OUT OF HARMS REACH:

An evaluation of the effectiveness of different levels of treatment at Odyssey House

July 1994

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This research was initiated at the request of the Board of Directors of the James McGrath Foundation which has the responsibility for the implementation of the Odyssey House Program in Victoria. Despite the wide range of people involved in this project, final responsibility for the work presented below rests with the authors. The views expressed in this report are not necessarily those of the National Campaign Against Drug Abuse or the Criminology Research Council.

SUMMARY.

The following report details research undertaken from 1990 through to 1993 investigating the effectiveness of different levels of treatment at Odyssey House, Victoria. The research was conducted by the Drug and Alcohol Research Team located in the Department of Public Health and Community Medicine at the University of Melbourne.

This study was guided by three main aims: To describe the characteristics of clients seeking treatment in the Odyssey program? To describe what sort of treatment (particularly how much treatment) these clients received? To determine whether the treatment provided contributed to reduced drug use and associated behaviours among these people?

The research reported below was based on naturalistic field observation rather than experimental research. For this reason attempts to describe the causal contribution made by treatment to reductions in behaviours associated with illicit drug use relied upon careful identification and assessment of alternative explanations for these reductions. To aid in the identification of factors providing alternative explanations for observed results the literature relating to therapeutic community treatment (and to recovery from illicit drug use problems) was examined. This information was supplemented with information from a period of participant observation in the Odyssey program and through the conduct of a delphi study investigating staff and client perceptions of factors moderating treatment in the program.

Who were the main clients treated in the Odyssey program?

An examination of the characteristics of the population resident in the Odyssey program between 1984 and 1988 revealed the majority to have been male (71%), with an average age of 25 at induction. Examination of the characteristics of residents in treatment at that time revealed most to have reported a primary drug problem with heroin or (in a small number of cases) another opiate (80%). A smaller number of residents reported their primary drug problem to have involved amphetamines (11%). The majority of residents reported some level of injecting drug use (93%).

Residents typically had complex legal problems with a majority reporting previous convictions (85%). Residents typically reported having been never married (63%) and Australian born (79%).

Clinical data revealed a profile on the Wechsler Adult Intelligence Scale below scale norms. Scores on the Minnesota Multiphasic Personality Inventory (widely used as a measure of pathological functioning) demonstrated a close similarity to personality profiles reported in US therapeutic community populations. Elevations (above scores for normal populations) were evident on the Psychopathic Deviate, Hypomania, Psychasthenia and Depression scales.

What was the nature of treatment delivered to these clients?

Previous research has emphasised the importance of length of stay in treatment as the main determinant of treatment outcome. This emphasis suggested the importance of understanding how long residents spend in therapeutic communities. An examination was conducted of the treatment history of ex-residents spending their major days in the program between 1984 and 1988. This examination provided an opportunity to compare retention rates in the program with published figures for other programs. Figures for the Odyssey program were found to compare with programs at the lower end of retention when United States (US) data were used. This result applied particularly to the first three critical months. Retention in the Odyssey program was found to improve, however, in the later stages. Although retention rates were lower compared to US programs, retention appeared higher compared to published figures for comparable Australian programs.

Regression analyses revealed a number of measures predictive of treatment level attainment. Higher level attainment found to be predicted by factors descriptive of ability to learn (i.e., intelligence) and by life stage and phase factors perhaps associated with addiction career explanations (age, duration of opiate use, legal conditions and responsibility for children).

Was the Odyssey program an effective treatment for these clients?

In an attempt to answer questions relating to effectiveness, information was sought relating to the experience of residents in the years following their exposure to the Odyssey program. It was hypothesised that if the program was effective then greater improvements should have been observed among those exposed to more of the program. To be convincing this form of evidence also required ruling-out the possibility that observed improvements were themselves predictable on the basis of other differences between the treatment exposure groups.

To explore these questions treatment records were identified for the 1116 clients representing the population spending their major days in the program between 1984 and 1988. This population was then divided into seven groups on the basis of the highest treatment level they had attained while in the Odyssey program. Finally roughly equal numbers were randomly selected from each level. This procedure resulted in a stratified sample of 427 ex-Odyssey residents being selected for investigation regarding their experience following exposure to the program.

The method of stratification enabled the identification of two levels (induction and pre-treatment) that had been exposed to relatively small amounts of treatment. These groups were considered to offer a "no-treatment" comparison condition (note that as allocation to treatment levels was uncontrolled they are not described as control groups). Outcomes for other groups were evaluated against these groups.

Follow up procedures were able to successfully locate 75% of the target sample. Interviews were conducted with 255 or 60% and an additional 20 (5%) were officially confirmed to have died in the period prior to follow-up. Although not statitically different, examination of the data suggested that deaths following treatment were more common among those in the induction and pre-treatment groups (8-9% dead) compared to those entering the higher treatment level groups (2-5% dead).

The available evidence supported the conclusion that findings from the interviewed sample could be generalised to the Odyssey population: Testing on pre-treatment variables and on official government records failed to reveal significant differences between those interviewed and not interviewed for any of the seven stratified treatment levels. Information obtained through follow up interviews with the target sample was supplemented with information from official records. Official records relating to methadone use, convictions and incarcerations were examined for both interviewed and non-interviewed subjects.

The study found, as hypothesised, that improved outcomes were associated with amount of treatment received. Aside from the reduction in deaths, described above, those attaining higher levels of treatment in the Odyssey program demonstrated greater increases in employment and greater reductions on indexes of drug use and criminal behaviour. Analyses revealed a more sustained pattern of improvement associated with program completion (or graduation). The evidence supported the view that a good part of these improvements were likely to have been caused by participation in the Odyssey program. Alternative explanations for these associations were examined (particularly the possibility that they were the result of a common process of improvement with time) and rejected as inadequate in explaining the pattern of findings observed.

On a number of measures there were few differences between non-graduates attaining higher levels in the Odyssey program and the comparison groups at the time of follow-up. This was partly because those in the comparison group (exposed to little treatment in the program) revealed a pattern of gradually improving functioning in the years following treatment. Improvements through these years were noted using a range of measures of drug use and criminal involvement. Evidence suggested that these improvements were partly the result of subjects entering other treatment programs, particularly methadone programs (official methadone records were examined revealing a significantly higher rate of methadone registrations in the induction group).

This tendency to improve with time in the absence of substantial exposure to the Odyssey program suggested the importance of controlling for such "non-treatment" improvements in analyses of outcomes. In an attempt to control for the effect of temporal improvements over time outcomes for the comparison group were compared to those for higher level groups using an outcome period matched for time elapsed from treatment entry. These analyses supplemented those based on the years following exit from treatment (the exclusive baseline in most previous therapeutic community research).

Outcomes were measured across a range of domains and the evidence clearly supported the view that graduates had made gains above those occurring over time for the comparison group. Typically, however, there were few differences between the comparison group and non-graduates attaining higher levels in the Odyssey program when outcomes were assessed following an equivalent period of time from treatment entry. This failure to find differences was due to both improvements occurring over time in the comparison group but also to a failure within the non-graduate higher level groups to maintain advantages they had made while in treatment.

Treatment in the Odyssey program is guided by ambitious aims seeking not simply to reduce harmful drug use but beyond this to promote growth and development. Evidence associating involvement in the program with such growth was perhaps most pertinently demonstrated in the case of employment outcomes. Those attaining level 3 or above in the program demonstrated significantly increased employment in the years following their exit from the Odyssey program. In contrast those failing to progress to these levels demonstrated a continuing pattern of low levels of employment in all outcome years. Unfortunately a component of the improvements enjoyed by the higher level non-graduates tended to diminish in the years following their departure from the Odyssey program.

Advantages related to involvement in the Odyssey program tended to be related both to the period more immediately following exit from the program and also to the period spent in-treatment. These improvements were demonstrated on domains measuring both drug use and crime. Those attaining higher levels demonstrated a reduction in both rates of opiate use and incarcerations during the years of their involvement with the Odyssey program and these improvements continued into the years more immediately following their departure. Some of these improvements were not maintained, however, in the more distant years following exit from the program (this trend was particularly notable among the Level 4 group).

Relapses to opiate use were examined and revealed the time spent drug free upon program exit (prior to relapse) was positively associated with higher level attainment in the program. Relapses were often delayed for a considerable period following exit from the Odyssey program (for example the median time to relapse was around 6 months for the Level 3 and 4 groups). Despite this, relapses following treatment were an all to common occurence for the higher level non-graduates. These relapses were largely ascribed, by ex-residents, to the influences of negative "peer pressures" and isolation.

Although the design of the study could not definitively prove causality, the results were consistent with the view that participation in the Odyssey program had played an important role in increasing employment and reducing illicit drug use following treatment: Using regression analyses treatment level attainment was found to be the most important predictor of treatment outcomes. Factors found to differentiate treatment level attainment (specifically prior experience in treatment and intelligence) were found to make a relatively small contribution to outcomes.

How effective is the Odyssey program compared to other treatments for the same client group?

The improvements in functioning associated with treatment in the Odyssey program were largely limited to those clients attaining higher levels of treatment in the program. Examination of population data revealed that the majority of those entering the program did not reach these stages and hence it is reasonable to argue that the demonstrated effects applied to a relatively small component of the total population entering the program. The problem of attrition from treatment is a common one, however, not only for therapeutic communities but also for other programs in both the drug treatment environment and in the broader health care system. The question of the relative benefit of this treatment approach compared to alternatives is thus very relevant.

The present research was not designed to compare the relative costs and benefits of the Odyssey program against alternative approaches. It is the view of the authors that adequate economic evaluation necessarily follows detailed description of the operation and effectiveness of programs. The data presented in this report provides therefore a basis for an economic evaluation to proceed at some stage in the future. An immediate concern of the present research was, however, the relative effectiveness of this therapeutic community compared to alternative approaches. Comparisons against available data were conducted and suggested that reductions in illicit drug use and criminal behaviour achieved by the Odyssey program were at the lower end of those described in a range of previously published reports of both therapeutic community and methadone treatment interventions. While those in the Odyssey program attaining higher treatment levels demonstrated advantages in the immediate period following their treatment the vast majority of clients entering the program did not experience enough exposure to the program for it to have made a meaningful impact.

In the face of these comparisons it is appropriate that the Odyssey program should examine aspects of its treatment approach. In the light of problems of retention in the early treatment stages the experience of residents in the early levels is of relevance. Using the Community Oriented Program Environment Scale (COPES) the present research found differences between level groups in their perceptions of the program environment. The pattern of responses associated experience in the upper levels with higher ratings on the relationship and personal growth dimensions of the COPES. This finding is of some relevance given previous research has associated differences on the relationship scale with lower retention.

Evidence from the report questions the now common view that improvements at treatment outcome are simply related to longer periods in therapeutic community treatment. The present research suggests that improvements in outcomes from the Odyssey House program may be better predicted by program level attainment than by amount of time spent in treatment.

The results of the present research demonstrate that the pattern of decaying benefits in the period following exit from treatment may not be an inevitable pattern for this population. Improvements enjoyed by those graduating the Odyssey program tended to be maintained in the years following treatment. This finding raises the possibility that with appropriate follow-up support relapses among non-graduates may be reduced. This perception was reinforced by a comparative examination of outcomes from the Odyssey program against those previously published for the Phoenix House therapeutic community. This comparison suggested that relapses for longer staying non-graduates in the Odyssey program may have been higher than for those in the Phoenix program.

It is important to acknowledge that the Odyssey program has already taken action on a number of the issues emerging in this report. In attempting to provide support to participants extending beyond their involvement in treatment a number of lines of action have been implemented. The development of an outpatients program, the availability of Narcotics Anonymous meetings through treatment to encourage after-care support and the greater involvement of family members in the treatment alliance are all moves that receive encouragement from evidence in this study. Modifications to the early treatment stages have been implemented in an attempt to provide more support and recreational opportunities. As a response to the findings in this report the program has initiated an action research project aiming to improve retention in the early stages of treatment. In line with this approach the program has implemented a monitoring system to assess the impact of program modifications upon retention. These changes should help to strengthen the effectiveness of this program.

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1.0 INTRODUCTION.

The following report provides details of a study conducted by researchers from the Drug and Alcohol Research Team in the Department of Public Health and Community Medicine at the University of Melbourne. The information reported below was collected between 1990 and 1993 and focuses on the Melbourne Odyssey House therapeutic community. The following sections briefly describe the Odyssey program and research that has been conducted to date with similar therapeutic communities. This is followed by a description of the research tasks undertaken and, in later sections, the study's findings and conclusions.

Since 1985, with the introduction of the National Campaign Against Drug Abuse (NCADA), attempts to tackle drug related problems have been accorded national priority status in Australia. The development of better understanding regarding the effectiveness of existing treatments has been emphasised within the early stages of the NCADA.

