The Effectiveness of Residential Rehabilitation Services in the Treatment for Drug and Alcohol Problems

Neil McKeganey

Professor of Drug Misuse Research

University of Glasgow

Jan 2011

Introduction

Within the UK over the last few years there has been a growing debate as to the relative effectiveness of different substance misuse treatments. This debate has been fuelled in part by the marked disparity in the level of provision of different treatments both within Scotland and in England. Within Scotland, for example, it has been estimated that there may be as many as 22,000 dependent drug users receiving community-based substitute prescribing services at an annual cost in excess of £26m. Although there has been no equivalent estimate of the level of funding for residential drug treatment services in Scotland the figure is likely to be much lower. For example a review of residential rehabilitation services undertaken by the Effective Interventions Unit of the Scottish Executive identified that in the year 2002/03 only 905 drug users were provided with access to residential rehabilitation services with that figure increasing to 1294 in 2003/04 (EIU 2004). This review identified that in some areas within

Scotland (Moray, Western Isles, Dundee) not a single drug user had been provided with access to such services and in other areas the numbers of drug users provided with access to residential rehabilitation services in 2003/04 was less than ten (Angus (3), East Lothian (3), Fife (3), Forth Valley (5), Moray (1), Shetland (1), Western Isles (1), West Lothian (5), Dumfries and Galloway (4). Similarly in England whilst around 70% of drug users in treatment are thought to be receiving methadone less than two percent are being offered access to residential rehabilitation services. (BBC 2008).

Concerns have been expressed at the low number of residential rehabilitation facilities within the UK at the closure of significant numbers of residential rehabilitation facilities (Addiction Today). At the present time the National Treatment Agency in England is convening an expert group to identify the most appropriate criteria for determining individuals access to residential rehabilitation services on the assumption that there is no one treatment which is suitable for all individuals and that preferably individuals should have access to a wide range of services commensurate with meeting their specific needs. Despite widespread acceptance of the view that it is desirable to have a mixed economy of substance abuse treatment services available in each area nevertheless residential rehabilitation facilities remain a scarce and in some instances under utilised resource within both Scotland and England. Whilst there reasons for this are likely to be complex two key views are likely to be influential in explaining the relative lack of residential rehabilitation services. First there is the view that residential services are substantially more costly than community based services and second there is a view that there is little or no evidence indicating the worth of utilising residential rehabilitation services in preference to the perceived cheaper community based services. Assessing different treatment approaches in terms of their relative costs is by no means

straightforward and whilst there is little doubt that methadone maintenance is a cheaper treatment than residential rehabilitation over say a single year the cost comparison may look very different where one is comparing the cost of an individual remaining within a residential rehabilitation centre for a number of months compared to the cost of that individual remaining on substitute medication over many years. Equally of course any difference in the costs of contrasting services needs to be interpreted in the light of the evidence as to benefits associated with each treatment. The greater financial cost of residential rehabilitation compared to methadone maintenance may begin to look very different if after ten years on methadone the individual is still drug dependent compared to an individual who has achieved long term abstinence on the basis of his or her participation within a residential rehabilitation programme over a single year. But is there evidence that residential rehabilitation services are any more effective than community based services in promoting abstinence? The aim in this short report is to seek an answer that question.

Assessing Treatment Effectiveness

The gold standard method for evaluating the effectiveness of a medical procedure is the randomised control study design in which patients are randomly assigned to different treatments often on a double blind basis and in which it is possible to monitor any differential outcomes associated with the various treatments provided. Whilst this approach is appropriate for assessing the effectiveness of a new drug it is often not possible to use the same design in evaluating the effectiveness of a specific service for example comparing residential rehabilitation services with community based services. Within the drug and alcohol field whilst there have been some randomised control trial evaluations of individual treatments

