups people were categorised as either having or not having qualifications (Table 7). A chi-squared test showed no significant difference between the two groups: $X^2 = 0.18$; $DF = 1$; $P = 0.67$.

Table 7: Number of claimants with educational qualifications, by group

	No qualifications		Qualifications	
Experimental group n = 33	21	64%	12	36%
Control group n = 17	9	53%	8	47%

Accidents and Claims

Time Since Accident

At time of entry to the project the mean time since accident for the experimental group was 22.5 months, and for the control group 20.8 months. Minimum and maximum months since accident covered a wider range for the experimental group than the control group (3 - 55 months versus 10 - 43 months) and associated with this wider range was a greater standard deviation (Table 8). A Mann-Whitney U test showed no statistically significant difference between the two groups for months since accident : $U = 280.5$; $P = 1.00$.

Table 8: Months since accident (at entry) by group: minimum and maximum months, means, standard deviations, medians and interquartile ranges

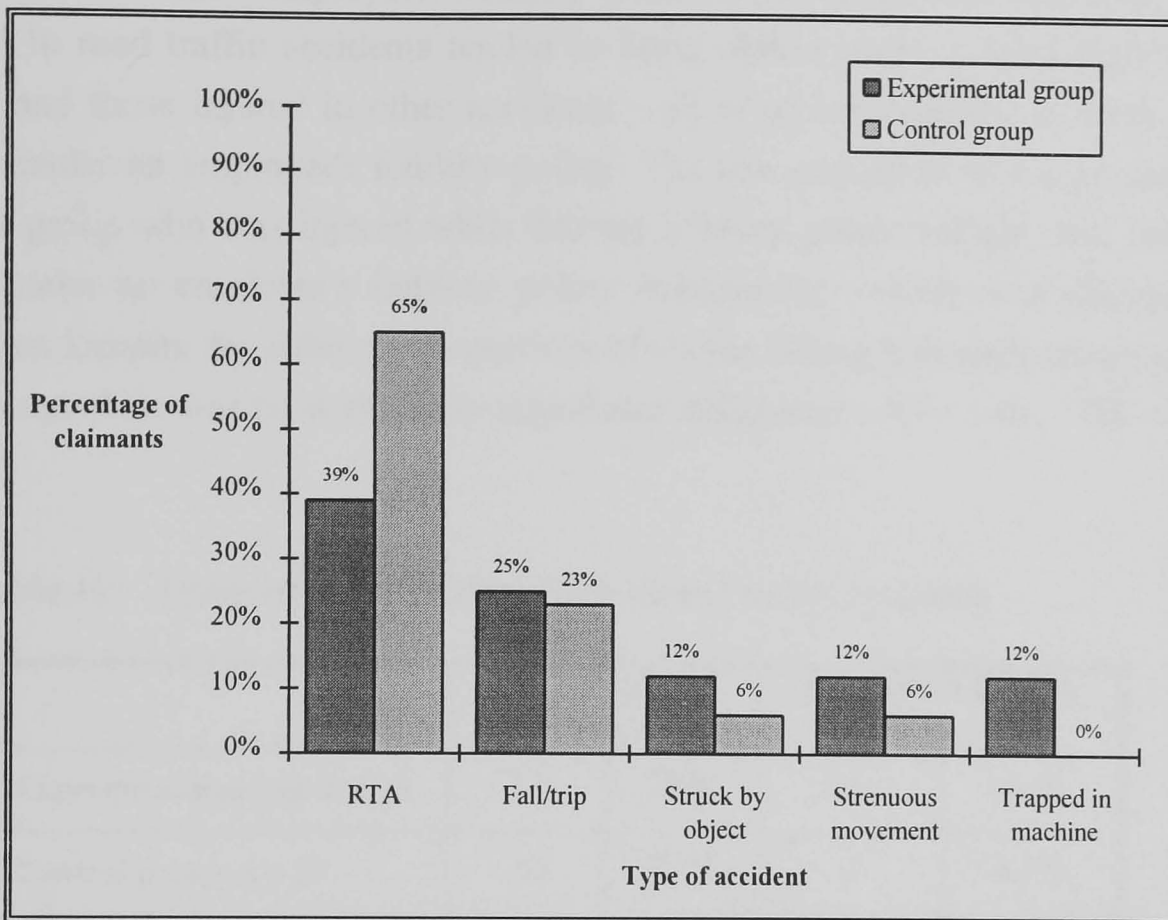
	Min - Max	Mean	Standard deviation	Median	Inter-quartile range
Experimental group n = 33	3 - 55	22.5	12.9	19.0	17.0
Control group n = 17	10 - 43	20.8	8.1	21.0	11.0

Type of Accident

The people who took part in the project were injured in a variety of accidents, however the greatest proportion of people in both experimental and control groups were injured in road traffic accidents (39% and 65% respectively). Figure 4 shows the types of accidents people were involved in, in more detail.

The "falls or trips" category included accidents involving falls from a height or on the level. An example of the former was a fall from a ladder and the latter, tripping over debris on a building site. Accidents falling into the "struck by object" category involved, as the name suggests, the injured person being hit by a moving object or objects, for example a stack of falling bricks. Accidents involving strenuous movements usually involved the person being injured while lifting a heavy object, for example tractor implements. "Trapped in a machine" includes all accidents in which people had trapped limbs in a piece of machinery, for example one person trapped an arm in a pastry rolling machine and another trapped one of his legs in a silage chopper.

Figure 4: Types of accident experienced by experimental and control groups



In order to compare the types of accident experienced by the experimental and control groups, categories were combined to create two; road traffic accidents and other (Table 9). As can be seen from this table, a higher proportion of people in the control group were injured in road traffic accidents than in the experimental group, (65% versus 39%), but this difference between the two groups was not statistically significant: $X^2 = 1.96$; $DF = 1$; $P = 0.16$.

Table 9: Number of claimants injured in road traffic or other types of accident, by group

	RTA		Other accident	
Experimental group n = 33	13	39%	20	61%
Control group n = 17	11	65%	6	35%

Type of Claim

Table 10 shows the types of policy under which members of the experimental and control groups pursued claims for personal injury compensation. Thirty nine per cent of the experimental group and 59% of the control group brought claims under a motor

policy and 61% of the experimental group and 41% of the control group sought compensation under employers' liability policies. As might be expected, people injured in road traffic accidents tended to bring claims under a third party's motor policy and those injured in other accidents - all of which occurred at work - made claims under an employer's liability policy. The one exception was a person in the control group who was injured while driving a heavy goods vehicle, and initiated a claim under an employer's liability policy because the vehicle was alleged to be defective. Despite the differing proportions of claims falling into each category for the two groups there was no statistically significant difference: $X^2 = 1.01$; $DF = 1$; $P = 0.31$.

Table 10: Types of policy under which claims made, by group

	Motor policy		Employer's liability policy	
	Count	Percentage	Count	Percentage
Experimental group n = 33	13	39%	20	61%
Control group n = 17	10	59%	7	41%

Accidents Occurring During or Outside Work

All the claimants who were pursuing compensation under employers' liability policies were injured at their workplaces or in the course of their work. In addition, a number of the people who were pursuing claims under a motor policy were also injured while at work. These were predominantly people whose jobs involved driving buses or heavy goods vehicles. However, a number of people were also injured while being transported in works' vehicles, for example to or from construction sites (people travelling to and from work in their own transport were not counted as being injured during the course of their work).

As can be seen from Table 11, a much higher percentage of people in the experimental group were injured during the course of their work compared with the control group (76% versus 41%). A chi-squared test showed a statistically significant difference at the $P < 0.05$ level: $X^2 = 4.42$; $DF = 1$; $P = 0.04$. An analysis of standardised residuals (Grimm, 1993 p449), to determine which cell or cells made the major contribution to the statistically significant result did not identify any particular cell or cells as being most responsible.

Table 11: Number of claimants injured during or outside work, by group

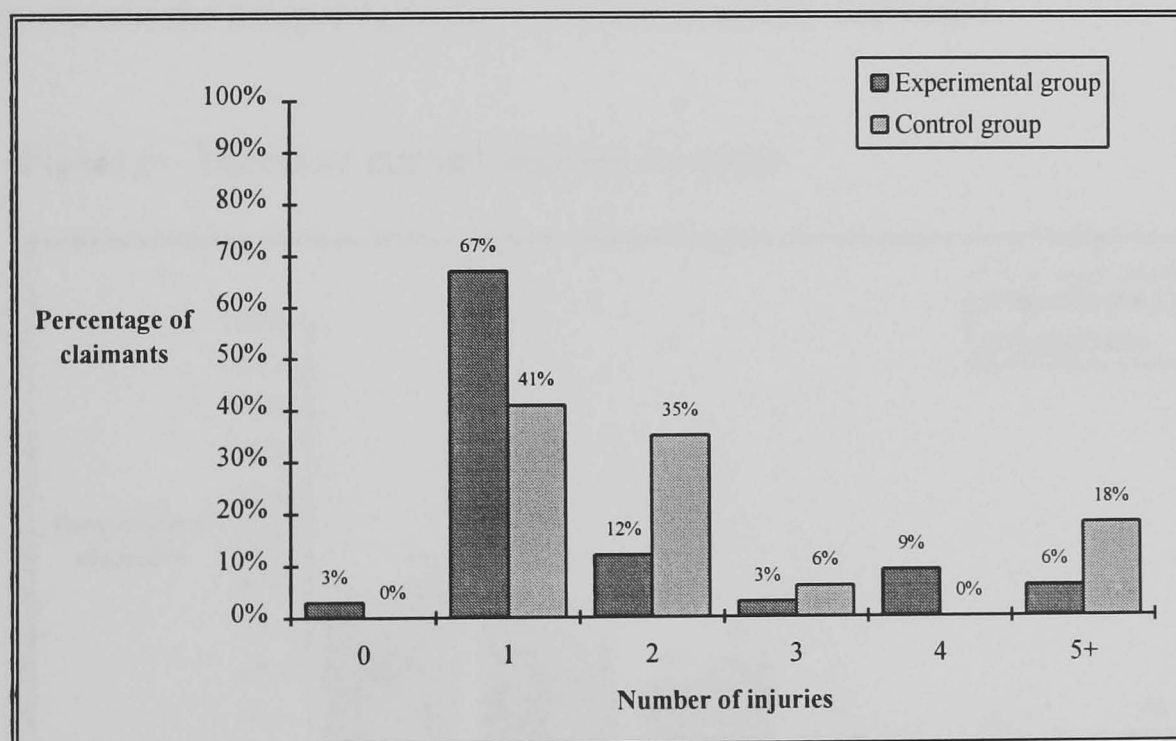
	Injured during work		Injured outside work	
	Count	Percentage	Count	Percentage
Experimental group n = 33	25	76%	8	24%
Control group n = 17	7	41%	10	59%

Injuries

Total Number of Injuries

Total numbers of injuries were recorded for each person. Number of injuries ranged from none, for a person with post traumatic stress disorder, to eight. The majority of people had sustained one injury. Sixty seven per cent of the experimental group and 41% of the control group fell into this category. Figure 5 gives details of the number of injuries.

Figure 5: Number of injuries sustained by members of the experimental and control groups



Combining adjacent categories (two injuries or less; three injuries or more), to allow comparison to be made between the two groups revealed that the majority of people in both groups had sustained two injuries or less (Table 12). Compared on this basis, there was no statistically significant difference between the two groups on number of injuries sustained: $X^2 = 0.01$; $DF = 1$; $P = 0.94$.

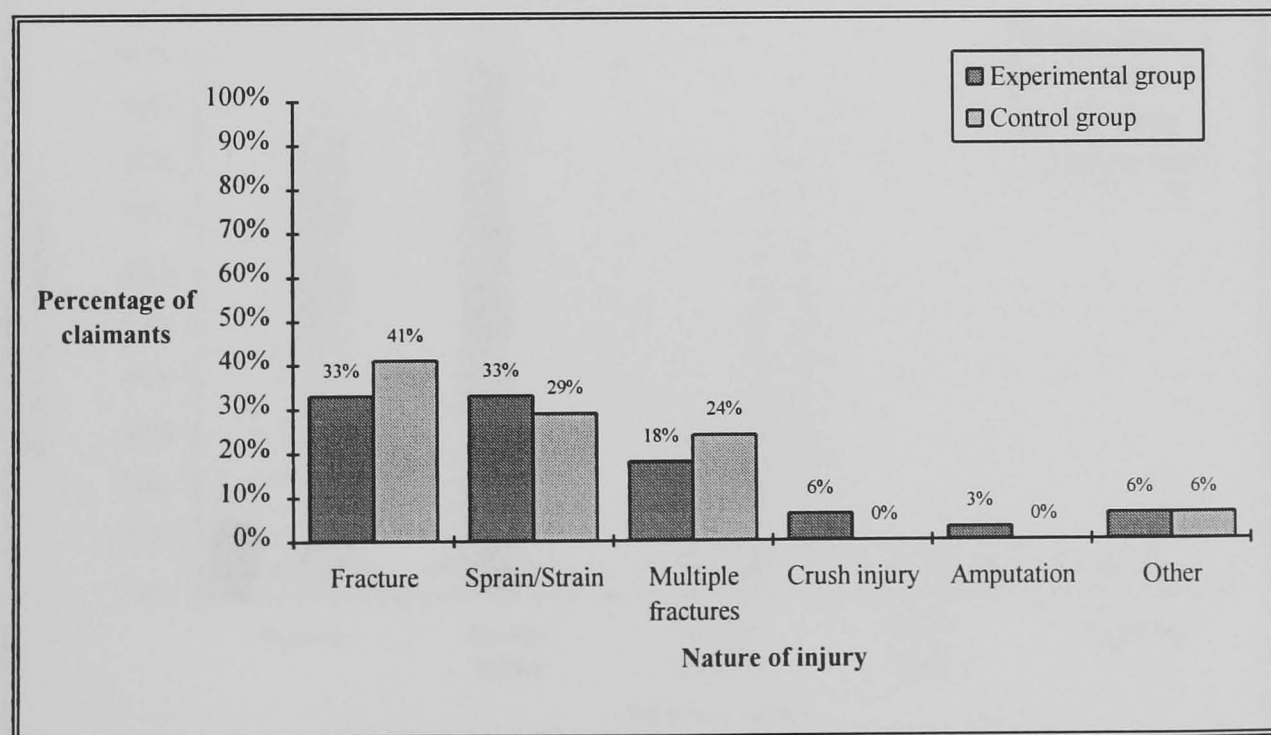
Table 12: Number of claimants with two or less / three or more injuries, by group

	Two or less injuries		Three or more injuries	
	Count	Percentage	Count	Percentage
Experimental group n = 33	27	82%	6	18%
Control group n = 17	13	76%	4	24%

Nature and Region of Primary Injuries

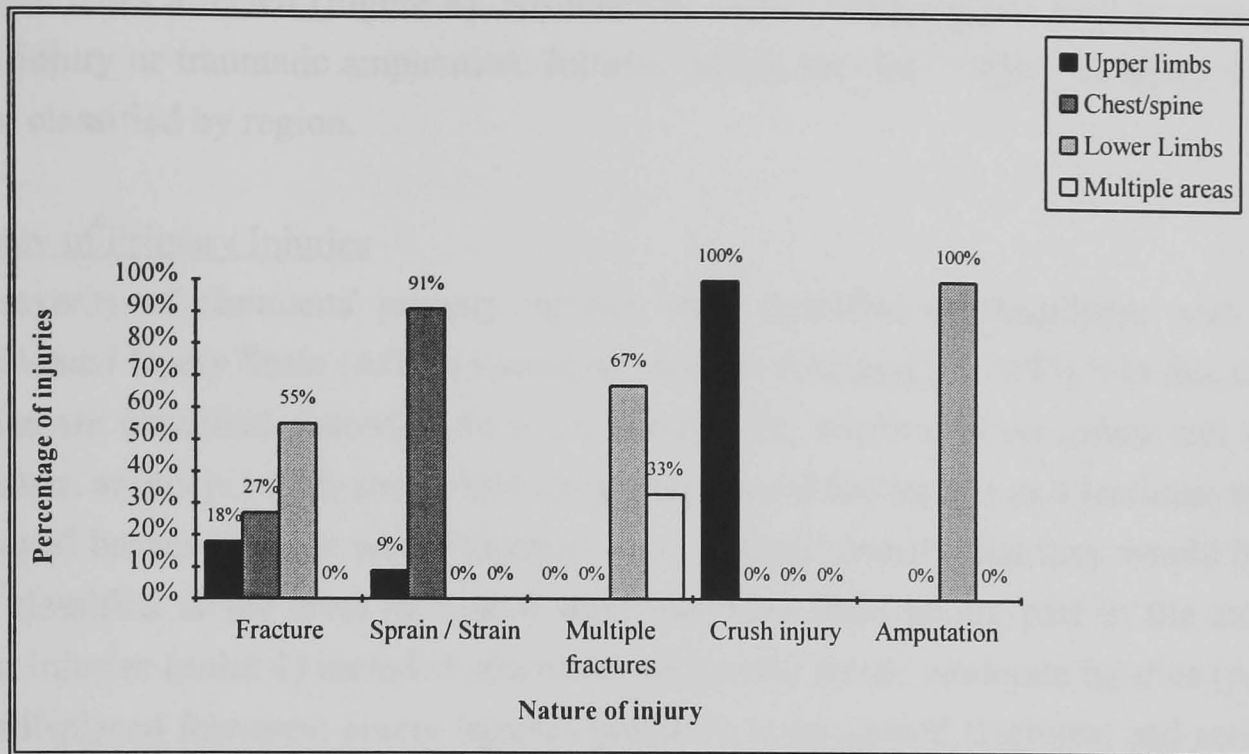
The nature of the primary injuries sustained by the claimants in the study is shown in Figure 6. Fractures accounted for the majority of the primary injuries in the control group (41%), with fractures and sprains or strains affecting equal percentages in the experimental group (33% each). The "Other" category included two people in the experimental group, one of whom had sustained no injury and another whose primary injury, to the spinal cord, had never been satisfactorily identified, and one person in the control group whose injury was described as a "contusion" to the spinal cord. No comparison was made between the two groups for nature of primary injuries because the expected cell frequencies did not meet the requirements for a valid computation of chi-square and the categories could not be meaningfully combined.

Figure 6: Nature of primary injuries, by group



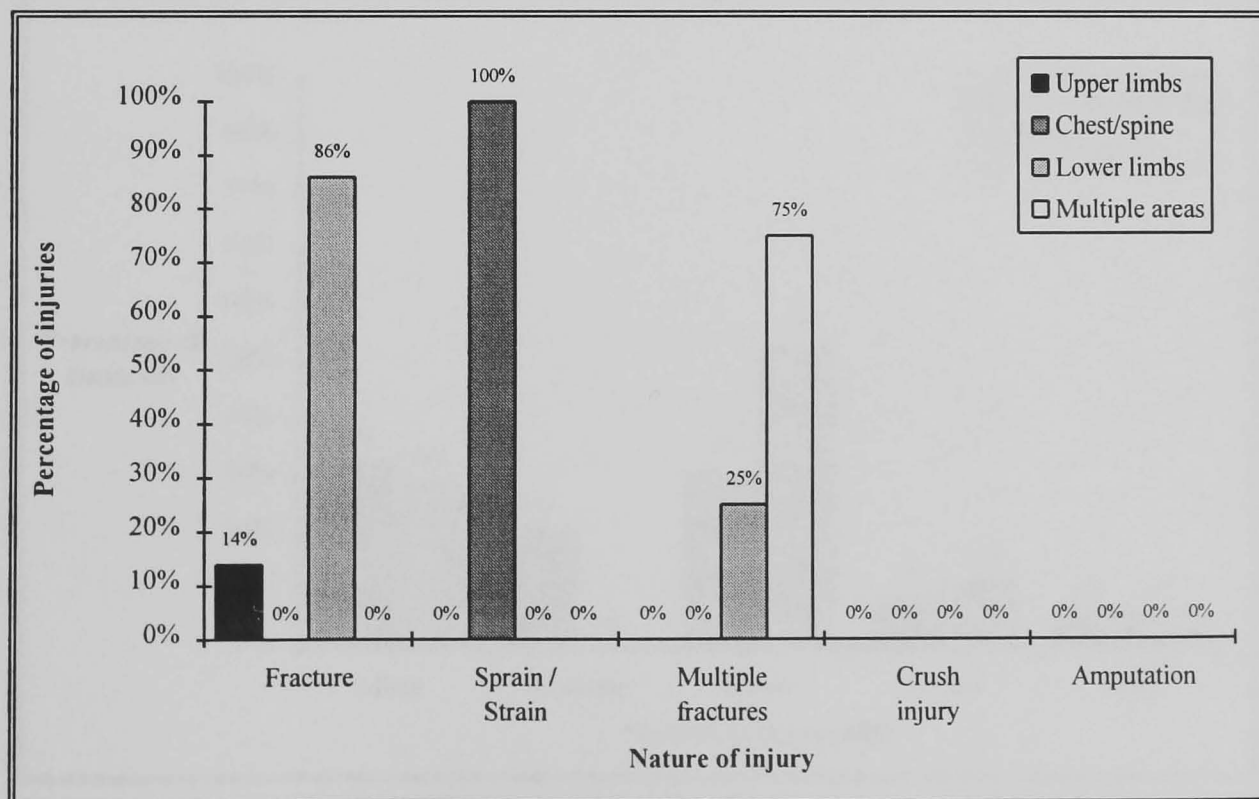
Region of primary injury is shown against type of injury in Figure 7 for the experimental group, and in Figure 8 for the control group.

Figure 7: Experimental group: nature of primary injuries and regions affected



For the experimental group, the majority of single fractures involved the lower limbs (55%) as did the multiple fractures (67%). Nearly all the sprains/strains involved the cervical or lumbar spine (91%). All the crush injuries sustained by the experimental group involved the upper limbs, and all the traumatic amputations, the lower limbs.

Figure 8: Control group: nature of primary injuries and regions affected



The control group presented a similar picture with 80% of fractures involving the lower limbs, and all the sprains/strains affecting the cervical or lumbar spine. Within

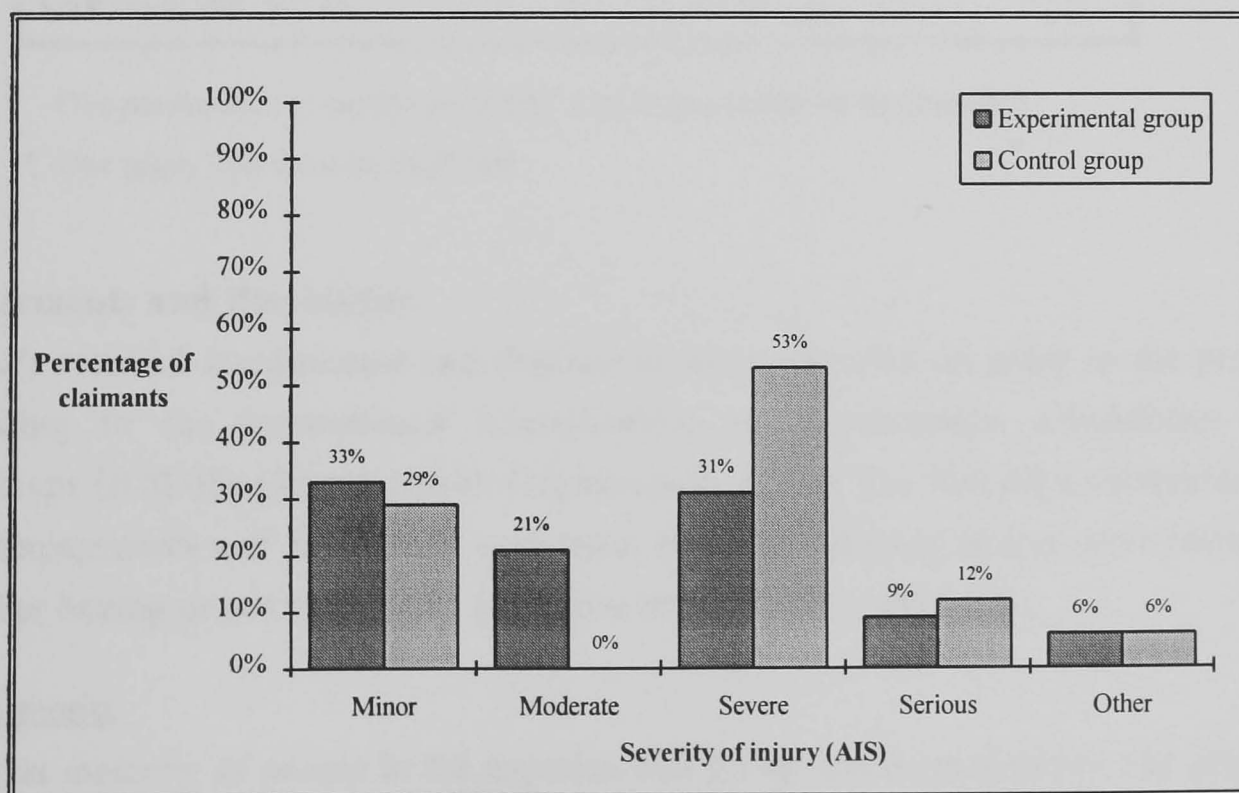
the group sustaining multiple fractures, however, the highest proportion (75%) had multiple areas affected (Figure 8). No member of the control group had sustained a crush injury or traumatic amputation. Injuries falling into the "Other" category could not be classified by region.

Severity of Primary Injuries

The severity of claimants' primary injuries were classified in accordance with the Abbreviated Injury Scale (AIS), (American Medical Association, 1975). On this scale injuries are classified according to a six point scale, where 0 is no injury and 6 is maximum severity. In this study only categories from 0 (no injury) to 4 (serious) were employed because people whose injuries were of such severity that they would have been classified at the level of 5 or 6 were excluded from taking part in the study. Minor injuries (point 1) included strains of the lumbar spine; moderate injuries (point 2), undisplaced fractures; severe injuries (point 3), comminuted fractures; and serious injuries (point 4), the traumatic amputation of a lower limb.

Figure 9 shows the severity of the primary injuries sustained by members of the experimental and control groups.

Figure 9: Severity of primary injuries sustained by experimental and control groups (Abbreviated Injury Scale)



The majority of claimants in the control group sustained primary injuries whose severity was categorised as severe (53%), whereas 31% of people in the experimental

group had injuries falling into this category. The classification with the second highest percentage of claimants for both groups was the minor category, representing people with whiplash injuries or strains of the lumbar spine. The "Other" category included one person in the experimental group and one in the control group whose primary injuries could not be classified because their injuries had never been satisfactorily defined, and one member in the experimental group who had not sustained an injury

Combining adjacent categories for the 47 claimants whose injuries could be classified resulted in the primary injuries of 18 of the experimental group (58%) and five of the control group (31%) injuries being classified as being of minor/moderate severity. Thirteen of the experimental group (42%) and 11 of the control group (69%) sustained injuries that fell into the serious/severe category (Table 13). Using these figures as a means of comparison revealed there was no statistically significant difference in the severity of injuries sustained by the two groups: $X^2 = 2.06$; $DF = 1$; $P = 0.15$.

Table 13: Number of claimants who sustained minor/moderate or severe/serious injuries by group

	Minor/ moderate		Severe/ serious	
	Experimental group n = 31*	18	58%	13
Control group n = 16**	5	31%	11	69%

* One person did not sustain an injury; One injury could not be classified

** One injury could not be classified

Impairments and Disabilities

People's residual impairments and disabilities were recorded on entry to the project according to the International Classification of Impairments, Disabilities and Handicaps (ICIDH), (World Health Organisation, 1980). The two digit categories for both impairments and disabilities were used. For each category people were recorded as either having or not having that particular impairment or disability.

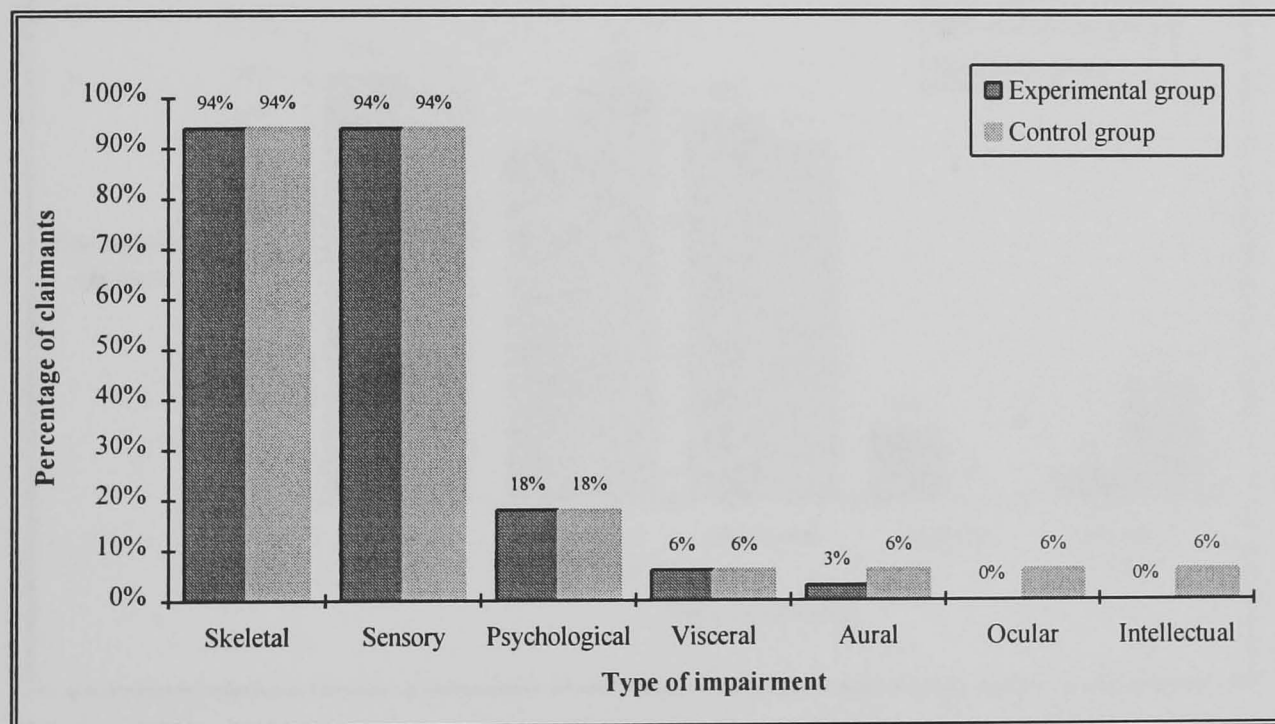
Impairments

The vast majority of people in the experimental group and control group had skeletal impairments (94% of both groups). Commonly this presented as a reduction in range of movement at one or more of the major joints, or the spine. The same percentage of claimants also had sensory impairments, predominantly pain. The majority of people

in both groups, 90% of the experimental group and 88% of the control group, had both skeletal and sensory impairments. Psychological impairments, predominantly anxiety and/or depression, were recorded in the same proportion of each group (18%).

Less common were problems with hearing, accounting for one person in each group, visceral impairments, such as respiratory problems arising from chest injuries, affecting two people in the experimental group (6%) and one in the control group (6%); and visual disturbances experienced by one person in the control group. Intellectual impairment (in this case a problem with memory) also affected one person in the control group. (Figure 10). The same person in the control group accounted for all the aural, visual and intellectual impairments experienced by that group. There was no significant difference between the two groups in the proportion of claimants with each type of impairment .

Figure 10: Types of impairment experienced by members of the experimental and control groups

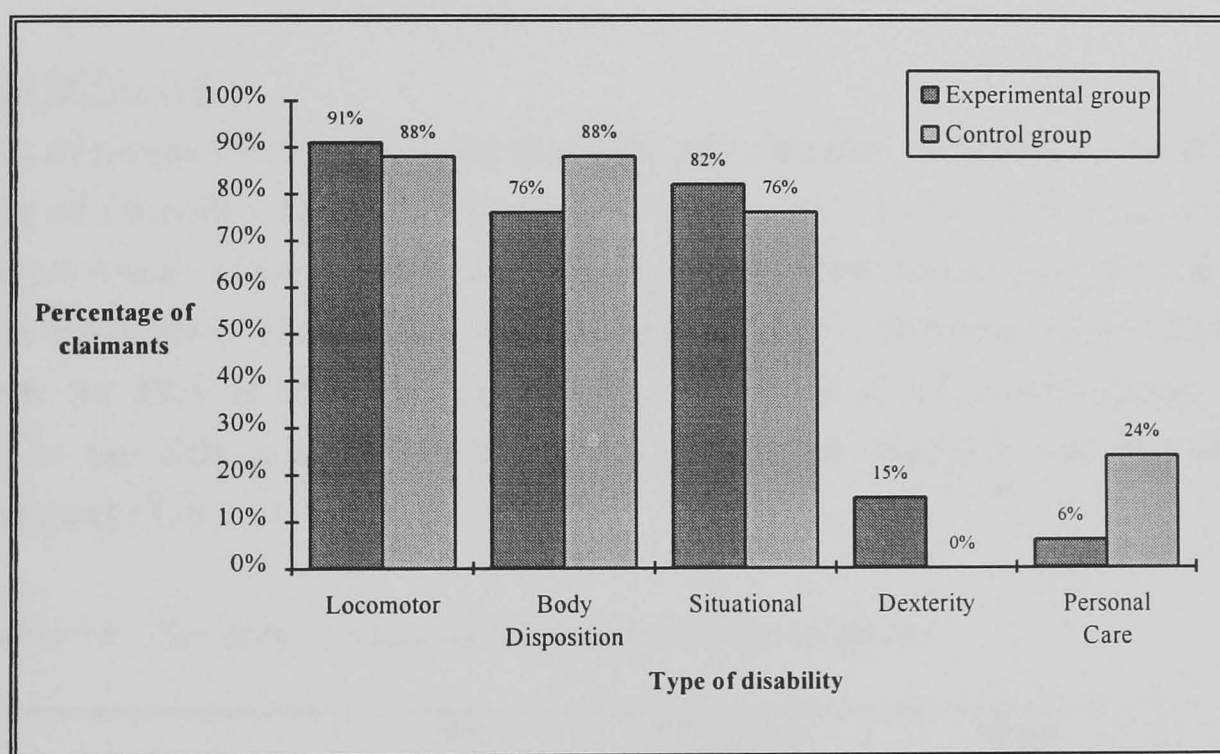


Disabilities

As might be expected with such a high proportion of people with skeletal and/or sensory impairments, the percentage of the sample reporting locomotor disabilities was high. This accounted for 30 of the experimental group (91%) and 15 of the control group (88%). Locomotor disabilities included difficulty with walking, negotiating rough terrain, running, and lifting. A high proportion of the claimants, 25

of the experimental group (76%) and 15 of the control group (88%), also had difficulty with such activities as kneeling, crouching and bending (body disposition disabilities). Twenty seven experimental group members (82%) and 13 control group members (76%) reported restricted endurance, usually an inability to sit or stand for prolonged periods (situational disability). Five members of the experimental group (15%), three of whom had sustained crush injuries to upper limbs, reported problems with hand function (dexterity disability) and two members of the experimental group and four members of the control group reported difficulties with personal care - in most cases difficulty climbing into and out of the bath. Figure 11 shows the percentage of people in each group by disability category. There was no significant difference between the two groups in the proportion of claimants with each type of disability.