1.1 The Origins of Therapeutic Community Treatment.

> *"The lovely voices came to me across the water, and my heart was filled with such a longing to listen that with nod and frown I signed to my men to set me free. But they swung forward to their oars and rowed ahead, while Perimedes and Eurylochus jumped up, tightened my bonds and added more" (Homer, 1963, p. 194).*

The concept of a cohesive social group setting out to save individuals from the dangers of their own passions and desires is an ancient and fundamental basis of culture. At heart this is the foundation of the therapeutic community treatment philosophy.

The antecedents of the drug free therapeutic community lie in both the culture of heroin use that emerged in the United States of America (US) (particularly New York) in the 1960s and in the dominant existing approaches to treatment (particularly the self-help group Alcoholics Anonymous- AA). Prior to that time treatment for opiate dependence in the US had been primarily conducted in public hospitals. Public health service hospitals for the medical treatment of addiction had been established in Lexington, Kentucky and Fort Worth, Texas, during the 1930s (Musto, 1987). O'Donnell (1969, cited in Tims, 1981) reviewed available studies dealing with these first attempts to provide treatment for heroin addiction. He reported that relapse soon after treatment exit was the common observation. Despite this high incidence of relapse following treatment O'Donnell noted that abstinence rates tended to "increase with the passage of time after treatment" and to be associated with "older patients" (Tims, 1981, p. 3).

In the late 1960s, faced with a new and significant increase in heroin use (particularly among youth), US publicly funded drug treatment approaches diversified into new areas. It was in that decade that Dole and Nyswander proposed the use of methadone, a synthetic compound with properties related to the opiates, as a treatment for heroin dependence. These authors presented a chemical theory of addiction and argued that through the use of methadone it would be possible to stem the chemical basis of addiction (Dole and Nyswander, 1967; Dole, Nyswander and Warner, 1968). Other approaches developing at this time were detoxification (Glasscote, Sussex, Jaffe, Ball and Brill, 1972) and outpatient counselling approaches (Kleber and Slobetz, 1979).

The first formally constituted therapeutic community for substance abuse was Synanon. Synanon was set up in 1958 by an ex-addict, Dietrich, who had previously been a member of AA. The antecedents of the traditional therapeutic community, therefore, lay in a hybrid of experience in the culture of drug use and the philosophy of addiction as "disease" as first formulated by AA (De Leon and Zygenfus, 1986).

In its original form the Synanon program was exclusive and separatist. The program, following the disease tradition, emphasised the view that addicts could never make a complete recovery but were always, to some extent, in remission. Finding that a number of graduates were relapsing after completing the program Synanon responded with the recommendation that clients remain with the program for life (Coombs ,1981).

Following the establishment of Synanon a number of other therapeutic communities emerged. These included Phoenix House, Daytop and Odyssey House. Although the core components of each of these programs remained in broad agreement, differences emerged in the emphasis they placed upon particular aspects of treatment. For example the Daytop program is distinctive in its emphasis on education and training within the program (Biase, Sullivan, and Wheeler, 1986), the Odyssey approach is known for its emphasis on psychiatric assessment and intervention as part of treatment (Luger, 1979). Despite these differences the programs share a number of common features distinguishing them from alternative approaches to illicit drug treatment (Cole & Watterson, 1976). Each of these programs differ from the Synanon prototype in emphasising the possibility of recovery from addiction.

For some time before the development of traditional therapeutic communities Maxwell Jones had been utilising treatment in "democratic" therapeutic communities to deal with personality disorders and other psychiatric conditions. In the years before his death Jones advocated a distinction be made between democratic and programmatic therapeutic communities to describe their differences in orientation. The key difference between these approaches related to the attempt to democratically involve residents in the model developed by Jones.

The communities Jones described as programmatic tended to be more autocratic. In these communities the power to influence decisions was limited to residents attaining higher status in the hierachically organised programs (Jones, 1986).

The term programmatic therapeutic community, recommended by Jones, has not been extensively adopted. The more common convention has been to describe these communities as "traditional" therapeutic communities (Cole & Watterson, 1976). This convention has been more commonly used to demarcate the communities emerging from the New York Synanon experiment. As is the case when exploring other approaches to treatment, differences between the democratic and traditional approaches help to illuminate their organisation and characteristics.

Although it has been argued that the traditional therapeutic community is distinguished by its emphasis on a period of induction at low status, Jones pointed out that in the democratic therapeutic community there had also been a tendency for prestige (in the eyes of both staff and members) to accrue with time and seniority. Jones has argued that comparisons between the democratic therapeutic community and the traditional approach are valid as both approaches have tended to focus on the treatment of personality disorders.

De Leon (1989) states that of the 500 drug-free residential treatment programs operating in the US less than 25 percent use the long-term traditional model that forms the subject of the present report. Throughout this report the term therapeutic community will be used to describe what has been variously described as the programmatic therapeutic community (Jones, 1986), the traditional therapeutic community (Cole & Watterson, 1976) and the drug free therapeutic community (De Leon, 1985).

1.2 The Therapeutic Community Treatment Approach.

Working firstly within the New York Phoenix House therapeutic community and more recently as the head of a US federally funded therapeutic community research centre, Dr George De Leon has been responsible for much of the research examining the process and outcome of therapeutic community treatment. De Leon has argued that this form of treatment is guided by a clearly specified theory of addiction and recovery. Although the theory is specified in social psychological concepts its framework is said to have emerged out of the basic experience of recovering therapeutic community participants (De Leon, 1985; 1986).

According to De Leon drug abuse can be best understood as socially deviant behaviour, the result of impeded personality development and/ or social, educational and economic disadvantage. The determinants of these conditions are argued to lie both in structural factors "socio-economic disadvantage, poor family effectiveness" (De Leon, 1986, p. 5) and in psychological factors.

There is good evidence to support the view that opiate dependency is heavily influenced by social conditions. Perhaps the most compelling of this evidence comes from the work of Robins (1993). Robins examined an epidemic of heroin use amongst US soldiers serving in the Vietnam war. He demonstrated that most habitual users completely stopped using upon their return to the US.

A number of implications can be developed from De Leon's social-psychological framework. Firstly it is clear that the problems associated with drug use cannot be adequately addressed without attempting to deal with the sub-cultural norms that maintain both particular patterns of drug use and other related behaviours. Secondly the explicit reference to structural inequalities indicates the need to address social justice issues associated with access to employment, employment relevant skills and related judgements of social-economic value. Such judgements can be argued to play an important role in the development of deviancy, where deviancy is defined as a tendency to separate from the strivings and values of the main culture.

The social implications of the determinants of drug abuse is used to buttress the principal aim of the therapeutic community described by De Leon (1986) to involve "a global change in lifestyle; abstinence from illicit substances, elimination of antisocial activity, employability, pro-social attitudes and values" (p. 5). The attempt to intervene in multiple dimensions of the clients life circumstances is argued to justify the need for clients to undergo a long course of treatment in a 24 hour residential setting.

It is clear that currently the data explaining the treatment process within therapeutic communities remains somewhat disorganised and fragmented (De Leon, 1992). Although De Leon (1985) and others have made some attempt to link the process of treatment within the therapeutic community to conceptual structures explicated within social learning and other theoretical formulations this work has not yet been systematically carried through.

A primary dynamic utilised within the therapeutic community to alter behaviour is the potent influence the social group is purported to exert over the individual. Social processes encouraging behaviour change in the therapeutic community include passive pressures to comply with and model group norms and more active pressures based on principals of behavioural reinforcement. These processes attempt to introduce compliance to new habits. The more ambitious aim of the therapeutic community is to encourage, over time, the internalisation of these new habits into identity.

De Leon (1986) has emphasised the social learning through modelling that occurs in the therapeutic community as a central treatment component; "peers as role models and staff as role models and rational authorities are the primary mediators of the recovery process" (p. 11). According to the cognitive social learning framework explicated by Albert Bandura (1986) learning tends to be mediated by changes in the cognition of the observer. Bandura presents evidence to demonstrate that (for some individuals) simply observing others can be sufficient to enable reproduction of behaviour. Social learning is likely to be more potent, however, in the therapeutic community context where modelling is supplemented with attempts to reproduce behaviour in the presence of corrective feedback. These are the conditions Bandura associates with particularly potent social learning.

Other aspects of cognitive theory have also been used to explain the way in which residents move from behavioural compliance to internalisation of therapeutic community behaviours. Hawkins and Wacker (1983) have argued that cognitive dissonance processes play a central role in the residents conversion to the therapeutic community ethos and culture. Through the process of participant observation these authors observed residents conforming to the program requirement of identifying and publically criticising other residents regarding unapproved behaviour. The authors observed that this process of criticism violated "the taboo of the drug subculture against cooperation with authority and 'snitching' on peers" (p. 278). Cognitive dissonance is introduced as a result of these discrepancies leading eventually to the adoption of new values to rationalise such discrepancy.

Coombs (1981) identifies different views, among those advocating therapeutic community treatment, concerning the legitimate outcomes of such treatment. The social learning perspective advocated by De Leon (1986) receives an important emphasis in accounts of treatment process (e.g., Heit, 1992, p. 1165). De Leon (1986), while circumspect regarding the possibility of complete recovery, limits his caution to the need for clients to engage in a "process of change that must continue throughout life" (p. 18). For others within the movement, such as Daniel Heit Past President of Therapeutic Communities of America, the disease interpretation remains influential. Heit (1992) has argued that "while the eitiology of addiction varies and certainly includes genetic, parental influence and psychological, social and economic factors, we know that addiction cannot be shed and left behind" (p. 1166).

De Leon (1986) has described a basic assumption underlying the therapeutic community treatment approach to be the belief that "feelings, insights and altered self-perceptions often **follow** rather than precede behaviour change" (p. 11). In the early stages of treatment residents are accepted to be "acting as if"; i.e., residents are encouraged to behave as the person they should be rather than the person they currently feel they are.

"Acting as if" is an example of one of a number of techniques or "tools" used in therapeutic communities to encourage learning of new behaviours. These tools are designed to encourage both the adoption of pro-social behaviours and the rejection of a range of behaviours and attitudes considered counter productive to the task of adapting to a "mainstream" identity. To the extent that the tools of the program often result in immediate consequences for "good" and "bad" behaviour the use of operant conditioning techniques can be observed to play a potentially important role in changing behaviour. Hunt and Azrin (1973) have demonstrated alteration of multiple contingencies within the community context to be an effective interventions for alcoholism. In their review Miller and Hester (1986, p. 162) described Azrin's Community Reinforcement Approach to be one of the more effective treatments developed to that time.

Miller and Hester (1986) noted that, despite good evidence for its effectiveness, the Community Reinforcement Approach had not been widely adopted. It seems likely that this phenomena of inadequate uptake may have been at least partly due to the tactical difficulties inherent in attempting to respond to clients altered behaviours within a community setting. An operant analysis of learning emphasises the need for immediate and consequential changes in multiple reinforcement contingencies within the individuals environment. The constrained nature of the therapeutic community provides a practical location for achieving this form of responsiveness.

In addition to being exposed to carefully controlled social reinforcements therapeutic community residents are also targeted with specific interventions directed at breaking down aspects of the sub-culture they have previously been attached to. As anti-authority issues are common in these groups authority and power within the therapeutic community is carefully segmented into a hierachy of stages or levels (Allison and Hubbard, 1985).

The level system forms the basis of the "structure" of the therapeutic community. For the resident undergoing treatment in a therapeutic community relationships to the larger community are mediated through membership of their current level group. This smaller group are known as their "peers". The concept of structure includes the formal rules and mechanisms that govern communication and behaviours between the various level peer groups.

Those entering the program enter at the lowest level and through demonstration of various prescribed behaviours and attitudes (assessed by the group) gradually gain advancement into higher levels. Elevation through the levels is controlled by the judgements of other members of the tightly constrained social group. With increasing level attainment comes an increase in authority and, hopefully, an understanding of the responsibilities attached to such authority.

Although the level system within the therapeutic community appears an important component of treatment, there have been few studies that have explicitly examined it. The level system is used both as a positive reinforcement, to encourage behaviour valued within the community, but so far as the community can also take this reward away for misbehaviour, the level system can also be used as a negative reinforcer. The use of the level system for behavioural reinforcement has parrallels with the use of positive reinforcement in "token economies". Paul and Lentze (1977) reported the successful use of a token economy in the rehabilitation of institutionalised chronic mental patients.

A further rationale for the use of the level system within the therapeutic community has been based on a developmental conception of the process of change within these communities. To understand this position it is important to recognise the cultural transition demanded within the therapeutic community. This transition, toward mature autonomous functioning, brings with it requirements for adequate ego control. According to this view the levels have been moulded to accord with participants' subjective developmental experience in the process of recovery (De Leon, 1986).