much the more common approach to assessing effectiveness has been the use of the treatment cohort design in which individuals beginning a new episode of treatment are assessed at regular intervals in an attempt to identify whether particular treatments or particular combinations of treatments are more effective than others in promoting particular positive outcomes (for example the proportion of individuals becoming drug free, or the proportion of securing stable accommodation and stable employment). One of the difficulties with this study design is the fact that over the period that individual patients or clients are followed up there is a growing likelihood that individuals will move into and out of contact with a growing list of services making it very difficult to determine whether one type of service has been any more influential than any other type. Another area of difficulty associated with those studies using the treatment cohort design is the fact that individuals referred to different services may have differing levels of morbidity or levels of dependency with the result that it is very difficult to compare the outcomes of different services. These difficulties notwithstanding the treatment cohort design with patient follow up interviewing over varying lengths of time has been widely used within the United States and in Europe to assess the effectiveness of drug and alcohol treatment.

Within the UK there have been three manor studies that have used the cohort design to assess the impact of drug treatment services. The first of these was the National Treatment Outcome Research study carried out in England in 2001 and in which a sample of drug users beginning a new episode of drug treatment were interviewed at baseline and then re-interviewed over a four-year period (Gossop et al 2001). The second study, the Drug Outcome Research in Scotland study, used a similar design although followed up drug users over a 33-month period (McKeganey et al 2008). The third study, the Drug Treatment Outcomes Research

Study was again undertaken in England and involved following up drug users over a twelve month period following the onset of their treatment (Jones et al 2009). These three studies comprise the largest data set within the UK on the effectiveness of different drug misuse treatments.

National Treatment Outcome Research Study.

The National Treatment Outcome Research study was the first detailed evaluation of drug misuse treatment services in the UK and was undertaken by researchers based at the National Addiction Centre in London. In this study 1075 clients contacting drug treatment services in England in 1995 were recruited into the research with a random sample of 650 clients being followed up over a two to four year period. These individuals were recruited from a wide range of services: 13% were inpatients (85), 26% were in rehabilitation programmes (170), 18% were in methadone reduction programmes (118) and 43% were in methadone maintenance programmes (277). The most common drug problem of the individuals included within NTORS was long-term opiate misuse although more than three quarters were poly drug users and more than half were using psycho-stimulants with most of those using crack cocaine.

As the authors of the NTORS main report point out: "Abstinence is one of the most rigorous outcome criteria for drug misuse treatment." The researchers on this study identified a notable difference in the rates of abstinence between the community and residential services included within their sample:

More than a third (38%) of the residential clients were abstinence from all six illicit target drugs at 4-5 years. The percentage of residential clients who were abstinent from illicit

> opiates (the main problem drugs at intake) increased from 19% at intake to 47% after 5 years. For the methadone clients, more than a third (35%) were abstinent from illicit opiates at 4-5 years compared to 6% at intake (Gossop et al 2001:10)

On the basis of the NTORS study then residential rehabilitation services were associated with a greater proportion of achieved abstinence than the community based services included within the study (47% compared to 35%). This finding of abstinence being more strongly associated with residential than community based services was echoed also in the Drug Outcome in Scotland study undertaken some years following the NTORS study by McKeganey and colleagues.

Drug Outcome Research Study in Scotland.

In this study 1033 dependent drug users beginning a new episode of drug misuse treatment in 2002 were recruited into the research and followed up over a 33-month period. Individuals were assessed using a core instrument (questionnaire reporting self disclosed information). 28% of the DORIS sample whom were recruited from an agency providing substitute medication other than methadone, 27% were recruited from an agency providing methadone, 20% were recruited from an agency providing non clinical counselling and group work, 12% were recruited from an agency providing residential detoxification and 12% were recruited from an agency providing residential rehabilitation. 3% of clients were recruited from a needle exchange. Overall 43% of the DORIS sample were recruited from a prison based treatment facility.