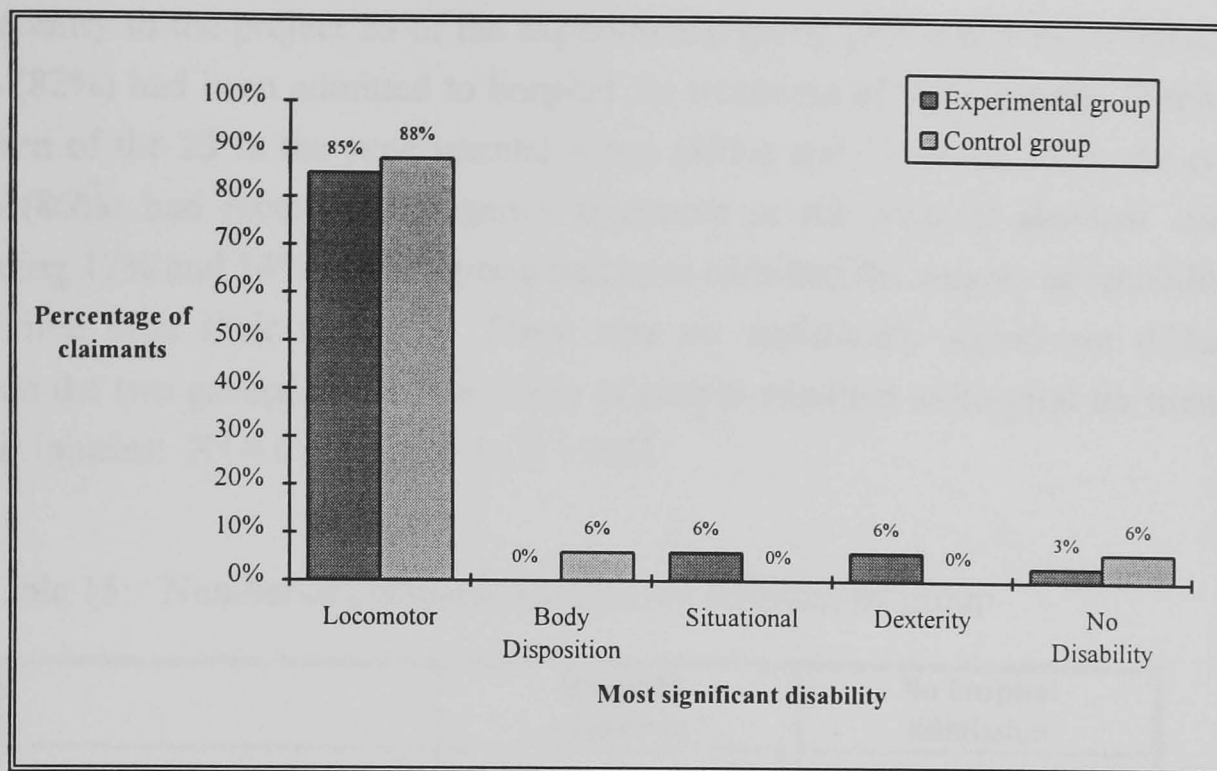
Figure 11: Types of disability experienced by members of the experimental and control groups



Most Significant Disability

The most significant disability was recorded for each person, this being defined as the disability which most affected a claimant's day-to-day life. In the majority of cases the most significant disability was locomotor, accounting for 85% of the experimental group and 88% of the control group (Figure 12).

Figure 12: Most significant disability experienced by the experimental and control groups



Severity of Disability

Severity of people's most significant disability was classified according to the ICDH Severity of Disability Scale (World Health Organisation, 1980). This scale records severity on a scale of nought (not disabled) to six (complete inability). In the majority of cases the severity of disability was one, representing a difficulty in performance. However for 18% of the experimental group and 29% of the control group, who needed to use aids or other appliances, the severity of disability was two (aided performance) (Table 14).

Table 14: Severity of most significant disability, by group

	Not disabled		Difficulty in performance		Aided performance	
	Count	Percentage	Count	Percentage	Count	Percentage
Experimental group n = 33	1	3%	26	79%	6	18%
Control group n = 17	1	6%	11	65%	5	29%

The cells in Table 14 were reduced by combining the categories of "Not disabled" and "Difficulty in performance" in order to create a 2 x 2 table for a chi-squared test. This showed no statistically significant difference between the two groups for severity of most significant disability: $X^2 = 0.30$; $DF = 1$; $P = 0.58$.

Medical Treatment for Injuries

Hospital Admissions

Before entry to the project 23 of the experimental group (70%) and 14 of the control group (82%) had been admitted to hospital for treatment of their injuries (Table 15). Nineteen of the 23 in the experimental group (83%) and 12 of the 14 in the control group (86%) had received emergency treatment at the time of accident and the remaining 17% and 14% in each group had been admitted for surgery or rehabilitation some time after their accidents. There was no statistically significant difference between the two groups in the proportion of people admitted to hospital for treatment of their injuries: $X^2 = 0.39$; $DF = 1$; $P = 0.53$

Table 15: Number of claimants admitted to hospital, by group

	Hospital admission		No hospital admission	
	Number	Percentage	Number	Percentage
Experimental group n = 33	23	70%	10	30%
Control group n = 17	14	82%	3	18%

The majority of people in each group had only one hospital admission but 8 people in the experimental group and 6 in the control group had two or more, multiple admissions usually occurring as a result of recurrent infection and/or for the revision or removal of internal fixation. Number of admissions ranged from one to four for the experimental group and one to five for the control group, with an average of 1.8 admissions for the experimental group and 1.7 for the control group. The median for both groups was one. The results of a Mann-Whitney U test showed no statistically significant difference between the two groups in the number of hospital admissions: $U = 154.0$; $P = 0.84$.

Attendance at Outpatient Clinics

At entry to the project the majority of people were still attending at least one hospital outpatient clinic (64% of the experimental group and 53% of the control group) (Table 16), or receiving sickness certificates from their general practitioners (79% of the experimental group and 71% of the control group) (Table 17).

Table 16: Attendance at hospital outpatient clinics at entry, by group

	No attendance		Previous attendance		Current attendance	
Experimental group n = 33	1	3%	11	33%	21	64%
Control group n = 17	1	6%	7	41%	9	53%

Attendance at outpatient clinics was compared by reducing Table 16 to a 2 x 2 table by combining "No attendance" and "Previous attendance" into one band. A chi-squared test showed there was no statistically significant difference between the experimental and control groups: $X^2 = 0.18$; $DF = 1$; $P = 0.67$.

Table 17: Number of claimants receiving sickness certificates at entry, by group

	Receiving sickness certificates		Not receiving sickness certificates	
Experimental group n = 33	26	79%	7	21%
Control group n = 17	12	71%	5	29%

A chi-squared test to compare the numbers in each group receiving sickness certificates also showed no statistically significant difference: $X^2 = 0.09$; $DF = 1$; $P = 0.77$.

Recovery and other Medical Problems

Complications During Recovery

At entry to the project, seven members of the experimental group (21%) and four members of the control group (24%) had already experienced delayed recoveries because of complications. Predominantly these delays were caused by recurrent infections preventing union of fractures or problems with the mechanisms used to fix fractures internally (these accounted for five of the experimental group and three of the control group). Of the remaining three people, one person in each group had protracted recoveries because the consequences of their injuries were more severe than was apparent in the initial stages, and a second person in the experimental group had recovered from the initial injury then suffered a significant relapse (Table 18).

Medical History Relevant to Injury

Five of the experimental group (15%) and two of the control group (12%) had sustained injuries which aggravated a pre-existing condition (Table 18). For example, had suffered a whiplash injury on top of existing cervical spondylosis, or a fracture involving joints affected by gout.

Other Medical Problems

Several claimants had experienced significant medical problems, in addition to their injuries, which had been sufficient to delay return to work. This accounted for five of the experimental group (15%) and one of the control group (6%) (Table 18). The conditions included cardiovascular disease, lung cysts and gynaecological problems.

Table 18: Recovery and medical history, by group

	Complications during recovery		Relevant medical history		Other medical problems	
Experimental group n = 33	7	21%	5	15%	5	15%
Control group n = 17	4	24%	2	12%	1	6%

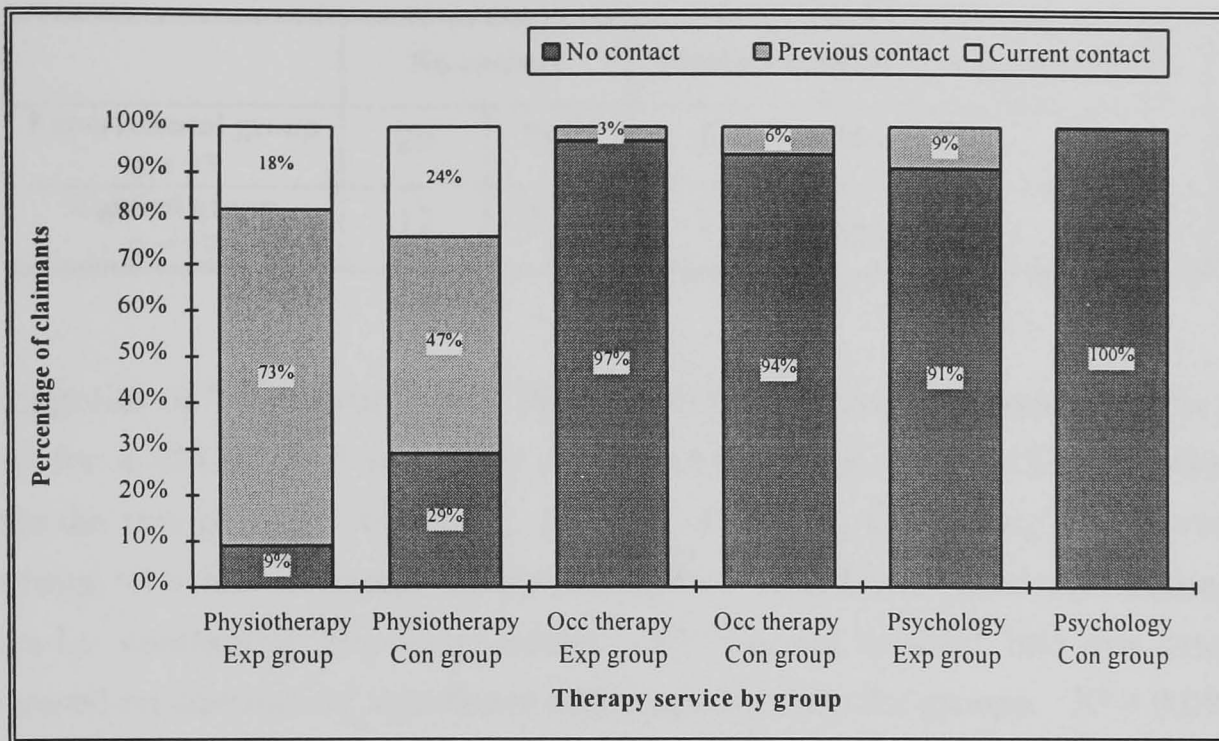
Some people had experienced a combination of problems. One person in the experimental group had experienced both a set-back in his recovery and had other medical problems and one person in each group had pre-existing conditions aggravated by their injuries together with other medical problems. There was no statistically significant difference between the two groups in the proportion of people who had encountered complication during their recoveries, or who had other medical problems or a condition relevant to their injury.

Contact with Rehabilitation Services

Therapy Services

Figure 13 shows the percentage of claimants in each group who had contact with therapy services before entry to the project.

Figure 13: Contact with therapy services, by group



The therapy services comprised physiotherapy, occupational therapy and psychology. Physiotherapy was the service most claimants had contact with (91% of the experimental group and 71% of the control group) but at entry to the project only 18% of the experimental group and 24% of the control group were still receiving physiotherapy. Few claimants had received occupational therapy (3% of the experimental group and 6% of the control group) and only 3 claimants, nine percent of the experimental group, had seen a psychologist. There was no statistically significant difference between the experimental and control groups in their contact with each of the therapy services.

Department of Employment Services

Table 19 shows the number of claimants who had established contact with Department of Employment services before entry to the project. These services included Disablement Resettlement Officers, Employment Rehabilitation Centres and the Employment Training Scheme. The majority had no contact with these services (79% of the experimental group and 71% of the control group). Only 9% of the experimental group and 23% of the control group were in current contact with Department of Employment services at entry to the project. Four of the experimental group (12%) and one of the control group (6%) had prior contact with the services but in each case this was without a positive outcome.

Table 19: Contact with Department of Employment Services, by group

	No contact		Previous contact		Current contact	
Experimental group n = 33	26	79%	4	12%	3	9%
Control group n = 17	12	71%	1	6%	4	23%

The categories of "No contact" and "Previous contact" were combined to create a 2 x 2 table for a chi-squared test. This showed no statistically significant difference between the two groups: $X^2 = 0.93$; $DF = 1$; $P = 0.34$. Comparing the numbers in each group who had no contact or some contact with Department of Employment services i.e. combining "Previous contact" and "Current contact" into one category, also showed no statistically significant difference between the groups: $X^2 = 0.09$; $DF = 1$; $P = 0.77$.

Employment at Time of Accident

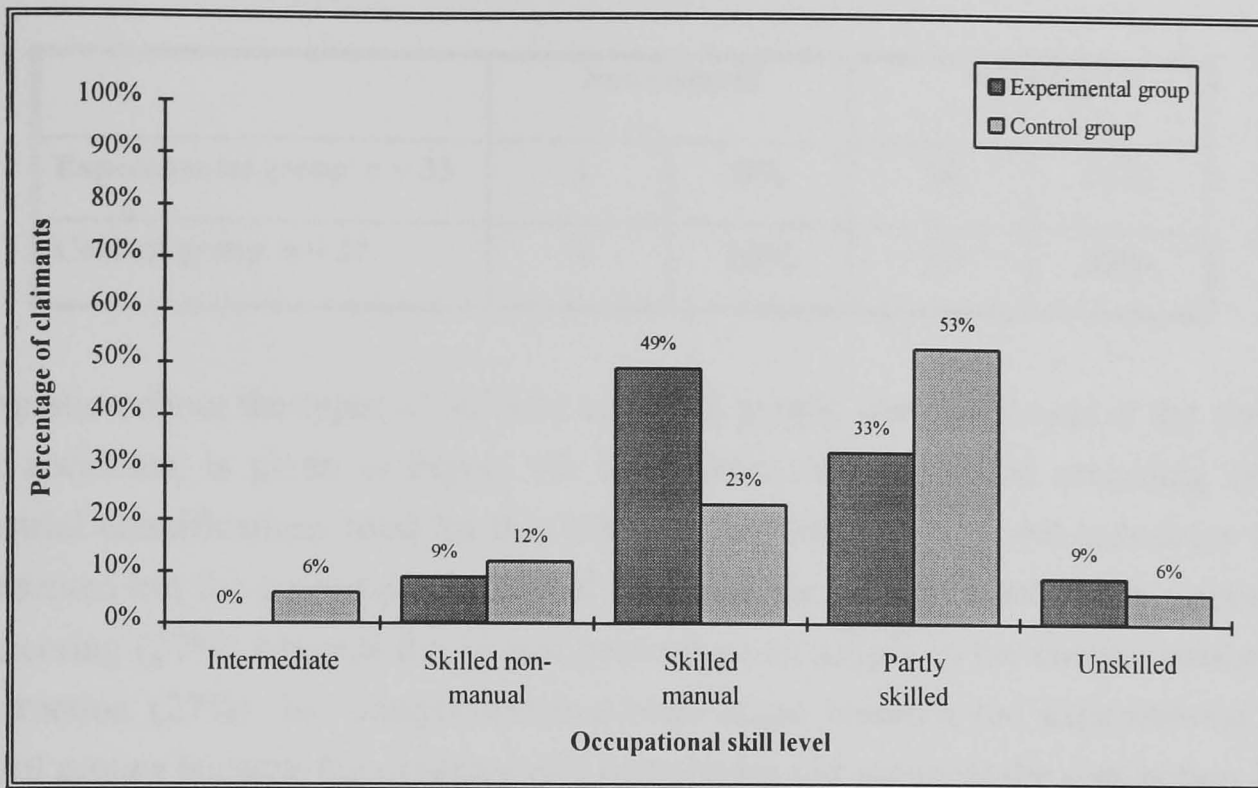
At the time of their accidents, 32 people in the experimental group (97%) and 14 people in the control group (82%) were in full-time employment and one in each group (3% and 6% respectively) worked part-time. Of the remaining two claimants in the control group (12%), one was unemployed but looking for work and one was taking part in an Employment Training scheme.

Occupational Skill Level

Occupational skill level at time of accident was classified according to the Registrar General's groupings for social class/occupational status (OPCS, 1980; Appendix B.2). The majority of claimants in both groups were either skilled manual or partly-skilled workers. The former accounting for 49% of the experimental group and 23% of the control group and the latter, 33% and 53% respectively. No member of either group was employed in a professional occupation and only one person, a nurse in the control group, was classified as having an intermediate occupation (Figure 14).

The occupational skill levels of two people in the control group, one who was unemployed at time of injury and one who was attending an Employment Training scheme, were classified according to their last paid occupation.

Figure 14: Occupational skill levels of the experimental and control groups



Intermediate and skilled (non-manual and manual), and partly skilled and unskilled groups were combined to create two categories (Table 20) in order to allow the occupational skill levels of the experimental and control groups to be compared. A chi-squared test showed no statistically significant difference in their occupational skill levels: $X^2 = 0.64$; $DF = 1$; $P = 0.42$.

Table 20 : Occupational skill level, by group

	Intermediate / skilled		Semi-skilled / unskilled	
Experimental group n = 33	19	58%	14	42%
Control group n = 17	7	41%	10	59%

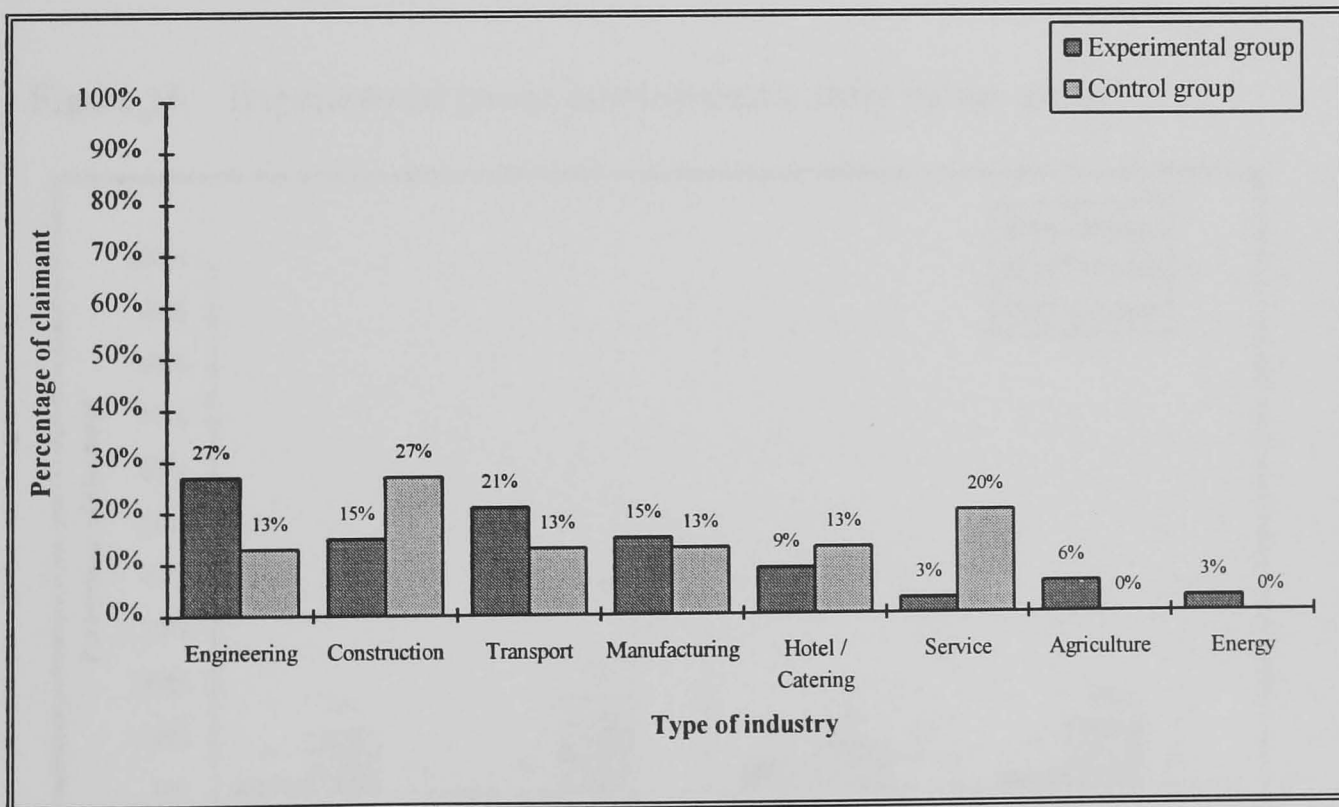
Occupational status was also examined by classifying the claimants' occupations as either non-manual or manual. The former comprising intermediate and skilled non-manual occupations and the latter skilled manual, partly skilled and unskilled categories (Table 21). This comparison also showed no statistical significance between the experimental and control groups: $X^2 = 0.18$; $DF = 1$; $P = 0.67$.

Table 21 : Numbers of claimants with non-manual and manual occupations, by group

	Non-manual		Manual	
	Count	Percentage	Count	Percentage
Experimental group n = 33	3	9%	30	91%
Control group n = 17	3	18%	14	82%

Information about the types of industry in which people were employed at the time of their accidents, is given in Figure 15. (Industries were classified according to the industrial classifications used for the 1981 census, OPCS 1980). All industries were represented but the largest percentage of people in the experimental group worked in engineering (27%) whereas the largest percentage of people in the control worked in construction (27%). No comparison has been made between the experimental and control groups because the expected cell frequencies did not meet the convention for a valid chi-squared test and the categories could not be meaningfully combined.

Figure 15: Types of industry in which people employed at time of accident, by group

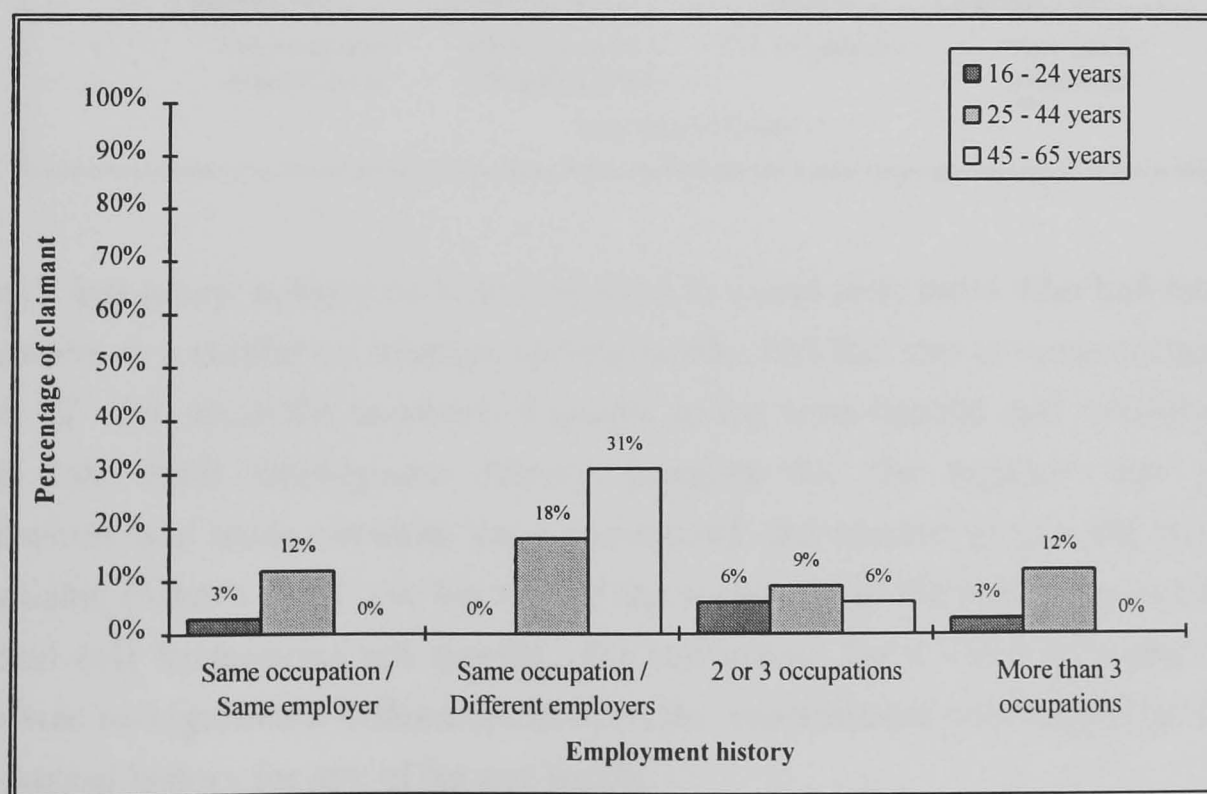


Employment History

To gain an impression of the sample's employment history information about length of time with present employer, number of occupations and employers, and periods of

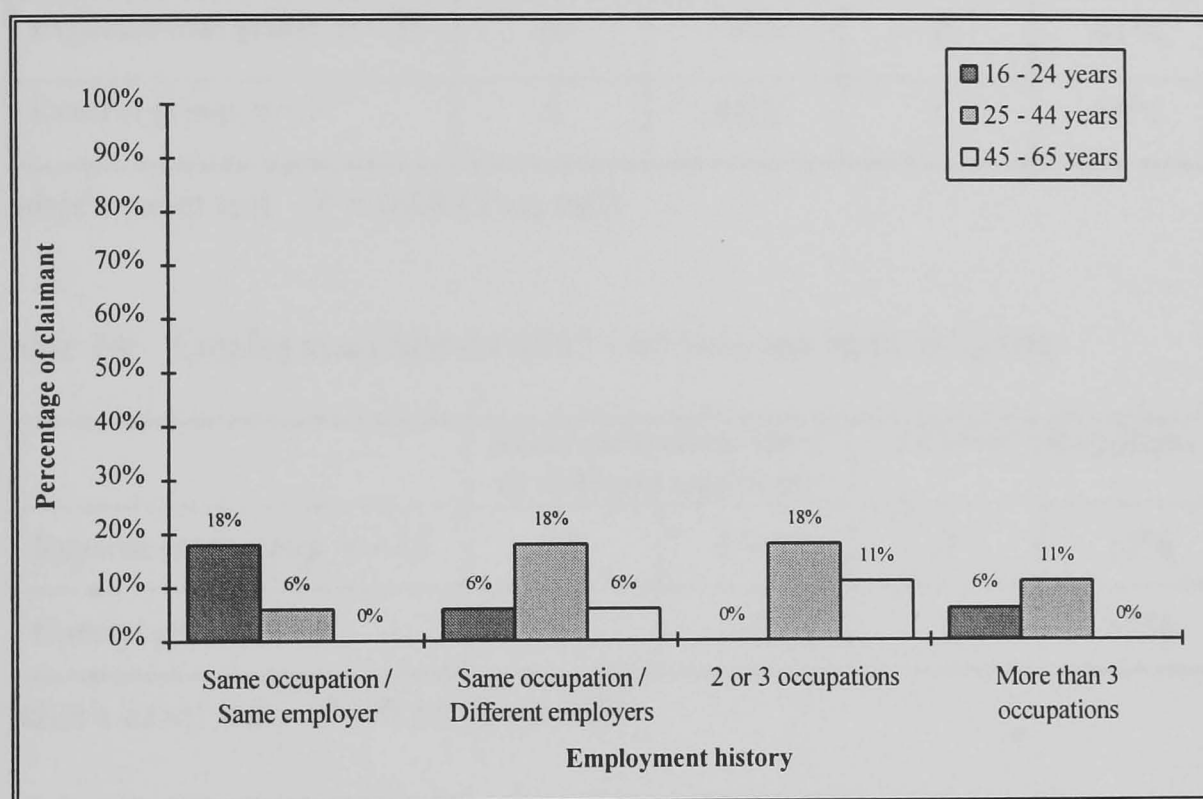
unemployment were collated and analysed qualitatively. This revealed that employment history could be divided into four categories. Some people had worked in the same occupation with the same employer for all of their working lives, others had worked in the same, or a similar occupation, with different employers; yet others had had two or three changes of occupation, and a few people had had more than three changes of occupation. The latter category was often associated with significant periods of unemployment. Clearly employment history will be influenced, *inter alia*, by age and length of time in employment, therefore employment history was analysed for three age bands, 16 - 24 years, 25 - 44 years, and 45 - 65 years. The first age band encompassed school or college leavers who often have no settled employment pattern. For this age group Youth Training Scheme (Y.T.S.) placements were taken into account. The second age band (25 - 44 years) was to include people who have worked for a sufficient length of time to start to establish employment patterns and earlier Y.T.S. placements were not considered. The final age group (45 - 65 years) was to encompass people who have worked for a considerable length of time and have established employment patterns. Again Y.T.S placements, or their equivalent, were not considered for this oldest age band. Figure 16 shows employment history for each age band for the experimental group and Figure 17 the same information for the control group.

Figure 16: Experimental group: employment history by age group



In the experimental group, the highest proportion of people (31%) were in the age group 45 - 65 years and had remained in the same, or a similar occupation working for different employers. The remaining 59% were fairly evenly spread between the other two age groups and employment patterns. In the control group, the highest proportion of people fell into the 25 - 44 year old age group, and, as in the experimental group, showed all employment patterns. Thirty per cent of the control group were in the age band 16 - 24 years and again showed a wide range of employment patterns. The age group 45 - 65 years represented only 17% of the control group but showed similar employment histories to the same age band in the experimental group.

Figure 17: Control group: employment history by age bands



For each age group, categories were collapsed to create two, those who had remained in the same or a similar occupation, and those who had had two or more occupations. Tables 22 - 24, show the numbers of people in the experimental and control groups falling into each employment history category for the separate age groups. Comparison was made between the experimental and control groups for each sub-group using Fisher's exact test, because of the small size of the sub-groups and/or the expected cell frequencies not meeting the convention for a valid chi-squared test. There was no significant difference between the experimental and control groups for employment history for any of the age bands.

Table 22 : Employment history of 16 - 24 year age band, by group

	Same occupation/ same or different employers		Different occupations	
	Experimental group n = 4	1	25%	3
Control group n = 5	4	80%	1	20%

Fisher's exact test: P = 0.21 (Two tail)

Table 23: Employment history of 25 - 44 year age band, by group

	Same occupation/ same or different employers		Different occupations	
	Experimental group n = 17	10	59%	7
Control group n = 9	4	44%	5	56%

Fisher's exact test: P = 0.68 (Two tail)

Table 24: Employment history of 45 - 65 year age band, by group

	Same occupation/ same or different employers		Different occupations	
	Experimental group n = 12	10	83%	2
Control group n = 3	1	33%	2	67%

Fisher's exact test: P = 0.15 (Two tail)

Employment Situation at Entry to Project

At entry to the project, the majority of claimants in both groups had not worked since their accidents (70% of the experimental group and 59% of the control group). Thirty per cent of the experimental group and 41% of the control group had had an unsuccessful return (Table 25). Included in this latter group were people who had returned to work and been unable to manage their jobs, or who had been unable to continue because their medical status had deteriorated, or who had been made redundant. Two people, one in the experimental group and one in the control group, who had changed their jobs but were working in unsatisfactory situations with considerable difficulty were also classified as having had an unsuccessful return to work. There was no statistically significant difference between the two groups in the

number of people who had not worked since their accidents or had an unsuccessful return to their jobs: $X^2 = 0.21$; $DF = 1$; $P = 0.65$.

Table 25: Employment situation at entry to project, by group

	Not worked since accident		Unsuccessful return to work	
Experimental group n = 33	23	70%	10	30%
Control group n = 17	10	59%	7	41%

Availability of Pre-Accident Jobs

Of the people who were in paid employment at the time of their accidents (33 of the experimental group and 15 of the control group) the vast majority had lost their jobs by entry to the project (64% of the experimental group and 80% of the control group) (Table 26). This had occurred for a variety of reasons including termination of employment, medical retiral, redundancy, the end of a contract, or giving notice. Termination of employment was the most frequent reason for loss of pre-accident jobs, accounting for 24% of the experimental group and 42% of the control group who had lost their jobs. Just over a third of the experimental group, and a fifth of the control group thought their jobs were still available because they had received no notification to the contrary. However they were not necessarily able, or willing, to return to these jobs. For the purposes of analysis, the two people in the control group who were not in paid employment at the time of their accidents were placed in the "Job no longer available" category. The result of a chi-squared test to compare the availability of pre-accident jobs for the experimental and control groups was not statistically significant: $X^2 = 1.09$; $DF = 1$; $P = 0.30$

Table 26: Availability of pre-accident jobs, by group

	Job no longer available		Job possibly available	
Experimental group n = 33	21	64%	12	36%
Control group n = 15 (17)*	12 (14)	80(82)%	3	20(18)%

* Figures in brackets include two people not in paid employment at accident

Levels of Unemployment

Recruitment for the project mainly encompassed people living in areas of high unemployment, predominantly Scotland and the North East of England. However several people who took part in the second phase of the project lived in Yorkshire or Humberside which were classified as areas of medium unemployment. Table 27 shows the numbers in each group who lived in areas of medium or high unemployment. There was no statistically significant difference between the two groups: $X^2 = 0.00$; $DF = 1$; $P = 1.00$.

