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Family-oriented treatment for people with alcohol problems in Ireland:

A comparison of the effectiveness of residential and community-based programmes

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ABSTRACT

Using a naturalistic design involving consecutive referrals self-selected for family-oriented treatment, 42 participants from a residential programme and 25 participants from a community-based programme were assessed on a range of alcohol-use and psychosocial measures before treatment. A proportion of these cases were assessed after treatment and at 6 months follow-up. At six months follow-up 79% of both the residential and community groups were either abstinent or drinking moderately. However, more members of the residential group (75%) were abstinent at follow-up compared with the community group (36%). In contrast, more members of the community group were moderate drinkers (43%) at follow-up compared with the residential group (4%). At six months follow-up, compared with the community group, more members of the residential group showed a clinically significant reduction in recent negative consequences of drinking and psychological adjustment problems. Both groups made significant mean gains on indices of alcohol abuse and psychosocial adjustment but there were important intergroup differences. The residential group showed a greater mean reduction in recent negative consequences from drinking but the community group showed a greater mean reduction in the percentage of days heavy drinking.

INTRODUCTION

For alcohol abuse, family-based treatments have been shown to be particularly effective in helping people with alcohol problems and their families engage in treatment; become drug free or develop a more controlled approach to alcohol use; and avoid relapse (Carr, 2000a,b; Edwards & Steinglass, 1995; Finney & Moos, 1998).

The impact of treatment setting on the outcome of family-oriented alcohol treatment programmes, however, is an unresolved, yet challenging question. Available evidence suggests that many clients benefit from treatment in both residential and community-based settings (Finney & Moos, 1996; Monahan & Finney, 1996; Pettinati, Meyers, Jensen, Kaplan et al., 1993). However, it remains unclear which clients benefit most from treatment in which setting. A meta-analysis of 7 randomised controlled trials of residential and community based treatment programmes by Mattick and Jarvis (1994) yielded an effect size close to zero, suggesting no advantage to either type of programme. A review of 14 studies by Finney, Hahn and Moos (1996) found residential treatment to be superior to outpatient treatment in five studies, community -treatment was superior to residential treatment in two. There were no significant differences in drinking-related outcomes for residential or community based programmes in the remaining seven studies.

Results of some studies suggest that individuals with less family and social support or more severe drinking problems derive greater benefit from residential or inpatient treatment, whereas those with less severe alcohol problems or more family and social support benefit more from community-based outpatient care (e.g. Orford, Oppenheimer & Edwards, 1976). However, others have found great similarity among factors that predict outcome in both residential and community-based treatment programmes. Demographic variables are uncorrelated with outcome, but problem-severity has been identified as a major predictor of treatment response, with severe cases having poorer outcomes (McLellan, Grissom, Brill, Durell, Metzger & O'Brien, 1994).

Attempts to match clients to prgrammes in residential inpatient or community-based outpatient settings on the basis of their pre-treatment characteristics has yielded few significant results and matching appears to have little advantage over random assignment in terms of treatment outcome (Mattson, Allen, Longabaugh, Nickless, Connors & Kadden, 1994; Rychtarik, Connors, Whitney, McGIllicuddy, Fitterling & Wirtz, 2000). For example, the Project MATCH Research Group (1997) found little additional benefit from matching clients with alcohol problems to different treatment modalities on the basis of their pre-treatment psychosocial profiles.

One reason why studies of the differential effects of residential or community-based programmes may not have yielded many significant results is that the process of assigning participants to treatment programmes (either randomly or through a process of matching) without allowing clients to choose the programme they enter may erode any incremental benefit associated with either type of programme. There are good theoretical reasons for arguing that choosing to enter a particular type of treatment programme may be a critical feature of the recovery process and a prerequisite for treatment effectiveness (DeLeon, 1998; Marlatt, Tucker, Donovan & Vuchinich, 1997). Choosing to enter a particular type of programme involves taking active steps in personally planning one's own recovery from alcohol dependence. The process of choosing a particular type of programme may positively influence the way the person perceives their role in contributing to their own recovery.

Randomised controlled trials and studies in which clients are matched to treatments achieve high internal validity by maximizing experimental control, but they do so at the expense external validity or generalizability of findings (Finney, Hahn & Moos, 1996; McKay, Alterman, McLellan, Snider, & O'Brien 1995; Moos & Finney, 1983; Seligman, 1995). The outcome for people with alcohol problems assigned to treatment programmes either randomly or on the basis of matching may not be representative of the outcome for the general population of problem drinkers who actively choose to enter particular types of treatment programmes.