De Leon's (1986) account of the therapeutic community implicates the level system as an overt indicator of the residents' successful attainment of particular social-developmental phases. According to De Leon's conception the resident's level status serves both to publically proclaim the attainment of earlier developmental challenges and also to indicate the nature of current developmental tasks.

The first phase De Leon identifies is an orientation period. This phase runs from entry to around the second month after induction. The emphasis during this period is upon assimilation and role induction into the therapeutic community normative structure.

The primary treatment phase is the second De Leon identifies. This extends from 2 to 12 months after induction. De Leon regards this phase to be coherently broken down into 3 sub-groups or;

> *"natural landmarks in the socialisation-developmental process. Phases roughly correlate with time in program (1 to 4 months, 5 to 8 months and 9 to 12 months). These periods are marked by plateaus of stable behaviour which signal further change"* (p. 17).

The final phase De Leon identifies is re-entry. The resident in this period has the task of reducing reliance upon a rational authority and increasing reliance upon autonomous decision making.

At the end of each phase De Leon predicts residents will demonstrate measurable differences in the extent of their internalisation of the values and behaviours emphasised within the therapeutic community. De Leon (1984) has presented evidence associating improvements in psychological functioning and reduced involvement in antisocial behaviours with higher amounts of time spent in treatment.

De Leon's account makes reference to the third, and more common, framework that has been used to explain the function of the level system within the therapeutic commmunity. According to this framework the various stages within the level system (described variously as orientation, treatment and re-entry), overtly refer to the residents' phase in a process of socialisation firstly into the therapeutic community and later into the wider society.

The therapeutic community is recognised as an important modality for the treatment of anti-social behaviour (Carson, Coleman and Butcher, 1988). The combination of treatment in groups and close co-operative living arrangements establishes a potent tension within relationships in these communities. By working closely together residents gain insights into one another's functioning. Encouragement is provided for these insights to be publically examined in the context of the regular confrontation and encounter groups that form a feature of these programs. Peer surveillance or "responsible concern" involves a "willingness to confront others" and to report on unacceptable behaviour (De Leon, 1986, p. 11). Through these mechanisms antisocial or avoidant behaviour is identified as an issue for treatment.

An important challenge for the therapeutic community is that of engaging residents in the treatment process. Typically therapeutic community residents take on increasing responsibility for the care of themselves and others as they progress through treatment. In addition employed staff typically constitute a combination of tertiary trained professionals and program "graduates".

Program activities are tightly organised providing a firm framework thoughout every hour of the day. The organisation of work assignments provides for increasing levels of complexity and responsibility as advances are made through communities. The diversity of work assignments aim to expose residents to a variety of tasks perhaps giving them some better sense of their vocational competencies.

The approach to education and training within the therapeutic community has been an area differentiating approaches to treatment within US therapeutic communities. One approach has been to emphasise the role of education as therapy. Biase, Sullivan and Wheeler (1986) have presented evidence demonstrating enhanced therapeutic community effects through the incorporation of college education within a traditional therapeutic community structure (Daytop Miniversity). Using random assignment to the education condition Biase et al., were able to demonstrate a significant increase in positive self-concept and increased (non-significant) retention through the course of eighteen months treatment in their educationally modified program. The effects of this program on treatment outcomes was not examined in their study however.

The alternative approach to the organisation of work has been to regard it as an adjunct or tool to be used within the context of therapy. Within this context work tasks have been organised by clinical staff to examine residents' functioning in various situations, some of which have included a level of stress or pressure. This potential for work tasks to bring forward therapy issues has been an explicit component of the Odyssey House approach to treatment. The Executive Director of the Sydney Odyssey program has emphasised the view that "hard work is required and needed" (Luger, 1979, p 81). There exists, however, a purposeful tension in the organisation of this work. Again to paraphrase Luger "a cordon bleu cook would not be assigned to the kitchen, because that would be an unchallenging, non-frustrating stint." (p 81). The emphasis upon frustrating the resident has been justified by the programs aim of uncovering issues for dynamically based therapy. It is important, however, to acknowledge a range of views toward the organisation of work among the Melbourne Odyssey staff with many emphasising the importance of a work placement "fitting" the residents capabilities.

1.3 The Odyssey House Program.

Providing a clear example of the traditional approach to drug free therapeutic community treatment (see Cole & Watterson, 1976, for empirical definitions) the Odyssey House approach has had an important impact on the development of this modality in Australia (eg. Latukefu (1987) has reported on the influence of this program on Killara House in Albury and Karralika in the ACT).

The original Odyssey philosophy and treatment approach has been described by Densen Gerber (1973) and Walker (1989). Luger (1979) has described the operation of the Odyssey program in Australia. The program examined in the present study is located in an outer suburb of Melbourne, Victoria and is housed in a large ex-monastery.

The Odyssey residential program is structured to form a series of hierarchical levels representing differential grades of treatment responsibility and authority. Induction records are organised to enable easy discrimination of 7 treatment groups. These 7 groups have been defined as follows;

Induction Only - Clients conducting the induction interview and then spending generally less than two days in treatment.

Pre-Treatment - Clients continuing into but not completing the first six week assessment stage of the program. Originally the pre-treatment stage in the Odyssey program was "designed to motivate the street addict to enter into a meaningful therapeutic endeavour" (Densen-Gerber, 1973. p. 409). Toward the end of the period examined in the present report the Melbourne program attempted to refocus the pre-treatment stage toward a less perjorative emphasis upon assessment.

Level 1 - Clients passing the "probe group" accepted into but not completing level 1 of treatment. The probe group is a meeting, or series of meetings, involving residents from a range of levels and at least one staff member. Originally "Candidates-in" seeking to enter treatment were required to prove their understanding of and commitment to the community lifestyle. Duties in this level involve house maintenance under the direction of residents in higher levels with the aim of establishing responsiblity for community property. Those in level 1 are required to increase the time they spend in treatment groups. Experiences in this level encourage containment of impulsive and maladaptive behaviour and increasing reflection.

Level 2 - Clients accepted into but not completing level 2 of treatment. In Level 2 clients assume increasing responsibility for lower level peers and house functioning. Supervised family visits may be initiated at this stage together with processes exploring family dynamics.

Level 3 - Clients accepted into but not completing level 3. Level 3 includes an increase in responsibility to act as role models and mentors to those in lower levels. Increasing self-exploration and personal responsibility is expected. Residents in level 3 are permitted to travel alone on house business and receive unopened mail. In some cases those in this level may act as co-leaders in therapy.

Level 4 - Clients accepted into but not completing level 4. Level 4 represents the final treatment phase; described as preparation for social re-entry without drugs. This level is described as a transition period within which residents plan and implement the step-wise attainment of independent living and working. Toward the end of level 4 residents reside and work outside of the program.

Graduation - This is a formal process in which clients review their treatment experience, their current situations and future plans with others who have already successfully negotiated this transition. To graduate residents of level 4 must generally have completed at least the year 10 secondary school qualification and have demonstrated employment readiness. Demonstrations of employment readiness can include such things as a drivers licence and a career plan.

1.4 The Effectiveness of Therapeutic Community Treatment.

Bale (1979) presents a critical review of therapeutic community research conducted between 1963 and 1976. De Leon (1985) has reviewed studies conducted after 1976. A consistent finding of each of these reviewers has been that treatment in therapeutic communities has been associated with improvements in functioning at outcome and that these improvements have been consistently related to program completion and the amount of time spent in treatment.

Experimental trials relying upon random assignment to treatment and the use of carefully designed control conditions to assess the impact of identified treatment components have made an impressive contribution to our knowledge of effective treatment practices (Agras, 1989; Sobell & Sobell, 1989). To date no experimental trials have been reported comparing the effects of therapeutic community treatment with a no-treatment control condition. Bale, Van Stone, Kuldau, Engelsing, Elashoff and Zarcone (1980) have, however, attempted to compare different forms of therapeutic community treatment with methadone treatment.

In their study Bale et al., (1980) attempted to randomly assign consenting, eligible clients to either methadone or therapeutic community treatment following their detoxification in the Palo Alto Veterans Administration Centre - Menlo Park Division program. Bale and his associates recognised that clients often developed preferences for particular treatment modalities (and had the freedom to select these modalities outside of the research environment). For this reason the researchers limited the effect of their program assignment to a period of one month. After this time clients were given the freedom to select a different program. Clients frequently exercised this right to choice such that only 22% of those assigned to a particular residential community were retained for the minimum period of one week or more.

Despite their compromised attempt at randomisation Bale et al., (1984) were able to analyse their data as a prospective quasi-experimental design (Cook & Campbell, 1979). A further attempt to randomise clients to different therapeutic community treatment conditions is currently underway (Lewis, Garfield, Frost and McCusker, 1992). Although at the time of writing no outcome data have been published for this study Lewis et al., (1992) present information relevant to its design and provide some aggregated retention data.

Although ethical and practical difficulties have frustrated attempts to randomly assign clients to treatment a number of studies have been published describing outcomes following uncontrolled treatment assignment. Many of these studies have introduced sampling and statistical controls to assess the association between independent and dependent variables and to measure the influence of moderating variables (e.g., De Leon, 1984; Simpson & Sells, 1982). The available evidence suggests that following treatment ex-residents show lower levels of heroin use, criminal behaviour and higher levels of legal employment than in the years prior to treatment.

By presenting evidence demonstrating improvements on these indices to be unrelated to age and yet to be linearly related to amount of treatment, researchers have argued against alternative interpretations for their findings based on maturational change models (e.g., Simpson and Sells, 1982). Rival maturational interpretations of in-treatment improvements are particularly important in this field given a body of research suggesting a modal pattern to the heroin "addiction career" (eg. Raistrick, 1991; Simpson and Sells, 1990).

It should be noted, however, that with few exceptions (e.g., Bale, Zarcone, Van Stone, Kuldau, Engelsing and Elashoff, 1984; McLellan, Luborsky, O'Brien, Woody, and Keith, 1982) treatment effectiveness studies, published to date, have based pre to post treatment comparisons on the years following treatment *exit*. Such comparisons may inadequately control for the years of maturation that occur coincidentally with long treatment episodes. Studies that examine outcomes following a set period from treatment *entry* obtain better control over these potentially confounding influences but encounter the difficulty of confounding outcomes with other events over the follow-up period.

While those who complete programs have been shown to make important gains following treatment, a major problem with therapeutic communities has been the large number of people who do not complete treatment (De Leon and Schwartz, 1984). Fortunately outcomes from treatment have been shown to relate not simply to program completion but also to the length of time spent in treatment (e.g., DeLeon, 1984; Simpson and Sells, 1982).

For example DeLeon (1984) examined both graduates and non-graduates in his regression analyses. Using a composite index of treatment success, comprising both crime and drug free indices, DeLeon found amount of time spent in treatment to be the best predictor of treatment success. Similar findings were reached by Simpson, Savage and Lloyd (1979) examining an extensive data set.

Much of the research examining therapeutic communities conducted to date has been conducted with either anonymous program consortiums (e.g., Hubbard, Marsden, Rachal, Harwood, Cavanaugh and Ginzburg, 1989; Simpson and Sells, 1982) or with single programs of a particular type such as the Phoenix House program (e.g., De Leon, 1984).

It is important to note, however, that when therapeutic communities have either been compared to other treatment modalities (e.g., methadone treatment) or when different therapeutic community program types have been compared, no differences in outcomes have been found (Bale et al., 1984; Simpson, Savage and Lloyd, 1979). Although available evidence is encouraging, to date, few studies have been reported specifically examining the effectiveness of treatment based on the Odyssey House philosophy. Of the single program studies published to date, few have been conducted by outside researchers.

1.5 Research Hypotheses.

Based on the above considerations the present study set out to assess the relationship between the amount of treatment residents receive in the Melbourne Odyssey House therapeutic community (measured as the highest level of treatment they attained in the program) and improvements in their functioning following treatment. An important secondary aim of this research was to explore and describe some of the factors moderating treatment outcomes and treatment tenure.

In particular it was hypothesised that;

- the amount of improvement (proportion of ex-residents increasing employment and reducing involvement in drug use and crime) assessed from pre to post treatment would increase with level of treatment received at Odyssey House Melbourne.

2.0 UNDERSTANDING THE ODYSSEY PROGRAM: LOCATING THE CRITICAL TREATMENT INFLUENCES.

The present study was influenced by the view that, as with other social phenomena, treatment processes are complex and hence need to be explored from a number of perspectives (Hamilton, McDermott and Pyett, 1991). Three research activities contributed to the task of describing the treatment program and the identification of potential treatment moderators in the present study. These activities included a period of participant observation within the residential program, a delphi study conducted with program staff and residents examining their perceptions of treatment moderators and a detailed analysis of episodes of treatment and program level changes within the program. Each of these research tasks are reported below.