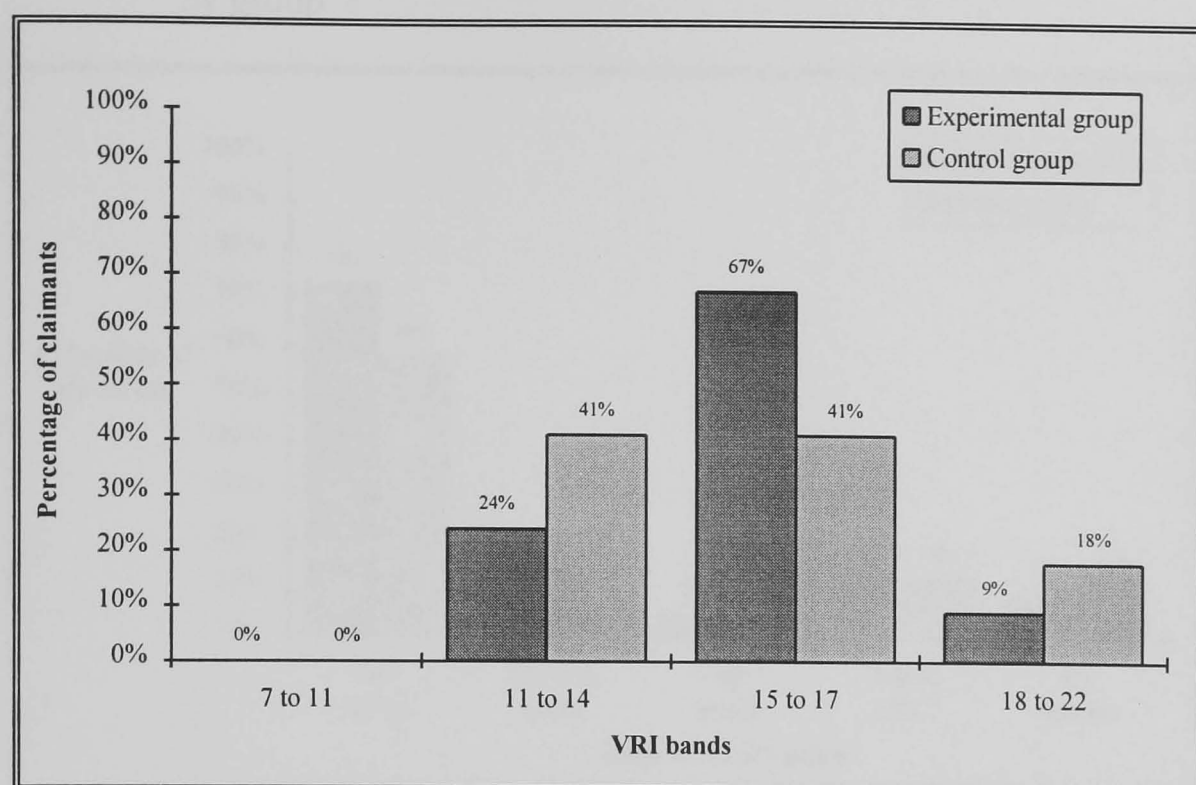
Table 27: Numbers of claimants living in areas of medium or high unemployment, by group

	Living in area of medium unemployment		Living in area of high unemployment	
Experimental group n = 33	7	21%	26	79%
Control group n = 17	3	18%	14	82%

Need for Vocational Rehabilitation

An indication of the level of assistance people were likely to require in returning to work was assessed using the Vocational Rehabilitation Index (VRI - Cornes, 1990). Scores are grouped into four bands; 7-11, 12-14, 15-17, 18-22, each successive band signifying more potential difficulty returning to work and hence more help being required to achieve a successful return to work. Figure 18 shows the percentage of people in each group who scored in each VRI band. As expected, none of the claimants registered scores that fell into lowest category (7-11) because a score in this range indicates little difficulty in returning to work and the project was not aimed at claimants who would, in all probability, require no help. As can be seen from Figure 18, the majority of people (76% of the experimental group and 59% of the control group) scored in the higher VRI brackets of 15-17 and 18-22 indicating that most people were likely to require fairly extensive help in order to return to work.

Figure 18: Percentage of claimants scoring in each VRI band, by group



Combining adjacent VRI bands to create a 2 x 2 contingency table for a chi-squared test (Table 28) showed there was no statistically significant difference between the experimental and control groups in the distribution of VRI scores: $X^2 = 0.83$; $DF = 1$; $P = 0.36$.

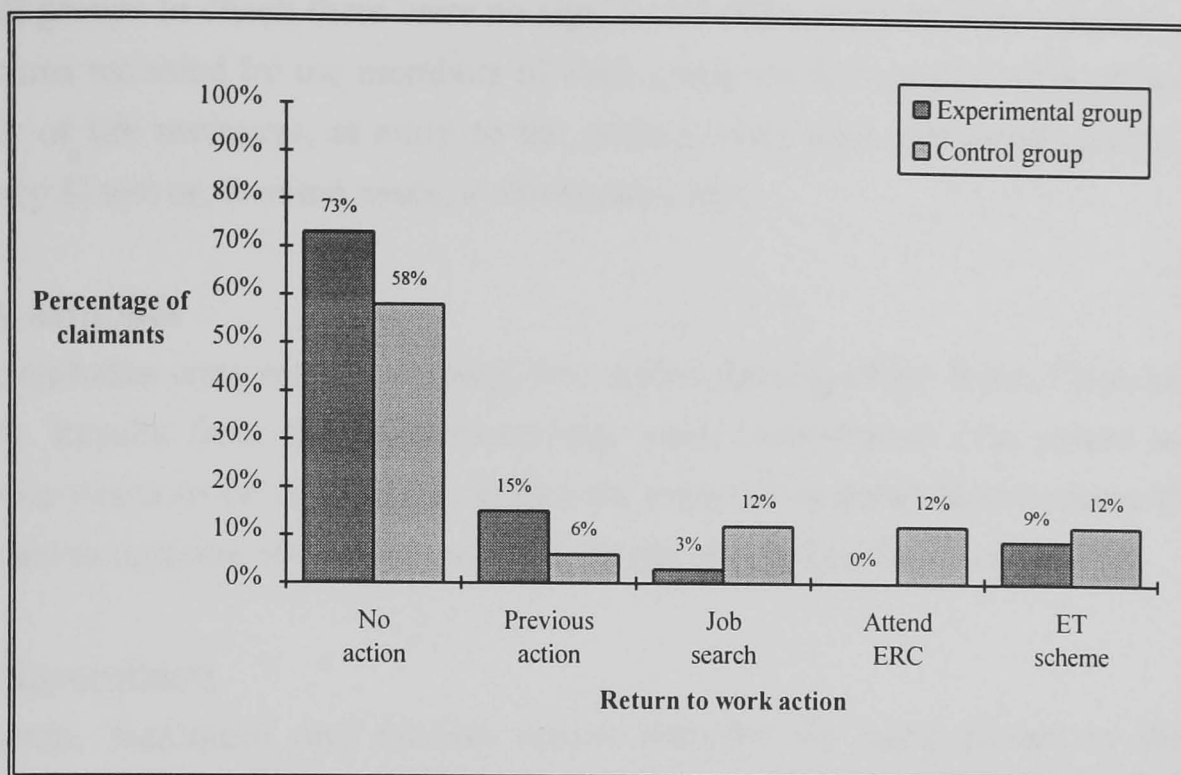
Table 28 : Numbers of claimants scoring in low and high VRI bands, by group

	Low VRI bands 7-11, 12-14		High VRI bands 15-17, 18-22	
Experimental group n = 33	8	24%	25	76%
Control group n = 17	7	41%	10	59%

Return to Work Activities

At entry to the project a few people were making active attempts to return to work but most (73% of the experimental group and 58% of the control group) had taken no action. Those who had made some attempt were either actively searching for work, attending an Employment Rehabilitation Centre (ERC) or were on an Employment Training (ET) scheme (Figure 19).

Figure 19: Percentage of claimants taking action to return to work, by group



To compare the number of people in each group who were taking action to return to work people were classified as either taking action or not taking action (Table 29). The former category included those searching for work or attending an ERC or ET scheme. The latter category comprised those who had not taken any action plus those who had taken action previously.

Table 29: Number of claimants who had taken action to return to work, by group

	Not taking action		Taking action	
	Count	Percentage	Count	Percentage
Experimental group n = 33	29	88%	4	12%
Control group n = 17	11	65%	6	35%

The result of a chi-squared test showed no statistically significant difference between the two group in the number of claimants taking action to return to work at the time of entry to the project: $X^2 = 2.46$; $DF = 1$; $P = 0.12$.

3. SCORES OBTAINED ON THE STANDARDISED MEASURES

In addition to comparing the characteristics of the members of the experimental and control groups to check there were no significant differences between the two groups, the scores recorded by the members of each group on the various work attitudes and quality of life measures, at entry to the project, were also compared using a Mann-Whitney U test or, in some cases, a chi-squared test.

Work Attitudes

Work attitudes were measured using five scales developed by Warr, Cook and Wall (1979). Results from the scale measuring work involvement (the extent to which someone wants to be involved in work) are reported in detail here because the scale was used to measure attitudes to work at six months and twelve months.

Work Involvement

Minimum, maximum and median scores recorded by each group on the Work Involvement Scale were similar, however there was a greater standard deviation within the control group than in the experimental group (Table 30). A comparison of the scores recorded on the Work Involvement Scale showed no statistically significant difference between the two groups: $U = 258.0$; $P = 0.64$.

Table 30: Scores obtained on the Work Involvement Scale at entry: minimum and maximum scores, means, standard deviations and medians

	Min - Max 6 - 42	Mean	Standard deviation	Median
Experimental group n = 33	17 - 42	34.6	6.4	36.0
Control group n = 17	20 - 42	33.0	8.1	36.0

A comparison of the scores obtained by members of each group on the remaining four attitude to work scales, measuring higher order need strength, satisfaction with pre-accident job, intrinsic job motivation (the degree to which people's work performance in those jobs affected their self-esteem) and the perceived intrinsic characteristics of the job, also showed no statistically significant difference. Higher Order Need Strength Scale: $U = 244.5$; $P = 0.46$; Job Satisfaction Scale: $U = 277.5$, $P = 0.95$; Intrinsic Job Motivation Scale: $U = 279.5$, $P = 0.98$; Perceived Intrinsic Job Characteristics Scale: $U = 253.0$; $P = 0.95$.

Quality of Life

Perceived Health Status (Nottingham Health Profile)

Mean scores obtained by the experimental and control groups for each of the dimensions of the Nottingham Health Profile (NHP) are shown in Table 31. Results of the Mann-Whitney U test are shown in the column marked "U" and the P value in the column labelled "P." The results show that there was no statistically significant difference between the two groups in the scores obtained on the NHP at entry to the project. Minimum and maximum scores, standard deviations and medians are not given because these might be misleading given that scores on the NHP are weighted.

Table 31: Mean scores recorded on the NHP by the experimental and control groups and results of the Mann-Whitney U tests

NHP Dimension	Group	Mean score	U	P
Energy	Experimental	33.8	247.5	0.49
	Control	43.7		
Emotional reactions	Experimental	43.5	228.5	0.29
	Control	34.0		
Pain	Experimental	52.1	250.5	0.54
	Control	57.6		
Physical mobility	Experimental	28.6	242.5	0.43
	Control	33.3		
Sleep	Experimental	49.1	247.5	0.49
	Control	42.3		
Social isolation	Experimental	22.0	251.0	0.51
	Control	18.1		

Levels of Anxiety and Depression (Hospital Anxiety and Depression Scale)

Tables 32 and 33 show the minimum and maximum scores, means, standard deviations and medians obtained on the anxiety and depression sub scales of the Hospital Anxiety and Depression Scale (HAD) at entry to the project. The groups obtained similar minimum, maximum and mean scores, and the standard deviations within the groups were also comparable. The results of the Mann-Whitney U tests showed no significant differences between the two groups for either anxiety scores: U = 244.5; P = 0.46, or depression scores: U = 240.5; P = 0.41.

Table 32: Scores obtained on the anxiety sub scale of the HAD at entry: minimum and maximum scores, means, standard deviations and medians

	Min - Max 0 - 21	Mean	Standard deviation	Median
Experimental group n = 33	3 - 21	9.4	4.5	9.0
Control group n = 17	2 - 20	8.8	5.8	7.0

Table 33: Scores obtained on the depression sub scale of the HAD at entry: minimum and maximum scores, means, standard deviations and medians

	Min - Max 0 - 21	Mean	Standard deviation	Median
Experimental group n = 33	1 - 15	7.9	4.1	9.0
Control group n = 17	1 - 16	7.0	4.2	7.0

The authors of the HAD suggest that HAD scores can also be interpreted in terms of whether they indicate a normal, borderline or clinically significant level of anxiety and depression. Scores between nought and seven represent a "normal" level of anxiety or depression. Scores between eight and ten represent a "borderline" level i.e. a level of anxiety and depression which is higher than normal but which may not be clinically significant, whereas scores between 11 and 21 may be indicative of clinical levels of anxiety and depression i.e. "case" levels, which may require treatment (Zigmond and Snaith, 1983).

HAD scores for each group analysed by the classification of "normal", "borderline" and "case" are shown in Tables 34 and 35. For anxiety, there was a slightly higher percentage of people in the experimental group scoring in the case level band than in the control group (43% versus 29%) (Table 34). Normal and borderline categories were combined into one band to create a 2 x 2 table for a chi-squared test and this showed no statistically significant difference between the two groups in the numbers of claimants scoring in the normal/borderline band and the case band: $X^2 = 0.35$; $DF = 1$; $P = 0.55$. Combining borderline and case levels into one category for a chi-squared test also showed no statistically significant difference between the experimental and control groups: $X^2 = 0.38$; $DF = 1$; $P = 0.54$.

Table 34: Number of claimants scoring in each band of the anxiety sub scale of the HAD, by group

	Normal 0 - 7		Borderline 8 - 10		Case 11 - 21	
Experimental group n = 33	13	39%	6	18%	14	43%
Control group n = 17	9	53%	3	18%	5	29%

There was also a slightly higher percentage of people in the experimental group than in the control group scoring in the case level band for depression (30% versus 18%) (Table 35). Normal and borderline categories were combined into one band to create a 2 x 2 table for a chi-squared test and this showed no statistically significant difference between the two groups in the proportion of claimants classified as having normal/borderline levels of depression or case levels of depression: $X^2 = 0.39$; $DF = 1$; $P = 0.53$. Combining borderline and case levels into one category for a chi-squared test also showed no statistically significant difference between the experimental and control groups $X^2 = 0.00$; $DF = 1$; $P = 1.00$.

Table 35: Number of claimants scoring in each band of the depression sub scale of the HAD, by group

	Normal 0 - 7		Borderline 8 - 10		Case 11 - 21	
Experimental group n = 33	16	49%	7	21%	10	30%
Control group n = 17	9	53%	5	29%	3	18%

Psychological Well-Being

Psychological well-being was assessed using a series of three scales developed by Warr Cook and Wall (1979). These scales divide psychological well-being into three components: life satisfaction, self-rated anxiety and levels of happiness. Summary statistics for the two group's scores on each of these three component are given in Tables 36 to 38 respectively.

Life Satisfaction

Scores obtained by members of the two groups on the Life Satisfaction Scale were similar in the range of scores, means and medians. A similar variance in scores within in each group was also evident (Table 36).

Table 36: Scores obtained on the Life Satisfaction Scale at entry: minimum and maximum scores, means, standard deviations and medians

	Min - Max 15 - 105	Mean	Standard deviation	Median
Experimental group n = 33	34 - 88	57.8	14.2	57.0
Control group n = 17	37 - 88	60.0	15.1	56.0

The results of the Mann-Whitney U test showed no statistically significant difference in the scores obtained by the experimental and control groups for life satisfaction: $U = 258.5$; $P = 0.65$.

Self-rated Anxiety

The experimental group and control group had similar mean scores for self-rated anxiety, 23.4 and 23.5 respectively. However, the experimental group showed a wider spread of scores and there was greater variance within this group than in the control group (Table 37).

Table 37: Scores obtained on the Self-rated Anxiety Scale at entry: minimum and maximum scores, means, standard deviations and medians

	Min - Max 6 - 42	Mean	Standard deviation	Median
Experimental group n = 33	6 - 41	23.4	8.6	24.0
Control group n = 17	10 - 31	23.5	5.6	25.0

There was no statistically significant difference between the two groups for self-rated anxiety scores: $U = 272.0$; $P = 0.86$.

Happiness

Table 38 shows the numbers of people scoring in each band of the Happiness Scale. For both groups the majority of people were either "Fairly happy" or "Not very happy." Only 6% of each group described themselves as "Very happy."

Table 38: Number of claimants scoring in each band of the Happiness Scale, by group:

	Not very happy		Fairly happy		Very happy	
Experimental group n = 32*	14	44%	16	50%	2	6%
Control group n = 17	4	24%	12	70%	1	6%

* One missing

To compare the happiness ratings of the two groups the categories "Fairly happy" and "Very happy" were combined to create a 2 x 2 table for a chi-squared test. This showed no statistically significant difference between the groups: $X^2 = 1.18$; $DF = 1$; $P = 0.28$.

Summary of Sections 2 and 3

The comparison of the experimental and control groups on a variety of demographic, clinical, occupational and attitudinal variables showed a number of possible differences between the two groups at the time of entry to the project though only one characteristic, the proportion of claimants who were injured in accidents during the course of their work, reached statistical significance. There was a higher proportion of people in the experimental group than in the control group (76% versus 41%) and statistical significance was established at the $P < 0.05$ level ($P = 0.04$).

Both groups had characteristics which might place them at a disadvantage to the other group. In the experimental group there were more people in the age band 45 - 65 years than in the control group (37% v 17%), and more people had been injured in accidents at work (61% in the experimental group and 35% in the control group). A higher proportion of people in the experimental group scored in the higher bands of the Vocational Rehabilitation Index (76% v 59%), and fewer people were in contact with Department of Employment services at entry to the project (9% v 23%). More people lived alone or with children under 18 years (27% v 12%) and more people reported additional medical problems (15% v 6%). Moreover a higher percentage of people in the experimental group scored in the case bands for anxiety and depression than in the control group (43% v 29% and 30% v 18% respectively). This was also reflected in the scores for emotional reactions recorded on the Nottingham Health Profile. Mean scores being 43.5 for the experimental group and 34.0 for the control group.

For the control group, there were a higher percentage of people with severe or serious injuries than in the experimental group (69% v 58%) and more people were categorised in the aided performance category of the Severity of Disability Scale (29% v 18%). There were also higher proportion of people with semi-skilled or unskilled jobs (59% v 42%), and job availability was slightly less (36% v 20%).

4. RESULTS OF THE EVALUATION

The evaluation of the rehabilitation co-ordinator service focused on two issues. The first was the effectiveness of the service and the second was its acceptability. The results from each of these separate aspects will be presented in turn.

The Effectiveness of the Rehabilitation Co-ordinator Service

The principal means of analysing the effectiveness of the rehabilitation co-ordinator service was to compare outcomes for the experimental and control groups six months after entry to the project. That is, when the experimental group had received six months help from the rehabilitation co-ordinator and the control group had received no help. The service was intended to facilitate claimants' return to employment and, either directly or indirectly, to improve the quality of their lives. For each of these aims a number of outcomes were measured and compared:

Employment outcomes:

- * contact with vocational rehabilitation services
- * return to work
- * action taken towards returning to work
- * work attitudes- work involvement

Quality of life outcomes:

- * perceived health status
- * levels of anxiety and depression
- * psychological well-being: life satisfaction
self-rated anxiety
happiness

In comparing outcomes between the experimental and control groups, the chi-squared test was used to compare categorical outcomes and the Mann-Whitney U test to compare the scores obtained by each group on the standardised measures. Rules for a valid chi-squared test, as outlined in this chapter on page 96, were followed. In looking at outcomes for the two groups hypothesis testing was undertaken and actual

P values are quoted in the text. However, in addition, 95% confidence intervals are given wherever it was appropriate, and possible, to calculate these. Confidence intervals for difference in proportions were calculated by hand using the formula given by Gardner and Altman (1989, p29). Confidence intervals for the difference in medians (non-parametric approach) were calculated using the statistical package MINITAB, Release 7.1 (Minitab, 1989).

The analysis of outcomes has been carried out on an "intention to treat" basis (Fowkes and Fulton, 1991; Pollock *et al*, 1993), unless otherwise stated. In other words all the sample have been included in the analysis regardless of the extent to which they involved themselves in trying to return to work. Intervening events, which might have influenced return to work, were examined for both groups but the number of people in each group experiencing such events was not significantly different.

Intervening Events

At the six month review note was taken of any events which had happened to people during the preceding months since entry to the project which might have influenced their ability to take action to return to work. These events fell into three categories: significant medical treatment for injuries; development or continuing presence of other significant medical problems; and significant life events. Fifteen percent of the experimental group and 24% of the control group had further extensive medical treatment such as repeated hospital admissions for infection or additional surgery e.g. arthrodesis of the ankle joint. Other medical problems, such as a stroke or gynaecological problems requiring surgery, affected 12 of the experimental group (36%) and four of the control group (24%). Several people also experienced significant life events, for example the death of a spouse, a fire in their house, or involvement in another accident, 9% of the experimental group and 18% of the control group (Table 39).

Table 39: Number of people experiencing intervening events between entry and six months, by group

	Extensive medical treatment		Other medical problems		Significant life events	
Experimental group n = 33	5	15%	12	36%	3	9%
Control group n = 17	4	24%	4	24%	3	18%

The proportion of people in each group who experienced significant events during entry to the project and six month review were tested using the chi-squared test. This showed no statistically significant difference between the two groups for each type of event. Significant medical treatment: $X^2 = 0.09$; $DF = 1$; $P = 0.77$. Other medical problems: $X^2 = 0.36$; $DF = 1$; $P = 0.55$. Significant life events: $X^2 = 0.18$; $DF = 1$; $P = 0.67$.

Outcomes for the Experimental and Control Groups at 6 months

Contact with Vocational Rehabilitation Services

At entry to the project four people in the control group and three people in the experimental group had current contact with Department of Employment services or schemes, for example Disablement Resettlement Officers (DRO), Employment Rehabilitation Centres (ERC) or Employment Training (ET) schemes. All three of the experimental group and two of the control group were attending ET courses and two, control group members, were undergoing extended periods of rehabilitation at an ERC. At six months, two of the four control group members had ceased contact with the services with no outcome, one person was on an ET course and the other was about to begin such a course. Of the three people in the experimental group, one had moved from an Employment Training course to self-employment, one had finished a course and was looking for work, and one had transferred from one ET course to another.

Table 40 shows the number of new contacts which were established with Department of Employment services or other vocational schemes, for example the Sheltered Placement Scheme, between entry and six months. The categories have been treated as mutually exclusive, that is when more than one contact was made for one person the most significant contact has been counted. The "Other" category included in the table comprised such services and schemes as the Enterprise Allowance Scheme and the Disablement Advisory Service. In calculating the number of new contacts only those people for whom new contact would have been an appropriate course of action have been counted. For example people who had been in contact with Department of Employment Services at entry to the project and had remained on an ET scheme throughout the six months have not been included. This reduced the size of "n" to 32 for the experimental group and 15 for the control group.

Table 40: Number of new contacts with Department of Employment or other vocational services between entry and six months,

Type of service	Experimental group n = 32	Control group n = 15
Disablement Resettlement Officer	2	1
Employment Rehabilitation Centre	3	1
Employment Training Course	2	0
Other	4	0
Total	11	2

As can be seen from Table 40, a greater number of people in the experimental group than the control group had contact with Department of Employment or other vocational services, 11 (34%) against 2 (13%). The difference between the proportion of people who had been in contact with Department of Employment Services was 21%, with a 95% confidence interval of -2.8% to 45%. The chi-squared statistic was 1.33; with 1 degree of freedom and an associated P value of 0.25.

Return to Work

Return to work was divided into two categories, the number of people who were in employment at six months and the number who had taken some action towards achieving that goal. This was done in order to reflect the situation in which most people found themselves. For the majority a return to work within six months was unrealistic. This did not relate so much to fitness for work but rather that time was required to achieve a successful outcome. Most people had lost their pre-accident jobs, and/or were unable to return to their prior occupations. Therefore they either had to find work, or make decisions about a change of occupation and, if possible, find appropriate training or re-training.

Return to work outcomes at six months are shown in Table 41. Three of the experimental group (9%) and two of the control group (12%) were in work six months after entry to the project (offer and acceptance of a job has been counted as return to work when the person concerned was known to have taken up the job). There was no statistically significant difference between the two groups in the number of people actually in employment at six months: $X^2 = 0.00$; $DF = 1$; $P = 1.00$. The difference in

proportions between the experimental and control groups was -3% with 95% confidence intervals of -21% to 16%.

Table 41: Return to work outcomes at six months for members of the experimental and control groups

Return to work	Experimental group n = 33		Control group n = 17	
	Returned before entry, remained in work at 6 months	1	3%	0
Returned 0 - 6 months, remained in work at 6 months	2	6%	1	6%
Job offered and accepted	0	0%	1	6%
No return to work	30	91%	15	88%

The numbers for the experimental group included one person who was working with difficulty at entry but had remained in the same job throughout the six month period while looking for different work. If this person is counted as not returning to work (because he had not found alternative employment), there is still no statistically significant difference in the numbers of people who had returned to work in each group (i.e. two): $X^2 = 0.02$; $DF = 1$; $P = 0.88$.

Action Taken Towards Returning to Work

The number of people in each group who had taken action towards returning to work between entry and six months (excluding those who were counted as being in employment at six months) is shown in Table 42. Several people took more than one course of action and in those cases the action regarded as the most significant has been counted. Action has only been included if:

- the claimant took the action by him/herself or in conjunction with the co-ordinator (i.e. action taken on behalf of the claimant by the co-ordinator but without any action on the part of the client has not been included)
- action was achieved since entry, or if it was started before entry that it was sustained during the six months or until some recognised end point was reached (e.g. two people in the control group, one of whom did not complete an ERC assessment and the other who did not finish an Employment Training course have not been included).

Table 42: Action taken towards returning to work between entry and six months by members of the experimental and control groups

Type of action	Experimental group n = 30		Control group n = 15	
	Casual work	0		1
Rehab/contact with employer	4 (3)		0	
Actively seeking work	4 (4)		1	
Attending Employment training	2 (2)		1	
Attending college (part-time)	2 (2)		1 (1)	
Occupational assessment/ rehabilitation at ERC	2 (2)		1	
Waiting for ERC assessment,	2 (1)		1 (1)	
No action taken	14	47%	9	60%

Some of the actions are self-explanatory but perhaps others need further clarification. "Casual work" was employment which was irregular and infrequent. The "Rehabilitation/contact with employer" category applied to people who had the possibility of returning to work for their previous employers. The rehabilitation aspect of this category was an unpaid trial period with the pre-accident employer to test work capabilities. "Contact with employer" refers to discussion about returning to work and/or negotiation about possible job modification or the provision of lighter work with an employer which resulted in an undertaking that a job would be available for the person concerned. The main figures in the table include people who had taken new action since entry to the project as well as those who were continuing action begun before entry. Figures in brackets indicate the number of people in each category who had taken new action since entry.

Of the four people in the experimental group who were actively looking for work, one person was offered a job but was asked to leave after 4 days for reasons unconnected with his injuries. The remaining three people in this category were all offered jobs but declined to take them. In two cases the jobs did not match the people's expectations and they decided to continue their job search. In the third case, the travelling requirements of the job could not be accommodated within that person's social circumstances.

At six months, just over a half of the 30 members of the experimental group, 16 (53%), who were not in employment had achieved or maintained some positive action compared to six (40%), of the 15 control group members. The difference in proportions was 13% with 95% confidence intervals of -18% to 44%. The result of the chi-squared test showed no statistically significant difference in the numbers who had taken positive action to return to work: $X^2 = 0.28$; $DF = 1$; $P = 0.60$.

Success of Return to Work Outcomes

Return to work outcomes at six months were categorised according to whether they represented an unsuccessful outcome, a partially successful outcome, or a successful outcome (Table 43). People who had taken no action between entry and six months were regarded as having had an unsuccessful outcome. Return to work was considered successful if the person concerned was managing the job with no difficulty and enjoying the job. A person who was working but with some difficulty and/or in a job which he/she did not enjoy was regarded as having had a partially successful outcome. Action taken to return to work was regarded as partially successful if it was likely to increase the person's chances of finding or returning to employment. An "unsuccessful" grading was given if the action was unlikely to have any effect on return to work outcome e.g. an ERC assessment with no further action taken or planned.

Table 43: Success of return to work outcomes at six months for members of the experimental and control groups

Success of outcome	Experimental group n = 33		Control group n = 17	
	Unsuccessful outcome	19	58%	11
Partially successful outcome	13	39%	5	29%
Successful outcome	1	3%	1	6%

There were too many cells within Table 43 to meet the requirements for a valid chi-squared test therefore the categories "Partially successful outcome" and "Successful outcome" were combined. A chi-squared test showed there to be no statistically significant difference between the two groups in the proportion of people regarded as having an unsuccessful or partially successful/successful outcome at six months. The chi-squared statistic was 0.03 with one degree of freedom and a P value of 0.85. The percentage difference in proportions was 7% (42% versus 35%) with a 95% confidence interval of -21% to 35%.

Work Attitudes

Summary statistics for work involvement are shown in Table 44. As with the scores obtained on this measure at entry to the project, there was no statistically significant difference between the two groups: $U = 258.0$; $P = 0.77$. The point estimate for the difference between the two population median scores, calculated by Minitab, was -0.5 , with a 95% confidence interval of -3.0 to 3.0 .

Table 44: Scores recorded on the Work Involvement Scale at six months: minimum and maximum scores, means, standard deviations and medians

	Min - Max 6 - 42	Mean	Standard deviation	Median
Experimental group n = 33	17 - 42	34.3	6.9	36.0
Control group n = 17	22 - 42	35.4	5.5	37.0

Perceived Health Status

Mean scores recorded for each of the dimensions of the Nottingham Health Profile at six months are shown in Table 45. Mann-Whitney U tests showed there were no significant differences between the experimental and control groups for perceived health status six months after entry to the project. Confidence intervals were not calculated because of the weighted scoring.

Table 45: Mean scores obtained on the Nottingham Health Profile at six months and results of the Mann-Witney U tests

NHP Dimension	Group	Mean score	U	P
Energy	Experimental	32.7	267.5	0.78
	Control	30.4		
Emotional reactions	Experimental	36.5	262.5	0.71
	Control	35.5		
Pain	Experimental	53.1	247.0	0.49
	Control	58.6		
Physical mobility	Experimental	27.6	230.0	0.30
	Control	35.4		
Sleep	Experimental	45.4	266.0	0.76
	Control	49.2		
Social isolation	Experimental	19.9	267.5	0.76
	Control	19.0		

Levels of Anxiety and Depression

Tables 46 and 47 show the minimum and maximum scores, means, standard deviations and median scores obtained on the anxiety and depression sub scales of the HAD Scale six months after entry to the project.

Table 46: Scores obtained on the anxiety sub scale of the HAD Scale at six months: minimum and maximum scores, means, standard deviations and medians

	Min - Max 0 - 21	Mean	Standard deviation	Median
Experimental group n = 33	1 - 19	10.0	5.1	11.0
Control group n = 17	2 - 21	8.1	5.3	5.0

The results of the Mann-Whitney U tests showed no significant differences between the two groups for anxiety scores: $U = 210.5$; $P = 0.15$. The point estimate between the population medians was calculated by Minitab as two and the 95.1% confidence interval was -1.0 to 6.0.

Table 47: Scores obtained on the depression sub scale of the HAD Scale at six months: minimum and maximum scores, means, standard deviations and medians

	Min - Max 0 - 21	Mean	Standard deviation	Median
Experimental group n = 33	1 - 16	7.7	4.4	8.0
Control group n = 17	0 - 12	5.4	3.8	5.0

The mean score for depression recorded by the control group was considerably lower than the score obtained by the experimental group, 5.4 versus 7.7 (Table 47) and this difference in scores came close to statistical significance at the $P < 0.05$ level: $U = 189.0$; $P = 0.06$. The point estimate for the difference between population medians was two and the 95.1% confidence interval was -0.0 to 5.0.

When the HAD scores at six months were analysed by the classification of "normal", "borderline" and "case" a higher proportion of claimants in the experimental group than in the control group scored in the 'case' range for both anxiety and depression, as

at entry (Tables 48 and 49). There were no statistically significant differences between the two groups combining "Normal" and "Borderline" categories to create a 2 x 2 table for a chi-squared test. Anxiety: $X^2 = 1.93$; $DF = 1$; $P = 0.16$, Depression: $X^2 = 0.80$; $DF = 1$; $P = 0.37$. However if the borderline and case bands were combined into one category to create the 2 x 2 table, there was a statistically significant difference between the two groups for depression score at the $P = 0.05$ level. Anxiety: $X^2 = 0.38$; $DF = 1$; $P = 0.54$: Depression: $X^2 = 3.95$; $DF = 1$; $P = 0.05$.

Table 48: Number of claimants scoring in each band of the anxiety sub scale of the HAD Scale, at six months

	Normal 0 - 7		Borderline 8 - 10		Case 11 - 21	
Experimental group n = 33	13	39%	2	6%	18	55%
Control group n = 17	9	53%	3	18%	5	29%

Table 49: Number of claimants scoring in each band of the depression sub scale of the HAD Scale at six months

	Normal 0 - 7		Borderline 8 - 10		Case 11 - 21	
Experimental group n = 33	14	43%	10	30%	9	27%
Control group n = 17	13	76%	2	12%	2	12%

Psychological Well-Being

Life Satisfaction

Table 50 shows summary statistics for life satisfaction scores at six months. The results of a Mann-Whitney U test showed no statistically significant difference between the experimental and control groups $U = 243.5$; $P = 0.55$. The point estimate for the difference between the population medians was -3.0, with a 95% confidence interval of -14.0 to 14.0.