The present study evaluated the comparative effectiveness of two family-oriented alcohol treatment programmes one of which was residential and one of which was community-based. The study was designed to maximise external validity or generalizability of findings by using a naturalistic design in which clients self-selected the treatment programme they entered. The three main questions with which this study was concerned was whether residential or community-based, family-oriented alcohol treatment programmes lead to greater improvement rates in terms of alcohol abuse; greater rates of clinically significant change in negative consequences of alcohol abuse and psychological adjustment; and greater mean changes on indices of alcohol abuse and psychosocial adjustment.

METHOD

Treatment Programmes

The family-oriented treatment programmes in the inpatient-residential and outpatient-community centres involved in this study were based on the Minnesota Model. The Minnesota Model constructs alcohol

dependence and related problems as a disease which can be managed, but not cured (Cook, 1988; Nowinski, Baker and Carroll, 1992; Spicer 1993).

Alcoholism as a disease. According to the Minnesota Model some individuals have a unique vulnerability to alcoholism. Unfortunately the aetiology of this disease is currently not fully understood due to limitations in extant scientific knowledge of relevant constitutional and genetic factors. Alcoholism - this incurable biological and personality disease - is characterised by denial of alcohol addiction and the consequences of this for drinkers, their families and their wider social and occupational networks. Complete abstinence and regular attendance at self-help meetings, where a Twelve-Step programme is pursued, are vital for long-term sobriety.

Twelve step programme. The programmes evaluated in this study placed emphasis on the daily operationalization of the Twelve Steps of Alcoholics Anonymous (Anonymous, 1986). This involves accepting alcoholism as an uncontrollable disease and invoking spiritual aid to live a productive life, despite the presence of the disease. Programme participants worked on at least the first three steps while in the treatment programmes, with progression through the remaining eight steps expected through subsequent long-term involvement with Alcoholics Anonymous during aftercare. In both programmes abstinence was the main treatment goal.

Multimodal approach. The Minnesota Model advocates a multimodal approach to treatment involving group, individual and family therapeutic formats. Both programmes evaluated in this study involved group therapy for clients with alcohol addiction and therapy with clients' families. Psychoeducation, bibliotherapy, problem-solving therapy, peer support and self-help were incorporated into the overall treatment approaches. Programmes were staffed by certified counsellors and mental health professionals, a number of whom were people who had recovered from alcohol problems. In each centre, all staff members were trained in addiction counselling and some had additional training in marital and family therapy.

Family Involvement. Family involvement in treatment is central to the Minnesota Model and played a critical role in each of the programmes evaluated in this study. Within the Minnesota model, family members are referred to as concerned persons, since they are concerned for the well-being of the person with alcohol problems. Family interventions with concerned persons focus on therapeutic engagement, psychoeducation, highlighting the destructive consequences of drinking for the family, disrupting patterns of family interaction that maintain alcohol abuse, fostering family support, and improving family communication and problem solving skills.

Family involvement in engagement. In both programmes evaluated in this study family members were involved in the engagement process. They were invited to make clear to the person with the alcohol problem that they fully supported their engagement in treatment. They were also invited to articulate how they would be affected and how they would react if the person with the alcohol problem did not engage in treatment. Thus, family involvement in the engagement process facilitated the person with the alcohol problem in understanding the consequences of engaging or not engaging in treatment. Family involvement at this early stage is particularly important because according to the Minnesota Model, people with alcohol problems deny the real consequences of their actions. Thus their families help them to develop motivation to enter treatment by outlining the positive and negative consequences of engaging or not engaging in treatment. During engagement, family members also make a commitment to attend regular family sessions. Making this type of commitment, conveys to people with alcohol problems the degree to which their families support them in their attempts to deal with their addiction.

Family psychoeducation and reframing. In psychoeducational sessions, family members learned about the disease model of alcoholism as explained above. From a family therapy perspective, psychoeducation involves reframing family members' understanding of the behaviour of the person with alcohol problems. The core of this reframing is that alcoholics are not responsible for the cause of their addiction, but they are responsible for their own recovery. This reframing of alcohol problems helps family members be supportive of drinkers' attempts to take steps towards recovery. This reframing often replaces less useful framings of the problem which entail blame or a sense of powerlessness. Such framings include the idea that the family have caused the problem; or that the alcohol abuse is caused by the drinker's immorality; or that the drinker is helpless and recovery is the responsibility of the treatment team or the family.