In the case of DORIS clients the proportion who had a 90 day period of abstinence in advance of being interviewed at the 33-months follow-up point (abstinence was defined as

free from all drug use other than alcohol and tobacco) ranged from 24.7% of those who had been recruited into the study from a residential rehabilitation services to 6.4% of those who had been recruited from a community based drug treatment service. In relation to those drug users who had been provided with residential rehabilitation at some point over the last 33 months (but who had not been initially recruited from a residential rehabilitation facility) 29.9% attained the 90 day abstinence measure at the 33 month follow up interview compared to only 3.4% of those who had received methadone maintenance at some point during the preceding 33 months (McKeganey et al 2006).

In seeking to explain the markedly different outcomes across the community based and residential rehabilitation services the researchers on this study undertook a multivariate analysis of their data. The conclusion of this further work was that:

> On the basis of the multivariate analysis undertaken important differences remained across the treatment types with those clients receiving residential rehabilitation being significantly more likely than their peers to have achieved a 90 day period of total abstinence (McKeganey et al 2006:545)

The researchers on this study explored whether the residential rehabilitation clients greater likelihood of achieving the 90 day abstinent measure could be explained on the basis that those clients presented with lower levels of drug dependency than their community treated peers. Using the Severity of Dependence Scale developed by Gossop at colleagues (1995) the DORIS researchers found there to be virtually no difference in the level of dependency between those respondents receiving residential rehabilitation and those treated only within the community. There was then no indication in the DORIS study that the residential

rehabilitation services were selecting only those clients whom they judged to have the greatest likelihood of success.

Drug Treatment Outcomes Research Study

This study utilised a similar follow-up design of re-interviewing a cohort of drug users as the NTORS and the DORIS studies. In the case of the DTORS research 1796 drug users beginning drug treatment between Feb 2006 and March 2007 were recruited into the study and followed up over a 12-month basis. Of the drug users recruited into the study 886 individuals were re-interviewed at the first follow up three to five months whilst of those who received their three to five month interview 504 were interviewed for a third time between eleven to thirteen months after their recruitment into the study. The treatment modalities included within DTORS encompassed in-patient care, specialist prescribing, GP prescribing, counselling, day care, and residential rehab. The DTORS researchers explicitly pointed out that their study design was not intended to determine the effectiveness of specific treatments:

> DTORS is not necessarily a suitable basis on which to judge whether particular types of treatment are intrinsically "better" than others, even where a specific modality is significantly associated with an outcome. Further the DTORS study did not sample a non-treatment control group and so the findings cannot compare outcomes to a comparable group who did not receive drug treatment. (Jones 2009:2)

The findings from DTORS were somewhat different to those from either NTORS or DORIS. In particular whilst the researchers identified a positive reduction in levels of drug use following the onset of treatment, with most of the positive changes occurring by the time of the first follow up they did not identify clear differences in drug use reduction associated with specific forms of treatment:

> Most of the changes occurred by first follow up. For most forms of drug use, no particular treatment modality was more associated with cessation than any other and the route into treatment did not influence drug use outcomes (Jones et al 2009:8)

The lack of clear evidence in the DTORS of drug use outcomes varying by treatment modality was consistent across a range of the other outcome measures used by the researchers. For example in relation to income the authors did not find that any specific treatment modality was associated with a greater increase in legitimate income over the follow up period, in relation to employment there was again little evidence of any specific treatment modality producing better employment outcomes than any other. In relation to reductions in acquisitive crime the authors found no clear difference by treatment modality. In relation to improvements in mental health functioning however using the SF12 instrument the researchers found that those drug users who received residential rehabilitation (and those that had a criminal justice referral as well as those whose primary drug was not heroin) had better mental health scores.

Summary

In interpreting the results of these studies it is important to bear in mind the limitations of the study designs that have been used. To evaluate whether one treatment type is consistently delivering better outcomes than any other treatment type it would be necessary not only to evaluate treatments over an extended period of time but also to ensure that the allocation of clients to particular treatments was undertaken on a random basis and crucially to follow a non treatment cohort to identify the level of improvements similar individuals might achieve on the basis of no treatment being provided. These research conditions have been rarely met

within the UK in relation to the treatment of dependent drug use. On the basis of having to rely upon those studies that are available (as opposed to those study designs that one might which were available) the conclusion that one would draw from these studies is that there is a good indication that residential rehabilitation treatment services are associated with a greater proportion of drug users becoming drug free than the community based services. But if this is the indication on the basis of the follow up studies involving dependent drug users what about the data in relation to the treatment of those with an alcohol dependency? This is the focus on the next section.