Table 50: Scores recorded on the Life Satisfaction Scale at six months: minimum and maximum scores, means, standard deviations and medians

	Min - Max 15 - 105	Mean	Standard deviation	Median
Experimental group n = 33	32 - 102	61.4	16.7	61.0
Control group n = 17	30 - 101	64.2	17.2	64.0

Self-Rated Anxiety

The range of scores recorded by the experimental group on the Self-rated Anxiety Scale were slightly higher than those for the control group, as were the mean scores (23.8 versus 20.9). Summary statistics are shown in Table 51. On testing, there was no statistically significant difference between the experimental and control groups for self-rated anxiety scores at six months: $U = 217.0$; $P = 0.25$. The point estimate for the difference between population medians was 3.0, with a 95% confidence interval of -2.0 to 8.0.

Table 51: Scores obtained on the Self-rated Anxiety Scale at six months: minimum and maximum scores, means, standard deviations and medians

	Min - Max 6 - 42	Mean	Standard deviation	Median
Experimental group n = 33	11 - 38	23.8	8.0	23.5
Control group n = 17	7 - 32	20.9	6.7	23.0

The results of a Mann-Whitney U test showed no statistically significant difference between the experimental and control groups at six months for either life satisfaction: $U = 243.5$; $P = 0.55$ or self-rated anxiety: $U = 217.0$; $P = 0.25$. The point estimate for the difference between population medians was -3.0, with a 95% confidence interval of -14.0 to 14.0, for life satisfaction scores and 3.0, with a 95% confidence interval of -2.0 to 8.0, for self-rated anxiety scores.

Happiness

Happiness ratings at six months are shown in Table 52. As at entry, nearly all the people in both groups rated themselves as either fairly happy or not very happy, with very few (12%) choosing "Very happy." A chi-squared test to compare happiness

ratings, carried out by combining the "Fairly happy" and "Very happy" categories, demonstrated no statistically significant difference between the two groups: $X^2 = 0.78$; $DF = 1$; $P = 0.38$.

Table 52: Number of claimants scoring in each band of the Happiness Scale, at six months:

	Not very happy		Fairly happy		Very happy	
Experimental group n = 32*	13	41%	15	47%	4	12%
Control group n = 17	4	23%	11	65%	2	12%

* One missing

The Acceptability of the Rehabilitation Co-ordinator Service

Claimants' Views of the Rehabilitation Co-ordinator Service

The survey of claimants' view about the service was conducted by telephone, or via postal questionnaire for those who were not on the phone. The amended study design meant that all of the people who took part in the project eventually received the service, therefore all 48 people who completed the project were contacted. Five people could not be traced or did not return postal questionnaires. Consequently replies were received from 43 people (90%). One person felt that some of the questions were not appropriate for him because he had not wanted any help, and therefore some responses are missing.

Number of Visits

People were asked if they had received more than enough, enough, or not enough visits from the rehabilitation co-ordinator. Forty two of the 43 claimants (98%) thought they had received enough visits from the co-ordinator and one person (2%) not enough .

Provision of Information

People were asked whether they had received information for all of the problems for which they wanted information, and to comment on the detail of the information given. Their response are given in Tables 53 and 54 respectively.

Table 53: Proportion of problems for which information received

Proportion of problems	Number of claimants n = 43	
All of the problems	31	72%
Some of the problems	9	21%
None of the problems	3	7%

Table 54: Detail of information received

Level of detail	Number of claimants n = 43	
More than enough detail	9	21%
Enough detail	32	74%
Not enough detail	2	5%

In both cases the majority of people felt that information had been received for all of the problems in which they wanted information (72%), and that this had been given in enough detail (74%).

Practical Assistance

With regard to practical assistance, 50 per cent of the sample expressed the view that they had received practical assistance with all of their problems and 28% with some of their problems. Just over a fifth of claimants (21%) reported that they had received practical assistance with none of the problems they wanted help with (Table 55).

Table 55: Proportion of problems received practical assistance with

Proportion of problems	Number of claimants n = 42*	
All of the problems	21	50%
Some of the problems	12	28%
None of the problems	9	21%

* 1 missing

People were also asked to comment on whether they had received enough practical assistance and how helpful it was. The majority (86%) felt they had been given enough, or more than enough, help (Table 56). Of the six people who thought they had not received enough help, four (66%) were people who had taken part in the Scottish phase of the project. One person did not reply. Four out of five people expressed the view that the assistance had been helpful or very helpful (Table 57).

Table 56: Amount of practical assistance

Amount of practical assistance	Number of claimants n = 42*	
More than enough	5	12%
Enough	31	74%
Not enough	6	14%

* 1 missing

Table 57: Helpfulness of practical assistance

Helpfulness of assistance	Number of claimants n = 42*	
Very helpful	23	55%
Helpful	12	29%
Not at all helpful	7	17%

* 1 missing

Time Taken to Provide Information/Assistance

In cases where information had been sought, or action taken, by the co-ordinator on the claimants' behalf 39 (93%) thought the time taken to do this had been just right, one 'too quick' and two 'too slow'. One person did not reply (Table 58).

Table 58: Time taken to provide information/practical assistance

Timing of assistance	Number of claimants n = 42*	
Too quick	1	2%
Just right	39	93%
Too slow	2	5%

* 1 missing

Satisfaction with the Service

Claimants were also asked about their overall satisfaction with the service and if it had made any difference to their lives. All the claimants (100%) were either very satisfied or satisfied with the service (Table 59), and 34 (79%) thought that receiving the service had improved their lives. (Table 60).

Table 59: Satisfaction with the Rehabilitation Co-ordinator Service

Level of satisfaction	Number of claimants n = 43	
Very satisfied	30	70%
Satisfied	13	30%
Dissatisfied	0	0%

Table 60: Impact of the service on people's lives

Impact of service on life	Number of claimants n = 43	
Made things better	34	79%
Made no difference	9	21%
Made things worse	0	0%

General Comments

In the final section of the telephone survey or postal questionnaire people were asked to comment on what particular aspects of the service they were most, and least, satisfied with and if they had suggestions about how the service might be improved.

In commenting on the aspects of the service they were most satisfied, people mentioned four main features. These were; the opportunity of having someone to talk to, receiving information and help with benefits, receiving information about training and job opportunities, and help with job search and job applications.

An aspect of the service appreciated by many people was the opportunity of having someone to talk to and discuss problems with. The value of this feature of the service was summed up by one person who said "Speaking with the co-ordinator took a load off my mind" and another who reported "I was getting very depressed and the co-ordinator's visits helped a lot, I felt that I had not been abandoned." Many people also mentioned the importance of getting information about benefits, as one person commented "The Department of Social Security were rubbish in giving any help or information about benefits - the co-ordinator made things a lot better for me." Several people were most satisfied with the help they had been given in trying to find employment, "The co-ordinator was very helpful with information on jobs. She got letters typed for me and helped with the wording of C.V.s to help with job applications" and "Having help with C.V.s for getting jobs, this was something I did not know about, and also addresses for seeking employment. She also offered to take me for interviews if necessary because my car was not working then."

When asked what aspects of the service they were least satisfied with, all the claimants commented that there was no aspect of the service they were dissatisfied with. Comments such as "Nothing really, it was all very good" and "Nothing to be dissatisfied with - the service was just fine" were typical of the comments received. With regard to improving the service, six people made specific recommendations and these were all concerned with two aspects of the service. The first was a request to have the co-ordinator more accessible, either by telephone or being able to visit more readily by being based more centrally in the area covered. The second suggestion was to offer more practical assistance with seeking training opportunities and/or jobs. The general consensus, however, was that the service was helpful and some people expressed the (unsolicited) wish to see it continue.

Plaintiffs' Solicitors Views of the Service

Feedback provided by the personal injury claimants who took part in the study suggested that the service was not only acceptable but was actively valued by them. However any future decision to develop such a service would depend not only on the acceptability of the service to people who received it but also its acceptability to the solicitors acting on their behalf. Unfortunately, the views of the solicitors acting for the people who took part in the study were not sought. However, the replies received in response to recruitment letters can give an indication of how the concept of a rehabilitation co-ordinator service was viewed by the solicitors who were contacted about the project.

Replies were received from 199 of the 232 people who were contacted about participating in the project. On hundred and seventy replies were received from solicitors and 29 people replied on their own behalf after being contacted directly by the co-ordinator.

Of the replies received from solicitors, only one solicitor replied refusing to discuss the project with his client. As might be expected the majority of replies from solicitors were neutral in tone giving answers to the specific request about their clients' participation in the project. Of more interest however, were replies from several solicitors who expressed active interest in the rehabilitation co-ordinator service and the project. This type of response was unexpected and very encouraging, and some examples are reported briefly here.

The replies from the solicitors who expressed a positive opinion or active interest in the project fell into two categories. The first category suggested that the solicitors supported the involvement of their clients in the project and saw potential benefits from this action. The following quotations are typical of responses in this category:
"Our client wishes to indicate to you that he would very much like to be involved with the project and considers that he only stands to benefit by such involvement."

"We are of the opinion that the scheme may be useful to our client and confirm that we will take our client's instructions relating thereto."

"We have asked Mr W to co-operate with the scheme."

The second category of response indicated significant interest in the project, sometimes to the extent of requesting that other clients be included in the project:

"We were exceptionally interested to read your enclosures....If you are to identify any other of our clients we would be delighted to pass details of the scheme to them and advise you of their response accordingly."

"This firm deals with a substantial number of personal injury cases involving quite a lot of insurance companies. There are two particular cases that the writer considers may be of some use in the study ... would these fall into the appropriate category? If so, and if our clients would be interested in the study, please let us know who we should approach to initially make an introduction."

5. EXPLORATORY ANALYSIS

The principal focus of the analysis was to compare outcomes between the experimental and control groups at six months and to report the views of the people who received the rehabilitation co-ordinator service. However, in addition, some exploratory analysis was carried out. A change in the study design extended the help available to the experimental group to twelve months and introduced a period of six months help for the control group. This following section undertakes some exploratory analysis of this additional data and examines:

- changes in return to work status and quality of life within the experimental and control groups.
- differences in return to work and quality of life outcomes for the experimental and control groups 12 months after entry to the project.

Changes Occurring within the Experimental and Control Groups

The project design allowed changes within each group to be monitored during the course of the year's involvement with the project. Because the interest was in comparing results at six months versus twelve months (and in some cases entry versus six months or entry versus 12 months) rather than between the three points in time as a whole, statistical tests for two comparisons (related samples) were used rather than tests which examine more than two conditions. The tests chosen were the McNemar change test for nominal data and the Wilcoxon matched-pairs signed-ranks test (referred to in this section as the Wilcoxon signed-ranks test) for ordinal data. The latter test has the advantage of being able to indicate not only the existence of differences but also the direction of those differences (unlike the Friedman two-way anova, the non-parametric test for two or more comparisons).

The first part of this section gives results for the control group and the second part results for the experimental group. Employment outcomes are given at six months and twelve months. Scores obtained on the standardised measures are given at entry, six months and twelve months. As before all the sample are included in the analysis in accordance with the "intention to treat" rule (Fowkes and Fulton, 1991; Pollock *et al*, 1993).

Changes within the Control Group

Two people were lost from the control group shortly after their six month reviews, i.e. before any help was given. One person was withdrawn from the project by his solicitor without his prior knowledge or agreement. No specific reason was given for the withdrawal but it occurred shortly after the co-ordinator had agreed to contact the claimant's employer, at the claimant's request, to discuss the possibility of alternative employment. A second person was lost to the project at this stage because he moved unexpectedly and could not be traced. Hence numbers in the control group dropped from 17 to 15 between six months and 12 months.

Return to Work

Return to work outcomes between entry and 12 months for members of the control group are shown in Table 61.

Table 61: Return to work outcomes for the control group between entry and twelve months

Return to work	n = 15	
Returned 0 - 6 months, remained in work	1	7%
Returned 0 - 6 months, no longer in work	1	7%
Returned 6 - 12 months, remained in work	2	13%
Returned 6 - 12 months, no longer in work	1	7%

At 12 months one person who returned to work between entry and six months remained in work but the other person who had returned to work during this same period left his job for reasons which were unclear. A further two people found jobs between six months and twelve months. One of these people had moved from a casual job to full-time work and another moved from an employment training course into employment. One other person found work during the six to 12 month period but was

unable to continue for reasons unconnected with his injuries (the arrangements he made for transport to his workplace from his isolated village fell through).

Table 62 gives the number of people in the control group actually in employment at six months and 12 months. The number rose from two at six months to three at 12 months and a McNemar test showed that this was not a statistically significant difference: $P = 1.00$.

Table 62: Employment status of the control group at six months and twelve months

Employment status	6 months n = 17		12 months n = 15	
	In employment	2	12%	3
Not in employment	15	88%	12	80%

Action Taken Towards Returning to Work

Table 63 shows the number of people in the control group who had taken action towards returning to work between entry and six months, and between six months and 12 months (excluding those who were counted as being in employment). The same criteria as described on page 137 were used when documenting action between six months and 12 months. The numbers of people taking "new" action within a category are given in brackets, where appropriate.

Table 63: Action taken towards returning to work by the control group between entry - six months and six months - twelve months

Type of action	0 - 6 months n = 15		6 - 12 months n = 12	
Casual work	1		1 (1)	
Rehab/contact with employer	0		n/a	
Actively seeking work	1		0	
Attending Employment training	1		1(1)	
Attending college (part-time)	1 (1)		0	
Occupational assessment/rehabilitation at ERC	1		2 (2)	
Waiting for ERC assessment	1 (1)		0	
Appointment with DRO	0		1 (1)	
No action taken	9	60%	7	47%

Five people took new action between six months and 12 months. Of these, one person moved from an extended period of rehabilitation at an ERC to an Employment Training course. The person who was working in a casual job at 12 months had returned to a full time job earlier in the 6 - 12 month period but had given this up for reasons totally unconnected with his injuries. He then started work in a self-employed capacity as a general handyman doing occasional odd jobs.

Success of Return to Work Outcomes

Employment status, and action taken towards returning to employment between six and 12 months were again classified as unsuccessful, partially successful or successful using the same criteria described on page 138. The proportion of people in each category were very similar at both points in time. The majority of people in the control group were classified as having had an unsuccessful outcome both at six months (63%) and at 12 months (64%). The reasons for this will be examined in more detail in section six of this chapter which will also endeavour to look more closely at individual experiences during the course of the year.

Work Attitudes

Work Involvement

Summary statistics for the scores recorded on the Work Involvement Scale by the control group at entry, six months and twelve months are shown in Table 64. The minimum and mean scores recorded on the scale rose slightly at six months and associated with this was a smaller standard deviation. However at twelve months minimum and mean scores were similar to those recorded at entry and the standard deviation remained similar to that at six months. The result of the Wilcoxon signed-ranks test to compare scores obtained at entry versus six months nearly reached formal statistical significance: $Z = -1.86$; $P = 0.06$, with scores at six months greater than those at entry. The results of the test comparing scores at six months versus twelve months did show a statistically significance difference: $Z = -2.34$; $P = 0.02$, with the scores at six months higher than at 12 months There was no statistically significant difference between the scores at entry and twelve months. These results indicate that scores were significantly higher at six months than at entry but then decreased between six months and 12 months.

Table 64: Work Involvement scores for the control group at entry, six months: and twelve months

Point in time	Min - Max 6 - 42	Mean	Standard deviation	Median
Entry (n = 17)	20 - 42	33.0	8.1	36.0
6 months (n = 17)	22 - 42	35.4	5.5	37.0
12 months (n = 15)	20 - 42	33.7	6.0	34.0

Perceived Health Status

Table 65 shows mean scores recorded on each dimension of the Nottingham Health Profile (NHP) by the control group at entry, six months and twelve months and results of the Wilcoxon signed-ranks tests. The latter are given in the column marked "Z" with P values in the column labelled "P." The point of comparison is given in the column marked "Comparison point." Results of the Wilcoxon signed-rank tests showed no statistically significant difference between scores at entry versus six months and six months versus 12 months for any of the dimensions of the NHP (Table 65). There was also no statistically significant difference between scores at entry and 12 months for any of the dimensions.

Table 65: Mean scores obtained by the control group on the NHP at entry, six months and twelve months and results of the Wilcoxon signed-ranks tests

NHP Dimension	Point in time	Mean score	Comparison point	Z	P
Energy	Entry	43.7			
	6 months	30.5	Entry v 6mths	-1.44	0.15
	12 months	36.2	6mths v 12 mths	-0.76	0.45
Emotional reactions	Entry	34.0			
	6 months	35.5	Entry v 6mths	-0.40	0.69
	12 months	28.3	6mths v 12 mths	-1.16	0.24
Pain	Entry	57.6			
	6 months	58.6	Entry v 6mths	-0.56	0.58
	12 months	56.0	6mths v 12 mths	-0.36	0.72
Physical mobility	Entry	33.3			
	6 months	35.4	Entry v 6mths	-0.42	0.67
	12 months	35.1	6mths v 12 mths	-1.26	0.21
Sleep	Entry	42.3			
	6 months	49.2	Entry v 6mths	-1.20	0.23
	12 months	52.5	6mths v 12 mths	-0.12	0.91
Social isolation	Entry	18.1			
	6 months	19.0	Entry v 6mths	-0.17	0.87
	12 months	17.6	6mths v 12 mths	-0.73	0.70

Levels of Anxiety and Depression

Summary statistics for scores recorded on the anxiety sub scale of the Hospital Anxiety and Depression (HAD) Scale are shown in Table 66. Minimum and maximum scores, means, and standard deviations did not vary greatly over the three points of measurement and the Wilcoxon signed-ranks test showed no statistically significant difference between scores at entry versus six months ($Z = -1.12$; $P = 0.26$) and six months versus 12 months ($Z = -0.51$; $P = 0.61$). There was also no significant difference between scores at entry and twelve months.

Table 66: Scores obtained on the anxiety sub scale of the HAD Scale by the control group at entry, six months and twelve months

Point in time	Min - Max 0 - 21	Mean	Standard deviation	Median
Entry (n = 17)	2 - 20	8.8	5.8	7.0
6 months (n = 17)	2 - 21	8.1	5.3	5.0
12 months (n = 15)	3 - 21	7.7	4.8	6.0

Depression scores varied more at the different points in time than those for anxiety, particularly between entry and six months when the mean score fell from 7 to 5.4 (Table 67). A Wilcoxon signed-ranks test showed this to be a statistically significant difference in scores: $Z = -2.44$; $P = 0.01$. There was no statistically significant difference between scores at six months and twelve months: $Z = -1.33$; $P = 0.18$, or for those recorded at entry and twelve months .

Table 67: Scores recorded on the depression sub scale of the HAD Scale by the control group at entry, six months and twelve months

Point in time	Min - Max 0 - 21	Mean	Standard deviation	Median
Entry (n = 17)	1 - 16	7.0	4.2	7.0
6 months (n = 17)	0 - 12	5.4	3.8	5.0
12 months (n = 15)	0 - 18	5.6	4.7	4.0

Analysis of HAD Scale scores for the control group by "normal", "borderline" or "case" levels are shown for anxiety in Table 68 and for depression in Table 69.

Table 68: Proportion of the control group scoring in each band of the anxiety sub scale of the HAD Scale at entry, six months and twelve months

Point in time	Normal 0 - 7		Borderline 8 - 10		Case 11 - 21	
	Count	Percentage	Count	Percentage	Count	Percentage
Entry (n = 17)	9	53%	3	18%	5	29%
6 months (n = 17)	9	53%	3	18%	5	29%
12 months (n = 15)	9	60%	3	20%	3	20%

Table 69: Proportion of the control group scoring in each band of the depression sub scale of the HAD Scale at entry, six months and twelve months

Point in time	Normal 0 - 7		Borderline 8 - 10		Case 11 - 21	
	Entry (n = 17)	9	53%	5	29%	3
6 months (n = 17)	13	86%	2	12%	2	12%
12 months (n = 15)	10	67%	3	20%	2	13%

The proportion of the control group scoring in each band of the anxiety sub scale of the HAD Scale remained fairly constant at each of the points in time, however the number registering scores in the normal band of the depression sub scale increased from 9 at entry to 13 at six months (Table 69). Bands had to be collapsed to a 2 x 2 table in order to carry out the McNemar change test, however for both anxiety and depression there was no significant difference in the proportion of the control group scoring in each band at either entry versus six months or six months versus 12 months, regardless of whether normal and borderline bands were combined or borderline and case levels were combined (Tables 70 and 71).

Table 70: HAD Scale anxiety sub scale: result of the McNemar test for both combinations of scale bands (control group)

Point of comparison	Normal /Borderline Case	Normal Borderline /Case
Entry v 6 months	P = 1.00	P = 1.00
6 months v 12 months	P = 0.50	P = 1.00

Table 71: HAD Scale depression sub scale: result of the McNemar test for both combinations of scale bands (control group)

Point of comparison	Normal /Borderline Case	Normal Borderline /Case
Entry v 6 months	P = 1.00	P = 0.22
6 months v 12 months	P = 1.00	P = 0.25

Psychological Well-Being

Life Satisfaction

Summary statistics for life satisfaction at entry, six months and twelve months, are given in Table 72. The result of the Wilcoxon signed-ranks test was just outside formal statistical significance for scores at entry versus six months (more of the six month scores being greater than entry scores than vice versa): $Z = -1.91$; $P = 0.06$. However there was no statistically significant difference when six month scores were compared with twelve month scores ($Z = -0.31$; $P = 0.75$) or when entry scores were compared with those at twelve months.

Table 72: Scores recorded on the Life Satisfaction Scale by the control group at entry, six months: and twelve months

Point in time	Min - Max 15 - 105	Mean	Standard deviation	Median
Entry (n = 17)	37 - 88	60.0	15.1	56.0
6 months (n = 17)	30 - 101	64.2	17.2	64.0
12 months (n = 15)	25 - 94	65.3	17.1	69.0

Self-rated Anxiety

Mean scores for self-rated anxiety fell gradually over the three points of the year while the standard deviations remained fairly similar (Table 73). The results of the Wilcoxon signed-rank tests showed no statistically significant difference between scores at entry and six months ($Z = -1.54$; $P = 0.12$) and six months and twelve months ($Z = -1.38$; $P = 0.17$). However, there was a statistically significant difference between scores at entry and twelve months, this difference demonstrating an improvement in self-rated anxiety at twelve months: $Z = -2.19$; $P = 0.03$.

Table 73: Scores obtained on the Self-rated Anxiety Scale by the control group at entry, six months: and twelve months

Point in time	Min - Max 6 - 42	Mean	Standard deviation	Median
Entry (n = 17)	10 - 31	23.5	5.6	25.0
6 months (n = 17)	7 - 32	20.9	6.7	23.0
12 months (n = 15)	8 - 28	19.7	6.1	21.0

Happiness

The majority of people in the control group described themselves as "Fairly happy" at entry to the project, and also at six months and 12 months. However at 12 months there were less people choosing "Not very happy" and more people choosing "Very happy" (Table 74).

Table 74: Proportion of the control group scoring in each band of the Happiness Scale at entry, six months and twelve months

Point in time	Not very happy		Fairly happy		Very happy	
Entry (n = 17)	4	24%	12	70%	1	6%
6 months (n = 17)	4	23%	11	65%	2	12%
12 months (n = 15)	1	7%	10	67%	4	26%

In order to perform a McNemar change test, cells had to be combined to create a 2 x 2 table. When "Fairly happy" and "Very happy" were combined, there was no statistically significant difference in the proportion of people who registered in each category of the Happiness Scale at each of the three points in time. Entry versus six months, $P = 1.00$. Six months versus 12 months, $P = 0.25$.

Changes within the Experimental Group

All of the 33 people who were allocated to the experimental group completed their 12 month involvement with the rehabilitation co-ordinator project.

Return to Work

Return to work outcomes for members of the experimental group between entry and 12 months are shown in Table 75.

Table 75: Return to work outcomes for the experimental group between entry and twelve months

Return to work	n = 33	
Returned before entry, remained in work	1	3%
Returned 0 - 6 months, remained in work	1	3%
Returned 0 - 6 months, no longer in work	0	0%
Returned 6 - 12 months, remained in work	3	9%
Returned 6 - 12 months, no longer in work	0	0%
Job offered, accepted 6 - 12 months	4	12%

One person who had returned to work before entry remained in the same job at 12 months as did one person who had returned to work between entry and six months. One other person who had returned to work in this period had been unable to continue this job but had been offered and accepted an alternative job and has been included in the 'Job offered and accepted' category. The four people who had been offered and accepted jobs were all known to have subsequently taken up these jobs. (In two cases people were working in the jobs already as a "trial" at twelve months but had yet to be formally taken onto the firm's books and therefore were not officially working).

Employment status as classified by "In employment" or "Not in employment" at six months and 12 months is shown in Table 76.

Table 76: Employment status of the experimental group at six months and twelve months

Employment status	6 months n = 33		12 months n = 33	
	In employment	3	9%	9
Not in employment	30	91%	24	73%

Of the six people who newly returned to work between the six and 12 month period, one returned to a lighter job with his pre-accident employer and five returned to jobs with different employers. Of these five, one remained in his pre-accident occupation

but the others were working in different occupations. The number of people in the experimental group classified as being in employment rose from 3 (9%) at six months to 9 (27%) at twelve months. A McNemar test showed this to be a statistically significant difference: $P = 0.03$.

Action Taken Towards Returning to Work

Table 77 shows the number of people in the experimental group who had taken action towards returning to work between entry and six months and between six months and 12 months. As before, the number of people taking "new" action during the time interval are shown in brackets for each category, where appropriate.

Table 77: Action taken towards returning to work by the experimental group, entry to six months and six months to twelve months

Type of action	0 - 6 months n = 30		6 - 12 months n = 24	
Casual work	0		2(2)	
Rehab/contact with employer	4(3)		2(1)	
Actively seeking work	4(4)		1	
Attending Employment training	2(2)		1(1)	
Attending college (part-time)	2(2)		2	
Attending college (full time)	0		1(1)	
Occupational assessment/rehabilitation at ERC	2(2)		2 (2)	
Waiting for ERC assessment	2 (1)		0	
Appointment with DRO	0		0	
No action taken	14	47%	13	54%

Success of Return to Work Outcomes

Employment status, and action taken towards returning to employment between six and 12 months were again classified as unsuccessful, partially successful or successful. As with the control group, the majority of people were regarded as having an unsuccessful vocational outcome at both six months and twelve months (55% and 56% respectively). However the number of people regarded as having a successful outcome rose from 3% at six months to 12% at 12 months.

Work Attitudes

Work Involvement

Scores recorded by the experimental group for work involvement remained very similar at entry, six months and twelve months (Table 78). The result of the Wilcoxon signed-ranks test to compare scores obtained at entry versus six months showed no statistically significant significance: $Z = -0.46$; $P = 0.64$, as did the results of the test comparing scores at six versus twelve months: $Z = -0.80$; $P = 0.42$. There was no statistically significant difference between the scores at entry and twelve months.

Table 78: Work involvement scores for the experimental group at entry, six months and twelve months

Point in time	Min - Max	Mean	Standard deviation	Median
Entry (n = 33)	6 - 42 17 - 42	34.6	6.4	36.0
6 months (n = 32*)	17 - 42	34.3	6.9	36.0
12 months (n = 33)	16 - 42	35.4	5.1	36.0

* One missing

Perceived Health Status

Table 79 shows mean scores recorded on each dimension of the Nottingham Health Profile (NHP) by the experimental group at entry, six months and twelve months, results of the Wilcoxon signed-ranks tests and P values. The results showed no statistically significant difference between scores at entry versus six months and six months versus 12 months for any of the dimensions of the NHP (Table 79). However, scores recorded for the dimension "Emotional reactions" fell steadily over the twelve months and there was a statistically significant difference between scores at entry and 12 months: $Z = -2.08$; $P = 0.04$.

Table 79: Mean scores obtained by the experimental group on the NHP at entry, six months and twelve months and results of the Wilcoxon signed-ranks tests

NHP Dimension	Point in time	Mean score	Comparison point	Z	P
Energy	Entry	33.8			
	6 months	32.7	Entry v 6mths	-0.16	0.88
	12 months	32.7	6mths v 12 mths	-0.24	0.81
Emotional reactions	Entry	43.5			
	6 months	36.5	Entry v 6mths	-1.58	0.11
	12 months	32.6	6mths v 12 mths	-0.54	0.59
Pain	Entry	52.1			
	6 months	53.1	Entry v 6mths	-0.06	0.95
	12 months	54.1	6mths v 12 mths	-0.94	0.35
Physical mobility	Entry	28.6			
	6 months	27.6	Entry v 6mths	-0.50	0.62
	12 months	31.4	6mths v 12 mths	-1.17	0.24
Sleep	Entry	49.1			
	6 months	45.4	Entry v 6mths	-0.50	0.61
	12 months	55.3	6mths v 12 mths	-1.70	0.09
Social isolation	Entry	22.1			
	6 months	19.9	Entry v 6mths	-0.99	0.32
	12 months	21.2	6mths v 12 mths	-0.33	0.74

Levels of Anxiety and Depression

Summary statistics for scores recorded on the anxiety sub scale of the Hospital Anxiety and Depression (HAD) Scale are shown in Table 80. Minimum and maximum scores, means, and standard deviations did not vary greatly over the three measurements and the Wilcoxon signed-ranks test showed no statistically significant difference between scores at entry versus six months ($Z = -0.71$; $P = 0.48$) and six months versus 12 months ($Z = -1.33$; $P = 0.18$). There was also no significant difference between scores at entry and twelve months.

Table 80: Scores obtained on the anxiety sub scale of the HAD Scale by the experimental group at entry, six months and twelve months

Point in time	Min - Max 0 - 21	Mean	Standard deviation	Median
Entry (n = 33)	3 - 21	9.4	4.5	9.0
6 months (n = 33)	1 - 19	10.0	5.1	11.0
12 months (n = 33)	0 - 18	9.1	4.5	9.0

Depression scores also stayed fairly constant when measured at entry, six months and twelve months (Table 81). A Wilcoxon signed-ranks test showed there to be no statistically significant difference in scores at entry and six months: $Z = -0.17$; $P = 0.87$, or between scores at six months and twelve months: $Z = -10.25$; $P = 0.81$.

Table 81: Scores recorded on the depression sub scale of the HAD Scale by the experimental group at entry, six months and twelve months

Point in time	Min - Max 0 - 21	Mean	Standard deviation	Median
Entry (n = 33)	1 - 15	7.9	4.1	9.0
6 months (n = 33)	1 - 16	7.7	4.4	8.0
12 months (n = 33)	1 - 18	7.6	4.9	7.0

Analysis of HAD scores for the experimental group by "normal" "borderline" or "case" levels are shown for anxiety in Table 82 and for depression in Table 83.

Table 82: Proportion of the experimental group scoring in each band of the anxiety sub scale of the HAD Scale: entry, six months and twelve months

Point in time	Normal 0 - 7		Borderline 8 - 10		Case 11 - 21	
	Count	Percentage	Count	Percentage	Count	Percentage
Entry (n = 33)	13	39%	6	18%	14	43%
6 months (n = 33)	13	39%	2	6%	18	55%
12 months (n = 33)	13	39%	7	22%	13	39%

Table 83: Proportion of the experimental group scoring in each band of the depression sub scale of the HAD Scale at entry, six months and twelve months

Point in time	Normal		Borderline		Case	
	0 - 7		8 - 10		11 - 21	
Entry (n = 33)	16	49%	7	21%	10	30%
6 months (n = 33)	14	43%	10	30%	9	27%
12 months (n = 33)	18	55%	5	15%	10	30%

The percentage of people scoring in the "case" band for anxiety rose slightly at six months then fell again at 12 months, whereas the proportion of people scoring in each band of the depression sub scale remained fairly constant. The results of the McNemar change test when adjacent bands were collapsed to a 2 x 2 table are given in Table 84 for the anxiety sub scale and Table 85 for the depression sub scale. The results show there was no significant difference in the proportion of the experimental group scoring in each band at either entry versus six months or six months versus 12 months, regardless of whether normal and borderline bands were combined or borderline and case levels were combined.

Table 84: HAD anxiety sub scale: result of the McNemar test for both combinations of scale bands (experimental group)

Point of comparison	Normal /Borderline	Normal
	Case	Borderline /Case
Entry v 6 months	P = 0.22	P = 1.00
6 months v 12 months	P = 0.18	P = 1.00

Table 85: HAD depression sub scale: result of the McNemar test for both combinations of scale bands (experimental group)

Point of comparison	Normal /Borderline	Normal
	Case	Borderline /Case
Entry v 6 months	P = 1.00	P = 0.73
6 months v 12 months	P = 1.00	P = 0.29

Psychological Well-Being

Life Satisfaction

Mean scores and summary statistics for life satisfaction at entry, six months and twelve months, are given in Table 86. The result of the Wilcoxon signed-ranks test showed no statistically significant difference for scores at entry versus six months: $Z = -1.28$; $P = 0.20$, or between six months and twelve months; $Z = -1.12$; $P = 0.26$. However mean scores rose steadily during the year and there was a statistically significant difference when scores at entry were compared with scores at twelve months: $Z = -2.65$; $P = 0.01$.

Table 86: Scores recorded on the Life Satisfaction Scale by the experimental group at entry, six months and twelve months

Point in time	Min - Max 15 - 105	Mean	Standard deviation	Median
Entry (n = 33)	34 - 88	57.8	14.2	57.0
6 months (n = 32*)	32 - 102	61.4	16.7	61.0
12 months (n = 33)	33 - 90	63.6	13.9	64.0

* One missing

Self-rated Anxiety

Mean scores and standard deviations for self-rated anxiety remained similar over each point in the year (Table 87). There was no statistically significant difference between scores at entry and six months ($Z = -0.28$; $P = 0.78$), six months and twelve months ($Z = -0.12$; $P = 0.91$), or entry and twelve months.

Table 87: Scores obtained on the Self-rated Anxiety Scale by the experimental group at entry, six months: and twelve months

Point in time	Min - Max 6 - 42	Mean	Standard deviation	Median
Entry (n = 33)	6 - 41	23.4	8.6	24.0
6 months (n = 32*)	11 - 38	23.8	8.0	23.5
12 months (n = 33)	8 - 42	23.7	8.0	23.0

* One missing

Happiness

The majority of people in the control group described themselves as "Fairly happy" at entry to the project and at six months and at 12 months (Table 88).