Family confrontation of drinker with the consequences of drinking. According to the Minnesota Model, to be motivated to take responsibility for their own recovery, alcoholics need to understand the destructive consequences of their drinking for the family. However, one of the symptoms of the disease of alcoholism as articulated within the Minnesota Model is denial of the consequences of drinking. Thus a vital aspect of treatment is making drinkers aware of the impact of their alcohol abuse and related behaviours on their family, friends and work colleagues. In both of the programmes evaluated in this study, family members were invited to help with this process within single family therapy sessions and/or multiple family therapy sessions by describing the emotional and psychological impact of drinkers' behaviour on them in graphic

detail. This process confronts drinkers with the stark reality of how their alcoholic behaviour has hurt those whom they profess to love. When people with alcohol problems accept that they have hurt members of their family, this opens up the possibility of apology, forgiveness and the deepening of family relationships.

Disrupting patterns of family interaction that maintain alcohol abuse. Within the Minnesota Model, family members are viewed as being caught up in the disease of alcoholism through inadvertent engagement in *enabling behaviours* which maintain alcohol abuse. Examples of enabling behaviours include arranging for a drunk partner to be carried home, cleaning them up, covering for them if they do not attend work the next day, arranging for them to have an early morning drink, and arranging for them to have money to fund further bouts of drinking. In the programmes evaluated in this study, within family sessions enabling behaviours were explored and family members were invited to discontinue these behaviour patterns which inadvertently maintained alcohol abuse. Often changing such enabling behaviours is very difficult because engaging in them and facilitating the drinker's intoxication may entail some pay-off for sober family members such as alleviating guilt or anxiety, increasing physical or sexual contact, or enhancing emotional expressiveness. Abstinence, in contrast may leave family members depressed, disconnected and emotionally impoverished. Family studies of problem drinkers show that family interaction patters involving enabling behaviours maintain problematic drinking behaviour and in some instances prevent family disintegration (Carr, 2000a; Liepman, Nirenberg, Doolittle, et al., 1989; McCrady, 1994; O'Farrell & Fals-Stewart, 1999; Steinglass, 1985; Vetere & Henley 2001).

Facilitating family communication, problem-solving, and emotional support. In addition to addressing family interactions that revolve specifically around alcohol, family sessions provide a forum within which family members can learn or relearn to communicate clearly with each other, solve family problems co-operatively and offer each other emotional support. Within the Minnesota model it is recognises that problems in these areas often develop as result of drinking and so they may need to be addressed during treatment.

Residential programme

The residential family-oriented programme was conducted in the Rutland Centre, a privately funded unit based in Dublin. Treatment at this centre was largely funded through clients' private health insurance. The centre offered a six-week residential programme for clients with a wide range of addictions followed by a two year aftercare programme. The residential programme involved intensive group therapy, individual

counselling, daily group psychoeducational lectures and films on addiction and recovery. On one day per week during the six week programme, clients families and concerned persons attended multiple-family therapy sessions. An additional multiple-family therapy group, exclusively for families and concerned persons was held one evening per week. Family and marital therapy for individual cases was also provided as required. The residential programme had two unique advantages. First it gave respite for clients and their families, removing clients from environments that were perpetuating their alcohol abuse and allowing their efforts at abstinence to be consolidated. Second, it provided a setting that gave clients a more intensive treatment experience because the centre operated as a therapeutic community. Daily routines had implicit therapeutic functions, and the notion of equality among residents and individuals taking responsibility for their actions were emphasised.

Community-based programme

The community based family-oriented treatment programme was conducted in the Stanhope Alcohol Service, a public health service alcohol treatment centre in Dublin. There was no charge for treatment. All treatment sessions were scheduled for evenings after office hours so that treatment attendance did not require clients or members of their families to take time off from work or school. This ten week programme involved weekly separate and conjoint group therapy for problem drinkers and their families. In addition, clients and their families attended psychoeductional lectures and films on addiction and recovery. The community-based treatment programme had the advantage of facilitating the ongoing assessment of, and intervention in the typical systemic context within which client's drinking urges and episodes occurred. It afforded clients and their families opportunities to test new coping strategies in their day-to-day lives while engaged in a supportive therapeutic programme. These conditions would be expected to foster generalisation or transfer of learning from the weeks when families were in treatment to the aftercare period.