2.1 Participant Observation.

Participant observation in the program was conducted over a three day period by two researchers in July 1990. Observations focussed upon induction into the Odyssey program. Of particular importance to the present study were the observations that firstly the Odyssey program appeared to provide a tough but consistent treatment regime (with many features of the program remaining essentially as described by Densen Gerber, 1973) and secondly that many of the techniques used, particularly in the early stages, appeared aimed at altering prison based cultural allegiances.

Participant observation provided an important opportunity to directly observe the process of treatment in the program (as is mentioned below a number of later research steps were informed by the experience of participant observation). A further important source of information on treatment processes, utilised in this research, were the perceptions of staff and residents involved with the program. These perceptions were formally solicited using a Delphi survey.

2.2 The Staff and Residents Perspective: Delphi Study.

In an attempt to identify client and program factors moderating successful treatment a two round delphi survey (Delbecq, Van de Ven and Gustafson, 1975) was conducted in early 1990. A panel consisting of 88 residents from the Melbourne Odyssey House therapeutic community, 23 Odyssey staff and 24 other drug agency staff employed in the network servicing similar (and often the same) clients as Odyssey were selected into the panel. The panel were asked to describe the client characteristics and program parts they considered to be the most important in influencing successful treatment in the program (Toumbourou & Hamilton, 1993).

Examination of the client characteristics emphasised as most and least important as moderators of successful treatment suggested strong implicit support, among respondents, for a cognitive, quasi-maturational model of treatment motivation. The model implied suggested it was the older addict with a longer period of drug usage that eventually reached a point where, on balance, the lifestyle was perceived to offer more pain than pleasure. Such experience may accord with what has previously been described as hitting "rock bottom" (Jorquez, 1983). These experiences are perceived to provide the motivations necessary to achieve change in treatment.

Implicit support for such a model was inferred from the relatively high levels of endorsement among the most successful client descriptors for items describing;

- "people who have suffered" (63% endorsement),
- "longer term addicts/users" (41%) and
- "voluntary admissions" (19%).

ON BEING INDUCTED INTO ODYSSEY HOUSE: SNIPPETS FROM A LOG.

After being strip searched, showered and doused in anti-vermin ointments we were eventually driven out to the house in a bus full of people and their cigarette smoke (sometime after this experience in 1993 the Odyssey program introduced a smoke-free policy). After yet another shower we were introduced to two fellows that would act as our personal guides through the first few days of the program. These were introduced to us as our "buddies". As at many other times through our induction we were struck by the extent of the use of American expressions in the program. In this case the appropriate Australian equivalent for this position should have been "mate". I was gaining the impression that large parts of the program had been copied from the American origins in the late 70s and transplanted without too much accommodation for differences in the Australian context.

In my conception Victor and Rob (our buddies) both seemed victims. Nice sort of guys basically doing their best to overcome problems they were facing the best way they could. There were others in the program however who did not engender this sort of sympathy. While working in the garden on the second day I got talking to an older male member of the community. As was the case for so many in the program Paul had an array of jail horror stories to convey. He confided having remained silent about a brutal assault he had witnessed.

As his story unfolded I found myself reacting to him in a way that suprised me. This fellow had been living with a woman for some time. He described her having been concerned about him and trying to help him, she had never used drugs. Like so many in this situation he abused her care, lied to her and continued to do what was necessary to keep his habit going. She had a teenage son from a previous relationship. When Paul met this woman her son had never used drugs. Paul appealed as a strong charmer and obviously made an impression on her son. Some time later her son took up heroin use. One day he used too much, overdosed and died. Following this the woman determined to leave Paul.

What made me react most strongly to Paul's story was his own reaction to it. After describing the background to the story he revealed the development of a feeling that amounted to self-pity. Paul felt sorry for himself that he was going to lose this woman. He described suprise at feeling any emotion. He seemed to see this as some sort of milestone in his personal development.

My heart went out to the woman. I found it very hard to forgive Paul what he had done or his reaction to it. But simultaneously my reaction also raised within me a conflict: It went against my commitment to understanding and accepting people to feel such repugnance toward Paul. It took some time before I began to find a framework to comprehend Paul's recovery. In time I came to see him as a sort of brutalised soldier. Just as soldiers lose touch with their emotional life as a result of their war-role for Paul the war had been raged surviving prison and the street. Identifying any emotion is a significant step in the rehabilitation of the brutalised. My contact with Paul and others made me more accepting that a different standard of care perhaps applied to many in this program. I couldn't imagine many other programs would have had much interest in persevering with them.

Additional support for this model was inferred from the relatively high level of endorsement among the list of least successful client characteristics for the items;

- "experimental/light drug users" (49%),
- "people who haven't suffered enough" (42%) and
- those "aged 18-20" (22%).

As was outlined above the Odyssey program is organised into a series of hierarchically ordered treatment levels. The two Odyssey treatment levels that were most frequently indicated as important moderators of treatment success were the final treatment stage (level 4) and the pre-treatment phase. These items were endorsed as among the most important parts of the program by 39% and 28% of respondents respectively.

The results of the delphi survey (while noting many similarities) suggested the existence of some important gaps between existing research knowledge and that of both staff and clients involved with therapeutic communities. Perhaps the most significant of these differences concerned the relative importance accorded to length of stay in treatment.

Despite the fact that research summaries have tended to emphasise this as the most important factor moderating success, the long residential phase was endorsed by none of the staff and client respondents as among the most important parts of the program but by 19% of respondents as amongst the least important parts of the program. A large proportion of respondents endorsed client factors that suggested associations with motivation in their responses. These responses contrast with the conclusion of researchers who have tended to find a causal role for treatment in explaining treatment success (see above).

The findings from the delphi emphasised the importance of examining the contribution of client factors to treatment outcomes. As a further method of understanding the experience of clients, information on the number of days of treatment experienced by the relevant population was carefully examined.

3.0 DESCRIBING THE ODYSSEY RESIDENTS AND THE PROGRAM THEY RECEIVED.

An important aim of the present study was to examine the post-treatment functioning of a sample of ex-Odyssey residents. To date few studies have adequately described the treatment received by therapeutic community residents. The present study set out therefore to document the length and features of clients treatment episodes and to attempt to link this information to treatment outcomes.

3.1 Selection of a Period of Treatment For Study.

Two considerations influenced the selection of treatment periods to be explored:

- The period had to be sufficient in length to enable a large enough population in treatment to facilitate stratified sampling across treatment levels.

- The period had to be distant enough in the past to enable adequate assessment of ex-residents' post treatment functioning.

Consideration of optimal sample size and the number of people entering the Melbourne Odyssey program at all levels in each year (around 227 new inductions per year) suggested that sampling of ex-residents for follow-up would need to occur across at least a five year period. The years 1984 to 1988 were selected as an appropriate time frame. This period had the advantage of being recent enough to enable a reasonable chance of success in following up ex-residents yet also enabled enough time to have elapsed to make follow up meaningful (ie. average length of time out of the program in early 1991 was 4 1/2 years with a range of 2 to 7 years).

Changes in the operation of treatment programs can alter their influence on clients (e.g., Sechrest, West, Phillips, Redner and Yeaton 1979). In order to control for such operational changes, in the present study, it was considered important to carefully specify the period of program operation being assessed. Sample selection aimed to ensure an adequate spread of clients across various periods of treatment.

Table 1: Characteristics of adult Odyssey House ex-residents with major days in treatment between 1984 and 1988 stratified according to highest program defined treatment level reached.

Highest (program defined) Level Reached.	Population Details. n (%)	Total Days in Treatment (sum of all episodes). Median Range[1]	% Male	Average Age at Admission
Induction Only.	213 (19.1%)	2 0 - 216	(76.5%)	24.5
Pre - Treatment.	500 (44.8%)	10 1 - 137	(66.8%)	24.7
Level 1.	114 (10.2%)	103 47 - 241	(67.5%)	24.5
Level 2.	87 (7.8%)	200 72 - 448	(70.1%)	25.6
Level 3.	89 (8.0%)	378 101 - 898	(76.4%)	26.2
Level 4.	58 (5.2%)	704 149 - 1090	(77.2%)	25.8
Graduation.	55 (4.9%)	873 337 - 1368	(74.1%)	26.7
Total Inductions.	**1116 (100.0%)**	**18 0 - 1368**	(70.6%)	25.0

[1] Excludes one extreme value.

From the beginning of the period 1st January 1984 until the 31st December 1988 there were a number of clients resident in the Odyssey program who it was considered inappropriate to include in the present study: These included clients experiencing most of their treatment outside the years of interest and those who were not adults at first admission.

In an effort to more accurately specify the relevant treatment cohort only those residents who were 18 or older at induction spending the majority of their period in the residential program (more than 50% of their treatment days) between 1984 and 1988 were selected into the study population. These criteria yielded a population of 1116 representing all adult ex-residents spending their major days in treatment between 1984 and 1988. Details of the defined treatment population are presented in Table 1.

Table 1 demonstrates that during the years 1984 to 1988 the majority of clients entering the Odyssey program left the program before entering the first level of treatment. As is demonstrated in Table 1 the median days spent in treatment tended to be positively associated with the level of treatment reached. Although this was the overall trend a considerable range of treatment periods were in evidence within each treatment level. For almost two thirds (63%) of residents their treatment experience had been confined to a single episode. For a smaller percentage (22%) of residents treatment was spread over two episodes while 15% returned for three or more treatment episodes.

The majority of those entering the program during the period examined were males (71%). The average age at admission was 25 years. There were significant differences, however, across levels in the distribution of ages. Clients older at first admission were more frequently represented in the higher levels of the program.

3.2 How Long did Residents Stay in the Odyssey Program?

Length of time spent in treatment has been found to be the most important predictor of success following outcome from therapeutic communities (De Leon, 1985; Simpson and Sells, 1982). Simpson and Sells (1982) have presented evidence suggesting that periods of at least 3 months are required before treatment influences begin to emerge. This evidence suggests the importance of successfully retaining clients in therapeutic community treatment.

In an attempt to better understand the pattern of retention in the Odyssey program, data from the program were compared with those from other therapeutic communities. Figure 1 compares Odyssey retention rates (combining all treatment episodes) with data from the Canberra program Karralika (reported by Latukefu, 1989) and average figures for a consortium of US programs (reported by De Leon and Schwarz, 1984).

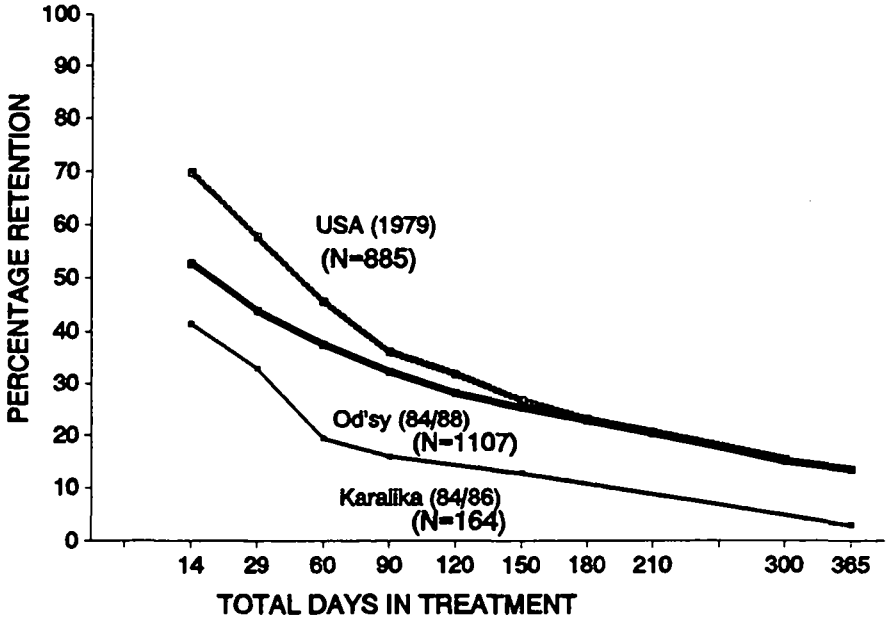

Figure 1: Comparative Retention Rates for the Odyssey Program Compared to Data for Karralika (Latukefu, 1989) and Average Figures for a Consortium of US Programs (from De Leon and Schwarz, 1984).

Statistical examination of the data presented in Figure 1 revealed that retention rates were higher in the Odyssey program than in Karralika for the first three critical months ($X^2_{(1,\ N=1271)}=21.71$, two-tailed $p<.0001$). Although visual comparison of the Odyssey program information against that for the US consortium suggested lower retention rates in the Odyssey program for the first three months, these differences were not statistically significant.

Although no Australian national figures are available Dibcott, Flaherty and Muir (1988) have presented retention figures for first admissions to NSW residential programs. These figures are presented for comparison in Figure 2 below.