Table 88: Proportion of the experimental group scoring in each band of the Happiness Scale at entry, six months and twelve months

Point in time	Not very happy		Fairly happy		Very happy	
Entry (n = 32*)	14	44%	16	50%	2	6%
6 months (n = 32*)	13	41%	15	47%	4	12%
12 months (n = 32*)	8	25%	20	63%	4	12%

* One missing

When the "Fairly happy" and "Very happy" cells were combined to create a 2 x 2 table, the McNemar test showed no statistically significant difference in the proportion of people who registered in each category of the happiness scale. Entry versus six months, $P = 1.00$; six months versus 12 months, $P = 1.00$.

Comparison of Outcomes between the Experimental and Control Groups at Twelve Months

Outcomes for the experimental and control groups were compared 12 months after entry to the project. That is at the point in time at which the experimental group had received 12 months help from the co-ordinator and the control group had received six months help. Outcomes examined were return to work, employment status and quality of life. As before, analysis was carried out on the "intention to treat basis" that is all the sample were included in the analysis.

Return to Work Outcomes

Table 89 shows return to work outcomes at 12 months and Table 90 employment status at 12 months.

Table 89: Return to work outcomes for the experimental and control groups at twelve months

Return to work	Experimental group n = 33		Control group n = 17	
	Returned before entry, remained in work	1	3%	0
Returned 0 - 6 months, remained in work	1	3%	1	7%
Returned 0 - 6 months, no longer in work	0	0%	1	7%
Returned 6 - 12 months, remained in work	3	9%	2	13%
Returned 6 - 12 months, no longer in work	0	0%	1	7%
Job offered, accepted 6 - 12 months	4	12%	0	0%

Table 90: Employment status of the experimental and control groups at twelve months

Employment status	Experimental group n = 33		Control group n = 15	
	In employment	9	27%	3
Not in employment	24	73%	12	80%

Nine people in the experimental group (27%) were classified as being in employment at 12 months compared to 3 (20%) of the control group (Table 90). This was not a statistically significant difference: $X^2 = 0.03$; $DF = 1$; $P = 0.86$.

Quality of Life Outcomes

Perceived Health Status

Mean scores recorded for each of the dimensions of the Nottingham Health Profile at 12 months are shown in Table 91. Mann-Whitney U tests showed there were no significant differences between the experimental and control groups for perceived health status 12 months after entry to the project.

Table 91: Mean scores obtained on the Nottingham Health Profile at twelve months and results of the Mann-Witney U tests

NHP Dimension	Group	Mean score	U	P
Energy	Experimental	32.7	219.5	0.51
	Control	36.2		
Emotional reactions	Experimental	32.6	242.5	0.91
	Control	28.3		
Pain	Experimental	54.1	240.5	0.88
	Control	56.0		
Physical mobility	Experimental	31.4	221.0	0.55
	Control	35.1		
Sleep	Experimental	55.3	241.0	0.88
	Control	52.5		
Social isolation	Experimental	21.2	227.0	0.59
	Control	17.6		

Levels of Anxiety and Depression

Tables 92 and 93 show the minimum and maximum scores, means, standard deviations and median scores obtained on the anxiety and depression sub scales of the HAD Scale 12 months after entry to the project.

Table 92: Scores obtained on the anxiety sub scale of the HAD Scale at twelve months: minimum and maximum scores, means, standard deviations and medians

	Min - Max 0 - 21	Mean	Standard deviation	Median
Experimental group n = 33	0 - 18	9.1	4.5	9.0
Control group n = 17	3 - 21	7.7	4.8	6.0

A Mann-Whitney U test showed no significant differences between the two groups in anxiety scores at 12 months: $U = 176.5$; $P = 0.11$. Likewise, there was no significant difference between depression scores for the two groups at 12 months: $U = 194.0$; $P = 0.23$ (Table 93).

Table 93: Scores obtained on the depression sub scale of the HAD Scale at twelve months: minimum and maximum scores, means, standard deviations and medians

	Min - Max 0 - 21	Mean	Standard deviation	Median
Experimental group n = 33	1 - 18	7.6	4.9	7.0
Control group n = 15	0 - 18	5.6	4.7	4.0

When the HAD Scale scores at 12 months were analysed by the classification of "normal", "borderline" and "case" (Tables 94 and 95) there were no statistically significant differences between the two groups whichever way the categories were combined to create the 2x2 table. "Normal" and "Borderline" categories combined; Anxiety: $X^2 = 0.98$; DF = 1; P = 0.32, Depression: $X^2 = 0.81$; DF = 1; P = 0.37. "Borderline" and "Case" bands combined: Anxiety: $X^2 = 1.03$; DF = 1; P = 0.31: Depression: $X^2 = 0.22$; DF = 1; P = 0.64.

Table 94: Number of claimants scoring in each band of the anxiety sub scale of the HAD Scale, at twelve months

	Normal 0 - 7		Borderline 8 - 10		Case 11 - 21	
Experimental group n = 33	13	39%	7	22%	13	39%
Control group n = 15	9	60%	3	20%	3	20%

Table 95: Number of claimants scoring in each band of the depression sub scale of the HAD Scale at twelve months

	Normal 0 - 7		Borderline 8 - 10		Case 11 - 21	
Experimental group n = 33	18	55%	5	15%	10	30%
Control group n = 15	10	67%	3	20%	2	13%

Psychological Well-Being

Life Satisfaction

Table 96 shows summary statistics for life satisfaction scores at 12 months. The results of a Mann-Whitney U test showed no statistically significant difference between the experimental and control groups $U = 223.0$; $P = 0.59$.

Table 96: Scores recorded on the Life Satisfaction Scale at twelve months: minimum and maximum scores, means, standard deviations and medians

	Min - Max 15 - 105	Mean	Standard deviation	Median
Experimental group n = 33	33 - 90	63.6	13.9	64.0
Control group n = 15	25 - 94	65.3	17.1	69.0

Self-Rated Anxiety

Summary statistics for self-rated anxiety scores at 12 months are shown in Table 97. On testing, there was no statistically significant difference between the experimental and control groups: $U = 185.0$; $P = 0.16$.

Table 97: Scores obtained on the Self-rated Anxiety Scale at 12 months: minimum and maximum scores, means, standard deviations and medians

	Min - Max 6 - 42	Mean	Standard deviation	Median
Experimental group n = 33	8 - 42	23.7	8.0	23.0
Control group n = 15	8 - 28	19.7	6.1	21.0

Happiness

Happiness ratings at 12 months are shown in Table 98. The majority of people in both groups rated themselves as "Fairly happy", but a higher percentage of people in the experimental group than the control group rated themselves as "Not very happy". A chi-squared test to compare happiness ratings, by combining fairly happy and very happy, showed no statistically significant difference between the two groups in happiness ratings at 12 months: $X^2 = 1.19$; $DF = 1$; $P = 0.28$.

Table 98: Number of claimants scoring in each band of the Happiness Scale, at twelve months:

	Not very happy		Fairly happy		Very happy	
Experimental group n = 32*	8	25%	20	63%	4	12%
Control group n = 15	1	7%	10	67%	4	26%

* One missing

Return to Work after Completion of Project

Contacting people after the project had ended to seek their views about the rehabilitation co-ordinator service provided an opportunity to ask about their current employment status. Of the nine people in the experimental group who were counted as being in employment at 12 months, one person was on sickness absence having undergone a spinal fusion, but two more people had returned to work, one in a self-employed capacity and one to a full time job, increasing the numbers to ten. Of the three people in the control group who had been in work at 12 months, one person had to leave his job because it had exacerbated a problem with his elbow and he was waiting for surgery (he had retrained under the Employment Training scheme as an HGV driver). However a further person in the control group had returned to work and therefore numbers remained at three.

6. THE EXPERIENCE OF PROVIDING THE SERVICE

Analysing the numbers of people who were in employment at a particular point in time, or examining the variation of scores on standardised measures are important aspects of evaluating the effectiveness of a service but provide no insight about the personal circumstances of individuals, (a potential shortcoming noted by previous authors) or about the service itself. For example, the amount or type of help that was required, the problems encountered in providing the service, and reasons why successful outcomes were sometimes not achieved.

This final section of the results chapter will be devoted to a qualitative analysis of the rehabilitation co-ordinator service. This section will be divided into two parts. The first will look at the service from the co-ordinator's perspective describing the type of help which people required, the response of services who were contacted during the course of the study and obstacles to the achievement of return to work outcomes. The second half of this section will illustrate some of these points by reference to four case histories.

The Co-ordinator's Perspective

The Help Required by People who Received the Service

In the early stages of setting up the rehabilitation co-ordinator service it was perceived as a means of helping people return to work by linking them to vocational rehabilitation services. However shortly after the project got underway it was apparent that much more was required than merely linking people to vocational services. Not only was more assistance required with vocational rehabilitation, for example help with job search and applications, but people also had other problems for which help was required. The latter resulted in contact with a number of different agencies. For example, some people needed adaptations to their housing, such as hand rails on the stairs or items of equipment such as bathing aids, and these were arranged through contact with Social Work Departments (Social Service Departments in England). Several claimants, who had sustained ankle or heel injuries and found walking painful, were referred to chiropodists for advice and/or provision of shoe inserts or shock absorbent insoles. Information was provided about a variety of transport-related schemes such as subsidised taxi fares and the Orange Badge Scheme and two people were placed in contact with, and subsequently attended, driving assessment centres. Many people requested information about Social Security benefits and help was also given with appeals against Department of Social Security (DSS) benefit decisions, either by writing reports to support applications or by identifying people who could give assistance at tribunal appeal hearings. Throughout the project help was given with a much wider range of problems than those immediately linked to employment.

One of the most important aspects of the service appeared to be the opportunity it provided for people to talk about their accidents and the subsequent events. In many cases visits lasted a minimum of two hours and it was not unusual for the time to extend well beyond this, for example one visit lasted six hours.

Table 99 gives an indication of the range of help which was provided and the number of people who received that help.

Table 99: Type of help provided by the rehabilitation co-ordinator service and number of people receiving help

Type of help	Experimental group n = 33	Control group n = 15
Counselling/Listening	28	11
Provision of information	25	13
Help with DSS benefits	17	6
Liaison with/ referral to Department of Employment	11	1
Liaison with/ referral to medical or paramedical services	6	2
Liaison with/referral to Social Services	2	1
Liaison with employer	3	0
Help with job search	12	3
Other help	9	1

Response of Services Contacted

During the course of the project the co-ordinator had contact with a number of service providers. These included Social Work Departments (Social Services in England), medical and paramedical personnel and the services provided by the Department of Employment.

No problems were experienced in referring people to Social Work Departments. (Social Services). When contact was established, in all cases to ask for assessments with a view to equipment or housing adaptation, this proceeded and appropriate equipment and adaptations were provided. However the number of such referrals was limited as few people required such help.

Contact with medical staff was also limited. Because people were entered into the study fairly late after their accidents their level of disability was stable and their contact with medical services was infrequent, usually restricted to attending their GP for sickness certificates and occasional attendance at an outpatient clinic. Contact with

Consultants met with a mixed response. In one case the Consultant concerned was contacted because the claimant thought he had been advised not to return to his former occupation. Given his level of disability this did not seem to be appropriate, and the Consultant concerned made an appointment to see the patient again, and confirmed that he could return to his former work. In another case the Consultant refused to provide any information, although the claimant concerned had agreed to the contact. In the former case the unit from which the service operated was known to the Consultant and in the latter it was not.

Referring people to Department of Employment Services posed no difficulties. The service willingly accepted referrals from the co-ordinator, even supplying a stock of appropriate forms. In one case an Employment Rehabilitation Centre declined to offer an assessment because the person had an ongoing compensation claim, saying this was Department of Employment policy. However the co-ordinator was aware that this was not the case and the assessment proceeded.

Obstacles to the Achievement of Return to Work Outcomes

In some instances no vocational outcomes were achieved and this was for a variety of reasons. First, there were a few people who did not wish to return to work or who developed additional medical problems, for example one person had a stroke, which made return to work unlikely. People who were in this group received little, if no, vocational help from the co-ordinator. A second group, who were given some help but did not take action themselves tended to be older people, often with additional medical problems who had been away from work for some time and who were facing a change of occupation. People with chronic back pain also tended to have poor vocational outcomes.

The third group of people, the majority of the sample, often made repeated efforts to try to return to work but a variety of circumstances, often outwith anyone's control, influenced their outcomes. Such circumstances included a worsening economic climate and changes in family circumstances. For example, at entry to the project five people in the experimental group had some prospect of returning to work for their previous employers providing some allowance was made for the difficulties they had, or if a modified job could be provided. Two people had already discussed this with their employers and, in principle, agreement had been reached. After entry to the project, modifications to machinery were organised for another person and in a further two cases lighter work or a modified job were negotiated. However, in three of these

five cases the employer was a small firm, with less than twenty employees and the worsening economic climate made their futures uncertain. One person's return was "postponed" by the employer because of lack of work and subsequently he was made redundant. The remaining two people were, quite understandably, unwilling to risk returning to work for their employers amidst such uncertainty and did not return. Fortunately one of these people did eventually find another job. However the severity of the second person's disability placed him at considerable disadvantage in the labour market and his prospects were much reduced once the possibility of returning to work for his employer was lost. Other events also occurred which impeded people's attempts to return to work. For example, changes in personal or family circumstances, such as marriage or the illness of a family member, sometimes meant that plans to return to work were revised or deferred. For others, the scheduling of further surgery precluded them from taking the action they had planned. For example in one case it prevented the acceptance of a place on an Employment Training Scheme.

Another aspect which affected outcomes was the nature of training opportunities available for people. A large proportion of those who took part in the study were unable to return to their previous occupations and had to consider training or re-training. For the majority of people training could only be considered on a basis which would allow them to retain their DSS benefits and three main possibilities existed: the Employment Training Scheme; a part-time course at a college under the "21 hour rule"; and a full time course at one of the residential training colleges for the disabled. However all these options had their disadvantages. Generally, people's perception of Employment Training (ET) was poor and this made them reluctant to consider it a possibility. Many saw it as a means of providing "cheap labour" in exchange for low quality training which had little prospect of helping them obtain a job. Even those who were prepared to consider it were sometimes disappointed because no appropriate training placement could be found. In two cases people had found employers who were willing to take them on under the Employment Training scheme themselves. There were a few people who did get training placements which appeared to offer reasonably good prospects. These were predominantly placements which offered the possibility of obtaining qualifications, for example Royal Society of Arts typing and word processing certificates or an HGV licence.

Part time courses at college offered another means of obtaining further training or re-training and had the advantage of recognised status and the possibility of acquiring qualifications. The main disadvantage was that the time taken to retrain under part-

time conditions could be considerable and therefore only really appropriate for those who could "top up" existing skills with a short course, or who were young. Residential training courses offered good training. However, the range of courses tended to be limited and in most cases attendance required people to live away from home and this was not always acceptable. Generally speaking, therefore, opportunities for training or re-training were limited and although desirable for many people, not always practical.

Case Histories

The following case histories illustrate some of the issues described above.

1.

Mr A was a 46 year old man who had been injured in a fall at work 14 months prior to his admission to the project. He had sustained several fractures to the bones of his right foot and these had exacerbated an existing rheumatic condition. Mr A worked as a steel fabricator/welder but his work also involved a considerable degree of steel erecting. He had made several attempts to return to work but had only managed to work for approximately five weeks at a time without sickness absence. Mr A was divorced and lived alone.

Prior to his entry to the project Mr A had received medical advice that he should not return to his occupation. He had many contacts in his trade and was confident that he could find a physically less demanding job in a related field however, apart from a period of time in the armed forces, he had worked as a fabricator/welder all his life and wished to remain in the same occupation.

At the time of entry to the project Mr A was off work and had considerable financial problems, for example when first visited at home, both the electricity and gas supply had been disconnected. His financial situation was a source of great concern and the co-ordinator discussed various ways that this might be tackled, for example seeking the help of a debt counsellor at the local Citizen's Advice Bureau. After several visits from the co-ordinator Mr A had taken no action yet clearly remained very concerned and was now anxious that the council would evict him for rent arrears. He reported that he had lost all motivation to do anything. At this point the co-ordinator suggested to Mr A that she could visit the various agencies with him to try to sort out the difficulties, if he wished, and he decided to accept this offer. A day's visit was organised in which Mr A and the co-ordinator visited his bank manager, the local

housing department, and the gas and electricity boards. Arrangements were made with each of the parties involved and which resulted in his bank account being unfrozen, the council agreeing not to evict him, and the gas and electricity supply being reconnected. The electricity board then fitted a meter which allowed him to pay off his arrears gradually.

When contacted 2 weeks after this visit Mr A reported that things were much improved. The gas and electricity had been re-connected, he obtained a new solicitor whom he felt was much more able to handle his claim and he had returned to work. When visited a month later he was still working and remained positive, reporting that he was delegating much of the heavy physical work to other people. When the six month review was carried out, 2 months later, he was still working and managing reasonably well providing he avoided the heavy tasks.

Two months after the six month review Mr A was unable to work, having been employed on a job on a particularly difficult work site. At this point the possibility of seeking alternative employment was again raised. A further medical assessment at this time also advised that he should change his occupation and he began to consider this advice more seriously. While off work Mr A started to help at an aircraft museum, on a casual basis, using his fabricating and welding skills. He enjoyed this activity which was physically less demanding than his job. At the same time he became aware that the firm he worked for may be facing bankruptcy. He continued to help at the museum and at the time of his twelve month review reported that he had been offered permanent employment, to begin in the near future. Subsequently, Mr A did return to work but this was not at the museum, but in a job as a site manager. He reported to the person carrying out the satisfaction survey:

"I am fully employed as a site agent on a major building development...I receive a salary of £12,500 per annum, plus car, plus expenses. I would like to say that if it hadn't been for the service I don't think I would be doing this job."

2.

Mr B was a 36 year old man who suffered a traumatic amputation of his right leg, above the knee, when it became trapped in a silage chopper at work. He was employed as a tractor man for a small agricultural contractor in a rural area. The contractor used his own tractors and Mr B's job involved driving the tractor or other appropriate machinery to the farm, carrying out whatever work was

required, and performing routine maintenance on the machines. He had been in this same job for 10 years. Mr B was married with four children.

Mr B entered the project 15 weeks after his accident. At that point he had received his first artificial limb and was making good progress with walking training. Rapid shrinkage of his stump was causing some problems with limb fitting.

When Mr B was initially visited he made it evident that he very much enjoyed his job and wished to return to it. He reported that 98% of his job involved driving a tractor and he saw no reason why he should not be able to continue doing this. In driving a tractor the right leg is used to operate the brake and he envisaged that he could depress the brake pedal by pushing his artificial limb down onto the pedal with his hand. Indeed he reported that he had already attempted to drive a tractor. He thought that any of the heavy work in the job could be undertaken by one of the other workers.

Given Mr B's strong desire to return to his job the first step in the plan of action was to find out if this was feasible. With Mr B's agreement, the co-ordinator contacted a number of sources to try to determine if this was an appropriate goal. The agencies contacted included a national centre treating people who had sustained amputations, the Employment Medical Advisory Service, DVLC at Swansea, and the Mobility Advice and Vehicle Information Centre. The consensus of opinion was that it would be feasible for Mr B to return to work as a tractor driver but that the tractor would require adaptations so the brake could be operated by hand.

At this stage Mr B was very reluctant to consider adaptations to the tractor. The co-ordinator agreed to seek further information from a local driving assessment service and to determine the position with regard to motor insurance. The result of these enquiries again indicated the need for appropriate adaptations. At the same time DVLC returned Mr B's driving licence and stipulated that he must have appropriate adaptations to any vehicle he drove. Mr B began to accept that adaptations might be necessary and the plan moved forward to the second stage which was to determine what adaptations would be required and who might be able to carry them out.

This second stage of the enquiry involved contact with Massey Ferguson, the manufacturers of the tractor Mr B drove, and firms who carried out brake adaptations on cars. Massey Ferguson sent information about a farmer in Yorkshire who had also sustained a traumatic amputation, to his left leg, and had returned to work on his farm driving tractors. The co-ordinator also traced a firm who carried out brake adaptations to cars and who had also made adaptations for tractors.

With the information that a return to tractor driving was feasible, and that it would be possible to adapt the tractor, the plan moved into its third stage which was to contact Mr B's employer. The Co-ordinator and Mr B went to see the employer to seek his views about Mr B returning to work for him. The employer was very supportive of Mr B returning to work for him and agreed to the tractor modifications. Aspects of the job Mr B may not be able to manage were also discussed and possible ways of overcoming this identified. At this meeting it was agreed that the co-ordinator could proceed to seek funding for the adaptation and that, once secured, the adaptation could proceed. It was envisaged that Mr B would return to work part time as soon as the adaptation was fitted and had an appropriate artificial limb.

Mr B's solicitor agreed to the co-ordinator contacting the insurance company handling his claim because it was thought they might fund the adaptation. However the insurance company would make no decision about this until the issue of liability for the accident was settled. This could have taken several months and therefore the Department of Employment's Disablement Advisory Service, who at the time were responsible for the adaptations to buildings and equipment scheme, were contacted and they agreed to fund the adaptation.

Shortly after Mr B's six month review was carried out the adaptation arrived and Mr B and his employer fitted it to a tractor. Shortly after this Mr B began a period of rehabilitation at his workplace and reported that the hand brake worked very well and that he was managing most aspects of his work. Following the success of the trial period, Mr B was considering returning to work full-time but unfortunately his employer was experiencing financial problems with his business and Mr B was reluctant to return to work for him while this situation persisted. Two months later the situation was largely unchanged and Mr B now began to experience problems with the suction limb (expected to be his final artificial

limb) that he had been fitted with. Twelve months after entry to the project Mr B's employer remained in business and the tractor adaptation remained in situ, however Mr B was continuing to experience problems with his artificial limb and was waiting for arrival of a second suction limb. Mr B remained in regular contact with his employer and hoped to return to work when the new suction limb was received. Unfortunately when contacted for the satisfaction survey Mr B was now experiencing problems with his stump and still had not been able to return to work.

3.

Mr C was a 36 year old man who had been injured in a road traffic accident 18 months prior to being entered into the project. He was married and lived with his wife and their one child aged three years. The accident, in which he had been knocked off his motorcycle by a car, had resulted in multiple injuries including a fracture of his left elbow, fractured ribs, a compression injury to two lumbar vertebrae and, in terms of residual disability his worst injury, a fracture of the left tibia involving the ankle joint. At the time of his accident Mr C worked as an assembly line worker. He had been in this job only three days and prior to that had been unemployed for five years. He had, however, had a stable period of 12 years employment as a chef prior to that. Seven months after the accident arrangements had been made for Mr C to return to his job, for two hours a day over a period of six weeks as part of his rehabilitation. However at the end of the six weeks he and his employers reached a mutual decision that he was unable to manage the job and his employers were unable to offer him alternative employment.

At the time of entry to the project Mr C's main complaints were of pain and restricted mobility in his left ankle. He reported difficulty standing and walking for prolonged periods, length of times varying from five minutes to one hour. He also reported difficulty exerting pressure through his left arm and carrying objects. He had recently been signed as fit for work following a review by the DSS. Mr C had been to see his local Disablement Resettlement Officer (DRO) some months prior to entering the project and as a result of this meeting he had expected to receive an appointment for an assessment. However no appointment had been forthcoming. It was evident that Mr C was very angry towards the car driver who had been involved in his accident, and the way in which this person had ruined his life was a recurring theme throughout the year.

At the initial interview with Mr C it became evident that he was unlikely to manage any job which involved standing or walking for prolonged periods, and/or continual bending, lifting and carrying. His preference was for a driving job or sedentary assembly work. He was very clear that it should be a practical job, i.e. not a job involving a lot of writing or figure work. Sedentary assembly work appeared an appropriate option given his previous experience and educational background. With regard to a driving job, there was concern that his ankle might not withstand repeated depression of the clutch unless the vehicle had automatic transmission.

After discussion with Mr C it was agreed that he would return to see the DRO and ask him to proceed with referral for an assessment at an Employment Rehabilitation Centre (ERC). In the meantime Mr C wished to proceed with searching for jobs. The co-ordinator agreed to collect a list of prospective employers in the area whom it might be worth contacting about vacancies and both Mr C and the co-ordinator would keep a check on the local newspapers and job centres for suitable vacancies.

Contact was maintained by telephone and four weeks after the first discussion the co-ordinator returned to see Mr C. By this time he had returned to see the DRO and had received an appointment for an assessment in 2 weeks time. The co-ordinator took a list of potential employers for speculative applications. However at this visit Mr C reported that his ankle had been very painful and that he had returned to see his GP who had referred him back to the orthopaedic surgeon. Mr C stated he wished to postpone taking any action until he knew the outcome of this appointment. However he agreed to attend the assessment at the ERC. This duly went ahead and the ERC recommended sedentary production line work as being suitable employment.

Regular contact with Mr C was maintained until his appointment with the orthopaedic surgeon. The outcome of this visit was that Mr C's name was put on the waiting list for an arthrodesis of his ankle. This was to be a two stage process involving an initial operation to remove the existing internal fixation followed by the arthrodesis some weeks later. Mr C was told that the waiting time for surgery could be up to one year. At this time he had already been away from work for 21 months.

Initial discussions with Mr C tried to encourage him to use this waiting time productively. For example it still might be possible for him to return to work in the time available and then to take time off while the surgery was performed. Initially he agreed to continue searching for jobs. Several vacancies were advertised and followed

up but were found to be unsuitable because of the physical activities involved. However a potential solution to the use of this waiting period presented itself when the co-ordinator identified an opportunity to train as a driving instructor under the Employment Training Scheme. Mr C was very interested in this possibility and immediately made an appointment to find out further information. Unfortunately he was advised not to proceed with the training because the maximum time available to pass the required exams (including a driving test) was 2 years and it was not known what proportion of this period might be taken up with the surgery and recuperation. Hence Mr C decided to keep this as a possible option for the future.

Shortly afterwards Mr C was admitted to hospital for the first stage of the arthrodesis, removal of the original internal fixation. This was some two years after his accident and six months after his admission to the project. At this stage intervention from the co-ordinator resulted in his entitlement to Invalidity Benefit being restored by the DSS. While in hospital for the removal of the fixation Mr C had been told that the arthrodesis would proceed within the near future. Attention again turned to what he might do in the interim period as he reported he was becoming quite bored and despondent at home. Discussions about the various possibilities led Mr C to mention that he would like to do an assertiveness or confidence building course as he had always had a low opinion of himself. The co-ordinator agreed to find out about the availability of such courses in the area and to send Mr C the information as soon as possible. Several part-time courses were identified at local colleges and the information was sent to Mr C, who identified a course he thought was suitable. He stated his intention to enrol for this course after a week's holiday, however it emerged that Mr C had received a date for admission to have the arthrodesis performed and had declined because he was going on holiday. He expected to receive another date at any moment and therefore he decided not to take any further action.

Unfortunately another problem then arose. Mr C phoned to say he was having marital difficulties and was going to proceed with a divorce. The co-ordinator had been unaware of any difficulties, indeed his wife had been present on many visits and had been supportive of Mr C trying to take some action while waiting for surgery. A visit shortly after this phone call involved a discussion about possible sources of help for the couple but Mr C was unwavering in his intention to proceed with divorce.

At this stage the intervention period from the co-ordinator was coming to a close and, therefore, she tried to ensure that Mr C knew where he would be able to obtain help

when the arthrodesis and his period of recuperation were over. As the intervention period finished he received a date for admission to hospital for the arthrodesis. A slight extension to the intervention period allowed the co-ordinator to visit Mr C after discharge from hospital to check that he was receiving any help he required.

4.

Mr D

Mr D was a 50 year old man who had sustained a fractured sternum, with associated pneumothorax, in a car accident. At the time of his accident he had worked as a machine operator in a factory manufacturing cardboard boxes. He had been employed in this job for 15 years and previously had worked as a refuse collector for the local council. Mr D had a number of other medical problems, having had a heart attack six years previously. He also had emphysema.

At the time of entry to the project, 26 months after the accident, Mr D had not returned to work. He reported chest pain when lifting and carrying and when sneezing and coughing. His level of activity outside the house was restricted by the problems associated with angina and emphysema, predominantly pain in his legs and breathlessness. Mr D thought that his pre-accident job was still available, and wished to return to this as he was very bored at home all day. However it was evident that he was not fit enough for open employment. A job under The Sheltered Placement Scheme was thought to be the most suitable option and this possibility was pursued by contacting a firm who provided work under the scheme. However while this was in progress Mr B had a stroke. He made a gradual, but good, recovery from this incident but problems with breathlessness had increased and it was evident that he was too unwell to return to work. The co-ordinator remained in contact with Mr D but provided no specific help as he was already in contact with appropriate services. A few months later he had another, smaller stroke, from which he again made a good recovery and he had been transferred to the care of a heart specialist.

SUMMARY

The results chapter has looked at six aspects of the study. These included the outcome of recruitment, characteristics of the people who took part in the study, scores obtained on the standardised measures at entry, the results of the evaluation, some exploratory analysis and a qualitative analysis of the service from the co-ordinator's perspective. In the next chapter the main points from the results will be summarised and interpreted.

CHAPTER SIX

DISCUSSION AND CONCLUSIONS

Introduction

In Britain each year thousands of people are injured in accidents on the roads or at work and pursue claims for compensation. A substantial minority, who might be thought capable of returning to work, do not do so and this failure to return to employment can lead to considerable social, psychological and financial costs to the person concerned and his or her family, and also have implications for employers, insurance companies, and the state.

Popular opinion seems to hold that people who pursue claims for compensation do not return to work until their claims are settled, yet research indicates that a failure to return to work may not be due so much to "compensation neurosis" as to a complex interaction of many factors. What is evident, however, is that the longer a person is away from work following an injury, or indeed illness, the less likely he or she is to return (Beals and Hickman, 1972; Cornes, 1988; Gallagher *et al*, 1989). The importance of early attention to employment issues has been stressed by several authors (e.g. Hood and Downs, 1985). However a common finding of studies is that employment issues are not considered during the recovery period, or not addressed until many months after the accident by which time it may be too late. Moreover contact with employment services, which might assist people to return to work, is poor (Blaxter, 1976; Cornes, 1990, Ludkin, 1979). The main reason for the failure to address vocational issues and the low contact with employment services is thought to lie in poor communication and co-ordination between health and related services (e.g. Piercy Report, 1956; Tunbridge Report, 1972) and a suggested solution is the provision of a person to specifically look at job related problems and ensure that people receive help from appropriate services (NACEDP, 1980).

The objective of this study was to implement and evaluate a service to help personal injury claimants return to work. The service comprised one person, acting as a co-ordinator, whose role was to help people identify and obtain assistance from those voluntary and statutory services which might facilitate their return to work. The service was evaluated within the context of a randomised controlled trial and

outcomes at six months were compared for a group of people who received the service against a group who did not. The acceptability of the service was determined by means of a satisfaction survey.

This final chapter will be divided into three parts. In the first section the hypotheses adopted for the study will be restated and the results interpreted and explored in the light of previous research. The second section will be concerned with an evaluation of the research methods and suggest ways in which they might have been improved. Conclusions from the study will be outlined in part three.

1. HYPOTHESES AND INTERPRETATION OF RESULTS

The evaluation of the rehabilitation co-ordinator service was concerned with the effectiveness of the service and its acceptability to the people who received help from the co-ordinator. Main outcomes for service effectiveness were recorded at six months, that is after the experimental group had received help from the co-ordinator for six months and the control group had received no help. Claimants' views about the service were sought after all contact with the rehabilitation co-ordinator had ceased.

Hypotheses

The null hypotheses, stated at the beginning of the project, were:

1. Provision of a rehabilitation co-ordinator service does not increase contact with vocational rehabilitation services
2. Provision of a rehabilitation co-ordinator service does not increase the number of people returning to work
3. Provision of a rehabilitation co-ordinator service does not increase the number of people taking action towards returning to work
4. Provision of a rehabilitation co-ordinator service does not change people's attitudes about work involvement.
5. Provision of a rehabilitation co-ordinator service does not improve people's perceived health status

6. Provision of a rehabilitation co-ordinator service does not improve people's levels of anxiety and depression
7. Provision of a rehabilitation co-ordinator service does not improve people's satisfaction with their lives
8. Provision of a rehabilitation co-ordinator service does not improve anxiety about day to day problems
9. Provision of a rehabilitation co-ordinator service does not improve levels of happiness
10. People perceive a rehabilitation co-ordinator service to be of no value

Summary of Results

The Effectiveness of the Rehabilitation Co-ordinator Service

Comparison of the various employment and quality of life outcomes for the experimental and control groups six months after entry to the project showed no statistically significant differences between the two groups except for the scores recorded for depression. Here the control group scored significantly lower than the experimental group. Difference in actual scores were just outside formal statistical significance $P = 0.06$, but the number of people scoring in the borderline/case levels of depression were significantly lower, $P = 0.05$. The proportion of people in the experimental group who had taken action to return to work between entry and six months was slightly higher in the experimental group than the control group, 53% versus 40%, but this did not reach statistical significance ($P = 0.60$).

The Acceptability of the Rehabilitation Co-ordinator Service

On the whole people's views about the service were very positive. The majority of the sample thought they had received information in all cases where they had sought it, and reported that information had been given in sufficient detail. Three quarters of the group thought that enough practical assistance had been provided, that it was very helpful or helpful and that the time taken to provide information or assistance was appropriate. One area which could have been improved was the proportion of problems for which practical assistance had been given, for 28% of the group thought that had received help with only some of their problems and 21% said they had

received assistance with none of their problems. Despite this, 70% of people were very satisfied with the service and 79% thought the service had made life better for them. No one expressed dissatisfaction with the service and several people expressed the (unsolicited) wish to see it continue.

Interpretation of Results

The Effectiveness of the Rehabilitation Co-ordinator Service

There are two possible explanations for the lack of statistically significant findings in the evaluation of the service's effectiveness. The first explanation is that the service was ineffective but another possible explanation is that certain features of the study distorted the results or did not allow positive findings to be detected. Three important features in relation to this latter point are sample size, comparability of the two groups, and the placebo effect. These issues will be discussed before consideration is given to the acceptance or rejection of the hypotheses.