Instruments

The following instruments along with a demographic information sheet were included in the assessment protocol to collect data on alcohol use and psychosocial functioning.

- The Drinker Inventory of Consequences (DrInC,Tonigan & Miller, 1993
- Timeline Follow Back Method (TLFB, Sobell & Sobell, 1992).
- The Alcohol Dependence Scale (ADS, Skinner & Allen, 1982).

- The General Health Questionnaire-12 (GHQ-12, Goldberg & Williams, 1988
- The Family Assessment Device (FAD, Epstein, Baldwin & Bishop, 1983).
- The Multidimensional Scale of Perceived Social Support (MSPSS, Dahlem, Zimet & Walker, 1991)
- University of Rhode Island Change Assessment (URICA, Willoughby & Edens, 1996).

Reliability and validity data described in the references cited above indicate that these instruments are psychometrically robust. What follows is a brief description of each.

The Drinker Inventory of Consequences (DrInC,Tonigan & Miller, 1993). This 50-item questionnaire yields scores on adverse consequences of alcohol abuse in five areas: physical, interpersonal, intrapersonal, impulse control and social responsibility. It also yields a total adverse consequences score. DrInC items span a full spectrum of adverse consequences ranging from those encountered by heavy social drinkers to severely alcohol dependent individuals. Different phrasings of the items are used to measure adverse consequences over the course of the lifetime or over the course of a recent specified assessment period, or both. A short version consisting of 15 items giving a total score is also available. In this study at intake lifetime and recent versions of the long form of the DrInC were administered before treatment and the recent version of the short form of the DrInC was administered after treatment and at follow-up.

Timeline Follow Back Method (TLFB, Sobell & Sobell, 1992). This daily drinking estimation method yields a detailed account of a person's drinking over a designated assessment period. Using a calendar, people are interviewed so as to provide retrospective estimates of their daily drinking over a specified assessment period which can extend from a few weeks to 12 months. In this study, the pre-treatment assessment period was 12 months, the post-treatment assessment period was six to tem weeks, and the follow-up assessment period was six months. Three variables were generated using the TLFB method including percentage of days drinking (PDD=number of days during the assessment period that the participant reported alcohol consumption divided by the number of days in the assessment period, multiplied by 100); percentage of days heavy drinking days (PDHD=number of days during the assessment period that the participant reported consumption of more than ten standard drinks, divided by the number of days in the assessment period, multiplied by 100); and mean number of drinks per drinking day (DDD=total number of standard drinks the participant reported ingesting during the assessment period divided by the number of days in the follow-up period). The selection of ten standard drinks per day (rather than six) as the criterion for defining a PDHD is

consistent with a position adopted by Sellman et al (2001).

The Alcohol Dependence Scale (ADS, Skinner & Allen, 1982) This 25 item questionnaire yields a single quantitative index of the severity of the alcohol dependence syndrome. Items cover alcohol withdrawal symptoms, impaired control over drinking, awareness of a compulsion to drink, increased tolerance to alcohol, and salience of drink-seeking behaviour. Instructions for competing the ADS refer to a specified assessment period which can range from a few weeks to a year. In this study, the pre-treatment assessment period was 12 months, the post-treatment assessment period was six to tem weeks, and the follow-up assessment period was six months.

The General Health Questionnaire-12 (GHQ-12, Goldberg & Williams, 1988). This 12-item scale assesses non-psychotic psychological problems and yields a single total score. For each item, four-point response formats were used. Cases that score above a specified cut-off point typically meet the criteria for a psychiatric diagnosis if interviewed. Thus, the GHQ-12 may be used to classify participants as showing normal psychological adjustment or clinically significant psychological difficulties.

The Family Assessment Device (FAD, Epstein, Baldwin & Bishop, 1983). This 60-item inventory evaluates perceived family functioning and yields scores on the following seven subscales: problem solving, communication, roles, affective responsiveness, affective involvement, behaviour control and general functioning. For all items a four point Likert response format is used with responses ranging from 1= strongly agree to 4=strongly disagree. The FAD has been shown to discriminate between clinical and non-clinical families and clinically a cut-off score of 2 on the general functioning scale may be used to identify families with significant adjustment difficulties. The full FAD was administered in this study before treatment and a short form which included the communication, affective involvement and affective responsiveness subscales was administered after treatment and at follow-up.