The Treatment of Alcohol Dependency

Broadly speaking the research that has addressed the effectiveness of alcohol dependency is both more extensive and more rigorous than that which has been directed at the treatment of drug dependency. The alcohol treatment field has involved more studies, using more rigorous methods (including randomisation) with more clients than the illegal drugs treatment field. To an extent of course this is as one would expect given that the problems associated with alcohol use and misuse are themselves wider ranging than those associated with the use of illegal drugs. The alcohol treatment field has also to an extent produced different findings to those within the drugs treatment field.

There have been a number of major studies comparing the outcomes of different approaches to alcohol dependency treatment. The largest and most well known of these was the US study Project Match (Matching Alcoholism Treatment to Client Heterogeneity) which involved 1726 clients split between an outpatient wing of the trial (N=952) and an aftercare wing (n=774). The key aim of Project Match was to test out whether matching clients to specific

treatment would show any notable differences in treatment effectiveness. Clients within both wings of the Project Match study were randomly assigned to their 12-week manually guided treatment which comprised 12 step facilitation therapy along the lines of the principles of Alcoholics Anonymous counselling and support, cognitive behavioural coping skills support, and motivational enhancement therapy (Ashton 1999). Overall the study showed that there few clear benefits associated with client matching nor were there clear differences in the success rates across the three treatments studied. However as Raistrick and colleagues point out, Project Match study was the first time that 12 step facilitation programmes had been subjected to such rigorous evaluation the results of which showed that the approach stood comparison to the other treatment approaches examined (Raistrick et al 2006).

Project MATCH did show however that those clients who were randomised to receive the Twelve-Step Facilitation attended more AA meetings, and that their involvement in those meetings was associated with more positive outcomes at three years (Longabaugh 2003). Ouimette et al. (1998) have also reported that Twelve-Step and cognitive behavioural approaches are similarly effective in maintaining abstinence from alcohol.

Following Project Match in 1998 the UK Medical Research Council funded the United Kingdom Alcohol Treatment Trial which sought to evaluate the differential success of two approaches to alcohol treatment: social behaviour and network therapy and motivational enhancement therapy. On the basis of a similar follow up assessments (at three months and twelve months) as have been used in evaluating the impact of drugs misuse treatment the UKATT trial found very little difference between the two treatments studied with regard to reductions in the number of days respondents were alcohol free nor in a measure of the

number of drinks consumed per drinking day. Overall the UKATT research did show the positive impact of treatment however with over a quarter of respondents experiencing no alcohol related problems at follow up, forty percent of respondents much improved with a reduction in alcohol related problems and some fifty eight percent somewhat improved in the reduction of alcohol related problems. According to Raistrick and colleagues the findings of these two very large studies one based in the US and one based in the UK is that there would appear to be no best treatment for alcohol dependency. This view is congruent with Miller's "Mesa Grande" comparison of a wide range of different approaches to the treatment of alcohol problems (Miller et al 2003).

With regard to evaluating the effectiveness of 12-step residential abstinence based alcohol treatment there has been only very limited research. Kownacki and Shadish (1999) included a small number of randomised and experimental design evaluations of residential facilities using the 12 step approach and concluded on this limited evidence base that:

> Residential AA modelled treatments performed no better or worse than alternatives (Kownacki and Shadish 1999).