Sample Size

Many authors have highlighted the importance of having an adequate sample size in clinical trials in order to obtain statistically useful results. A small sample size increases the probability of Type II errors occurring, that is that the null hypothesis will be accepted when it should be rejected (Ottenbacher, and Barrett, 1989). The significance of this in relation to evaluation of services or treatments is that a service or treatment may be labelled as ineffective when in fact the size of the sample was so small that what may have been clinically important differences could not have reached statistical significance (Freiman et al, 1978; Pollock et al, 1993):

"In particular there is a tendency to equate statistical significance with medical importance or biological relevance. But small differences of no real interest can be statistically significant with large sample sizes, whereas clinically important effects may be statistically non-significant only because the number of subjects studied was small." (Gardner and Altman, 1989, p8)

and

" 'Not significant' does not imply that there is no effect. It means that we have failed to demonstrate the existence of one." (Bland, 1987, p154)

It has been suggested that confidence intervals should be calculated, particularly when small sample sizes are involved, for this gives an indication of the power of the statistics to determine "treatment" effects, the wider the confidence interval the lower

the power of the statistics to detect medium or small effects (Gore, 1981). In this study confidence intervals were calculated for the outcomes at six months and the widths of the intervals (see pages 134 -143) were sufficiently large to indicate the low power of the statistics. In other words the statistics were of insufficient power to pick up anything other than very large treatment effects.

Comparability of the Two Groups

A randomisation procedure should ensure that any prognostic or confounding factors which may influence outcomes are spread between the experimental and control groups. However it is acknowledged that this does not always occur, particularly with a small sample size, and that it is important to check for comparability rather than assuming the two groups are similar (Fowkes and Fulton, 1991).

In this project a number of demographic, clinical, occupational and attitudinal variables, which might have been prognostic indicators of return to work, were checked at entry to the project. This demonstrated no statistically significant difference between the two groups, except for one factor. However, given the small sample size and the low power of the statistics to identify anything other than large differences, a closer examination of the data was carried out and this revealed some disparities which might have influenced outcomes. For example, a higher percentage of the experimental group were injured in accidents at work and this might have reduced motivation to return to work, particularly a return to the pre-accident employer (Ross, 1977). There were also more people over the age of 45 years than in the control group (37% versus 17%) and this may have placed the experimental group at a greater disadvantage in the labour market as older workers are known to face discrimination (Myers, 1985). More people in the experimental group scored in the two highest bands of the Vocational Rehabilitation Index suggesting they might have more difficulty returning to work than the control group. In addition more people also lived alone or with children under 18 years (27% versus 12%). This might suggest a lack of social support which has been linked to positive coping strategies in stressful situations such as unemployment (Linn, Sandifer and Stein, 1985).

In other respects the control group appeared to be placed at a disadvantage in comparison to the experimental group. More members of the control group had sustained injuries of a serious or severe nature, though research findings identifying this as a prognostic indicator of return to work are mixed. A higher proportion of the

control group were also employed in semi-skilled or unskilled jobs at the time of their accidents, and this may have made it more difficult for them to find jobs.

It is possible that the experimental group were at a greater disadvantage than the control group in trying to return to work. Methods are available which allow baseline differences, or other confounding factors, to be controlled. For example logistic regression and proportional hazard models, and such methods have been used in other studies (e.g. Greenwood *et al*, 1994). However these methods were not appropriate for this study because this type of analysis requires a sample size far larger than the one in this study. Of course it is possible that the groups were indeed comparable, but the possibility they were not should be taken into account.

Placebo Effect

There is the possibility that a placebo effect occurred in the control group when the researcher returned to see them again at six months and which distorted the results. This possibility was revealed in the exploratory analysis, described in Chapter Five, in which changes within both groups were examined during the 12 months of the project. At six months the control group showed a statistically significant increase in their work involvement scores, a statistically significant decrease in depression scores, and a significant increase in life satisfaction. It is possible that these were “freak” results, for example multiple significance testing can increase the chance of false-positive findings (Pocock, Hughes and Lee, 1987). However the group did not maintain these improvements at twelve months and there was no overall difference in scores between entry and twelve months. It is possible, therefore, that these improvements were temporary and prompted by the anticipation of receiving help from the co-ordinator.

Acceptance or Rejection of the Null Hypotheses?

The difficulty in this study is in deciding whether or not to accept or reject the hypotheses given the factors discussed above and, especially, the low power of the statistics to detect anything other than large treatment effects. Strictly speaking hypotheses one to nine, concerning the effectiveness of the service, cannot be accepted or rejected on the basis of the statistical analysis because of the low power of the statistics. However the qualitative data, which described the milieu in which the service operated, outlined some of the difficulties in providing the service and indicated that successful outcomes were difficult to achieve. Hence it is reasonable to conclude that the service had no significant effect on improving employment and quality of life outcomes. Possible reasons for this will be discussed shortly.

With regard to null hypothesis number ten, “People perceive a rehabilitation co-ordinator service to be of no value”, there is evidence from the satisfaction survey to suggest that this was not the case. However the difficulty of accurately assessing patients' opinions about services has been noted by several authors. In particular Lebow (1974), noted that surveys often find a very high rate of satisfaction among patients and that this lack of variability raises the question of whether they really reflects people's feelings. Potential sources of bias include the "yea sayers" response, in which people report what they think the researcher wishes to hear or, if an evaluation is conducted independently, that the person or service being evaluated is presented in a more positive light than would otherwise be the case (Lebow, 1974; Ware, 1981).

In the satisfaction survey for the rehabilitation co-ordinator service, although overall satisfaction with the service was high, views about different aspects of the service did vary and it is evident that some aspects of the service could have been improved. In view of Lebow's comment (op cit), this could be taken to indicate that people who took part in the study, or at least some of them, did give their real views about the service.

There appears to be sufficient evidence to reject the null hypothesis that the service was perceived to be of no value, but why were the majority of people so satisfied with the service and thought it had made life better for them, especially in view of the fact that many of them did not achieve successful vocational outcomes? The main factor would appear to be the high interpersonal component of the service. People were given individual attention by the co-ordinator, were provided with an opportunity to talk about their accidents and to explain their concerns and worries in their own words, and in describing which aspect of the service they were most satisfied with many people mentioned this feature of the service. Such aspects have been found to be rated highly by people when evaluating their doctors or other health professionals (Freemon et al, 1971; Ware and Synder, 1975).

Comparison with Other Studies

Evaluation of Case Manager Services

The conclusion of this study that the rehabilitation co-ordinator service was unsuccessful in achieving its aim of helping people to return to work or improving the quality of their lives, is in keeping with other studies which have examined case

management or co-ordinator services. Some of these studies were reviewed in Chapter Two, for example Franklin et al, 1987. In addition, two recent studies in Britain also came to the same conclusion.

Addington-Hall et al (1992) evaluated a co-ordinator service for terminally ill cancer patients. The evaluation was carried out in the context of a randomised controlled trial with patients in the experimental group receiving routinely available services plus help from two nurse co-ordinators, and the control group receiving help from usual services. Outcome measures were similar to those used for the rehabilitation co-ordinator service and included levels of anxiety and depression and use of services. The researchers reported few differences between the two groups and concluded that the co-ordinator service had made little difference to patient or family outcomes.

In a recently published study Greenwood et al (1994) reported the findings of a study to evaluate the effectiveness of a case manager service for people who had sustained head injuries and concluded that the results did not support the provision of a case manager service.

Other Findings

The work problems faced by people in the project were very similar to those described by other authors (e.g. Blaxter, 1976; Watson, 1988). Some people had lost their jobs while on sick leave, others were made redundant, and some had returned to work and been unable to manage their jobs. Contact with vocational rehabilitation services, prior to the project, was low and very few of the people appeared to have had their employment problems addressed by the health professionals who had cared for them. This is also in keeping with the findings of previous studies (e.g. Cornes, 1990; Ludkin, 1979).

There appeared to be little evidence of “compensation neurosis”, only in one case did it become apparent that a person did not wish to return to work before settlement of his claim. Most people expressed a strong desire to return to work and made repeated efforts to try to do so.

Factors Influencing the Effectiveness of the Service

Lack of Early Intervention

One aspect which may have influenced the effectiveness of the service was the lack of early intervention. Despite the wish to recruit people into the study as soon as possible

after their accidents many were recruited very late, the average time since accident approaching two years. Numerous authors have commented on the negative influence which such a long delay can have on rehabilitation and return to work (e.g. Hood and Downs, 1985; Phillips, 1964). Moreover many people were already in the situation of having lost their pre accident jobs and this placed them at a considerable disadvantage in trying to return to work. In one study examining return to work following head injury, Johnson (1989) reported that a successful return to work was associated with return to the previous job, the provision of special conditions such as easier work and a lengthy period of support.

The Length of the Intervention

The length of time people would require help for was underestimated at the outset of the project and it became evident that six months was probably too short a time for outcomes to be achieved.

In relation to case management services for people with mental illness, Chamberlain and Rapp (1991) noted that at least 12 months intervention seemed to be required before outcomes were achievable. Other studies also indicate that a significant period of help may be required. Goering *et al* (1988) found significant differences for their case managed group only after 24 months intervention, and Franklin *et al* (1987) reported no significant outcomes after 12 months. These studies all related to people with mental illness, who might be expected to have more problems than the people with physical disability who took part in this study. However anecdotal evidence also supports the contention that lengthy periods of help might be required for people who have been injured and are trying to return to work.

During the course of the project the researcher had contact with a redundancy counselling service, which offered help nationwide. This service provided help for people who were out of work, having been made redundant, and in this sense they were similar to the study population. The counselling service indicated that they would anticipate people in this situation to return to work within six months (HDA, 1991 - personal communication). That is the same length of time being used to evaluate return to work outcomes in this study, yet our population also had residual disabilities, and in many cases were also unable to return to their previous type of employment. Hence they were likely to be at a significantly greater disadvantage compared to people who had been made redundant, and it was likely to take them significantly longer to return to work.

In addition, later contact with a private vocational rehabilitation counsellor in Canada indicated that it was not unusual for help to be provided to a client for anything up to three years and even then successful outcomes were not always achieved (Swann, 1994 - personal communication).

When it was realised that more than six months may be required to achieve outcomes the project was extended to allow the experimental group to receive twelve months help. A comparison of return to work outcomes for the experimental group at twelve months compared to six months showed an increase in the number of people in employment from three to nine and this was statistically significant ($P = 0.03$). However this result must be treated with caution for it was part of an exploratory analysis and no causal link to the service can be inferred. Pressure to include an intervention period for the control group meant that this group received six months help after the six month review therefore the control design was lost after six months. The exploratory analysis also showed no difference in return to work outcomes for the experimental and control group at twelve months so the meaning of this statistically significant result for the experimental group is unclear. It is reported here in the spirit of hypothesis generation rather than hypothesis testing, to pose the possibility that a longer period of help might have produced better outcomes. This is certainly feasible given the findings of other studies and Fuhrer's comment that "...the consequences of a service may require some time to become apparent." (Fuhrer, 1987)

Model of Case Management

All models of case management aim to link patients with the right services at the right time. The co-ordinator in the rehabilitation co-ordinator service acted as an independent case manager without a budget and acted as a service broker or enabler rather than in a therapeutic role i.e. no formal treatment or rehabilitation was provided. All people in the project were visited at home. The model thus incorporated elements of the assertive and clinical approaches outlined by Chamberlain and Rapp (1991) and the service brokerage model described by Thornicroft (1990).

Similar models of case manager services in America have demonstrated few benefits for patients (Franklin *et al*, 1987). Beardshaw and Towell (1990, p22), commented that early evaluative studies of case manager services based on the service brokerage model cast doubt on the ability of this model to improve outcomes for clients and two recent studies in Britain, adopting a similar approach, also failed to demonstrate any

improved outcomes for a case managed group against a control group (Addington-Hall, et al 1992; Greenwood et al, 1994).

One important aspect of the service brokerage model, which undoubtedly is a major factor in its ability to achieve beneficial outcomes for its clients, is that it depends on the availability and effectiveness of other resources for its own effectiveness. (Franklin et al 1987). In the present study the main aim of the service was to help people return to work and in order to achieve this services provided by the Department of Employment had to be utilised. Contact with these services often seemed to result in no positive outcome being achieved or, in some cases, no appropriate help being given. For example one person who was prepared to consider a place on the Employment Training Scheme could not be found an appropriate placement in the area where he lived. Other authors have also indicated that Department of Employment services may fail to help people with physical disabilities (Johnson, 1989)

A potential solution to this problem is for the case manager to hold a budget so that effective services, if they exist, can be purchased. Indeed this is a feature of other models of case manager services and may be one reason why they appear to achieve more beneficial outcomes for their clients.

Another potential shortcoming of the rehabilitation co-ordinator service was that it operated independently i.e. outwith either a purchaser or provider unit. This was similar to the Case Manager project in Camden and Islington (Banks, 1988). Whereas some advantages of independence have been noted, in particular the co-ordinator or case manager is not caught in dual roles which may conflict, for example having to provide the best services for a client while also acting as a gatekeeper to those services, there are disadvantages. One important factor is that there may not be the influence or authority to effect service provision if one stands outside existing services. As Pilling (1988) noted:

"Do flexibility and freedom from service constraints, outweigh the advantage of less authority with which to manipulate resource holders?"

No particular difficulty was experienced in obtaining help or co-operation from other services during the project, although contact with medical personnel met with a mixed response. Contact with services such as Social Work Departments or Social Services was limited because few people needed their help. However it possible that had

people entered the project more quickly after their accidents then contact with other services would have been greater. In this situation the potential disadvantage of standing outwith the formal system may have been more apparent.

2. EVALUATION OF THE STUDY

This section of the discussion chapter examines the research design and the methods employed, and discusses any problems which were encountered and how the design and methods might have been improved.

The Research Design and Sample Size

A randomised controlled trial is considered to be the most appropriate research design in trying to establish whether or not a service is effective and whether the service is responsible for any changes which have occurred (Fuhrer, 1987). This was the aim of this study in evaluating the rehabilitation co-ordinator service and therefore the design was considered to be appropriate. However, a randomised controlled trial requires an adequate sample size and, as already indicated, this was not achieved in this study. It was understood that statistical advice had been sought before appointment of the researcher and that this had indicated a minimum acceptable sample size of 45. The study exceeded this number, recruiting 50 people, however it is clear that a much larger sample was necessary. In the study's defence, determined efforts were made to acquire as large a sample as possible by, for example, extending the geographical area in which claimant's lived. Recruitment also continued until the last possible moment i.e. it did not stop when minimum numbers were reached, but only when the timescale for the project prevented the inclusion of more subjects. Moreover, small sample sizes have been highlighted as a particular difficulty in rehabilitation research (Ottenbacher and Barrett, 1989; Pollock *et al*, 1993).

With regard to sample sizes in rehabilitation research Rintala (1983) noted,

"Samples of the required size may not be available in many applied situations within the time limitations of a study. In that case, recognise that using a small sample increases the probability of coming to the incorrect conclusion that there was no effect."

In any future study a larger sample size might be obtained by carrying out a multi-centre trial involving several co-ordinators. Indeed such an approach was adopted by Addington- Hall (1992) and Greenwood *et al*, (1994).

As noted earlier, the research design was changed shortly after the project started when it became apparent that six months may be an inadequate length of time for outcomes to be achieved. Inclusion of a period of intervention for the control group at six months meant that the control design was lost at six months and therefore no formal inference could be drawn from the results obtained at twelve months. Clearly the design would have been much improved by maintaining a true controlled design for the whole 12 months, and this should certainly occur in any future study.

Timing of the Evaluation

The co-ordinator had a three month induction period in which decisions about the service and how it would operate were made. However, in effect, the service was evaluated from the first day it started to operate. Clearly this provided no opportunity for the service to become established first and it emerged that the type of help which was required was somewhat different to what was originally envisaged i.e. it became evident that in many cases much more was required than merely linking people to services. With regard to the timing of an evaluation Holland has noted:

"...evaluation should not be initiated at the beginning of a programme but after it has been in operation for a short period of time. Initially the programme may change considerably as practical problems and shortcomings are revealed and will take some time to settle into its permanent form. Any evaluation at this stage may therefore be of only limited value." (Holland, 1983^a, p xviii).

In the study's defence this was an initial attempt to see if such a service was feasible and indeed, given that it operated within the midst of the adversarial system, even its implementation was not a foregone conclusion. To try to establish the service before evaluation might have posed difficulties with the implementation and reduced solicitors' willingness for their clients to take part. Moreover resources were limited and it would not have been possible to run the service for the period of time some services have operated before evaluation has begun. For example in a study of a co-ordinator service for patients with terminal illness, the co-ordinators were in post for a year before evaluation of the service was started (Addington-Hall *et al*, 1992).

Collection and Handling of Data

As noted in Chapter Four, attention was given to trying to ensure the quality of the data both in the data collection and data handling stages of the project. Standardised measures were chosen which were reliable and valid, and several strategies were

adopted to screen the data for inconsistencies. This section looks first at the research instruments and then at a number of other factors which might have introduced bias during the collection and handling of the data.

Research Instruments

Nottingham Health Profile

People appeared to understand the statements on the Nottingham Health Profile (NHP) and completed it with relative ease, however some difficulty was apparent. In each case this concerned the limited choice of answers (Yes or No). Occasionally a person would comment on his or her difficulty in making a decision between the two or, occasionally, ask if they might put "sometimes". When this issue arose, the researcher referred to the instruction provided by the NHP's authors, which was also printed on the questionnaire, that read "If you are not sure whether to say yes or no, tick whichever answer you think is more true at the moment."

Hospital Anxiety and Depression Scale

The Hospital and Anxiety (HAD) Scale was designed to be used with people who had physical illness and therefore avoided somatic symptoms of anxiety and depression. However, despite this, some people in the study appeared to relate physical symptoms from their disability to statements on the HAD Scale. People who experienced physical discomfort if they remained in one position for too long frequently chose the highest scoring answers for two statements. These were "I can sit at ease and feel relaxed" (the reply with the highest score being "Not at all") and the statement "I feel restless as if I have to be on the move" (the highest scoring reply being "Very much indeed"). These statements both contribute to the anxiety subscale of the HAD. In addition, people who tired easily, or were not as physically agile as they had been before their accidents, tended to score highly on the statement "I feel as if I am slowed down." This statement contributes to the depression subscale of the HAD. Other researchers have also noted a tendency for people to respond to these statements in a similar manner (Fulton, 1992). Interpreting these statements in this way may, therefore, have given people higher scores for anxiety and depression than they otherwise would have registered. However, as people with physical disability and low back pain were represented in both the experimental and control groups it was unlikely to have significantly influenced the comparison between the two groups.

Psychological Well-Being Scales

At the time the project was carried out the researcher was not aware of any difficulties with the scales which measured life satisfaction, self-rated anxiety, and happiness. However the Life Satisfaction Scale covered all aspects of people's lives and included several questions about the present (unspecified) government. One person commented in the satisfaction survey that they had felt uncomfortable answering these particular questions.

Work Involvement Scale

There were no apparent difficulties with the use and completion of this scale.

The Co-ordinator as Researcher

In this study the person who adopted the role of the co-ordinator was also the main researcher. This arrangement presented the possibility of bias being introduced, particularly in the assessment of outcomes, for knowledge of the treatment that a subject has received is well documented as a potential source of bias (Fowkes and Fulton, 1991; Pollock *et al*, 1993). In addition the researcher was, in effect, evaluating herself and this may have also introduced bias in the measurement of outcome. Such bias may occur, albeit unconsciously, not only in the direction that one might expect, i.e. that outcomes for the experimental group are considered in a more favourable light than those for the control group, but also in the opposite direction. In other words outcomes for the control group may be treated more sympathetically in an effort to prevent "favouritism" towards the experimental group.

In the present study attempts were made to prevent the introduction of bias in outcome measurement by using standardised, validated scales wherever possible. Moreover self-report scales were used which subjects completed themselves. In other words the co-ordinator/evaluator was not making judgements about people's health status, level of anxiety or depression or the other quality of life measures. Employment outcomes such as contact with services, return to employment, or action taken towards returning to work could not be measured by scales and required documentation by the researcher. In these instances outcome criteria were specified as tightly as possible.

Some of the methods which are available to try to minimise this type of bias, such as a double-blind approach, were not appropriate because clearly the people in the study could not receive help without knowing about it. Another possibility is to use a single

blind method when outcomes are assessed by a person who does not know which treatment people have received. This often works best when outcomes can be judged without the assessor having contact with the people concerned, for example when performance on a particular task can be watched on a video and rated. Outcomes in this study might have been assessed using a single blind approach but the assessor would have been required to visit people at home to interview them. In doing this it is very likely that information about which group they had been allocated to, even if not explicitly stated, would have become evident. Nevertheless the use of an independent assessor to visit people, even if he or she did know whether or not people had received the co-ordinator service would have reduced the potential for bias in this study.

Data Analysis

Altman (1980^c) noted that incorrect analysis of data was probably the best known misuse of statistics. In this study chi-squared tests were used to analyse proportions and contingency tables, this being the standard method (parametric or non-parametric) for this type of analysis. However, use of the chi-squared test is frequently abused by applying the test to insufficient numbers of subjects (Altman *op cit.*). In this study care was taken to ensure that expected cell frequencies met the convention for a valid chi-squared test and where this was not the case, cells were either combined and/or Fisher's exact test computed.

Non-parametric statistics were used to analyse continuous data because they did not meet the requirements for applying parametric tests. Most notably, plotting of the continuous data showed they were not normally distributed. Bryman and Cramer (1990) noted that statistical studies have found parametric tests to be robust when handling data which was not normally distributed with the following exception:

"The one situation in which (parametric) tests were not found to be robust was where the samples were of different sizes and the variances were unequal or heterogeneous."

Both these features applied to the data from this project. There were a different number of subjects in each group and variance for the continuous data were different for each group. For example, the standard deviation for age was 10.54 in the experimental group and 13.12 in the control group. Bryman and Cramer recommend that non-parametric tests should be used in these circumstances, and this recommendation was followed for this study.

Data from the various standardised measures were treated as ordinal data, and although there have been arguments put forward about the possibility of using parametric tests to analyse ordinal data (e.g. see Bryman and Cramer, 1990, p116) other authors have argued that ordinal data must be analysed with non-parametric tests and that this condition must not be violated (Hicks, 1988, p88). As this is clearly an area of some contention the author decided to adopt the more conventional approach and use non-parametric tests.

Some authors have drawn attention to various disadvantages of non-parametric tests, principally that their primary concern is significance testing and secondly that they are less easily applied to complex situations than parametric tests (Kirkwood, 1988, p147). In this study confidence intervals were calculated in addition to P values and the small sample size precluded any sophisticated statistical analysis. Non-parametric tests are considered suitable for analysing data from sample sizes of up to 50 cases (Kirkwood, 1988, p147), and therefore in this respect were also appropriate for use in this study.

Extrapolating the Findings to a Wider Population

Externally valid findings are said to be those which can be generalised across settings and people (Fuhrer, 1987). One of the aims of the study was to be able to apply the findings to a wider population of personal injury claimants (with similar injuries to those who took part in the study). In order to achieve this a sample has to be representative of the population to whom the trial's findings may be applied (Pollock *et al*, 1993). In other words, the study sample must be representative of the group from which they are drawn and this group must be typical of the “target” population (Fowkes and Fulton, 1991).

In this study the sample was identified from the current claims files of four composite insurance companies and all claimants who were identified as meeting the entry criteria, or were thought to meet the entry criteria were contacted about participation in the project. Hence people contacted about the study were representative of the group from which they were taken because they were the whole group. With regard to whether the study population was typical of the target population, there was no reason to suppose that the people whose claims were being handled by the four insurance companies involved in the project were any different from the people whose claims were being handled by other insurance companies. Therefore it is reasonable to

conclude that the people contacted were representative of personal injury claimants who sustain minor, moderate or severe injuries.

It is also important to examine whether the people who actually took part in the project were likely to be typical of the larger population of personal injury claimants with similar injuries. Baddeley, Meade and Newcomb (1980) commented:

"Many trials are deliberately carried out on highly selected groups, and for very good reasons. In these cases, particular care must be taken not to make general and unwarranted extrapolations of the results. One procedure which should increasingly be part of any randomised trial is to record all patients considered for the trial, whether or not they are eventually included. It is then possible to compare those entered with those who are not and thus to form some idea about the extent to which generalisations are reasonable."

The recruitment figures presented in Figure 2 on page 95, give an initial impression that the refusal rate was high and, as Altman (1980^b) noted, refusers may be a different group to the people who take part in a study. The figures are distorted because many of the people who were contacted about the study did not meet the eligibility criteria (this was due to lack of information about people in their claims files) and therefore the refusal rate appears higher than it actually was.

To try to check whether there were any differences between the people who agreed to take part in the project and those who refused, claims files were again examined at the end of the project when more information was available. Not all files could be found. However information was traced on 39 of the 45 people who were known to have been eligible for the project and refused. A comparison between the project group and the refuser group showed no significant difference on all the characteristics such as age, time since accident and type of accident, tested. In this respect, therefore, there appeared to be no significant differences between the people who took part in the project and those who refused. However, one important aspect which, of course, could not be ascertained was the extent to which people in the refuser group wished to return to work and clearly this would have been an important difference between the groups.

It appears reasonable to conclude that the people who received the service were likely to have been representative of the wider population of personal injury claimants with similar injuries. However the service was only provided by one co-ordinator and this may limit its generalisability to other settings because, as Fuhrer (1987) noted external validity is threatened if the results of a service depend on a service provider's specific

style. In a sense, therefore, this study only looked at one specific provider of a co-ordinator service. However the practices adopted were based on previous experience and research, and a later discussion with an insurance rehabilitation nurse in Canada suggested that the approach adopted was similar to that favoured by many vocational specialists working with disability compensation recipients in Canada (Swann, 1994, personal communication). Nevertheless any future study might consider providing more than one co-ordinator. This has certainly been the case in other evaluative studies of case management services (Addington-Hall *et al*, 1992; Challis and Davies, 1985; Greenwood *et al*, 1994).

In the study's defence, this was an initial attempt to ascertain whether the idea would be feasible and limited resources were available. Moreover attempts were made to describe the intervention as precisely as possible. However it must be acknowledged that the personal style of the co-ordinator might have influenced outcomes and the study's findings would be more generalisable if several co-ordinators, and therefore several personal styles had been incorporated.

Positive Aspects of the Study

Some authors have highlighted various shortcomings of experimental approaches, in particular that one gains little insight into the context in which interventions occur so explanations as to why, for example, a service might be ineffective are not available. This study tried to address this shortcoming by including a qualitative analysis of the service in addition to the experimental design. Information from this aspect of the study provided helpful insights into the provision of the service, the difficulties that people faced, and why successful outcomes were sometimes not achieved. Although there has been considerable debate about the adoption of mixed quantitative/qualitative designs, the qualitative aspects of this study enhanced the study, and provided information which could help to focus future service developments. Hence the adoption of a mixed quantitative/qualitative design was a positive feature of this study.

Another positive feature of the study was the high completion rate for only two people (4%) were withdrawn or lost. Moreover this occurred after the six month review, so all subjects completed the main evaluative aspect of the project.

3. CONCLUSIONS

The results of the evaluation indicated that the group who received the rehabilitation co-ordinator service did not have better outcomes than the group who did not receive the service. There is the possibility that a small sample size, resulting in low statistical power, did not allow the detection of small or medium effects of the service. However in providing the service it was evident that much more was required than merely linking people to services, and therefore it is unlikely that the service had an effect on outcomes, especially in the limited time available. The service did not operate under the easiest of circumstances. For example it's clients lived in areas of high unemployment, contact with people was not established until two years, on average, after injury, and most people had already lost their pre-accident jobs. In other words this was a group of people already at severe disadvantage in the labour market at the time they entered the project.

There are several aspects of the service which may have contributed to the lack of successful outcomes. The first is that the co-ordinator mainly acted as a service broker, i.e. did not provide any rehabilitation or active service herself. In this respect, therefore, the success of the rehabilitation co-ordinator service was dependent on the effectiveness of the services to whom people were referred. This problem has been noted by other evaluators of similar types of case manager services (Addington-Hall *et al*, 1992). If the co-ordinator is a budget holder, then there is the possibility of having the choice of which service clients are referred to. However this was not a possibility in the rehabilitation co-ordinator service. There was a total reliance on the employment services provided by the Department of Employment, and some authors have noted their failure to help physically disabled clients (e.g. Johnson , 1989).

The results of the project confirmed that people may experience considerable difficulty returning to work after injury and that employment problems are not given early consideration. Clearly there is still a need for these issues to be addressed, and a co-ordinator or case manager service could help to achieve this. However it is evident from this project that a co-ordinator service is not the total answer and that good vocational rehabilitation services and training programmes are required if people are to have good prospects of returning to employment after injury.

To finish on a more positive note, the project did have some encouraging features. It is evident that the people who received the service valued it, and it undoubtedly

provided a means of social support for a group of people following their accidents. The service was also successfully implemented which, in itself, was an achievement given that it operated within the adversarial system.

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APPENDIX A



DISABILITY MANAGEMENT RESEARCH GROUP

REHABILITATION COORDINATOR PROJECT
PLANNING DOCUMENT

I PERSONAL DETAILS (SUMMARY)

Date

Case identification number

Date of accident

Age at time of accident

Type of accident

Nature of injuries

Medical treatment received

Response to treatment

Present complaints
(Physical, Psychological, Social)

EMPLOYMENT DETAILS

Job title and description

Present situation

Educational qualifications/skills

INCOME

Main source of income

Benefits received and amount (£)

Statutory Sick Pay
Sickness Benefit
Invalidity Benefit
Industrial Injuries Disablement Benefit
Mobility Allowance
Attendance Allowance
Severe Disablement Allowance
Reduced Earnings Allowance
Income Support
Other (specify)

Total Income (per week)

II REHABILITATION CO-ORDINATOR'S REPORT FOR REVIEW PANEL

Case identification number

III REHABILITATION OBJECTIVES

Case identification number

Date Objectives proposed by review panel

Objectives reviewed with claimant:

Objective Number	Accepted	Modified	Rejected	Comments

Rehabilitation objective number

Action/actions to be taken

- 1.
- 2.
- 3.

Person taking action

- 1.
- 2.
- 3.

Date action to be taken by

- 1.
- 2.
- 3.

Results of action/actions

- 1.
- 2.
- 3.

Comments

IV OUTCOME

Case identification number

1. Rehabilitation objectives

Objective number:

Success Criteria of Objective	Achieved	Partially Achieved	Not Achieved

Comments:

2. Return to work

Work returned to:

Same job: same employer

Same (modified) job: same employer

Different job: same employer

Same or modified job: different employer

Different job: different employer

Different job (extensive training): same or different employer

Self employment

Sheltered workshop/placement

Not returned to work

Date of return to work

.....

Length of time between accident and return to work (months)

.....

3. Rehabilitation status

Scale	Scores on admission to project	Scores 6 months after admission
1. H.A.D.	A. D.	
2. WARR	1. 2. 3. 4. 5. 6. 7. T.S.	
3. E.R.S.S.	SUPP INACT ISOL EFF SYM T.S.	
4. N.H.P.	PHYS MOB PAIN SLEEP ENERGY SOC ISOL EM REAC	

V LIST OF CONTACTS

Case identification number

1. Medical/rehabilitation services

<u>G.P.</u>	
Involved:	Yes/No
Name:	
Address:	
Tel No:	
Date of last appt:	
Date of next appt:	

<u>Consultant</u>	
Involved:	Yes/No
Number involved:
Name:	Name:
Title:	Title:
Address:	Address:
Tel No:	Tel No:
Date of last appt:	Date of last appt:
Date of next appt:	Date of next appt:

Physiotherapist

Involved: Yes/No

Name:

Address:

Tel No:

Date of last appt:

Date of next appt:

Occupational therapist

Involved: Yes/No

Name:

Address:

Tel No:

Date of last appt:

Date of next appt:

Speech therapist

Involved: Yes/No

Name:

Address:

Tel No:

Date of last appt:

Date of next appt:

Psychologist

Involved: Yes/No

Name:

Address:

Tel No:

Date of last appt:

Date of next appt:

Social worker

Involved: Yes/No

Name:

Address:

Tel No:

Date of last appt:

Date of next appt:

2. Employment

Employer

Name:

Address:

Tel No:

Personnel manager:

Line manager:

Other contacts:

Trade Union

Involved: Yes/No

Name:

Shop steward:

Tel No:

Job Centre

Involved already: Yes/No

Address:

Tel No:

Contact:

E.R.C.

Address:

Tel No:

Contact:

D.A.S.

Address:

Tel No:

Contact:

3. Other professional services

Insurance company

Name:

Address:

Tel No:

Contact:

Solicitors

Name:

Address:

Tel No:

Contact:

4. Other contacts

VI CASE NOTES

Case identification number

Notes

Date

--	--

VII APPOINTMENT SCHEDULE

Case Identification Number:-

Date of Appointment	Arranged (date)	Confirmed (date)	Achieved (date)	Comments

APPENDIX B

THE NOTTINGHAM HEALTH PROFILE

Date

Three empty boxes for date entry.

QUESTIONNAIRE 1

LISTED BELOW ARE SOME PROBLEMS PEOPLE MAY HAVE IN THEIR DAILY LIFE.

LOOK DOWN THE LIST AND PUT A TICK IN THE BOX UNDER YES FOR ANY PROBLEM YOU HAVE AT THE MOMENT. TICK THE BOX UNDER NO FOR ANY PROBLEM YOU DO NOT HAVE.

PLEASE ANSWER EVERY QUESTION. IF YOU ARE NOT SURE WHETHER TO SAY YES OR NO, TICK WHICHEVER ANSWER YOU THINK IS MORE TRUE AT THE MOMENT.