The Multidimensional Scale of Perceived Social Support (MSPSS, Dahlem, Zimet & Walker, 1991). This 12 item self-report instrument yields a total perceived social support score and three subscale scores indicating support from family, friends, and a significant other. For all items a seven point Likert response format is used with responses ranging from 1= very strongly agree to 7=very strongly disagree.

University of Rhode Island Change Assessment (URICA, Willoughby & Edens, 1996). This 32-item scale assesses attitudes towards changing problem behaviours and is based on the stages of change construct form the transtheoretical model (Prochaska & DiClemente, 1984). Eight items assess each of the four stages: precontemplation, contemplation, action and maintenance. For all items a five point Likert response format is used to indicate how important the item is to the respondent and responses may range from 1=not at all to 5=extremely.

Participants

Over a nine month period 86 consecutive admissions to the residential and community based programmes for treatment of alcohol dependence problems were invited to participate in the study. 49 clients were from the residential programme and 37 were from the community-based programme. The higher number of participants from the residential programme reflects the higher intake rate in that programme over the nine month recruitment period.

Drop-outs. From the initial pool of 86 potential participants, 67 completed the pre-treatment assessment protocol. 42 were from the residential programme and 25 were from the community based programme. Complete post-treatment assessment data were obtained from 29 of these 67 cases. 15 were from the residential programme and 14 were from the community based programme. Complete follow-up assessment data were obtained from 39 of the 67 cases who completed the pre-treatment assessment of which 27 were from the residential programme and 12 were from the community based programme. Complete data sets at all three time points were obtained from 21 cases, with 13 of these being from the residential group and 8 from the community group.

Characteristics of participants. Demographic characteristics of the two groups who competed the pre-treatment assessment are given in Table 1 and the status of the two groups on indices of alcohol use and psychological adjustment are given in Table 2. The statistical significance of intergroup differences on interval scale variables was assessed with t-tests for independent samples and on categorical variables with chi square tests. From Tables 1 and 2 it may be seen that the groups had similar demographic and psychosocial profiles. With respect to alcohol use, the groups differed in two ways. The residential group had

significantly more recent negative consequences from drinking as assessed by the DrInC but the community group had greater alcohol dependency (as assessed by the ADS).

Comparison of drop-outs and completers. When drop-outs at six months follow-up from each programme were compared with the remainder of cases in each programme on all pre-treatment variables listed in Tables 1 and 2, significant differences between the four groups were not found on any variables. When all dropouts were compared with all cases who completed treatment the only variable on which these two groups differed was educational level (Doyle & Carr, 2000). A significantly lower proportion of dropouts had attended third level educational institutions (χ^2=9.34, df=3, p<.05).

Procedure

Participants gave informed consent to enter the study. Pre-treatment and post-treatment assessments involved completing a protocol which included the DrInC, TLFB, ADS, GHQ-12, FAD, MSPSS and URICA. The six-month follow-up assessment protocol included a short version of the DrInC, TLFB, GHQ-12, a short version of the FAD and the MSPSS. All assessments involved a face-to-face interview (for the TLFB with the first author) as well as completion of self-report questionnaires. In some instances these were completed in the absence of the interviewer and returned in stamped addressed envelopes provided participants. Self-reports at post-treatment and follow-up were verified using a saliva alcohol test: *The Quantitative Ethanol Detector* (Jones, 1995). At least four attempts were made to contact drop-outs using phone-calls and letters.

RESULTS

Improvement rates

There were adequate TLFB data to classify 25 cases from the residential group and 14 cases from the community group as abstainers, moderate drinkers, improvers and relapsers at six-month follow-up using criteria outlined by Allsop, Saunders & Philips (2000) and Sellman, Sullivan, Dore, Adamson & McEwan (2001). Abstainers were those who had not consumed any alcohol in the preceding three months. Moderate drinkers were those who had consumed less than 31 units in the preceding 7 days and reported no relief drinking during the six months follow-up period. Improvers were either abstainers or moderate drinkers at six month follow-up. Participants who had returned to regular heavy drinking were classified as relapsers.

From Figure 1 it may be seen that the residential and community groups contained similar

percentages of improvers (79%) and relapsers (21%). A chi square test showed that the distribution of abstinent drinkers, moderate drinkers and relapsers in the residential and community groups differed significantly (chi square = 9.58, df=2, p<.01). More members of the residential group (75% or 18/24) were abstinent at follow-up compared with the community group (36% or 5/14). In contrast, more members of the community group were moderate drinkers (43% or 6/14) at follow-up compared with the residential group (4% or 1/24).