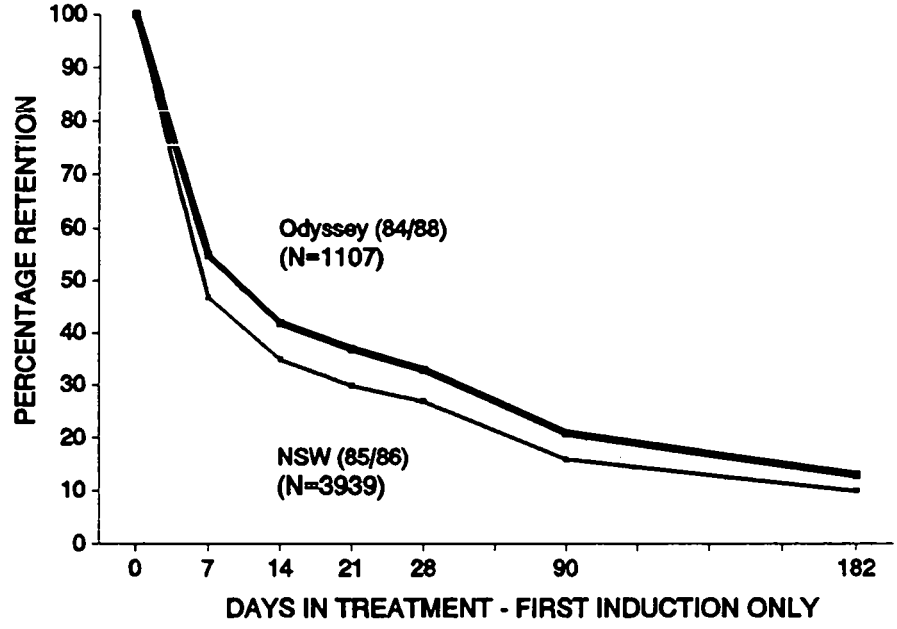

Figure 2: Comparative Retention Rates for First Admissions into the Odyssey Program Compared to Data from a Consortium of NSW Programs (from Didcott et al., 1988).

Statistical analysis of the data presented in Figure 2 revealed that, in the first three months, first admission retention rates were higher in the Odyssey program than they were in the NSW program consortium ($X^2_{(1, N=5046)}=15.18$, 2-tailed $p<.001$). The evidence suggested that the Odyssey program typically retained a higher proportion of clients beyond the critical early months than did similar Australian programs but tended to perform at the lower average end compared to US programs.

4.0 LEVEL ATTAINMENT IN THE ODYSSEY PROGRAM.

An important aim for the present study was to describe the relationship between level attainment in the Odyssey program and outcomes following treatment. Given this aim (and the fact that resources were unavailable to permit all 1116 of the 1984 to 1988 ex-Odyssey residents to be targeted for follow-up interview) it was determined to stratify sampling across treatment levels.

4.1 Selecting the Target Sample.

Power analyses were conducted to determine the number of ex-residents required in each treatment level cell to enable meaningful comparisons. These analyses suggested cell sizes of around 50 as adequate for most statistical tests[1]. Anticipating some sample attrition it was determined to draw a target sample in such a way that around 60-65 would be included in each treatment level cell.

Based on the above considerations a target sample was obtained by systematic selection of the *nth* name from alphabetical lists of ex-residents for each of the earlier levels (level 3 and below). All ex-residents attaining levels 4 or graduation were included in the sample.

Having selected a target sample for follow-up, stratified according to highest level of treatment attained, it was determined to examine some of the sample characteristics. Table 2 below presents a selected range of information for the target sample recorded at induction into the Odyssey program.

Table 2: Characteristics of the Target Sample.

Highest level of treatment attained.	n (% of pop)	Days in treatment median range[1]		Mean age at admission
Induction.	65 (30.5)	2	0-20	25.3
Pre-Treatment.	62 (12.4)	11	2-44	26.3
Level 1.	65 (57.0)	102	54-234	24.4
Level 2.	63 (72.4)	206	99-386	25.9
Level 3.	59 (66.3)	379	120-837	26.1
Level 4.	58 (100.0)	704	149-1090	25.8
Graduate.	55 (100.0)	873	337-1368	26.7
Total.	427 (38.3)	170	0-1368	25.7

[1] Excludes one extreme value

[1] Statistical power calculations were based on formulae provided by Cohen (1977) using the statistical effects reported by De Leon (1984 in tables 3.1, 3.2 and 3.5). Power was set at 0.8, estimates assumed two-tailed testing at the 0.05 level.

Comparison of the characteristics of the target sample and the population were conducted for each level on measures of age, sex and length of stay in treatment. These comparisons[2] revealed significant differences in only one case: Pre-treatment ex-residents selected into the target sample were significantly older at first induction than those not selected into the target sample ($p=0.02$)[3]. On the basis of these analyses it was concluded that the target sample provided a reasonable representation of the population characteristics.

Examination of the details of the target sample revealed the majority to have reported a primary drug problem with an opiate (80%) at admission to the program (for the vast majority of these the opiate used was heroin). A smaller percentage (11%) reported the use of amphetamines as their primary drug problem. The majority of residents reported some level of injecting drug use (93%). Those inducted into the program were mostly male (72%) and Australian born (79%). Examination of marital status revealed most to have reported never having been married (63%). Just over a fifth (24%) reported being married or defacto at induction. A smaller number (12%) reported having been divorced or separated. None of these variables were found to differentiate treatment level attainment.

Three indices of criminal involvement were examined. The majority of ex-residents reported one or more prior court cases leading to convictions (85%). For around a third of ex-residents previous court cases were reported to have resulted in at least one imprisonment (32%) prior to their first entry to treatment (records of imprisonment excluded periods spent in police lockups or in remand). None of these legal history variables were found to differentiate treatment level attainment.

Most residents entering the program reported some legal pressure at the time of their induction into the program. A majority of residents (69%) reported themselves to be awaiting the result of charges at induction. A similar percentage of residents reported having been on bail at the time of their induction to the program (63%). About half of those reporting bail (52.3%) described having been bailed to the Odyssey program. Apart from bail the most commonly reported legal stipulations were probation (reported by 13%), bonds (11%) and parole (7%).

Chi-square analyses across levels revealed significant differences for only the bail legal stipulation. Analysis of residuals revealed that those attaining the level 4 treatment level had most frequently reported bail at the time of their induction while those in the level 1 group had least frequently reported bail.

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[2] Chi-square and analysis of variance with $a \leq 0.05$, 2 tailed.

[3] Note however that the interviewed pre-treatment sample demonstrated no significant differences in age when compared either to those in the target sample who were not interviewed or to those in the population not interviewed.

4.2 Clinical Profile.

A range of clinical data is recorded within the Odyssey program for residents continuing into the treatment stage of the program (levels 1 and above). Details of intelligence test information for members of the target sample attaining level 1 and above in the program is summarised below.

4.2.1 Intelligence.

Figure 3 below summarises the results of Wechsler Adult Intelligence Scale (WAIS) testing for 256 members of the target sample attaining levels 1 and above in the program.

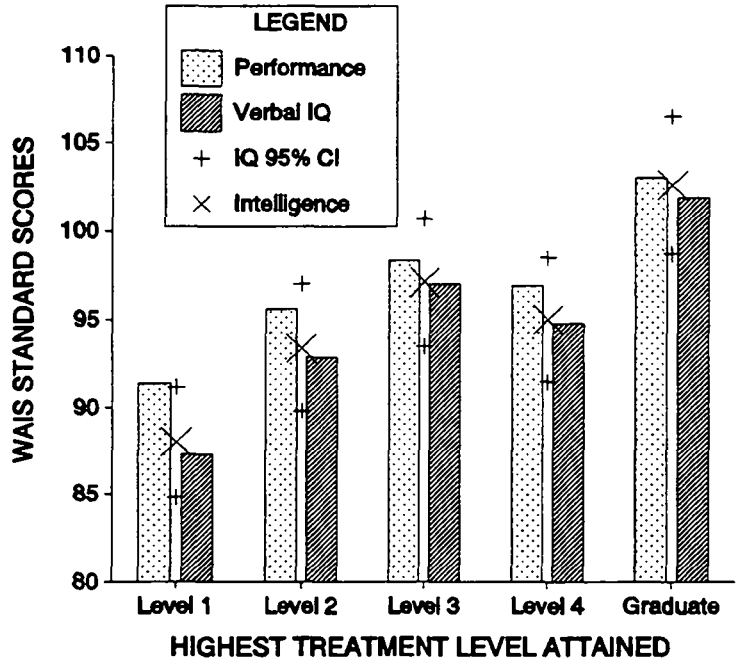

Figure 3: Mean Wechsler Adult Intelligence Scale scores (Verbal, Performance and Intelligence Quotient) across treatment levels. For target sample attaining level 1 or higher.

Average scores for the group, presented in Figure 3, demonstrated a below average profile particularly on the verbal intelligence subscales. The median time from entry to treatment to WAIS testing was 34 days.

Comparisons across levels using ANOVA revealed significant differences ($p < 0.05$, two-tailed) on the Information, Comprehension, Vocabulary, Arithmetic, Similarities and Blockdesign subscales. Differences were also observed across levels on the Verbal Intelligence, Performance Intelligence and Intelligence Quotient scales. The pattern of differences suggested a linear association between highest level attained and intelligence.

4.2.2 Psychiatric profile.

In selected cases Minnesota Multiphasic Personality Test (MMPI) data were collected in treatment (MMPI testing was routinely conducted from 1987 onwards). Figure 4 below presents details of MMPI results for 109 members of the target sample attaining levels 1 and above in the program for whom test data were available. The median time from entry to treatment to MMPI testing was 45 days.

MMPI data were coded using the Verberne-Carson MMPI scoring program. Note that in the figure below a score of 50 represents equivalence with the average for the normative sample. Deviations of 10 units reflect decrements equivalent to one standard deviation from the normative sample. Normative data are from a "normal" population of visitors to hospitals associated with the University of Minnesota (Dahlstrom, Welsh and Dahlstrom, 1972).

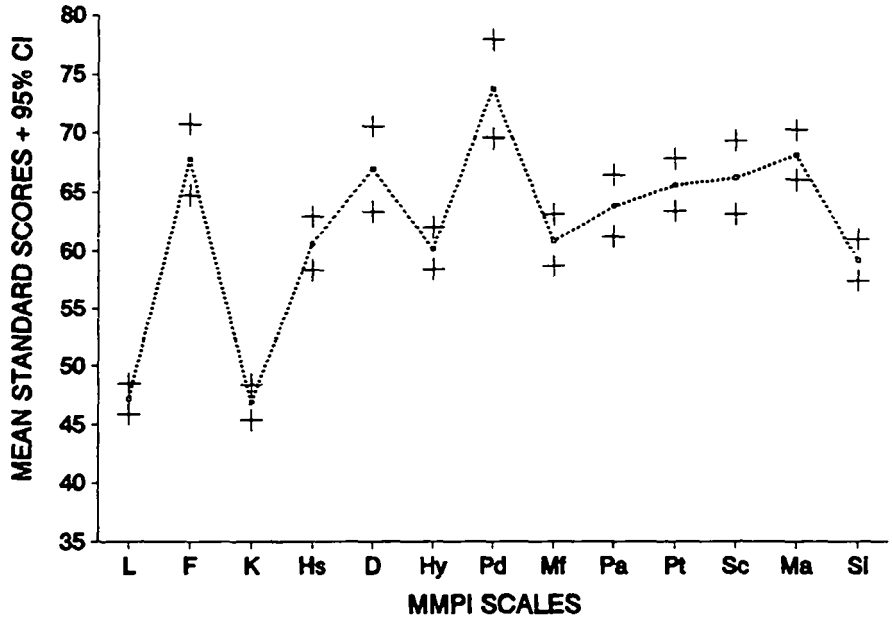

Figure 4: Mean Minnesota Multiphasic Personality Inventory scores (and 95% confidence intervals) for a subset of target sample attaining level 1 or higher for whom records were available (N=109).

The results demonstrated a common profile reported for therapeutic communities (and other drug treatment populations). For example there were no apparent differences for any of the above scales when comparisons were made for each sex separately against data reported previously by De Leon (1984) (See appendix).

THE SCALES OF THE MMPI.

VALIDITY SCALES.

L - Lie Scale:	Measures the tendency to claim excessive virtue or to try to present an overall favourable image.
F - Infrequency Scale:	Measures a tendency to falsely claim psychological problems.
K - Defensiveness Scale:	Measures the tendency to see oneself in an unrealistically positive way.

CLINICAL SCALES.

Hs - Hypochondriasis:	Measures excessive somatic concern and physical complaints.
D - Depression:	Measures symptomatic depression.
Hy - Hysteria:	Measures hysteroid personality features and the tendency to develop physical symptoms under stress.

Pd - Psychopathic Deviate: Measures antisocial personality tendencies.

Mf - Masculinity - Femininity: Measures sex-role conflict.