However Montgomery and colleagues undertook research which involved following 66 alcohol dependent clients who had been involved in a 28 day 12 step residential programme and found that active involvement in the AA programme (as distinct from simple meeting attendance) was predictive of reduced drinking and of individuals feeling that their life had a sense of purpose and direction (Montgomery et al 1995). Gossop et al have examined whether participation within AA meetings can enhance the effectiveness of in-patient alcohol

treatment. The results of this study were reasonably clear-cut in identifying a positive effect from AA involvement:

> Improvements, both in drinking and in other problems, were reported after inpatient alcoholism treatment. Although some improved outcomes were associated with AA attendance per se, post-treatment reductions in alcohol consumption were more strongly associated with frequency of post-treatment attendance at AA. Those patients who attended AA meetings on a weekly or more frequent basis after treatment reported greater reductions in drinking than did non-attenders and infrequent AA attenders. The relationship between frequency of AA attendance and reduced alcohol consumption was sustained after statistically controlling for potential confounding variables, such as baseline characteristics and length of stay in the inpatient unit. (Gossop et al 2003).

Evaluations of Castle Craig Hospital

In undertaking this review it has been possible to include a number of evaluations of the residential drug and alcohol treatment provided at the Castle Craig Hospital in Scotland. Castle Craig is a medically led residential centre providing treatment for those with a drug or alcohol dependency. The programme within the hospital is based upon the 12-step Minnesota Model often associated with Alcoholic Anonymous and Narcotics Anonymous. In 1999 Hughes undertook a follow up assessment of 96 patients in Castle Craig. These were cases selected from the computerised database within Castle Craig with the sample comprising individuals (or their partners) who had remained in employment during the period of their alcohol dependency. The sample selected for this evaluation were followed up on average over a 21-month period (the follow-up period for the clients ranged from six month to thirty five months). Data for this evaluation were obtained on the basis of a follow up questionnaire which was returned by 75 of the 96 individuals sent the questionnaire (response rate 78%). 41% of those followed up had been continually abstinent (from all alcohol) during the follow up period. A further 19% were categorised as having had a good “outcome”- defined as

having had no more than three relapses and a period of continuous abstinence of six months duration. A further study undertaken by McCann and Amos in 2000 reported treatment outcome data on all patients participating within the Castle Craig Extended Care Unit for the period September 1997 to August 1999. This study involved a total of 206 patients who were followed up on average 429 days after their recruitment into the study. In total 57.6% (n=119) of patients completed the treatment programme within the Extended Care Unit of whom 48% (n=57) maintained a continuous period of abstinence from all drugs and alcohol during the follow up period. A further 14% were characterised as having had a good outcome of treatment defined as having no more than three relapses and a continuous period of abstinence for at least three months prior to the follow up contact point. Over sixty percent of those followed up reported that their physical health had been much improved as a result of their treatment, over fifty percent reported that their mental health had much improved and approaching 70% reported that their quality of life had much improved as a result of their treatment. These are impressive levels of achievement (albeit based on self report) from a group who were experiencing major physical and mental health difficulties at the point of their admissions.

A third evaluation of Castle Craig residents was undertaken in 2007 by Dr George Christo, a leading figure in the world of drug treatment evaluation. Christo has reported outcome data on all cocaine addicted patients entering treatment within Castle Craig between January 2004 and August 2006 (n=141). The average duration of patients leaving Castle Craig on a planned (i.e. not premature) basis was 19 weeks compared to an average of 8 weeks for those who were prematurely discharged. In total 51.8% of patients were the subject of a planned discharge and 48.2% were discharged prematurely on an unplanned basis. The average follow

up period in this study was 79.4 weeks and overall 75.9% of patients were successfully followed up. According to Christo 60% of those who were followed up had a CISS (Christo Inventory Score) of less than 6 indicating a good outcome of treatment and 40% had a Christo Score of 7 or more indicating a poor outcome. 46% of those patients who successfully completed their detoxification and who were followed up were totally abstinent. Amongst those who completed the full range of their treatment within Castle Craig 66% were totally abstinent on follow up. According to Christo:

> Castle Craig Hospital appears to be providing a service for very dysfunctional cocaine dependent people with complications from lack of support, poor health, psychological problems, and lack of occupation. However good outcomes are achieved despite these high levels of dysfunction at intake. (Christo 2007)

Conclusions

It is clear on the basis of the research that has been undertaken that abstinence based residential rehabilitation services can have a significant beneficial impact on facilitating individuals recovery from dependent drug and alcohol use. That evidence is perhaps at its clearest in relation to the studies evaluating the impact of drug misuse services although it is also indicated in the literature on the impact of services in facilitating individuals recovery from alcohol dependency.