Rates of clinically significant change

Rates of clinically significant improvement after treatment and at follow-up were determined by classifying cases as improvers or non-improvers with reference to clinical cut-off scores of 17 for the DrInC and 24 for the GHQ. Cases whose scores dropped from the clinical range at pre-treatment to the non-clinical range at six month follow-up were classified as improvers. Cases that did not meet this criterion were classified as non-improvers. The statistical significance of the difference in the distribution of improvers and non-improvers across residential and community groups was evaluated with Fishers Exact Probability Test.

On the DrInC, significantly (p<.01) more cases in the residential group (88% or 22/25) were improved at follow-up compared with the community group (43% or 6/14) indicating that more members of the residential group showed a clinically significant reduction in recent negative consequences of drinking at follow-up. On the GHQ significantly (p<.05) more cases in the residential group (36% or 9/25) were improved at follow-up compared with the community group (7% or 1/14) indicating that at six month follow-up more members of the residential group showed a clinically significant reduction in psychological adjustment problems.

Mean changes in alcohol abuse and psychosocial adjustment from pre-treatment to follow-up

The statistical significance of differences between the mean scores of residential and community groups and within each of these groups on measures of alcohol abuse and psychosocial adjustment at pre-treatment and six -months follow-up was assessed using 2x2 repeated-measures ANOVAs. Results of these analyses are given in Table 3.

Significant Groups X Time effects which indicate differential improvement in one group compared with another occurred on only one variable: DrInC total scores, which reflect recent negative consequences from drinking. This significant Groups X Time effect indicates that the residential group showed a greater

reduction in total DrInC scores from pre-treatment to six-months follow-up, compared with the community group. However, it is noteworthy that the residential group's pre-treatment mean scores were significantly higher than those of the community group, while the follow-up mean scores of both groups did not differ from each other.

Significant Time effects, which indicate improvements in both groups from pre-treatment to six months follow-up, occurred for total DrInC scores; PDD, PDHD, and DDD scores from the TLFB; total GHQ scores; and total MSPSS scores. These results indicate that from pre-treatment to six-months follow-up both group showed improvement in recent negative consequences from drinking, percentage of days drinking, percentage of days heavy drinking, number of drinks per drinking day, overall psychological adjustment on the General Health Questionnaire, and perceived social support on the Multidimensional Scale of Perceived Social Support. However, no significant improvement occurred in perceived family functioning as assessed by the Family Assessment Device.

2X2 ANOVAs based on 29 cases for which compete pre-treatment and post-treatment data sets were available and 2X3 ANOVAs for the 21 cases for which pre-treatment, post-treatment and six -months follow-up data sets were available were also conducted for all dependent variables. The results of these analyses were largely consistent with those presented in Table 3. However, the analyses presented in Table 3 have been reported in detail here because they are the most robust. They are based on a larger group of cases (N=39) than either of the other two sets of analyses and include 6 month follow-up data. However, changes in the pattern of drinking from pre-treatment to post-treatment to follow-up for both groups are of central interest, so selected results from the other two sets of analyses will be presented in the next section.

Mean changes in alcohol abuse from pre-treatment to post-treatment to follow-up

Mean scores for percentage of days drinking (PDD) and percentage of days heavy drinking (PDHD) at pre-treatment, post-treatment and follow-up for both residential and community groups are presented in Figure 2. Means in the graph are based on all cases for which data were available on each of the three assessment occasions. The graphs show that, for both groups, reductions in PDD and PDHD occurred from pre-treatment to post-treatment and from pre-treatment to follow-up. Results of ANOVAs based on pre-treatment and post-treatment data, and pre-treatment and follow-up data confirm that these reductions were statistically significant. (For PDD, the pre-treatment to post-treatment Time effect was $F(1,27)=60.1$, $p<.01$. For PDHD, the pre-treatment to post-treatment Time effect was $F(1,27)=45.7$, $p<.01$. ANOVA results for

pre-treatment and follow-up data are given in Table 3).

Figure 3 also shows that the community group reported a greater reduction in PDHD from pre-treatment to post-treatment, compared with the residential group. Results of an ANOVAs based on pre-treatment and post-treatment data confirms that this difference in improvement rates was statistically significant. (For PDHD, the pre-treatment to post-treatment Groups X Time effect was $F(1,27)=4.9$, $p<.05$.)