	YES	NO
I'm tired all the time	<input type="checkbox"/>	<input type="checkbox"/>
I have pain at night	<input type="checkbox"/>	<input type="checkbox"/>
Things are getting me down	<input type="checkbox"/>	<input type="checkbox"/>

	YES	NO
I have unbearable pain	<input type="checkbox"/>	<input type="checkbox"/>
I take tablets to help me sleep	<input type="checkbox"/>	<input type="checkbox"/>
I've forgotten what it's like to enjoy myself	<input type="checkbox"/>	<input type="checkbox"/>

	YES	NO
I'm feeling on edge	<input type="checkbox"/>	<input type="checkbox"/>
I find it painful to change position	<input type="checkbox"/>	<input type="checkbox"/>
I feel lonely	<input type="checkbox"/>	<input type="checkbox"/>

	YES	NO
I can only walk about indoors	<input type="checkbox"/>	<input type="checkbox"/>
I find it hard to bend	<input type="checkbox"/>	<input type="checkbox"/>
Everything is an effort	<input type="checkbox"/>	<input type="checkbox"/>

	YES	NO
I'm waking up in the early hours of the morning	<input type="checkbox"/>	<input type="checkbox"/>
I'm unable to walk at all	<input type="checkbox"/>	<input type="checkbox"/>
I'm finding it hard to make contact with people	<input type="checkbox"/>	<input type="checkbox"/>

	YES	NO
The days seem to drag	<input type="checkbox"/>	<input type="checkbox"/>
I have trouble getting up and down stairs or steps..	<input type="checkbox"/>	<input type="checkbox"/>
I find it hard to reach for things	<input type="checkbox"/>	<input type="checkbox"/>

<p>REMEMBER IF YOU ARE NOT SURE WHETHER TO ANSWER YES OR NO TO A PROBLEM, TICK WHICHEVER ANSWER YOU THINK IS <u>MORE TRUE</u> AT THE MOMENT</p>

	YES	NO
I'm in pain when I walk	<input type="checkbox"/>	<input type="checkbox"/>
I lose my temper easily these days	<input type="checkbox"/>	<input type="checkbox"/>
I feel there is nobody I am close to	<input type="checkbox"/>	<input type="checkbox"/>

	YES	NO
I lie awake for most of the night	<input type="checkbox"/>	<input type="checkbox"/>
I feel as if I'm losing control	<input type="checkbox"/>	<input type="checkbox"/>
I'm in pain when I'm standing	<input type="checkbox"/>	<input type="checkbox"/>

	YES	NO
I find it hard to dress myself	<input type="checkbox"/>	<input type="checkbox"/>
I soon run out of energy	<input type="checkbox"/>	<input type="checkbox"/>
I find it hard to stand for long (eg at the kitchen sink, waiting for a bus)	<input type="checkbox"/>	<input type="checkbox"/>

	YES	NO
I'm in constant pain	<input type="checkbox"/>	<input type="checkbox"/>
It takes me a long time to get to sleep	<input type="checkbox"/>	<input type="checkbox"/>
I feel I am a burden to people	<input type="checkbox"/>	<input type="checkbox"/>

	YES	NO
Worry is keeping me awake at night	<input type="checkbox"/>	<input type="checkbox"/>
I feel that life is not worth living	<input type="checkbox"/>	<input type="checkbox"/>
I sleep badly at night	<input type="checkbox"/>	<input type="checkbox"/>

	YES	NO
I'm finding it hard to get on with people	<input type="checkbox"/>	<input type="checkbox"/>
I need help to walk about outside (eg walking aid or someone to support me)	<input type="checkbox"/>	<input type="checkbox"/>
I'm in pain when going up and down stairs or steps..	<input type="checkbox"/>	<input type="checkbox"/>

	YES	NO
I wake up feeling depressed	<input type="checkbox"/>	<input type="checkbox"/>
I'm in pain when I'm sitting	<input type="checkbox"/>	<input type="checkbox"/>

NOW WE WOULD LIKE YOU TO THINK ABOUT THE
 ACTIVITIES IN YOUR LIFE WHICH MAY BE
 AFFECTED BY HEALTH PROBLEMS

IN THE LIST BELOW, TICK YES FOR EACH ACTIVITY IN YOUR LIFE WHICH IS BEING AFFECTED BY YOUR STATE OF HEALTH. TICK NO FOR EACH ACTIVITY WHICH IS NOT BEING AFFECTED, OR WHICH DOES NOT APPLY TO YOU.

Is your present state of health causing problems with your ...

	YES	NO
JOB OF WORK (That is, paid employment)	<input type="checkbox"/>	<input type="checkbox"/>
LOOKING AFTER THE HOME (Examples: cleaning & cooking, repairs, odd jobs around the home etc)	<input type="checkbox"/>	<input type="checkbox"/>
SOCIAL LIFE (Examples: going out, seeing friends, going to the pub etc)	<input type="checkbox"/>	<input type="checkbox"/>
HOME LIFE (That is: relationships with other people in your home)	<input type="checkbox"/>	<input type="checkbox"/>
SEX LIFE	<input type="checkbox"/>	<input type="checkbox"/>
INTERESTS AND HOBBIES (Examples: sports, arts and crafts, do-it-yourself etc)	<input type="checkbox"/>	<input type="checkbox"/>
HOLIDAYS (Examples: summer or winter holidays, weekends away etc)	<input type="checkbox"/>	<input type="checkbox"/>

NOW GO BACK TO PAGE 1 AND MAKE SURE
 YOU HAVE ANSWERED YES OR NO TO
 EVERY QUESTION ON ALL THE PAGES

HAD Scale

--	--	--

Date



Upjohn

Further examples of the HAD Scale may be obtained from the Medical Sciences Liaison* Division (MSL) Upjohn Limited, Fleming Way, Crawley, West Sussex, RH10 2NJ

*Trademark

Emotions play an important part in most illnesses. If we know about these feelings we will be able to help you more.

This questionnaire is designed to help us to know how you feel. Read each item and place a firm tick in the box opposite the reply which comes closest to how you have been feeling in the past week.

Don't take too long over your replies: your immediate reaction to each item will probably be more accurate than a long thought-out response.

Tick only one box in each section

I feel tense or 'wound up':

- Most of the time
- A lot of the time
- Time to time, Occasionally
- Not at all

I feel as if I am slowed down:

- Nearly all the time
- Very often
- Sometimes
- Not at all

I still enjoy the things I used to enjoy:

- Definitely as much
- Not quite so much
- Only a little
- Hardly at all

I get a sort of frightened feeling like 'butterflies' in the stomach:

- Not at all
- Occasionally
- Quite often
- Very often

I get a sort of frightened feeling as if something awful is about to happen:

- Very definitely and quite badly
- Yes, but not too badly
- A little, but it doesn't worry me
- Not at all

I have lost interest in my appearance:

- Definitely
- I don't take so much care as I should.....
- I may not take quite as much care
- I take just as much care as ever

I can laugh and see the funny side of things:

- As much as I always could
- Not quite so much now
- Definitely not so much now
- Not at all

I feel restless as if I have to be on the move:

- Very much indeed
- Quite a lot
- Not very much
- Not at all

Worrying thoughts go through my mind:

- A great deal of the time
- A lot of the time
- From time to time but not too often ...
- Only occasionally

I look forward with enjoyment to things:

- As much as ever I did
- Rather less than I used to
- Definitely less than I used to
- Hardly at all

I feel cheerful:

- Not at all
- Not often
- Sometimes
- Most of the time

I get sudden feelings of panic:

- Very often indeed
- Quite often
- Not very often
- Not at all

I can sit at ease and feel relaxed:

- Definitely
- Usually
- Not often
- Not at all

I can enjoy a good book or radio or TV programme:

- Often
- Sometimes
- Not often
- Very seldom

--	--	--

WORK AND LIFE ATTITUDES SCALES

QUESTIONNAIRE 3

1. WORK

For some people work is just a means to get money, something they have to put up with. For others work is the centre of their life, something that really matters. Whether you are actually in a paid job does not matter.

Please answer the statements below by circling the number which corresponds nearest to your own opinion.

The more strongly you agree, the higher the number you circle. The more strongly you disagree, the lower the number you circle.

PLEASE ANSWER EVERY SENTENCE AND CIRCLE ONLY ONE NUMBER PER ITEM.

There are no right or wrong answers.

WORK INVOLVEMENT SCALE	No, I strongly disagree	No, I disagree quite a lot	No, I disagree just a little	I,m not sure about this	Yes, I agree just a little	Yes, I agree quite a lot	Yes, I strongly agree
1. Even if I won a great deal of money on the pools I would continue to work somewhere	1	2	3	4	5	6	7
2. Having a job is very important to me	1	2	3	4	5	6	7
3. I should hate to be on the dole	1	2	3	4	5	6	7
4. I would soon get bored if I had no work to do	1	2	3	4	5	6	7
5. The most important things that happen to me involve work	1	2	3	4	5	6	7
6. If unemployment benefit was really high I would still prefer to work	1	2	3	4	5	6	7

**INTRINSIC JOB
MOTIVATION SCALE**

No, I strongly disagree	No, I disagree quite a lot	No, I disagree just a little	I,m not sure about this	Yes, I agree just a little	Yes, I agree quite a lot	Yes, I strongly agree
-------------------------	----------------------------	------------------------------	-------------------------	----------------------------	--------------------------	-----------------------

Answer the next statements in relation to your current (or last job if you are not in a paid job at present)

7. I feel a sense of personal satisfaction when I do this job well	1	2	3	4	5	6	7
8. My opinion of myself goes down when I do this job badly	1	2	3	4	5	6	7
9. I take pride in doing my job well	1	2	3	4	5	6	7
10. I feel unhappy when my work is not up to my usual standard	1	2	3	4	5	6	7
11. I like to look back on the day's work with a sense of a job well done	1	2	3	4	5	6	7
12. I try to think of ways of doing my job effectively	1	2	3	4	5	6	7

2. SATISFACTION

JOB SATISFACTION SCALE

The next set of statements deal with various aspects of your job and life in general. I would like you to indicate how satisfied or dissatisfied you feel with each statement.

The more satisfied you feel, the higher the number you circle. The more dissatisfied you feel, the lower the number you circle.

PLEASE ANSWER EVERY SENTENCE AND CIRCLE ONLY ONE NUMBER PER ITEM.

Again there are no right or wrong answers.

I'm extremely dis-satisfied	I'm very dis-satisfied	I'm moderately dis-satisfied	I,m not sure	I'm moderately satisfied	I'm very satisfied	I'm extremely satisfied
-----------------------------	------------------------	------------------------------	--------------	--------------------------	--------------------	-------------------------

Answer the next statements in relation to your current job (or last job if you are not in a paid job at present)

13. The physical work conditions	1	2	3	4	5	6	7
----------------------------------	---	---	---	---	---	---	---

I'm extremely dis-satisfied	I'm very dis-satisfied	I'm moderately dis-satisfied	I,m not sure	I'm moderately satisfied	I'm very satisfied	I'm extremely satisfied
-----------------------------	------------------------	------------------------------	--------------	--------------------------	--------------------	-------------------------

14. The freedom to choose your own method of working	1	2	3	4	5	6	7
15. Your fellow workers	1	2	3	4	5	6	7
16. The recognition you get for good work	1	2	3	4	5	6	7
17. Your immediate boss	1	2	3	4	5	6	7
18. The amount of responsibility you are given	1	2	3	4	5	6	7
19. Your rate of pay	1	2	3	4	5	6	7
20. Your opportunity to use your abilities	1	2	3	4	5	6	7
21. Industrial relations between management and workers in your firm or place of work	1	2	3	4	5	6	7
22. Your chance of promotion	1	2	3	4	5	6	7
23. The way your firm is managed	1	2	3	4	5	6	7
24. The attention paid to the suggestions you make	1	2	3	4	5	6	7
25. Your hours of work	1	2	3	4	5	6	7
26. The amount of variety in your work	1	2	3	4	5	6	7
27. Your job security	1	2	3	4	5	6	7
28. Taking everything into consideration, how do you feel about the job	1	2	3	4	5	6	7

**LIFE
SATISFACTION
SCALE**

I'm extremely dis-satisfied	I'm very dis-satisfied	I'm moderately dis-satisfied	I,m not sure	I'm moderately satisfied	I'm very satisfied	I'm extremely satisfied
-----------------------------	------------------------	------------------------------	--------------	--------------------------	--------------------	-------------------------

Please answer the next statements in relation to life in general

29. The house or flat you live in	1	2	3	4	5	6	7
30. The local district you live in	1	2	3	4	5	6	7
31. Your standard of living, the things which you can buy and do	1	2	3	4	5	6	7
32. The way you spend your leisure time	1	2	3	4	5	6	7
33. Your present state of health	1	2	3	4	5	6	7
34. The education you have received	1	2	3	4	5	6	7
35. What you are accomplishing in life	1	2	3	4	5	6	7
36. What the future seems to hold for you	1	2	3	4	5	6	7
37. Your social life	1	2	3	4	5	6	7
38. Your family life	1	2	3	4	5	6	7
39. The present government	1	2	3	4	5	6	7
40. Freedom and democracy in Britain today	1	2	3	4	5	6	7
41. The state of law and order in Britain today	1	2	3	4	5	6	7
42. The moral standards and values in Britain today	1	2	3	4	5	6	7

I'm extremely dis-satisfied	I'm very dis-satisfied	I'm moderately dis-satisfied	I,m not sure	I'm moderately satisfied	I'm very satisfied	I'm extremely satisfied
-----------------------------	------------------------	------------------------------	--------------	--------------------------	--------------------	-------------------------

43. Britain's reputation in the world today	1	2	3	4	5	6	7
44. Taking everything together, your life as a whole these days	1	2	3	4	5	6	7

3. JOB CHARACTERISTICS

PERCEIVED INTRINSIC JOB CHARACTERISTICS SCALE

How much do the following aspects of work apply to your job?

The more you feel that a statement applies, the higher the number you circle. The less the statement applies, the lower the number you circle.

PLEASE ANSWER EVERY STATEMENT AND CIRCLE ONLY ONE NUMBER PER ITEM.

There are no right or wrong answers.

There's none of that in my job	There's just a little of that in my job	There's a moderate amount in my job	There's quite a lot in my job	There's a great deal in my job
--------------------------------	---	-------------------------------------	-------------------------------	--------------------------------

Answer the next statements in relation to your current job (or last job if you are not in a paid job at present)

45. The freedom to choose your own method of working	1	2	3	4	5
46. The amount of responsibility you are given	1	2	3	4	5
47. The recognition you get for good work	1	2	3	4	5
48. Being able to judge your work performance right away, when actually doing the job	1	2	3	4	5
49. Your opportunity to use your abilities	1	2	3	4	5

	There's none of that in my job	There's just a little of that in my job	There's a moderate amount in my job	There's quite a lot in my job	There's a great deal in my job
--	--------------------------------	---	-------------------------------------	-------------------------------	--------------------------------

50. The amount of variety in your job	1	2	3	4	5
51. Your chance of promotion	1	2	3	4	5
52. The attention paid to suggestions you make	1	2	3	4	5
53. The feeling of doing something which is not trivial, but really worthwhile	1	2	3	4	5
54. Doing a whole and complete piece of work	1	2	3	4	5

**HIGHER ORDER
NEED STRENGTH
SCALE**

Not at all important	Not particularly important	I'm not sure about its importance	Moderately important	Fairly important	Very important	Extremely important
----------------------	----------------------------	-----------------------------------	----------------------	------------------	----------------	---------------------

How important are the following to you when looking for a job

55. Using your skills	1	2	3	4	5	6	7
56. Achieving something that you personally value	1	2	3	4	5	6	7
57. The opportunity to make your own decisions	1	2	3	4	5	6	7
58. The opportunity to learn new things	1	2	3	4	5	6	7
59. Challenging work	1	2	3	4	5	6	7
60. Extending your range of abilities	1	2	3	4	5	6	7

4. GENERAL CONCERNS

Most people these days have something to worry about, sometimes big things, sometimes small things. Please think back over the past few weeks and answer the following.

The more worried you have felt, the higher the number you circle. The less worried you have felt, the lower the number you circle.

PLEASE ANSWER EVERY SENTENCE AND CIRCLE ONLY ONE NUMBER PER ITEM

Remember, there are no right or wrong answers.

SELF-RATED ANXIETY SCALE

Not at all concerned	Just a little concerned	Mildly concerned	Worry a little	Quite worried	Very worried	Extremely worried
----------------------	-------------------------	------------------	----------------	---------------	--------------	-------------------

61. Not having enough money for day to day living	1	2	3	4	5	6	7
62. Your immediate family	1	2	3	4	5	6	7
63. Your health	1	2	3	4	5	6	7
64. Growing old	1	2	3	4	5	6	7
65. How things are going at work	1	2	3	4	5	6	7
66. Britain's economic future	1	2	3	4	5	6	7
67. In general, how worried or concerned do you feel these days?	1	2	3	4	5	6	7

HAPPINESS SCALE

Taking all things together, how would you say things were these days?

Would you say you are:

- Very happy 3)
- Fairly happy 2) circle appropriate number
- Not too happy 1)

THANK YOU FOR TAKING THE TIME TO ANSWER THIS QUESTIONNAIRE. ALL INFORMATION WILL BE TREATED AS CONFIDENTIAL

PLEASE DO NOT PUT YOUR NAME ON THE DOCUMENT.

REHABILITATION CO-ORDINATOR SERVICE

The following questions are designed to find out how satisfied or dissatisfied you were with the service you received from Christine Davey.

The first few questions offer a choice of reply. I will read each question followed by the choice of answers. In each case I would like you to tell me which one best describes your experience.

1. First I would like to ask about the number of visits and telephone calls you received from Christine Davey.
Do you think you received More than enough?
Enough?
Not enough?

2. Did you receive information and advice from Christine on all the problems you wanted help with?
Would you say None of the problems
Some of the problems
All of the problems

3. Was the information and advice you received given in sufficient detail?
Would you say More than enough detail
Enough detail
Not enough detail

4. Did you receive practical help from Christine with all the problems you wanted help with?
Would you say None of the problems
Some of the problems
All of the problems

5. Was the amount of practical help you received with those problems More than enough
Enough
Not enough

6. How helpful was the practical assistance you received?
Would you say Not at all helpful
Helpful
Very helpful

7. When you were provided with information or action was taken on your behalf, was the length of time taken to do this Too quick?
Just right?
Too slow?

8. Taking everything into consideration, how satisfied were you with the service you received from Christine.
Would you say Very satisfied
Satisfied
Dissatisfied

9. Taking everything into consideration,
do you think the service you received
made any difference to your life?

Would you say It made things worse
It made no difference
It made things better

For the last few questions please could you give answers in your own words:

10. Which aspects of the service were you most satisfied with?

(For example:- Having someone to discuss problems with; having help to find out about benefits,
having help with searching for jobs)

11. Which aspects of the service were you least satisfied with?

(For example:- Number of visits and phone calls or amount of help you received)

12. If we offered the service to other people in the future, do you have any suggestions to improve it?

13. Finally, can I ask what you are doing at the moment. For example, are you
Working?
Attending a course at college (Full time or part time)?
Looking for work?
Other?
(Please ask for details)

REHABILITATION CO-ORDINATOR SERVICE

The following questions are designed to find out how satisfied or dissatisfied you were with the service you received from Christine Davey. Please follow the instructions and answer each question. For those questions where there is a choice of replies please place a firm tick opposite the reply you choose.

1. First I would like to ask about the number of visits and telephone calls you received from Christine Davey.
Do you think you received

	More than enough?	<input type="checkbox"/>
	Enough?	<input type="checkbox"/>
	Not enough?	<input type="checkbox"/>

2. Did you receive information and advice from Christine on all the problems you wanted help with?
Would you say

	None of the problems	<input type="checkbox"/>
	Some of the problems	<input type="checkbox"/>
	All of the problems	<input type="checkbox"/>

3. Was the information and advice you received given in sufficient detail?
Would you say

	More than enough detail	<input type="checkbox"/>
	Enough detail	<input type="checkbox"/>
	Not enough detail	<input type="checkbox"/>

4. Did you receive practical help from Christine with all the problems you wanted help with?
Would you say

	None of the problems	<input type="checkbox"/>
	Some of the problems	<input type="checkbox"/>
	All of the problems	<input type="checkbox"/>

5. Was the amount of practical help you received with those problems

	More than enough	<input type="checkbox"/>
	Enough	<input type="checkbox"/>
	Not enough	<input type="checkbox"/>

6. How helpful was the practical assistance you received?
Would you say

	Not at all helpful	<input type="checkbox"/>
	Helpful	<input type="checkbox"/>
	Very helpful	<input type="checkbox"/>

7. When you were provided with information or action was taken on your behalf, was the length of time taken to do this

	Too quick?	<input type="checkbox"/>
	Just right?	<input type="checkbox"/>
	Too slow?	<input type="checkbox"/>

8. Taking everything into consideration, how satisfied were you with the service you received from Christine.
Would you say

	Very satisfied	<input type="checkbox"/>
	Satisfied	<input type="checkbox"/>
	Dissatisfied	<input type="checkbox"/>

9. Taking everything into consideration,
do you think the service you received
made any difference to your life?

Would you say

- It made things worse
- It made no difference
- It made things better

10. Please could you describe, in your own words, which aspects
of the service you were most satisfied with?

(For example:- Having someone to discuss problems with; having help to find out about benefits,
having help with searching for jobs)

11. Please could you describe, in your own words, which aspects
of the service you were least satisfied with?

(For example:- Number of visits and phone calls or amount of help you received)

12. If we offered the service to other people in the future, do you have any suggestions to improve it? Please describe:

13. Finally, can I ask what you are doing at the moment. For example, are you: -

Working?

Attending a course at college (Full time or part time)?

Looking for work?

Other?

Please describe:

APPENDIX C

**INITIAL DATA COLLECTION SCHEDULE FOR
INSURANCE COMPANY CLAIMS FILES**

DATE: ----- **INSURANCE CO:** -----

POLICYHOLDER: ----- **REF:**-----

CLAIM: ----- **EST:** -----

NAME: -----

AGE: -----

ADDRESS: -----

TEL NO: -----

ACCIDENT: -----

(Note date) -----

INJURIES: -----

OCCUPATION: -----

SOLICITORS: -----

OTHER DETAILS:

**REHABILITATION COORDINATOR PROJECT
INTERVIEW SCHEDULE**

PERSONAL DETAILS

Name:

Date of birth:

Address:

Telephone No:

Marital status:

Members of family/household:
(Note dependents)

Accommodation:
(Note type of housing and tenure)

ACCIDENT DETAILS

(Note date of accident or onset of impairment; nature and type of accident.
If RTA: type of vehicle, driver or passenger)

INJURIES/IMPAIRMENTS:

(Describe injuries. Note primary injury/impairment - nature and severity)

MEDICAL TREATMENT

(Describe treatment since accident. Note number of, and reasons for, hospital admissions; note attendance at outpatient clinics; contact with GP)

OTHER TREATMENT RECEIVED

(Note nature of treatment and services involved eg physiotherapy)

CURRENT SITUATION

(Describe situation as at entry. Impairments/disabilities, (note most sig). Stability of present condition/prognosis. Current treatment, services and personnel involved, frequency of appts, dates of next appts; advice given re resuming work/activities)

MEDICAL HISTORY

(Note other medical conditions relevant to claim and relevant to work)

EMPLOYMENT

Employed at time of accident?

Job title:

Employer

(Note name and address; type of business; number of employees)

Job description:

(Describe duties and hours worked; overtime; tools/equipment used; work conditions; training received; trade union; distance to work and means of travel)

Net wage/salary:

(If appropriate include average overtime earned per wk)

Current situation re job:

(Note contact with employer/trade union since accident, who involved and outcome; contact with other agencies)

Previous Employment:

(Describe previous jobs and note number since leaving school; length of time in each; what liked/disliked, did well/not so well; reasons for leaving)

Vocational Choice

(Note types of work interested in doing; minimum salary acceptable; type and availability of jobs in locality)

EDUCATION

Secondary Education:

(Note age on leaving; subjects liked/disliked; exams passed)

Further/Higher Education:

(Note college/s attended; courses taken; qualifications)

Other Information

ACTIVITY CHECKLIST

ACTIVITY	IMP FOR WORK/OTHER	NO DIFF	SOME DIFF	SEVERE DIFF	COMMENTS
1 PROLONGED STANDING	/				
2 PROLONGED SITTING	/				
3 PROLONGED KNEELING	/				
4 CROUCHING SQUATTING	/				
5 MAINTAIN BALANCE/ AWKWARD POSTURES	/				
6 WALKING	/				
7 WALKING UP/DOWN MODERATE SLOPE	/				
8 WALKING UP/DOWN STAIRS	/				
9 WALKING ON ROUGH/ UNEVEN GROUND	/				
10 RUNNING	/				
11 CLIMB LADDERS/ SCAFFOLDING	/				

ACTIVITY	IMP FOR WORK/OTHER	NO DIFF	SOME DIFF	SEVERE DIFF	COMMENTS
12 TRANSFERRING POSITION	/				
13 BENDING					
14 LIFTING/CARRYING					
15 REACH/STRETCH WITH ARMS					
16 PUSH/PULL WITH ARMS					
17 HOLDING					
18 GRIPPING					
19 MANIPULATING WITH FINGERS					
20 CARRY OUT TASKS AT A SET SPEED					
21 CARRY OUT TASKS FOR A SET LENGTH OF TIME					
22 TOLERATING HEAT, COLD, NOISE, DUST, CHEMICALS ETC.					

ACTIVITY	IMP FOR WORK/OTHER	NO DIFF	SOME DIFF	SEVERE DIFF	COMMENTS
23 USING PUBLIC TRANSPORT	/				
24 USING PERSONAL TRANSPORT (DRIVER OR PASSENGER)	/				
25 SEEING	/				
26 LISTENING	/				
27 SPEAKING	/				
28 REMEMBERING	/				
29 CONCENTRATING	/				
30 LEARNING	/				
31 READING	/				
32 WRITING	/				
33 EATING/DIGESTING FOOD					

ACTIVITY	IMP FOR WORK/OTHER	NO DIFF	SOME DIFF	SEVERE DIFF	COMMENTS
34 BREATHING					
35 CONTROL BLADDER/ BOWELS					
36 SLEEPING					

FEELINGS	NO DIFF	SOME DIFF	SEVERE DIFF	COMMENTS
37 PAIN				
38 FEELING SAD OR DEPRESSED				
39 FEELING ANXIOUS OR WORRIED				
40 LOSS OF SELF CONFIDENCE				
41 LACK OF ENERGY				
OTHER PROBLEMS/ CONCERNS				

REA OF ACTIVITY	NO DIFF	SOME DIFF	SEVERE DIFF	COMMENTS	FREQUENCY PAST PRES	
HOUSEHOLD TASKS (LIST)						
HOBBIES/LEISURE ACTIVITIES (LIST)						
SEEING FRIENDS/ RELATIVES (LIST)						
GEN ACTIVITIES/ OUTINGS (eg. SHOP)						

REA OF ACTIVITY	NO DIFF	SOME DIFF	SEVERE DIFF	COMMENTS	FREQUENCY PAST	FREQUENCY PRES
-----------------	---------	-----------	-------------	----------	----------------	----------------

PERSONAL CARE						
RELATIONSHIPS FAMILY/FRIENDS						
FINANCIAL SITUATION						
HOUSING						
WORK (BEFORE INJURY)						

REA OF ACTIVITY

COMMENTS

NUM/FREQ

JOB SEEKING:
e.g. contacted employer;
Reads job vacancies in paper;
Visits Job centre;
Making job applications;

OTHER:

SIX MONTH FOLLOW-UP SCHEDULE

Date: -----

I.D

IMPAIRMENTS/DISABILITIES:

(Describe impairments/disabilities between entry and six months. Note current complaints)

TREATMENT

(Describe treatment since entry. Note hospital admissions; attendance at outpatient clinics; contact with GP; physiotherapy or contact with other services. Forthcoming treatment etc)

EMPLOYMENT

Return to work?

(Note date of return; type of job; employer; how managing job)

RETURN TO WORK/TRAINING ACTIVITIES

(Note contact with employment services; attendance at training courses; job search activities etc. and outcomes. Other contacts e.g. employer)

SOCIAL AND FINANCIAL CIRCUMSTANCES

(Note any changes in family/social life; day to day activities; DSS benefits)

ADDITIONAL INFORMATION:

(e.g. current problems/concerns)

TWELVE MONTH FOLLOW-UP SCHEDULE

Date: -----

I.D

IMPAIRMENTS/DISABILITIES:

(Describe impairments/disabilities between six and twelve months. Note current complaints)

TREATMENT

(Describe treatment since six months. Note hospital admissions; attendance at outpatient clinics; contact with GP; physiotherapy or contact with other services. Forthcoming treatment etc)

EMPLOYMENT

Return to work?

(Note date of return; type of job; employer; how managing job)

RETURN TO WORK/TRAINING ACTIVITIES

(Note contact with employment services; attendance at training courses; job search activities etc. and outcomes. Other contacts e.g. employer)

SOCIAL AND FINANCIAL CIRCUMSTANCES
(Note any changes in family/social life; day to day activities; DSS benefits)

ADDITIONAL INFORMATION:
(e.g. current problems/concerns)

**CODING FRAME FOR
REHABILITATION CO-ORDINATOR PROJECT**

IDENTIFICATION AND PERSONAL DATA

1.	ID	<u>Case identification number</u>	1	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="width: 20px; text-align: center;">1</td> <td style="width: 20px; text-align: center;">2</td> </tr> <tr> <td style="height: 20px;"></td> <td style="height: 20px;"></td> </tr> </table>	1	2								
1	2													
2.	LOC	<u>Location</u> 1 Scotland 2 England -----		<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="width: 20px; text-align: center;">3</td> </tr> <tr> <td style="height: 20px;"></td> </tr> </table>	3									
3														
3.	GROUP	<u>Group allocated to</u> 1 Experimental 2 Control		<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="width: 20px; text-align: center;">4</td> </tr> <tr> <td style="height: 20px;"></td> </tr> </table>	4									
4														
4.	SEX	<u>Sex of claimant</u> 1 Male 2 Female		<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="width: 20px; text-align: center;">5</td> </tr> <tr> <td style="height: 20px;"></td> </tr> </table>	5									
5														
5.	DOB	<u>Date of birth</u>	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="width: 15px; height: 15px;"></td> <td style="width: 15px; height: 15px;"></td> <td style="width: 15px; height: 15px;"></td> <td style="width: 15px; height: 15px;"></td> <td style="width: 15px; height: 15px;"></td> <td style="width: 15px; height: 15px;"></td> </tr> </table>							<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="width: 20px; text-align: center;">6</td> <td style="width: 20px; text-align: center;">7</td> </tr> <tr> <td style="height: 20px;"></td> <td style="height: 20px;"></td> </tr> </table>	6	7		
6	7													
6.	AGE	<u>Age (years)</u>		<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table>										
7.	AGEGR	<u>Age group (years)</u> 1 16-30 2 31-40 3 41-50 4 51-60 5 61+		<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="width: 20px; text-align: center;">8</td> </tr> <tr> <td style="height: 20px;"></td> </tr> </table>	8									
8														

Missing is coded 9, 99, 999 etc

MSTATUS

Marital status

- 1 Single
- 2 Married,co-habiting
- 3 Divorced,separated
- 4 Widowed

9

ACCIDENT DATA

9. DOA

Date of accident

--	--	--	--	--	--

10 11

--	--

10. TIMACC

Time since accident (months)

11. TIMEGR

Time group (months)

- 1 1-6
- 2 7-12
- 3 13-24
- 4 25-36
- 5 37-48
- 6 49-60

12

12. AGEACC

Age at accident (years)

13 14

--	--

13. AGEGRACC

Age group at accident (years)

Coding as for AGEGR

15

14. TYPACC

Type of accident

- 1 RTA
- 2 Fall more than 2 metres
- 3 Fall, slip trip same level
- 4 Struck, crushed by object
- 5 Over exertion, strenuous, awkward movements
- 6 Caught in machinery
- 7 Other -----
-

16

15. TYPTRAN If RTA, type of transport

- 1 Pedestrian
- 2 Moped, Motorcycle
- 3 Car, Van
- 4 Taxi, Minibus, Bus, Coach
- 5 Truck, HGV
- 8 Not applicable

17

16. DROP If RTA, driver or passenger

- 1 Driver
- 2 Passenger (specify)
-
- 8 Not applicable

18

17. JOUR If RTA, reason for journey

- 1 Work
- 2 Travelling to or from work
- 3 Domestic
- 8 Not applicable

19

18. TYPCLA Type of claim

- 1 Employers Liability
- 2 Motor
- 3 Other (specify)
-
-

20

INJURIES AND IMPAIRMENTS

Describe injuries/impairments

19. TOTINJ Total number of injuries

20. NATINJ1 Nature of primary injury

- 1 Sprain or Strain
- 2 Crush injury
- 3 Laceration (vessels, nerves)
- 4 Fracture
- 5 Amputation
- 6 Multiple fractures of equal severity
- 7 Multiple main injuries of different nature
- 8 Not applicable

22

21. REGINJI Region of primary injury

- 1 Upper limbs
- 2 Chest
- 3 Spine (specify) -----
- 4 Lower limbs
- 5 Multiple injuries of equal severity affecting different regions
- 8 Not applicable

23

22. SEVINJI Severity of primary injury (A.I.S)

- 1 Minor
- 2 Moderate
- 3 Severe (not life threatening)
- 4 Serious (life threatening, survival probable)
- 8 Not applicable

24

IMPAIRMENTS DUE TO INJURIES (ICIDH, Two Digit)

23. INTIMP Intellectual impairment

- 0 No
- 1 Yes (describe)

25

24. PSYIMP Psychological impairment

- 0 No
- 1 Yes (describe)

26

25. LANGIMP Language impairment

- 0 No
- 1 Yes (describe)

27

26. AURIMP Aural impairment

- 0 No
- 1 Yes (describe)

28

27. OCIMP Ocular impairment

- 0 No
- 1 Yes (describe)

29

28. VISIMP Visceral impairment

- 0 No
- 1 Yes (describe)

30

29. SKIMP

Skeletal impairment

- 0 No
- 1 Yes (describe)

31

30. DISIMP

Disfiguring impairment

- 0 No
- 1 Yes (describe)

32

31. GENIMP

Generalised, sensory, other impairment

- 0 No
- 1 Yes (describe)

33

RESIDUAL DISABILITIES (ICIDH - Two Digit)

32. BEHDIS

Behaviour disability

- 0 No
- 1 Yes (describe)

34

33. COMDIS Communication disability

- 0 No
- 1 Yes (describe)

35

34. PECADIS Personal care disability

- 0 No
- 1 Yes (describe)

36

35. LOCDIS Locomotor disability

- 0 No
- 1 Yes (describe)

37

36. BODDIS Body disposition disability

- 0 No
- 1 Yes (describe)

38

37. DEXDIS

Dexterity disability

- 0 No
- 1 Yes (describe)

39

38. SITDIS

Situational disability

- 0 No
- 1 Yes (describe)

40

39 SIGDIS1

Most significant disability

- 0 Behaviour
- 1 Communication
- 2 Personal care
- 3 Locomotor
- 4 Body disposition
- 5 Dexterity
- 6 Situational
- 8 Not applicable

41

40. SEVDIS1

Severity of most significant disability (ICIDH)

- 0 Not disabled
- 1 Difficulty in performance
- 2 Aided performance
- 3 Assisted performance
- 4 Dependent performance