However, in assessing the effectiveness of treatment services it is important to draw a distinction between the effectiveness of a service or a treatment modality and the evidence of that effectiveness. A specific treatment agency may well be highly effective in facilitating individual's recovery from dependent drug and alcohol use even where there is little evidence

that this is the case. Similarly, simply because research has shown that a particular treatment modality is effective in facilitating individual's recovery from dependent drug use this does not mean that each specific agency providing that treatment will be equally effective. In the case of the evidence to establish the effectiveness of residential rehabilitation services there has simply been too few studies to resolve any and all of the questions a service commissioner may deem require resolution before enabling full use to be made of those services within his or her area. Nevertheless evidence where it relates to the functioning of specific clinics is important and as was seen in the data relating to past evaluations of Castle Craig there are clear indications that this clinic is indeed achieving a high level of positive outcomes in its treatment of those with a drug or alcohol dependency.

There is a danger in policy and professional discussions about drug and alcohol treatment of assuming that the relative lack of evidence of the effectiveness of specific treatments amounts to the same as indicating that those treatments are ineffective when in reality what the evidence shows more powerfully than anything else is its clustering around specific treatments and its lack of focus on other treatments. Equally, even where there is clear evidence that a specific treatment or agency is highly effective this does not mean that each and every example of that treatment modality will be equally effective. According to Raistrick and colleagues (2006) there is a strong and variable "treatment effect" associated with the individual therapist involved in any individual's care. Two similarly focussed agencies, following the same programme, though with different staff may produce highly different outcomes in terms of the level of rehabilitation of individual clients. These shortcomings in the extent and the nature of the available evidence can severely compromise the provision and support of high quality treatment agencies within the addictions.

One way though which some of these difficulties have been resolved in the addictions field has been through the application of common standards of professional care. Residential rehabilitation agencies for example require to be assessed by the Care Commission to ensure that those agencies meet the appropriate standards of care. Although individual service commissioners may be reassured by the fact that an agency has attained the appropriate level of certification the very nature of the judgements involved are highly variable. As a result the certificatory system cannot provide the level of stability to ensure the continued provision of a mixed economy of addiction treatment services.

As an alternative to basing judgements on whether to commission specific services on the fluctuating evidence of effectiveness or of evidence the American Society for Addiction Medicine has sought instead to match clients needs to service provision within the drug and alcohol dependency field. The use of what are termed "patient placement criteria" is an attempt to ensure that the drug and alcohol treatment field maintains a mixed economy of services ranging from those that are based within the community providing low intensity care and treatment, to those providing specialist services often within a residential setting. The ASAM model sets out four levels of care in which services operating at level one work with clients where there is no withdrawal risk, where the individual is willing to cooperate in his or her treatment but needs support in fostering a level of motivation, where the individual has a supportive recovery environment, strong coping skills and is able to maintain abstinence with minimal support. Level two agencies work with clients where there is a low level of withdrawal symptoms where the individual may have mild emotional problems, where there may be some resistance to treatment and a need for some level of encouragement to remain

engaged within treatment and where the individual is living within an environment that may be unsupportive of treatment but which the individual can cope with without requiring residential support. Level three care involves the provision of medically monitored in-patient care, where there is a severe risk of withdrawal, where the individual may have moderate to severe emotional needs requiring a 24 hour structured programme, where resistance to treatment may be high, and where the risk of relapse is also high and where the environment the individual would otherwise be involved with is highly threatening for their recovery. Level four care is medically managed, involves working with individuals where there is a severe risk of withdrawal, where there is a need for 24 hour nursing care, severe emotional problems including the provision of psychiatric support, and where there is a real risk to the individual's recovery arising from the environment in which they would otherwise be spending time within.