Figure 3 also illustrates that while the community group showed an increase in the mean percentage of days drinking during the follow-up period (18%) the mean percentage of days when they drank heavily remained low (7%).

DISCUSSION

This study addressed three main questions. With respect to the first question, concerning the comparative impact of residential and community-based family-oriented alcohol treatment programmes on alcohol abuse, two conclusions were drawn. At six months follow-up 79% of both the residential and community groups were either abstinent or drinking moderately. However, more members of the residential group (75%) were abstinent at follow-up compared with the community group (36%) while more members of the community group were moderate drinkers (43%) at follow-up compared with the residential group (4%).

With respect to the second question, concerning rates of clinically significant change in negative consequences of alcohol abuse and psychological adjustment, it may be concluded that at six months follow-up, compared with the community group, twice as many members of the residential group showed a clinically significant reduction in recent negative consequences of drinking and five times as many showed improvement in psychological adjustment problems.

With respect to the third question, concerning mean changes on indices of alcohol abuse and psychosocial adjustment, it may be concluded that both groups made significant mean gains on indices of alcohol abuse but there were important intergroup differences. The residential group showed a greater mean reduction in recent negative consequences from drinking but the community group showed a greater mean reduction in the percentage of days heavy drinking. At follow-up, participants in both programmes showed improvement in perceived social support but not perceived family functioning.

This study had a number of limitations which suggest a cautious interpretation of these findings. The first of these concerns the degree to which the independent variable (treatment setting) was confounded with other variables related to the therapeutic programmes. Thus, while one programme was residential and the

other was community-based, there were further ways in with the two programmes differed which may account for significant intergroup differences in outcome. For example, the programmes were conducted by different staff groups; the mix of family, individual, group interventions was not carefully matched across the two programmes; and the intensity of treatment, by definition, differed insofar as there were more treatment-contact hours in the residential programme. Despite these differences, it is important to underline that both programmes were based on the Minnesota Model and both were staffed by teams trained in this tradition of clinical practice. Furthermore, the two programmes represented relatively 'pure' examples of residential and community-based Minnesota Model alcohol treatment programmes in Ireland. Further studies are required to 'unpack' the active ingredients of each programme which contribute to their differential outcomes.

The second limitation of the study was the small size of the samples in each programme which compromised the power of statistical tests to detect significant intergroup differences. With small samples only relatively large mean intergroup differences are statistically significant. Moderate, but potentially important, intergroup differences in this study may have gone undetected. Another problem with small samples is they limit the confidence with which results from the study may be generalised to the population from which the samples were drawn, in this instance, cases referred to the two programmes under investigation. However, on the positive side, it is noteworthy that the samples in this study were relatively representative insofar as both were cohorts of consecutive referrals to each centre accumulated over a nine month period.

A third limitation of the study is the high drop-out rate. This further reduced sample sizes, which in turn further reduced the power of statistical tests. In addition, the high drop-our rate may have introduced bias so that cases who were followed-up were not representative of the group who initially started the study. If this were the case, then the high drop-out rate limits the generalisability of the results. It may be that drop-outs were cases who responded more poorly to treatment than participants who were followed-up. Unfortunately such data were not collected in this study. However, the results of attrition analysis afford some confidence that the high drop-out rate did not completely erode the validity of our results. Educational level was the only pre-treatment baseline variable on which drop-outs and cases who were followed up differed significantly. This highlights that there were important similarities between drop-outs and cases who completed the study. Both groups shared similar pre-treatment demographic, psychological, and family profiles. Both had similar levels of alcohol-related problems and both reported similar levels of readiness to change when entering treatment.

A fourth limitation of the study is that pre-treatment intergroup differences may have affected the outcome of the two groups. Before treatment the residential group reported greater negative drink-related consequences and the community group reported greater alcohol dependence. To evaluate the impact of these pre-treatment intergroup differences, analyses of covariance were conducted in which baseline drink-related consequences and alcohol dependence were included as covariates. These analyses yielded similar results to those reported in the results section, in which covariates were not used. Thus, pre-treatment intergroup differences had a negligible effect on the outcome of the two groups.