Pa - Paranoia:	Measures suspicious, paranoid ideation.
Pt - Psychasthenia:	Measures anxiety and obsessive behaviour.
Sc - Schizophrenia:	Measures bizarre thoughts and disordered affect accompanying schizophrenia.
Ma - Hypomania:	Measures behaviour found in manic affective disorder.
Si - Social Introversion:	Measures social anxiety, withdrawal and overcontrol.

Additional information relating to the Minnesota Multiphasic Personality Test (MMPI) can be found in Dahlstrom, Welsh and Dahlstrom (1972)

Table From: Carson, Butcher and Coleman (1988).

Scores on the Psychopathic Deviate scale (measuring antisocial tendencies) were elevated more than 2 standard deviations above the mean. Scores on three other scales were elevated close to 2 standard deviations above the mean. These scales were Hypomania (behaviour found in manic affective disorders), Psychasthenia (anxiety and obsessive behaviours) and Depression.

Anova revealed only the scale Hypochondriasis (measuring excessive somatic concern) to be significantly different across the level groups. Higher scores on this scale were associated with Level 1 and lower scores with Level 2. Scores on the Hypochondriasis and Hypomania scales demonstrated a weak negative correlation with total time spent in the program ($r=-.22$ and $-.24$ respectively, $p<0.05$, $n=106$).

5.0 METHODOLOGY GUIDING THE STUDY OF TREATMENT OUTCOMES.

Each of the above activities provided valuable background information regarding the behaviour of the target sample prior to and during treatment. An important aim of the present research was to obtain further information from the target sample regarding their experience following treatment. Details of the investigation conducted to examine functioning following treatment are presented below.

5.1 Sample.

At the end of available resources for interviewing in early 1993 75% of the target sample had been located and of these 255 or 60% had been interviewed. Of the clients available for interview (excluding the dead and incapacitated) 63% had been interviewed. The status of the target sample with respect to the task of locating them for follow-up interview was as follows;

Interviewed	255(60%)
Refused	43 (10%)
Dead	20 (5%)
Unable to complete/incapacitated	2 (0%)
Not located	107 (25%)
TOTAL TARGET SAMPLE	427(100%)

Table 3 below presents details of the interview status of the target sample broken down by level attainment group.

Table 3: Details of the Target and Interviewed Samples.

Highest (program defined) Level Reached.	Target Sample.		Interviewed Subjects.		Subjects refusing interview.		Subjects officially verified dead[a].		Subjects not located.	
	n	(%)[b]	n	(%)[c]	n	(%)[c]	n	(%)[c]	n	(%)[c]
Induction Only.	65	(30.5)	35	(53.8)	5	(7.7)	5	(7.7)	20	(30.8)
Pre-Treatment.	62	(12.4)	25	(40.3)	7	(11.3)	6	(9.7)	23	(37.1)
Level 1.	65	(57.0)	40	(61.5)	9	(13.9)	1	(1.5)	15	(23.1)
Level 2.	63	(72.4)	41	(65.1)	7	(11.1)	3	(4.8)	12	(19.1)
Level 3.	59	(66.3)	36	(61.0)	2	(3.4)	2	(3.4)	19	(32.2)
Level 4.	58	(100.0)	36	(62.1)	7	(12.1)	2	(3.5)	13	(22.4)
Graduate.	55	(100.0)	42	(76.4)	6	(10.9)	1	(1.8)	5	(9.1)
Totals.	427	(38.3)	255	(59.7)	43	(10.1)	20	(4.7)	107	(25.1)

Note two others were contacted but were judged unable to complete the interview due to illness/ incapacity.

[a] Official death certificates obtained.

[b] Refers to percentage of treatment population included in target sample at each level.

[c] Refers to percentage of target sample.

Comparison of the characteristics of the target sample and the population were conducted for each level on measures of age, sex and length of stay in treatment. These comparisons (chi-square and analysis of variance with two-tailed $p \leq .05$) revealed significant differences in only one case. Pre-treatment ex-residents selected into the target sample were significantly older at first induction than those not selected into the target sample (two-tailed $p = .02$). Note however that the interviewed pre-treatment sample demonstrated no significant differences in age when compared either to those in the target sample who were not interviewed or to those in the population not interviewed. On the basis of these analyses it was concluded that the target sample provided a reasonable representation of the population characteristics.

Separate analyses were conducted to assess whether refusals, deaths and failure to locate differed across level groups within the target sample. The results demonstrated no association between level attainment and either refusals or deaths but significant differences across levels with respect to failure to contact (two-tailed $p = .02$). A slightly higher percentage of clients in the Pre-treatment and Level 3 group had not been contacted at the time of follow-up.

Analyses were also conducted comparing the characteristics of the interviewed and not-interviewed groups within the target sample. These analyses demonstrated no differences between those interviewed and not interviewed on the treatment induction variables of age, total days in treatment, sex, opiate primary drug or previous convictions for any of the treatment level groups. It should be noted that these comparisons of interviewed and non-interviewed ex-residents were based on pre-treatment measures. Simpson and Sells (1990) have reported, however, only a weak relationship between pre-treatment behaviours and behaviours at the time of follow up interviewing. They argue that the best predictors of current addiction career behaviours are more recent past behaviours.

To provide a more rigorous assessment of the generalisability of post-treatment data for the interviewed sample information from three sources was examined for post-treatment comparisons between those interviewed and not interviewed. Comparisons were conducted using information from the Health Department Victoria Methadone Program Client Files[4], conviction records from the Victoria Police (both in anonymous batch form) and incarceration data from the Victorian Office of Corrections. None of these comparisons revealed any differences for any of the seven level attainment groups (comparing the interviewed against the non-interviewed subjects) with respect to rates of methadone registrations, convictions or incarcerations between the third and sixth years following treatment entry (two-tailed, $p > 0.05$). The evidence clearly supported the view that results for the interviewed sample could be generalised to the study population.

5.2 Measures.

The measures employed at the follow-up research stage included perceptions of the Odyssey program and descriptive data outlining experiences and behaviour from the year prior to first admission to Odyssey up to the time of interview. Perceptions of the program were recorded using a range of measures including the Community-Oriented Programs Environment Scale (COPES) (Moos, 1988). The COPES manual provides reliability and validity data for this scale.

Descriptive measures, used in this study, included self-reported drug use, offences, convictions, incarcerations, employment (hours and wages) and non-Odyssey treatment episodes. These measures were validated through comparison with the Addiction Severity Index (McLellan, Luborsky, O'Brien and Woody, 1980), urine drug screening (for validation of self-reported drug use over the previous five days), state government conviction and incarceration records and entry and exit dates from non-Odyssey treatment programs.

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[4] It should be noted that comparisons using the methadone data were conducted after 233 subjects had been interviewed. Self-reports of final respondents did not suggest a different pattern of responses applied to this group of interviewees, however.

5.3 Procedure.

As the University study team were attempting a retrospective follow up of ex-Odyssey residents ethical considerations demanded that first contact with ex-residents came from program staff. A research officer was employed by the Odyssey program to conduct tracking and locating work.

Initial contact with ex-residents was made by the research officer employed by the Odyssey program using, as a first point of departure, parental addresses and other relevant contact information listed on clinical files. Ex-residents were invited to return a form stating they either agreed or did not agree to participate in the research. Two letters accompanied this form. One on University letterhead provided a very general description of the study under the title of Health Services Research Project the other letter was addressed from the James McGrath Foundation (the organisation responsible for implementing the Odyssey program). The letter from the James McGrath Foundation did not identify the Odyssey program directly but expected ex-residents to make this connection by providing details of their year of exit from the program and the name of the Treatment Director.

The letters attempted to make clear the Odyssey program was seeking the ex-residents' consent to participate in an independent University study. The procedure aimed to enable ex-residents to determine which program was attempting to contact them while, at the same time, protecting their identity as ex-drug treatment clients. Ex-residents who did not respond by mail were followed up in person by the Odyssey research officer. Contact procedures were informed by the recommendations of Nurco, Robins and O'Donnell (1977).

Upon receiving the signed consent form, ex-residents were contacted, further details of the study were explained and arrangements were made for interviews. Interviews were conducted at either the University, at the Odyssey house induction centre or at an outside location specified by the ex-resident.

University ethics procedures required that subjects were given a description of the interview protocol (or questionnaire in the case of mail/ phone interviews) and the research procedure to be used. Subjects were then asked to sign a University consent form prior to initiation of the study. Following informed consent ex-residents completed an interview of around 2-3 hours duration.

Using a modification of the timeline followback method (Sobell, Maisto, Sobell and Cooper, 1979) interviews began by establishing easily recalled "anchor points" (e.g., dates of incarceration, birth dates of children), this information was recorded on a chart and was then used to help the subject recall other important information such as drug use and conviction dates. Anglin and McGlothlin (1984) have reported a similarly modified form of the retrospective timeline technique as a means of eliciting more temporally distant information. Using this procedure

the interviewer attempted to build up a picture of the subject's lifestyle in the year before entering Odyssey and in the years following exit. The factual basis of interviews was then checked, where possible, against a variety of existing records.

More recent drug use was accounted using a one week retrospective diary. This technique has been found in previous research to be about as accurate as weekly diaries filled out daily with the advantage of a much higher response rate (Berry and De Burgh, 1989). Subjects were asked to consent to provide details of police records, treatment details, a collateral informant and other records. At the completion of interviews subjects were paid $20 for their participation.

Requests for collateral informants sought to secure someone who could report both on the respondents' current functioning and also on the impact of the program, particularly on their relationship functioning. Respondents were asked to identify someone who had known the respondent "from the time of your first entry into the Odyssey program up until the present". Early in the study it became clear that many of the group being interviewed were unable to identify such a person.

Inadequacies with the collateral interviewing method led the researchers, late in the study, to amend their ethics protocol to seek permission to conduct urine testing. As a result of both delays in implementing this procedure, and also due to practical difficulties of observing urine delivery in field settings, only a small number (31) of urine tests were conducted.

Wherever possible self-report data were supplemented with officially recorded data: Anonymous batched data from the Health Department Victoria Methadone Client File, conviction data from the Victorian Police Department and incarceration data from the Victorian Office of Corrections were used to examine posttreatment outcomes for both interviewed and non-interviewed subjects.

6.0 RESULTS AND DISCUSSION.

In the sections that follow respondents' descriptions of and recommendations for the Odyssey program are summarised.

6.1 How Did Ex-Residents Describe the Odyssey Program.

The present investigation was interested in obtaining ex-residents descriptions and evaluations of their treatment experience. Respondents were asked to complete the short form of the Community-Oriented Programs Environment Scale (COPES) (Moos, 1988).

Data for the COPES is now available for a number of therapeutic communities. In a comparative investigation Bale, Zarcone, Van Stone, Kuldau, Engelsing and Elashoff (1984) examined the association between COPES scores and outcomes following treatment in three therapeutic community programs. Their findings demonstrated the more successful therapeutic communities were each higher on the COPES scales conceptualised to measure system maintenance dimensions. These scales included measures of Program Clarity, Order and Organisation and Staff Control. More successful programs were also higher on the Orientation to Personal Problems scale.

Bale and associates (1984) hypothesised that the improved functioning they observed at outcome may have been the result of changes in "character defences (especially denial, acting out, and externalisation) that are best challenged in treatment programs ... which have high staff control and order and in which expectancies and social contracts are clear". Some of the qualities of the therapeutic community environment Bale and associates regarded as beneficial for particular classes of clients were associated with a somewhat paradoxical effect upon program retention rates. Specifically programs evaluated to be higher on the relationship dimensions Involvement and Support were considered to place more demands on clients at induction to join with and become involved in the program. These demands were considered to have driven out a higher number of clients in the early weeks of treatment. After this early adjustment attrition rates tapered off with the end result of somewhat higher overall retention rates compared to the less involving programs.

In a separate study of three therapeutic communities Bell (1985) confirmed the association of higher overall retention rates for programs evaluated to be higher on the COPES relationship dimensions (Bell didn't closely examine retention curves). In Bell's study the therapeutic communities that had the highest retention rates were also evaluated to be higher on the COPES relationship dimensions (Involvement, Support, and Spontaneity) and on the personal growth dimensions (Practical Orientation and Personal Problem Orientation).

6.1.1 A Standard Assessment of Treatment Program Environment.

SUBSCALE DIMENSIONS OF THE COMMUNITY ORIENTED PROGRAMS ENVIRONMENT SCALE.

RELATIONSHIP DIMENSIONS: ACTIVE PARTICIPATION IN A SUPPORTIVE AND OPEN ENVIRONMENT.

Involvement: Residents are active participants in program functioning (e.g., 'Members put alot of energy into what they do around here').

Support: Residents help and care for each other. Staff are interested in and encourage residents (eg. 'Members help each other').

Spontaneity: There is open expression of feelings between residents and communication with staff (eg. 'Members say anything they want to the staff').