The aim within the ASAM placement patient system is to ensure that individuals are provided with the kind of treatment and care that is appropriate to their level of need. The model then is somewhat different to that within the UK where amongst service commissioners there may be a perception that all treatments are equally effective and where there is therefore no strong case for opting, other than very rarely, for the more costly residential rehabilitation services. The situation within the UK is beginning to change. The National Treatment Agency in England has recently convened an expert group to develop a set of patient placement criteria that are appropriate for the use of residential rehabilitation services within the UK and which can guide service commissioners and referral agencies in determining not simply whether they should be supporting residential rehabilitation services in their area but rather at what point and with which patients should residential rehabilitation services should be being

provided. Importantly, where the patient placement criteria are combined with a rigorous system for assessing the quality of care within individual agencies (preferably combining both the statutory assessment and research evaluation as has occurred within Castle Craig) it should be possible to overcome the shortcomings in the evidence base and to ensure the appropriate use residential rehabilitation services for the treatment of those with a drug and alcohol problem.

References

Ashton, M. (1999) Project Match: Unseen Colossus. Findings Issue 1

Christo, G (2007) Outcomes for Cocaine Addicted Patients at Castle Craig Hospital

Effective Interventions Unit (2003) Residential Detoxification and Rehabilitation Services for Drug Users.

Gossop, M., Marsden, J., Stewart, D. (2001) NTORS After Five Years The National Treatment Outcome Research Study Changes in substance use, health and criminal behaviour during the five years after intake. National Addiction Centre

Gossop. M., Harris, J., Best, D., et al (2003) Is Attendance at Alcoholics Anonymous Meetings after Inpatient Treatment Related to Improved Outcomes: A Six Month Follow up Study. Alcohol and Alcoholism (2003) 38 (5): 421-426. doi: 10.1093/alcalc/agg104

Hughes, R (1999) Report on Follow Up Study Carried out on 96 Patients in Employment.

Jones, A., Donmall, M., Millar, T., Moody, A., Weston, S., Anderson, T. Gittins, M., Abeywardana, V., D'Souza, J (2009) The Drug Treatment Outcomes Research Study (DTORS): Final outcomes report Research Report 24

Kownacki, R., Shadish W. (1999) Does Alcoholics Anonymous Work? The Results from a meta analysis of controlled experiments Substance Abuse and Misuse 34 1897-1916

Longabaugh, R (2003) Involvement of Support Networks in Treatment Recent Developments in Alcoholism 16 133-147

McCann, M., Amos, S ((2000) Follow up Study on All Patients who Participated in the Extended Care Unit at Castle Craig.

McKeganey, N.P., Bloor, M., McIntosh, J. Neale, J., (2008) Key findings from the Drug Outcome Research in Scotland (DORIS) study. Centre for Drug Misuse Research occasional paper. issn 1759-6270 (Print), issn 1759-6289 (online).

Miller, W., Wilborne, P., Hetema, J (2003) What works? A Summary of Alcohol Treatment Outcome Research in Hester R Miller W eds Handbook of Alcoholism Treatment Approaches Effective Alternatives.

Montgomery, H., Miller, W., Tonigan, J. (1995 Does Alcoholics Anonymous Involvement Predict Treatment Outcome Journal of Substance Abuse Treatment 12 4 241-246

Ouimette, P., Humphreys, K., Moos, R., Cronkite, R., Federman B. (1998) Influence of Outpatient Treatment and 12 step group involvement on one year substance abuse treatment outcomes Journal of Studies on Alcohol 59 513-522

Raistrick. D., Heather, N., Godfrey, C. (2006) Review of the Effectiveness of Treatment for Alcohol Problems National Treatment Agency.