42

MEDICAL TREATMENT

Medical treatment since accident (describe)

41. HOSPADM Hospital admission (before entry)

- 0 No
- 1 Yes (describe)

43

42. NUMHOSP Number of hospital admissions (before entry)

- 88 Not applicable

44 45

43. REASHOSP Reason for main hospital admission

- 1 Emergency admission after accident
- 2 Other

- 8 Not applicable

46

44. HOSPOUT Attending outpatient clinic (at entry)

- 0 No
- 1 Previous attendance (now discharged)
- 2 Current attendance (describe)

47

45. SICKENT Receiving sick note (at entry)

- 0 No
- 1 Yes

48

46. COMP Complications during recovery

- 0 No
- 1 Yes (describe)

49

47. HISPEC History of pre-existing condition relevant to claim

- 0 No
- 1 Yes (describe)

50

48. MEDPROB Other medical problems

- 0 No
- 1 Yes (describe)

51

CONTACT WITH REHABILITATION/RESETTLEMENT SERVICES

49. CONPHYS Contact with Physiotherapy services

- 0 No
- 1 Yes - discontinued (specify)

- 2 Yes - current (specify)

52

50. CONOT Contact with Occupational Therapy services

- 0 No
- 1 Yes - discontinued (specify)

- 2 Yes - current (specify)

53

51. CONPSY Contact with Psychology / Psychiatric services

- 0 No
- 1 Yes - discontinued (specify)

- 2 Yes - current (specify)

54

52. CONSW Contact with Social Work/Social Services

- 0 No
- 1 Yes - discontinued (specify)

- 2 Yes - current (specify)

55

53. CONDOE Contact with Department of Employment services

- 0 No
- 1 Yes - discontinued (specify)

2 Yes - current (specify)

56

EMPLOYMENT

54. WORKSIT Work situation at accident

- 1 Working full time
- 2 Working part time
- 3 Unemployed
- 4 Other

57

55. CONEMP Conditions of employment

- 1 Permanent
- 2 Temporary (contract)
- 3 Self employed
- 8 Not applicable

58

Job title and description (describe)

Employer's name and business (specify)

56. LENJOB Length of time in job

- 1 6 months or less
- 2 7-12 months
- 3 13-24 months
- 4 25 months-5 years
- 5 6-10 years
- 6 More than 10 years

59

57. IND Industry in which employed (OPCS Ind)

- 1 Agriculture
- 2 Energy & Water Supply
- 3 Manufacturing
- 4 Engineering
- 5 Construction
- 6 Hotel & Catering
- 7 Transport & Communications
- 8 Service
- 88 Not applicable

60 61

58. OCCSKILL Occupational skill level (OPCS)

- 1 Professional, managerial
- 2 Intermediate
- 3 Skilled non-manual
- 4 Skilled manual
- 5 Semi-skilled manual
- 6 Unskilled manual

62

59. JOBSIT Job situation (at entry)

- 0 Job still available
- 1 Employment terminated
- 2 Medically retired
- 3 Made redundant
- 4 Took voluntary redundancy
- 5 Gave notice
- 6 Contract expired
- 7 Not known
- 8 Not applicable

63

60. EMPSIT

Employment situation since accident (at entry)

- 0 Not worked since accident
- 1 Unsuccessful return to work (describe)

- 2 Working with difficulty (describe)

- 3 Other (describe)

64

--

61. JOBRET

If returned to work, job returned to

- 0 Same job: same employer
- 1 Same (modified) job: same employer
- 2 Different job: same employer
- 3 Same or modified job: different employer
- 4 Different job: different employer
- 5 Different job (extensive training): same or different employer
- 6 Self employment
- 7 Sheltered workshop/placement
- 8 Other
- 88 Not applicable

65 66

--	--

62. OTHACT

If not working, other activities (at entry)

- 0 None
- 1 Previous action - none recently
- 2 Actively seeking work eg applying for jobs
- 3 Attending ERC
- 4 Attending Employment Training course
- 5 Attending college - part time
- 6 Applying for entry to college
- 7 Other (specify)

- 8 Not applicable

67

--

Previous employment history (describe)

EDUCATION

63. AGESCH Age on leaving school

- 1 15 years
- 2 16 years
- 3 17 years
- 4 18 years
- 5 Other

68

64. NOYRSCH Number of years since leaving school

69 70

65. EDATT Educational attainment (highest level)

- 1 Secondary, no qualifications
- 2 Secondary, CSE, GCE 'O', GCSE
- 3 Secondary, Highers, GCE 'A'
- 4 Tertiary, technical qualifications
- 5 Tertiary, professional qualifications

71

SOCIAL CIRCUMSTANCES

66. NOPEHOU Number of people in household

- 1 One
- 2 Two
- 3 Three
- 4 Four
- 5 Five
- 6 Six or more

72

67. HSEHOLD People in household

- 1 Self
- 2 Self, parent(s)
- 3 Self, partner
- 4 Self, partner, child(ren)
- 5 Self, child(ren) under 18
- 6 Self, relatives
(other than parent(s) or partner/
incl children over 18)
- 7 Self, friends

73

68. ACCOM Type of accomodation

- 1 Flat: ground level
- 2 Flat: upstairs/maisonette
- 3 House: one level/bungalow
- 4 House:

74

69. HOUTEN Housing tenure

- 1 Owns with mortgage
- 2 Owns outright
- 3 Rented from local authority/
housing association
- 4 Rented privately
- 5 Other (specify
-----)

75

70. SIGEVENT Significant life events (accident-entry)

- 0 No
- 1 Yes (describe

-----)

76

INCOME AT TIME OF ACCIDENT

71. INCACC Main source of income

- 1 Earnings (specify) -----
- 2 Benefits (specify) -----
- 3 Other (specify

-----)

2 1

72. AMINCACC Total amount of income (£ net per week)

-
- 1 50 or less
 - 2 51-100
 - 3 101-150
 - 4 151-200
 - 5 200 or more

2

INCOME AFTER ACCIDENT

73. INCENT Main source of income (at entry)

- 1 Earnings
 - 2 Benefit
 - 3 Other (specify
-

3

Benefits received

- 0 No
- 1 Yes

74. BENSB

Sickness Benefit -----

4

75. BENSSP

Statutory Sick Pay -----

5

76. BENIVB

Invalidity Benefit -----

6

77. BENIIB

Industrial Injuries Benefit -----

7

78. BENREA

Reduced Earnings Allowance -----

8

79. BENUNEM

Unemployment Benefit -----

9

80. BENIS

Income Support -----

10

81. BENSDA

Severe Disablement Allowance -----

11

82. BENMA

Mobility Allowance -----

12

83. BENAA

Attendance Allowance -----

13

84. BENOTH Other (specify) -----
 Total: ----- (p w)

85. INSPEN Receiving health or accident insurance 14
 0 No
 1 Yes (specify)

86. REDUN Received redundancy or pension from employers 15
 0 No
 1 Yes (specify) -----

87. AMINCENT Total amount of income (£ net per week)

 1 50 or less
 2 51-100
 3 101-150
 4 151-200
 5 201 or more 16

88. COMPINC Comparison of income before/after injury 17
 1 Reduced
 2 Maintained
 3 Increased

OUTCOME - SIX MONTHS

89. EMPSIX Employment situation (0-6 months)
 0 Not returned to work
 1 Unsuccessful return to work
 2 Working with difficulty
 3 Working with no difficulty
 4 Previous return - remains in work
 5 Other ----- 18

90. JOBSIX If returned to work, job returned to:

- 0 Same job: same employer
- 1 Same (modified) job: same employer
- 2 Different job: same employer
- 3 Same or modified job: different employer
- 4 Different job: different employer
- 5 Different job (extensive training): same or different employer
- 6 Self employment
- 7 Sheltered workshop, placement
- 8 Not applicable

19

91. ACTSIX If not working, other activities (0-6 months)

- 0 None
- 1 Actively seeking work
- 2 Attending or awaiting ERC placement
- 3 Attending or awaiting Employment Training Course
- 4 Attending college - part time
- 5 Applying for entry to college
- 6 Other -----

- 8 Not applicable

20

92. CONDESIX New contact with Department of Employment (0-6 months)

- 0 No
- 1 Yes (specify)

21

93. CONSSIX New contact with other services (0-6 months)

- 0 No
- 1 Yes (specify)

22

Medical treatment 0-6 months (describe)

94. TRTSIX Medical treatment (0-6 months)

- 1 Treatment concluded
- 2 Treatment continuing as before
- 3 Further treatment given (specify)..

8 Not applicable

23

95. OTMEDSIX Other medical problems (0-6 months)

- 0 No
- 1 Yes (specify)

24

96. SICKSIX Receiving sick lines at 6 months

- 0 No
- 1 Yes (specify)

8 Not applicable

25

97. SIGEVSIX Other significant life events (0-6 months)

- 0 No
- 1 Yes (specify)

26

OUTCOME - TWELVE MONTHS

98. EMPTWE Employment situation (6-12 months)

- 0 Not returned to work
- 1 Unsuccessful return to work
- 2 Working with difficulty
- 3 Working with no difficulty
- 4 Previous return - remains in work
- 5 Other -----

27

99. JOBTWE If returned to work, job returned to:

- 0 Same job: same employer
- 1 Same (modified) job: same employer
- 2 Different job: same employer
- 3 Same or modified job: different employer
- 4 Different job: different employer
- 5 Different job (extensive training): same or different employer
- 6 Self employment
- 7 Sheltered workshop, placement
- 8 Not applicable

28

100. ACTTWE If not working, other activities (6-12 months)

- 0 None
- 1 Actively seeking work
- 2 Attending or awaiting ERC placement
- 3 Attending or awaiting Employment Training Course
- 4 Attending college - part time
- 5 Applying for entry to college
- 6 Other -----
- 7 -----
- 8 Not applicable

29

101. CONDETWE New contact with Department of Employment (6-12 months)

- 0 No
- 1 Yes (specify)

30

102. CONTWE New contact with other services (6-12 months)

- 0 No
- 1 Yes (specify)

31

Medical treatment 6-12 months (describe)

103. TRTTWE Medical treatment (6-12 months)

- 1 Treatment concluded
- 2 Treatment continuing as before
- 3 Further treatment given (specify)..

32

- 8 Not applicable

104. OTMEDTWE Other medical problems (6-12 months)

- 0 No
- 1 Yes (specify)

33

105. SICKTWE Receiving sick lines at 12 months

- 0 No
- 1 Yes (specify)

34

106. SIGEVTWE Other significant life events 6-12 months)

- 0 No
- 1 Yes (specify)

35

--

OTHER OUTCOMES

107. TIMRETW Length of time between accident and return to work (months)
 88 Not applicable

36	37

108. PEROBACH Objectives achieved (%)
 888 Not applicable

38	39	40

109. PEROBPA Objectives partially achieved (%)
 888 Not applicable

41	42	43

110. PEROBNA Objectives not achieved (%)
 888 Not applicable

44	45	46

111. CLAIM Claim settled

- 0 No
- 1 Yes (specify)

 2 Other (specify)

47

--

SCORES

ENTRY

112. VRI VRI

113. HADAXENT HAD (Anxiety)

114. HADDENT HAD (Depression)

115. NHPERENT NHP (Emotion)

	48	49
50-51		
52-53		
54-57		

116.	NHPENENT	<u>NHP (Energy)</u>	58-61				
117.	NHPPENT	<u>NHP (Pain)</u>	62-65				
118.	NHPPMENT	<u>NHP (Physical Mobility)</u>	66-69				
119.	NHPSENT	<u>NHP (Sleep)</u>	70-73				
120.	NHPSIENT	<u>NHP (Social Isolation)</u>	74-77				
121.	NHPACENT	<u>NHP (Activities)</u>				78	
122.	WINVENT	<u>Work Involvement</u>		3			
123.	INJMENT	<u>Intrinsic Job Motivation</u>		1-2			
124.	HONSENT	<u>Higher Order Need Strength</u>		3-4			
125.	PIJCENT	<u>Perceived Intrinsic Job Charac</u>		5-6			
126.	JSATENT	<u>Job Satisfaction</u>		7-8			
127.	LSATENT	<u>Life Satisfaction</u>		9-11			
128.	HAPPENT	<u>Happiness</u>		12-14			
129.	SRAENT	<u>Self-Rated Anxiety</u>				15	
				16-17			
<u>SIX MONTHS</u>							
130.	HADAXSIX	<u>HAD (Anxiety)</u>		18-19			
131.	HADDSIX	<u>HAD (Depression)</u>		20-21			
132.	NHPERSIX	<u>NHP (Emotion)</u>		22-23			
133.	NHPENSIX	<u>NHP (Energy)</u>	24-27				
134.	NHPPSIX	<u>NHP (Pain)</u>	28-31				
135.	NHPPMSIX	<u>NHP (Physical Mobility)</u>	32-35				
136.	NHPSSIX	<u>NHP (Sleep)</u>	36-39				
137.	NHPSISIX	<u>NHP (Social Isolation)</u>	40-43				

138.	NHPACSIX	<u>NHP (Activities)</u>			44		
139.	WINVSIX	<u>Work Involvement</u>		45-46			
140.	INJMSIX	<u>Intrinsic Job Motivation</u>		47-48			
141.	HONSSIX	<u>Higher Order Need Strength</u>		49-50			
142.	PIJCSIX	<u>Perceived Intrinsic Job Charac</u>		51-52			
143.	JSATSIX	<u>Job Satisfaction</u>		53-55			
144.	LSATSIX	<u>Life Satisfaction</u>		56-58			
145.	HAPPSIX	<u>Happiness</u>			59		
146.	SRASIX	<u>Self-rated Anxiety</u>		60-61			
<u>TWELVE MONTHS</u>							
147.	HADAXTWE	<u>HAD (Anxiety)</u>		62-63			
148.	HADDTWE	<u>HAD (Depression)</u>		64-65			
149.	NHPERTWE	<u>NHP (Emotion)</u>		66-69			
150.	NHPENTWE	<u>NHP (Energy)</u>		70-73			
151.	NHPPTWE	<u>NHP (Pain)</u>		74-77			
152.	NHPPMTWE	<u>NHP (Physical Mobility)</u>	4	1-4			
153.	NHPSTWE	<u>NHP (Sleep)</u>		5-8			
154.	NHPSITWE	<u>NHP (Social Isolation)</u>		9-12			
155.	NHPACTWE	<u>NHP (Activities)</u>					
156.	WINVTWE	<u>Work Involvement</u>		13-14			
157.	INJMTWE	<u>Intrinsic Job Motivation</u>		15-16			
158.	HONSTWE	<u>Higher Order Need Strength</u>		17-18			

159.	PIJCTWE	<u>Perceived Intrinsic Job Charac</u>	20-21		
160.	JSATTWE	<u>Job Satisfaction</u>	22-24		
161.	LSATTWE	<u>Life Satisfaction</u>	25-27		
162.	HAPPTWE	<u>Happiness</u>	28		
163.	SRATWE	<u>Self-rated Anxiety</u>	29-30		

HELP GIVEN

164. HELPCOUN Counselling

0 No

1 Yes (specify) 31

165. HELPINFO Information provided

0 No

1 Yes (specify)

32

166. HELPBEN Information/help with benefits

0 No

1 Yes (specify)

33

167. HELPDOE Liaison/referral to Department of Employment

0 No

1 Yes (specify)

34

168. HELPMED Liaison/referral to medical/ paramedical services
0 No
1 Yes (specify)

----- 35

169. HELPSOC Liaison/referral to Social Work/Social Services
0 No
1 Yes (specify)

----- 36

170. HELPEMP Liaison or contact with accident employer
0 No
1 Yes (specify)

----- 37

171. HELPJOB Help with job search
0 No
1 Yes (specify)

----- 38

172. OTHHELP Other help
0 No
1 Yes (specify)

----- 39

**INTRODUCTORY LETTER SENT TO SOLICITORS IN ENGLAND FROM
INSURANCE COMPANIES
(SIMILAR LETTER SENT TO SOLICITORS IN SCOTLAND)**

Dear Sirs

Our Insured:

Your Client:

Rehabilitation Studies Unit- University of Edinburgh

We enclose a copy of a paper prepared by the Disability Management Research Group (DMRG) of the Rehabilitation Studies Unit which is part of the Faculty of Medicine at the University of Edinburgh.

The paper sets out brief details of a new research project being undertaken by the DMRG which concerns the introduction of a Rehabilitation Co-ordinator service for personal injury claimants. The project has been running successfully in Scotland for the last twelve months and now is transferring to Yorkshire and the North East of England. Your Client ----- has been identified as someone who might benefit from the service being provided and we write to ask if he (she) would be willing to participate in the project.

We are also enclosing two copies of a leaflet describing the project, one for your information and retention and the other to be passed on to your Client.

Although similar services have been provided in other countries for some time, this is the first attempt of its kind to introduce a comprehensive service in the U.K. that will be fully evaluated. We have been greatly encouraged by the co-operation and support received from solicitors in Scotland and look forward to similar support from members of the legal profession in Yorkshire and the North East. Indeed, we are extremely fortunate to have a Leeds based solicitor as a member of the project's advisory panel.

It is important to emphasise the impartiality of the study. Although it is being financed by the Association of British Insurers, it will be conducted on an entirely independent and academic basis. For this reason, information collected during the research will not be used to provide reports on individual claimants for the benefit of the Claimant or the Defendant but will be analysed and reported in aggregate as a scientific report at the end of the project. In similar fashion, an injured person's

involvement in this medical trial should not be taken to imply an admission of liability on the insurer's part.

Having read the enclosed notes and considered them with your Client, we would be obliged if you could confirm whether your Client is prepared to participate in the project. However, if you wish to have further information about the project we would be pleased to provide it or to discuss any queries you may have. The Rehabilitation Co-ordinator, Miss Christine Davey, would also be pleased to visit your Client, free of any obligation, to discuss the project. Experience to date suggests that this opportunity is welcomed. We look forward to hearing from you.

Yours faithfully,

Claims Manager
Named Insurance Company

Enc.

**BACKGROUND NOTES ABOUT PROJECT SENT TO SOLICITORS IN ENGLAND
(SIMILAR NOTES SENT TO SOLICITORS IN SCOTLAND)**

REHABILITATION CO-ORDINATOR SERVICE FOR PERSONAL INJURY CLAIMANTS

Introduction

The Disability Management Research Group (DMRG) is part of the University of Edinburgh Faculty of Medicine and is implementing and evaluating a new Rehabilitation Co-ordinator Service to help the victims of personal injury make better use of existing sources of practical help and advice. These notes are intended to brief members of the legal profession about the background to this project and its aims, and to outline what it may entail both for themselves and their clients.

Background

Although it is assumed that existing services, such as the NHS, already meet the needs of injured patients requiring specialised help, research has shown that frequently this is not the case. Difficulty in making appropriate referral to relevant rehabilitation services is now thought to increase substantially the risks of medical complications and long term unemployment.

Research has indicated that it is particularly difficult to ensure that patients who have suffered injury and are involved in personal injury litigation are referred to the relevant rehabilitation services.

A recent study of over 800 personal injury claimants disclosed that a substantial number, although medically fit to return to work, did not do so and that very few had actually been in contact with any rehabilitation service. It was therefore recommended that consideration should be given to the appointment of qualified persons to act as rehabilitation co-ordinators to assess individual needs for specialised advice and assistance and to work with the appropriate authorities to ensure that these are provided. The rehabilitation co-ordinator would aim to help persons achieve the fullest possible recovery and the fullest resumption of pre-accident activities.

The Association of British Insurers (ABI) has provided funds to set up such a service on a trial basis and also for studies to be carried out to evaluate its effectiveness. This research is being undertaken with the assistance of four insurance company members of the ABI who have agreed to help by identifying suitable cases and to contact the legal representatives of the claimants to obtain their co-operation. The research comprises a controlled medical trial based in Scotland during 1989 and the North East of England during 1990.

The service is not appropriate for all persons involved in personal injury litigation. It is aimed at persons with moderately severe injuries who are expected to be disabled or absent from work for a period of six months or more. The service is not intended for persons with minor or catastrophic injuries. In the case of the former, it is unlikely that any help would be required and in the case of the latter, help is likely to be required for a longer period of time than the duration of the project allows.

Procedures for Phase 2 - North East of England.

Prospective clients for the service will be identified from insurance company records and their legal representatives contacted to invite participation. In Scotland, many claimants found it helpful to have an informal discussion with the Rehabilitation Co-ordinator, Christine Davey, free of any obligation, before making a decision about whether or not to participate. This opportunity will be offered to persons in the North East of England also.

When consent has been given to take part in the project (and after medical advice, if appropriate) persons will be entered into the study, randomly allocated to one of two groups, A or B, and interviewed and assessed. Following this, persons in group A will receive the Rehabilitation Co-ordinator service while those in group B will have the involvement of the Rehabilitation Co-ordinator deferred for a period of 6 months. They will, however, be free to continue with or seek help from other sources.

Everyone assigned to group A will be interviewed by the Co-ordinator for a standard initial assessment. The information gathered will be reviewed by a multi-professional panel, recruited from the medical and paramedical staff of the Rehabilitation Studies Unit at the University of Edinburgh, to formulate individual rehabilitation plans. The plans will cover any need for particular remedial or rehabilitative assistance, to be arranged by the Rehabilitation Co-ordinator, or for external liaison with, for example, other medical specialists, vocational rehabilitation services or employers. Specific objectives or rehabilitation will vary in each case but may include measures to enhance recovery; action to minimise or avoid delays or discontinuities in treatment; occupational assessment; vocational guidance; liaison with employers and/or vocational rehabilitation services.

The Co-ordinator will review each plan with the person for whom it has been prepared and, subject to any mutually agreed modifications, prepare a final version. This will set out each objective to be aimed for, the actions to be taken by the person concerned and/or the Co-ordinator in order to achieve the objectives; the anticipated timescale; how progress toward achievement of the objectives will be monitored; and the criteria by which success or failure will be evaluated. Once a rehabilitation plan has been agreed, the Co-ordinator will assist in its implementation, monitoring and evaluation for a period of up to twelve months from the date of entry to the project.

The proposed service is intended to supplement rather than replace existing sources of help. This is particularly relevant for persons assigned to group B, for whom assistance from the Co-ordinator will be deferred for six months. In their cases, the information gathered at the initial assessment will be updated six months after their

entry to the project. If, at this stage, help is still required the same procedure as for persons in group A will apply.

It is important to add that involvement in the project will not entail any travelling on the clients' part as the Co-ordinator will visit all participants at home.

For both groups involvement will be guided by two general principles. The first is that the Rehabilitation Co-ordinator service should be based on participative decision making, i.e. on achieving the fullest possible involvement in rehabilitation planning and decision making of not only the injured persons themselves but also their families, professional advisers and any other interested parties. The second is the principle of early intervention, to bring rehabilitation decision making forward to the earliest possible stage rather than treating it as an afterthought or disregarding it altogether.

Request for assistance

The Association of British Insurers and the insurance companies supporting the Rehabilitation Co-ordinator project are doing so because they believe it may demonstrate how some claimants who do not benefit from current arrangements may be helped to re-establish themselves at the earliest opportunity and minimise any associated handicap. Successful implementation is also dependent on a similar level of commitment from the other professions and services involved. It is hoped that they will also lend their support - for example, by encouraging the participation of their clients - if requested to do so.

For further information please contact Miss Christine Davey at the address on page 1. Reference may also be made to an article on this research by Dr Paul Cornes published in The Scots Law Times dated 17 March 1989.

Dr Paul Cornes
Senior Research Fellow
August 1990

**LETTER OF SUPPORT FROM SOLICITOR
ON ADVISORY PANEL IN ENGLAND**

Dear Colleague

Re: Rehabilitation Co-ordinator Project

As a member of the Rehabilitation Co-ordinator Project Advisory Panel, I am writing to seek your co-operation and support for this project which is being carried out by the Rehabilitation Studies Unit, part of the Faculty of Medicine at the University of Edinburgh.

Many people who are injured in accidents could benefit from assistance in returning to work and pre-accident activities, yet research shows that very few actually receive such help. The Rehabilitation Co-ordinator Project aims to address this issue by providing a service for personal injury claimants and evaluating its effectiveness. The University of Edinburgh staff involved in the project have had an interest in this field over many years and have considerable expertise. The project is being conducted on an entirely independent basis and evaluated with strict scientific rigour.

The project has been running for a year in Scotland with encouraging results and with the support and co-operation of colleagues in the legal profession. It has now moved to Yorkshire and the North East of England and I hope you will support such a worthwhile and exciting venture by encouraging your client to consent to participate in the study. In my opinion all concerned have much to gain from this project which should clearly demonstrate the extent to which people who have been injured can be helped to achieve their fullest potential.

Yours faithfully,

Named Solicitor

TEXT OF PAMPHLET SENT TO CLAIMANTS IN ENGLAND

REHABILITATION CO-ORDINATOR PROJECT

Help and advice for people injured at work or in road traffic accidents

What is the Rehabilitation Co-ordinator Project?

The project offers a new service on a trial basis to help people who have been injured in accidents and who are claiming compensation for their injuries. The service is being provided by the Disability Management Research Group (DMRG) who are based at the University of Edinburgh. For several years they have been looking at what happens to people who are injured in accidents and have found that often they have great difficulty returning to work or resuming the activities they enjoyed before the accident. This research has shown that currently many people do not receive any specialised help with such problems.

In other countries, such as America, there are people whose job it is to help accident victims seek appropriate advice and assistance or even help them find work. The DMRG think that it may be helpful to have such people - Rehabilitation Co-ordinators - in the United Kingdom. They have been funded by the insurance industry (through the Association of British Insurers) to set up such a service for a period of three years to test whether it is helpful. The service has been running in Scotland for twelve months and has now transferred to Yorkshire and the North East of England where it will be provided during the coming year.

Why have I been invited to take part in this project?

Four insurance companies have agreed to give us (the researchers at the University of Edinburgh) the names of people who have been injured in accidents in the last twelve months or so. Your name has been given to us because of your recent accident, because your claim is being handled by one of the four insurance companies who are assisting with the project and because we believe you may benefit from the service we are providing. Once we have been given the names of people like yourself, we write to their solicitor explaining the project and asking them to find out if you would like to participate. You are being approached on this basis following contact with your solicitor.

What will happen if I take part in the project?

The rehabilitation co-ordinator service is organised differently from other services you will have come across. Because it is new we have to show whether it works or not and that is why it has been set up on a trial basis as part of a research project. In practice this means that, of those people who agree to take part in the project, some people will receive the service as soon as they enter the project (Group A) while others will have

a gap of 6 months before they receive any help from the Co-ordinator (Group B). It may seem unfair that we are doing this, but it is the only way in which we can demonstrate whether the service is effective. It is important for you to know that involvement in the project will not affect the help you may already be receiving from other services.

How is it decided whether someone goes into Group A or B?

When a person agrees to take part in the project they are given a number, for example if they are the twelfth person to enter the project they are given the number twelve. A computer has prepared sealed envelopes which are numbered and inside they say whether the person who gets that numbered envelope goes into group A or B.

What happens if I go into Group A?

The Rehabilitation Co-ordinator, Christine Davey, will come to visit you at home and interview you to find out what has happened and what difficulties you are having. This information is then reviewed by Christine and two of her colleagues, one of whom is a doctor whose specialty is rehabilitation and the other of whom is an occupational psychologist whose expertise is employment rehabilitation. They make some suggestions about what help might be required and Christine then visits you to discuss these suggestions. After discussion, and with any agreed changes, a plan of action (the practical objectives to be achieved) is agreed and a decision is made about who will do the various tasks necessary to achieve that plan. For example Christine might do some things while you do others. It is important to stress, however, that the plan will be discussed and you will not be obliged to do anything you don't agree with.

What happens if I go into Group B?

The Rehabilitation Co-ordinator, Christine Davey, will come to visit you at home to interview you and find out what has happened. After this initial interview you will not hear from her for six months, when she will contact you again and arrange to visit. If you are still requiring help at this stage the same procedure as for people in group A will be followed.

If I become involved in the project will it affect my claim?

No. the service is being provided independently and will not affect negotiations between your solicitor and the insurance company. Any information you give to the Rehabilitation Co-ordinator will be treated as strictly confidential. That is, no information will be given either to the insurance company or to your solicitor. All results from the project will be reported anonymously.

Will I be required to do any travelling?

No. If you were to take part in the project Christine would visit you at home.

If I take part will my entitlement to benefit be affected?

No. Involvement in the project would not affect your entitlement to benefit or the amount you receive.

How can I find out more about the project?

If you would like to hear more about the project, or have any questions about what is involved, Christine would be pleased to visit you at home, free of any obligation, for an informal discussion. If you would like such a visit please write to Christine or phone her. She will either call you back immediately or contact you as soon as possible. Alternatively, you may wish to ask your solicitor to do this on your behalf

Christine Davey
Rehabilitation Co-ordinator
Disability Management Research Group
Rehabilitation Studies Unit
Canaan Park
Astley Ainslie Hospital
Edinburgh EH9 2HL
031 - 447- 6271 ext 5323

FIRST REMINDER LETTER TO SOLICITORS IN SCOTLAND

Dear Sirs,

Re: Rehabilitation Co-ordinator Project

Your Client: Ref:

Some months ago you will have received a letter from (*named insurance company*) about a research project being carried out by the Disability Management Research Group at the University of Edinburgh. The aim of the project is to assist the rehabilitation of personal injury claimants and we asked if you would be kind enough to discuss the project with your client and seek his consent to take part.

The project is now underway and the early response has been encouraging. However, some time has now elapsed since our initial letter and we have not received a reply about your client's participation. In order to minimise further delay, I would be pleased to make direct contact with your client in order to explain what participation in the project would entail and to answer any further questions about it. There would be no obligation on him to take part in the study.

I hope this proposal meets with your approval, and if I do not hear from you by-----
-----I will assume I have permission to proceed.

Your attention to this matter is very much appreciated. If I can be of any further assistance please do not hesitate to contact me.

Yours faithfully,

Christine Davey
Research Associate/Rehabilitation Co-ordinator

FIRST REMINDER LETTER TO SOLICITORS IN ENGLAND

Dear Sirs,

Re: Rehabilitation Co-ordinator Project

Your Client: Ref:

A few weeks ago you will have received a letter from (*named insurance company*) about a research project being carried out by the Disability Management Research Group at the University of Edinburgh. The aim of the project is to assist the rehabilitation of personal injury claimants and we asked if you would be kind enough to discuss the project with your client and seek his consent to take part.

Other people invited to take part in this project have found it helpful to have a visit from me to discuss what is entailed before deciding whether or not to participate. I am writing to suggest that your client may also find it helpful to hear more about the project and I would be pleased to make direct contact with him to offer such a visit, on the understanding that he would be placed under no obligation to become involved in the study.

I hope this proposal meets with your approval, and if I do not hear from you by -----
----- I will assume I have permission to proceed.

You will be aware from previous correspondence that Mr ----- Senior Partner at -----, Solicitors is a member of the project's advisory panel and would be pleased to discuss the project with you. I would also be pleased to provide further information.

Your attention to this matter is very much appreciated.

Yours faithfully,

Christine Davey
Research Associate/Rehabilitation Co-ordinator

SECOND REMINDER LETTER TO SOLICITORS IN SCOTLAND AND ENGLAND

Dear Sirs,

Rehabilitation Co-ordinator Project

Your Client:

I refer to my letter of ----- concerning your Client's possible involvement in the above mentioned project.

You may recall that in my letter I proposed contacting your Client with an offer to visit him to discuss what involvement in the project would entail. I indicated that it would be assumed I had your approval to do so, if I had not received advice to the contrary by the -----.

As a further two weeks have now passed and I have not heard from you, I wish to inform you that I am proceeding to contact your Client and I enclose a copy of my letter to him for your information.

Your assistance with the project is very much appreciated.

Yours faithfully,

Christine Davey
Research Associate/Rehabilitation Co-ordinator

LETTER TO CLAIMANTS ASKING TO VISIT TO DISCUSS PROJECT

Dear

Some time ago your solicitor will have told you about a project being carried out by my unit and will have asked you if you would like to be involved.

The purpose of the project is to set up a 'rehabilitation co-ordinator' service for people who have been injured in accidents. It is a new service, the aim of which is to help people resume their day to day activities and return to work following their accidents.

I am writing to ask if I may visit you at home to explain more about the project and what would happen if you were to be involved. I would also be pleased to answer any questions you may have about the project. This visit would not put you under any obligation to become involved.

I hope you are interested in hearing more about the project, and would be most grateful if you could complete the enclosed form and return it to me in the envelope provided, as soon as possible. Thank you.

Yours sincerely

Christine Davey
Rehabilitation Co-ordinator

Enc.

FORM SENT TO CLAIMANTS ABOUT PROPOSED VISIT

(Named person)

**Please complete this form as appropriate and return it in the envelope provided
Thank you**

If you would like Christine Davey to visit you to explain about the rehabilitation
co-ordinator project please tick the box marked YES

If you do not wish to be visited please tick the box marked NO

YES

NO

Signed:

Tel No:

(Please give your telephone number only if you wish to be visited)

LETTER TO CLAIMANTS ABOUT TELEPHONE SATISFACTION SURVEY
(SIMILAR LETTER SENT TO THOSE WHO RECEIVED POSTAL QUESTIONNAIRE)

Dear

The rehabilitation co-ordinator project, in which you kindly took part, has now come to an end and we would like to find out about the value of the service we provided. This information will be most helpful when we plan services of this kind in the future.

To find out about the usefulness of the rehabilitation co-ordinator service we will be contacting everyone who was involved in the project to ask them for their views. This will involve you answering a few short questions, over the telephone, and will take about ten minutes in all. The replies people give will not be linked to their names. We would be most grateful for your help in this final and most important part of the project.

Mr Don Smith, a member of the Rehabilitation Studies Unit, will be phoning you within the next few weeks to ask for your help and I hope you will be able to answer his questions.

Thank you again for taking part in the project and for all your help.

Very best wishes,

Christine Davey
Rehabilitation Co-ordinator

INTRODUCTION TO TELEPHONE SATISFACTION SURVEY

Hello Mr -----, I am ----- from the University of Edinburgh. Christine Davey will have written to you recently to say that I would be phoning. I am ringing to ask if you would be kind enough to give your views about the rehabilitation co-ordinator service which you were involved with last year. I am trying to find out how useful the service was, and how it might be improved, and I would be most grateful if you could spare 10 minutes to answer a few questions. All your answers will be confidential.