PERSONAL GROWTH DIMENSIONS: ENCOURAGEMENT OF SELF-SUFFICIENCY AND INDEPENDENCE.

Autonomy: Opportunities are provided for independent choice, collective decision making, critical input into program content and leadership (eg. 'Members are expected to take leadership here').

Practical Orientation: The program emphasises the acquisition of practical skills and plans for release from the program (eg. 'emphasises training for new kinds of jobs').

Personal Problem Orientation: The program emphasises discussion and sharing of personal problems (including discussion of sexual issues) (eg. 'Personal problems are openly talked about').

Anger and Aggression: Staff and members openly argue with one another (eg. 'staff sometimes argue openly with each other').

SYSTEM MAINTENANCE DIMENSIONS: ENVIRONMENT IS CLEARLY ORGANISED AND THE RULES ARE ENFORCED.

Order and Organisation: The program emphasises organisation, planned activities and neatness (eg. 'members' activities are carefully planned').

Program Clarity: Program rules and schedules are clear, the consequences of rule breaches are well understood (eg. 'the program rules are clearly understood by the members').

Staff Control: Residents are expected to abide by rules and schedules (eg. 'members who break the rules are punished for it').

Adapted from Hawe, Degeling and Hall (1990).

Figure 5 below presents comparisons of mean scores on the COPES data for the present sample against US norms provided by Moos (1988).

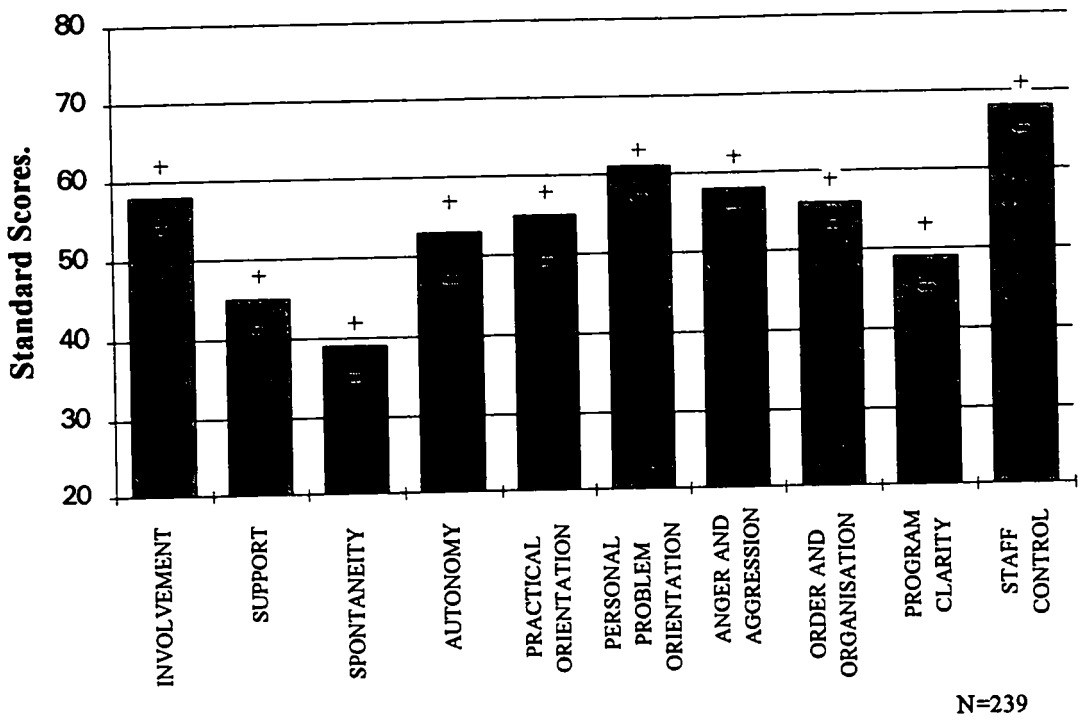

Figure 5: Community Oriented Program Environment Scale scores compared to US norms (mean=50) from Moos (1988).

In evaluating the data presented in Figure 5 it should be noted that a score of 50 reflects a score equivalent to the average for the COPES normative sample. Deviations of 10 units reflect decrements equivalent to one standard deviation on the normative sample.

Examination of Figure 5 demonstrated that on the majority of the sub scales the Odyssey program evaluations were close to the American norms. Among the three "Relationship" dimensions the program was evaluated as one standard deviation above the US norms on the Involvement subscale and one standard deviation below the Spontaneity scale norms. Two of the four "Personal Growth" dimension sub-scales were particularly high compared to the American norms: These were the Personal Problem Orientation and Anger and Aggression sub-scales. On the "System Maintenance" dimensions one sub-scale, Staff Control, was rated almost 2 standard deviations above the American norms while the other dimensions (Order and Organisation and Program Clarity) were evaluated to be close to the American norms.

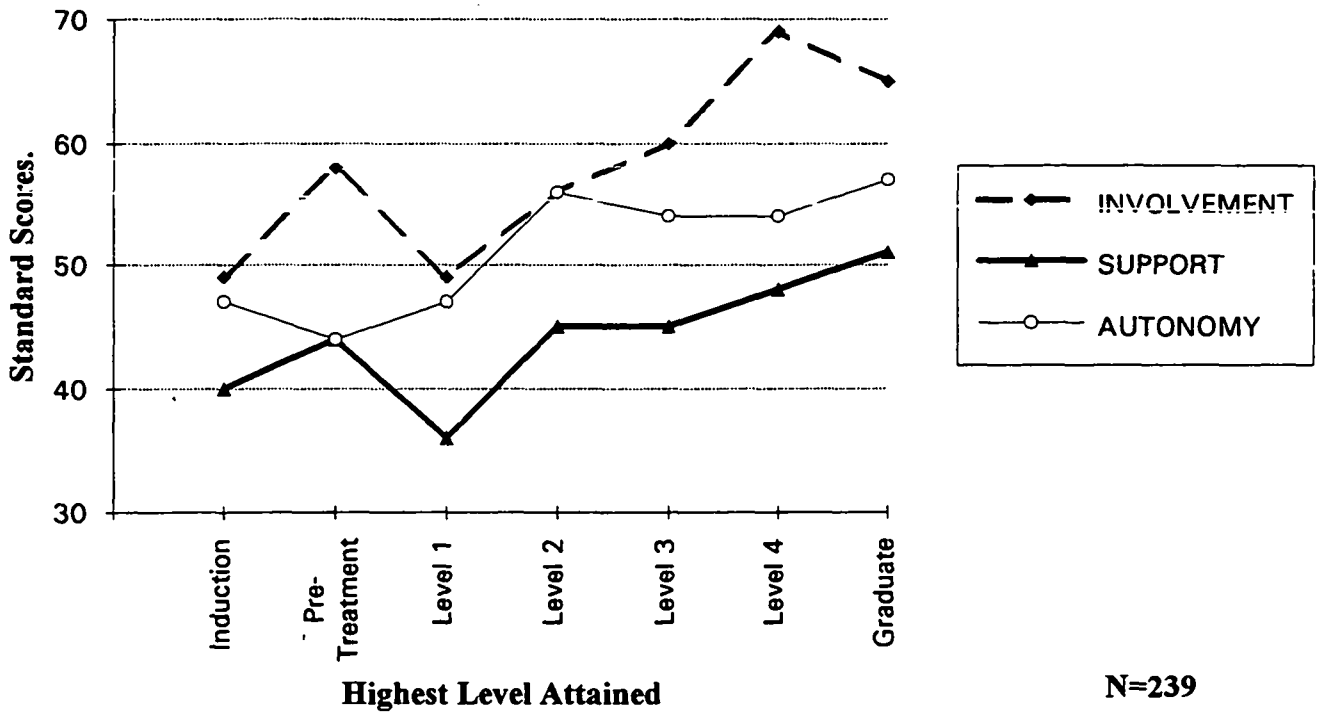

Figure 6: Mean COPES Involvement, Autonomy and Support scores compared against US norms (mean=50).

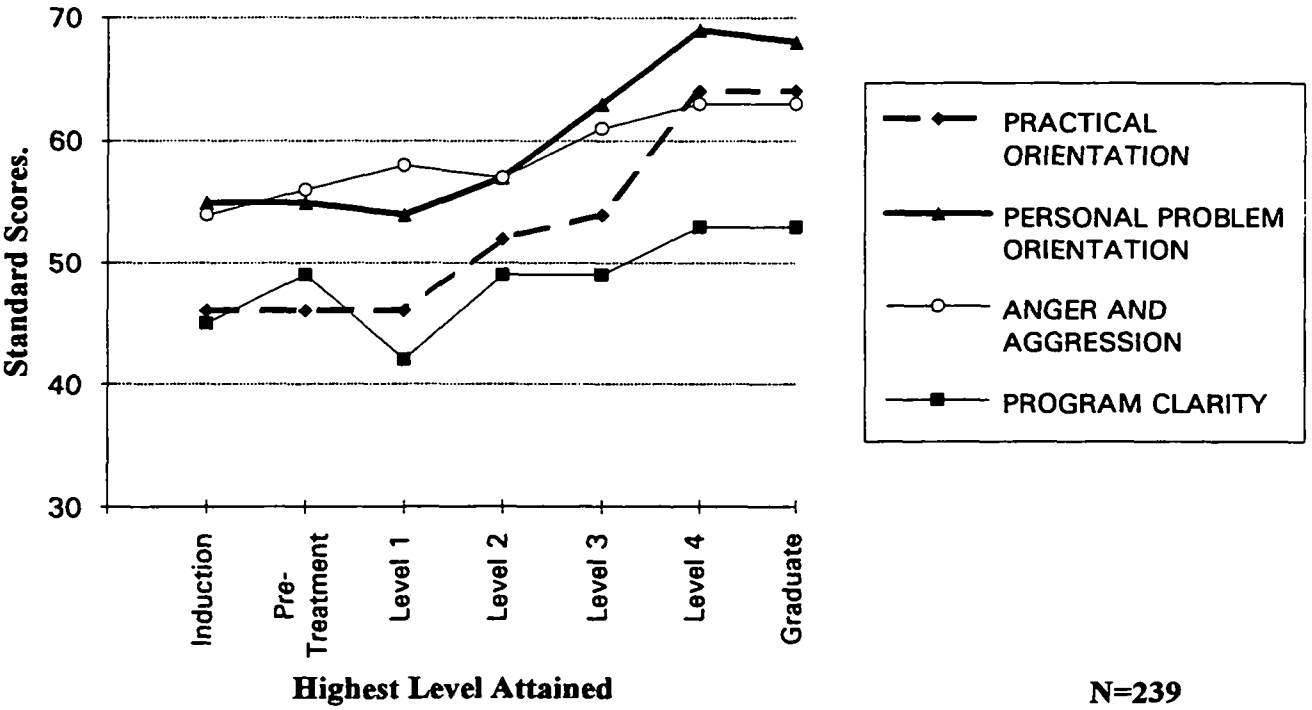

Figure 7: Mean COPES Practical Problem Orientation, Personal Problem Orientation, Anger and Aggression and Program Clarity scores compared against US norms (mean=50).

Comparisons were conducted across the 7 level groups using ANOVA. These comparisons revealed significant differences on 7 of the 10 COPES scales. Differences were revealed on two of the relationship dimensions (Involvement and Support) and on all of the personal growth dimensions. Weaker effects were also demonstrated on one of the system maintenance dimensions (Program Clarity). Typically the direction of differences was for Level 4 and Graduates to evaluate dimensions more highly than residents attaining level 2 or below. Results for the Level 3 residents (and on some scales the Level 2s) typically fell between these extremes (scores demonstrating significant differences between levels are presented in Figures 6 and 7). Testing was conducted but revealed no differences in program evaluations for females compared to males.

Bell (1985) presented COPES distributions for three American therapeutic communities for drug abusers. Comparison of the COPES profiles for the present sample against the data presented by Bell demonstrated very similar patterns. In common with the present findings Bell found the profiles of all of the communities he examined to be characterised by scores on the Staff Control sub-scale elevated two standard deviations above the COPES norms.

Visual inspection of Bell's data reveals three scales that appear to differ (perhaps non significantly) from the present sample. Although there is some spread, Bell's communities were all higher than the Odyssey respondents with respect to their evaluations of the Spontaneity subscale. In contrast the Odyssey respondents were higher than all of Bell's communities on the Order and Organisation subscale.

The Odyssey respondents were also higher than Bell's communities on the Autonomy subscale. The existence, however, of significant differences across treatment levels within the Odyssey sample, on the Autonomy subscale, raises the possibility that these differences may have been a reflection of the bias within the present sample toward longer staying ex-residents. In this case, as elsewhere, it should be borne in mind that the process of generalising from the present sample must take into account the weighting of the sample toward upper level residents.