A fifth possible limitation was the fact that it was a naturalistic study rather than a randomised controlled trial. Thus, we had no reliable information on the wide range of factors that influenced how cases were allocated to programmes, such as referrers' or client's concerns and decision-making processes. However, we intentionally chose to conduct a naturalistic study because the outcome for people with alcohol problems assigned to treatment programmes either randomly or on the basis of matching may not be representative of the outcome for the general population of problem drinkers who actively choose to enter particular types of treatment programmes. Furthermore, when the pre-treatment profiles of participants in both programmes were compared, they were similar with two exceptions: the residential group had significantly more recent negative consequences from drinking but the community group had greater alcohol dependency. Thus, whatever internal validity the study lost by not randomly assigning cases to programmes, it gained in external validity by focusing on people who selected the programmes they entered in the way that typically happens in routine clinical practice.

The results of this study are unique in that they represent the first comparison of residential and community-based programmes conducted within an Irish context. Furthermore, they suggest that the question - Are residential or community-based programmes more effective ? (Mattick & Jarvis, 1994; Finney, Hahn & Moos 1996) – which has led to such conflicting results may well be the wrong question. Perhaps we should be asking which type of programme is best for achieving abstinence and which type of programme is best for facilitating moderate drinking.

The results of the present study have important implications for clinical practice. People with alcohol problems and their families may effectively be treated within the context of residential or community-based, family-oriented treatment programmes based on the Minnesota Model. A more tentative implication is that where abstinence is the goal, residential programmes may sometimes be the treatment of choice. In contrast, community based programmes may possibly be more appropriate where controlled drinking is the

treatment goal.

The results of this study also have implications for future research. The study requires replication with larger samples; longer follow-up; quantification of significant aspects of both programmes such as the number of hours of family, group and individual treatment; and assessment of programme integrity.

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Table 1. Demographic Characteristics

Variables		Residential (n= 42)	Community (n=25)
Age	M	42	40
	SD	10	8
		%	%
Gender	Male	62	68
	Female	38	32
Marital Status	Single	38	20
	Married	48	64
	Widowed	5	0
	Separated/Divorced	10	16
Employment Status	Self-employed	12	12
	Employee	52	64
	Unemployed	17	12
	Homemaker	12	8
	Retired	7	4
Socioeconomic Status	1	14	8
	2	26	16
	3	14	12
	4	2	8
	5	10	28
	6	0	4
	Social class unknown	33	24
Education	Primary	10	12
	Secondary	46	60
	Vocational	17	16
	University	27	12
Previous Criminal Conviction		19	8
Previous Alcohol Treatment		45	32
Type of treatment	Inpatient	44	27
	Outpatient	13	13
	Both	3	13
Referral Source	Self	50	24
	GP	19	20
	Psychiatrist	7	20
	Other	24	36
Interviewed post treatment		36	56
Interviewed at follow-up		60	56

Note: M=mean. SD=Standard Deviation. All values except those for age are percentages. Cases were assigned to socioeconomic groups on the basis of occupation using the 1996 census criteria (CSO, 1997). Groups did not differ significantly on any demographic variables.

Table 2. Pre-treatment characteristics of community and residential groups

Variables		Residential (n=42)	Community (n=25)	t
Alcohol dependence - Total score on the Alcohol Dependence Scale	M	25.87	28.76	2.71**
	SD	6.87	8.41	
Recent impact of drinking - Total recent score on Drinkers Inventory of Consequences	M	69.40	47.03	3.66***
	SD	25.03	23.80	
Lifetime impact of drinking - Total lifetime score on Drinkers Inventory of Consequences	M	33.43	29.83	1.87
	SD	7.52	7.73	
Percentage of days drinking on the Time Line Follow Back	M	38.46	46.61	1.16
	SD	23.11	34.59	
Percentage of days heavy drinking (>10 units) on the Time Line Follow Back	M	26.88	32.84	0.93
	SD	21.94	30.69	
Mean drinks per drinking say on the Time Line Follow Back	M	18.40	17.81	0.25
	SD	9.17	10.09	
Psychological adjustment – Total score on the General Health Questionnaire	M	20.32	16.64	1.59
	SD	8.53	10.21	
Family adjustment – Total score on the Family Assessment Device	M	2.50	2.34	1.87
	SD	0.34	0.37	
Social Support – Total score on the Multidimensional Scale of Perceived Social Support	SD	4.55	5.00	1.70
		1.11	0.09	
Readiness to change score on the University of Rhode Island Change Assessment	M	85.88	77.72	1.77
	SD	17.46	17.95	

Note: M=mean. SD=Standard Deviation. t= independent t–test result. **p<.01. ***p<.001.