In his examination Bell (1985) found that lower COPES scores on the Practical Orientation, Involvement, Personal Problem Orientation, Support and Spontaneity sub-scales were associated with lower retention rates. The present data confirm this same pattern of associations with two exceptions: The Spontaneity sub-scale was not associated with differences in retention in the present sample while the Anger and Aggression subscale was.

Factor analysis (not reported here) of the COPES sub-scale suggested considerable overlap in the dimensions measured within the subscales. The large number of COPES subscales associated with treatment retention suggested the existence of global evaluative processes apparently measuring an underlying "helpfulness" dimension. The implication is that the COPES sub-scales may provide an "unnatural" level of sophistication relative to the evaluative categories typically used by residents evaluating treatment programs.

Generalising across the pattern of findings suggested that COPES evaluations of the program, tended to be very similar to those for American community programs (including American therapeutic communities). The implication of these findings is that, despite reservations that the Odyssey program might not have been appropriate to the Australian culture, it appeared to be evaluated about as well by Australian clients as are similar programs run in the USA. The evidence suggested that the Odyssey program tended to be rated highly by all residents (regardless of level attainment) on the system maintenance dimensions that have previously been demonstrated (by Bale and associates, 1984) to be important treatment factors related to improved outcomes. The program received a relatively positive evaluation on the relationship and personal growth dimensions however in these cases the evaluations of those attaining level 3 and above tended to be higher compared to those for the lower level groups. One interpretation of this evidence is to suggest that the experience of being attached to and encouraged by the program is more clearly conveyed through exposure to the higher levels than in the lower levels.

6.2 What Impact Did Ex-Residents Think The Program Had On Them?

> *"So I have come here to plead with you in the hope that you will tell me the truth....Do not soften your account out of pity or concern for my feelings, but faithfully describe the scene that met your eyes. I beseech you, if ever my good father Odysseus in the hard years of war you had at Troy gave you his word to speak or act on your behalf, and made it good, remember what he did and tell me all you know" (Homer, 1963, p. 52).*

Residents were asked a number of questions relating to the impact the program had had on them. The questionnaire began by asking them to describe the programs influence on their relationships.

6.2.1 How did the program influence relationships?

Following participant observation within the Odyssey program it was reasoned that attempts to alter relationships formed a central component of the Odyssey treatment strategy. Respondents were asked to describe the influence the program had had on their relationships.

Respondents were asked "In general how do you think your treatment at Odyssey influenced your relationships with others?". A five point "helpful" scale guided responses. Over two thirds (68%) of the 251 respondents to this question rated their treatment in the program as having been helpful for their relationships. The program was rated to have been neither helpful nor unhelpful by 23% of respondents and to have been unhelpful by 9%.

In an attempt to explore for differences in the rated helpfulness of the program across different level groups Chi-Square analyses were conducted comparing the frequencies endorsing the "Program as a whole" and its influence on "Relationships" as helpful. These analyses revealed highly significant differences across level groups ($p < 0.001$) with higher helpful ratings associated with higher levels. Testing revealed no differences between males and females with respect to responses to these questions.

Respondents were also asked the open response question "In which ways were your relationships influenced?" The 250 respondents to this question were asked to indicate the three main influences[5].

The most common set of responses to this question referred to improvements in relationship skills and relationships (36%). Many within this category stated they now had a "better understanding of others" and the problems they had "caused others". Assertiveness skills and better ability to judge others were also mentioned fairly frequently. Perhaps as a result of these changes many reported better relationships with those they were associated with.

Equally common were respondents who stated participation in the program had improved their attitudes toward others (36%). Included within this theme were those claiming experience in the program had made them more honest, social, less self-centred, more tolerant, open, concerned, trusting, considerate, less aggressive, more responsible, helpful and/or more determined to make relationships work.

Another theme that was relatively frequently evidenced in responses to this question refered to personal psychological improvements underlying improved relationships (28%). Common within this group were comments that the program had improved self-insight, emotional insight, confidence and independence.

A smaller number of respondents referred to improvements in communication skills (22%). The ability to talk about thoughts and feelings and listening skills formed the large part of these responses. There were a small section of respondents who felt the program had had either no influence on their relationships (22%) or that it had been unhelpful (9%).

Although only a relatively small proportion of respondents elaborated ways in which the program had been unhelpful for their relationships some of these comments were considered of value in their capacity to inform the process of monitoring and development within the program. A selection of these comments are elaborated below.

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[5] For this and the open response items that follow respondents were asked to prioritise their three main responses. In summarising information from open response questions, the guidelines presented by Bogdan and Taylor (1975) were used as a loose framework. Two researchers (JT and JS) coded items in the field developing classifications through discussion. These individual items were finally classified by the first author (JT) with assistance from the second author (MH). The interpretations set out below represent arguments developed by the first author after examining the classifications quantitatively.

Treatment in the Odyssey program (as in many other programs) often proceeds on the assumption that an initial task in the process of personal change is to confront denial. Perhaps as a result of having been exposed to only the initial stages of this process a number of respondents described leaving the program with their personal confidence shaken. This theme included respondents describing themselves in negative emotional states "soul searching" or in two cases nursing feelings of "worthlessness". Also amongst the more common responses were complaints that the program had adversely influenced outside relationships with family members. These comments were reactions to both the program's policy of allowing little contact with family members in early treatment stages and also to the often very active interventions, initiated by the program, to separate people from relationships deemed to be destructive.

Chi-square analyses were conducted comparing responses to the major categories, identified above, for the seven treatment levels[6]. Analyses revealed significant differences in the responses of the level groups for the themes "Improved relationships" and "Relationship skills", "Improved attitudes toward others", "Psychological improvements" and "Communication skills". Those in the induction and pre-treatment levels less frequently described these themes while those attaining level 4 and above did so more frequently. Significant differences were also revealed across levels amongst those describing the program to have had no influence on their relationships. The induction group more frequently responded this way while very few above level 4 responded in this way.

Chi-square testing was also conducted to explore the possibility of sex differences in patterns of responding to this question. There were no significant sex differences revealed for any of the above themes.

6.2.4 Rated helpfulness of program parts.

Following the conduct of the delphi consultation a list of items describing most and least important aspects of the program was obtained. Respondents were presented with a list of these items and were instructed; "below are listed a number of parts of the Odyssey program how helpful or unhelpful would you list them in your attempts to seek treatment". Respondents were asked to rate their evaluations of parts of the program on a four point scale ranging from "very helpful" to "Very Unhelpful" (Table 4).

As is indicated in Table 4 the "drug free environment", "the positive examples of people..." and "removal from past associates", were most frequently endorsed as helpful aspects of the program. The "pull up sheet", "repetitive work tasks", "minor rules eg. 15 smokes per day, 32 articles of clothing" and the "Odyssey Language (jargon)" were most frequently indicated to be unhelpful aspects of the program. Around three quarters of respondents regarded the program to have been helpful while around 1 in 5 regarded the program to have been unhelpful.

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[6] Note for this and future sections 2x7 Chi-Square analyses were carried out only for item categories with a 10% or higher response.

Table 4: Rated helpfulness of Odyssey program parts.

Responses	Helpful (%)	Responses	Helpful (%)
The Drug Free Environment.	94%[S]	PROBE Group.	63%[L]
The positive examples of people who overcame similar problems.	86%[L]	Being criticised for mistakes.	62%[L S]
Removal from past associates.	83%[L]	The high degree of structure.	61%[L]
Removal from the dangers of retribution and violence.	80%[L]	Being separated from mainstream society.	58%[L]
Level responsibilities.	79%[L]	Morning meetings.	57%[S]
Therapy groups.	77%[L]	Private therapy.	54%[aL]
Level Groups.	76%[L]	The exercises.	51%[L]
Level Peers.	76%[L]	The length of the program.	50%[L]
The program as a whole.	75%[L] (N=245)	The no sex rule.	50%[S]
The peer input in treatment.	73%[L]	The lack of free time.	46%[L]
Making friends while in the Program.	71%[L]	Reprimands.	43%
Teaching of concepts.	67%	Re-entry.	43%[bL]
The acceptance of smoking.	69%[L]	Request for Audience.	39%[L]
Level Job Functions.	69%[L]	Odyssey Language (jargon).	38%
Urine testing.	67%	Minor rules eg. 15 smokes per day, 32 articles of clothing.	37%
Level privileges.	66%[L]	Repetitive work tasks.	37%
Confrontation/ encounter experiences.	63%[L]	Pull Up Sheet.	32%[S]

N=239.

[L] Chi-square testing revealed significant differences across level groups.
[S] Chi-square testing revealed significant sex differences.
[a] Note when responses were restricted to those attaining level 2 or above (i.e., only those for whom "private therapy" was available) 81% rated this as helpful.
[b] Note when responses were restricted to those attaining level 4 or higher 83% rated "re-entry" as helpful.

Indicated in Table 4 are responses demonstrating significant differences across level groups. Typically these differences were in the direction of higher rated helpfulness associated with attainment of higher levels (particularly level 2 and above). As most level differences followed this pattern the responses that did not were of particular note. These included; "being separated from mainstream society" which was rated as helpful most frequently by the graduates and least frequently by the Level 2 group; "the exercises" which tended to be rated as helpful by those attaining level 1 and below and "the acceptance of smoking" which was regarded as helpful by allgroups except the graduates.

Also indicated in Table 4 are items demonstrating significantly different responses between males and females. These differences were in all cases in the direction of lower helpful ratings by females with the exception of the "no sex rule" which females tended to rate as having been helpful.

6.2.2 Parts of the program described as beneficial.

Having examined the program against standardised tests it was considered important to also examine ex-resident perceptions using more open response categories. Responses to open-response questions are presented below.

Respondents were asked "Speaking generally how would you say the Odyssey program benefited you? What sorts of skills/ habits/ teachings/ experiences from the program have you found most useful?" (The 252 respondents to this question were asked to describe the three main benefits).

Overviewing responses to the above question there appeared to be some consensus in replies with themes related to personal development characterising a large number of responses (particularly for those attaining levels 1 and above). The majority of respondents described changes that appeared to be related either to psychological benefits or improvements in relationships.

Personal and psychological improvements were described by a large number of respondents (51%). Within this major theme were included reports of an improved sense of self-understanding and insight (25%), self-worth (19%) and personal improvement (15%).

Included among responses grouped within the self-understanding theme were descriptions of improvements in self-insight. Related responses described improvements in assessments of capabilities and perhaps as a consequence improvements in motivation and personal direction. Incorporated within the category of self-worth were reports of improvements in self-esteem, confidence, openness and honesty. Personal improvements included respondents describing greater responsibility, patience, discipline and maturity.

Improvements in relationships were described by 28% of those responding to this question. Responses included reports of improved understanding of people, more ability to help others, relationship skills and a greater valuing of relationships. Communication gains were also frequently reported (26%). This category of responses included reports of improved communication skills such as talking about problems, self-expression, assertiveness and the ability to listen to and understand others.

A smaller proportion of respondents listed benefits related to improved basic behaviours (19%). Within this category were included very frequent reports of the beneficial experience provided by a period off drugs. A number of respondents described how this experience had enabled them to recognise the possibility that they "could go without drugs". Other frequent reports referred to the development of basic behaviours related to personal care, hygiene, daily living, keeping active and organised. A number of respondents described these basic behaviours as important in preparing them for employment.

Employment related skills were also evident in the responses of a smaller group (16%) listing among the main benefits they had received from the program the development of very specific skills. These skills were described variously to include parenting, cleaning, organising, supervising, cooking, the attainment of Year 10, experience with psychology and criminal law.

Chi-square analyses were conducted contrasting responses to the major themes, identified above, across the seven treatment levels. Significant differences were found for the major grouping of "Psychological improvements" and for the categories making up this major grouping: "Self-understanding" and "Self-esteem". Significant differences were also found for the categories "Communication", "Relationships" and "Skills". The pattern of differences revealed the induction only group (and to a lesser extent the pre-treatment group) tending to report no benefits or few benefits. In contrast respondents attaining level 3 or above more frequently indicated improvements with those in the Level 1 and 2 groups somewhat intermediate between these extremes.

Chi-square analyses were also conducted to explore whether any of the identified categories demonstrated different patterns for male and female respondents. These analyses failed to reveal any significant differences.

6.2.3 Parts of the program described as having been "not beneficial".

Respondents were also asked "In which ways did you find the Odyssey program not to be beneficial? What sorts of skills/ habits/ teachings/ experiences have you found least useful? (Please describe the three main benefits)".

The 252 respondents to this question demonstrated a high level of diversity (it was difficult to find themes that integrated the range of issues raised). The summary of responses presented below provides some indication of the range of themes emerging in response to this question.

One of the more frequent criticisms of the program related to the nature of work tasks residents were required to engage in (19% of respondents made some mention of these issues). Within this category were included frequent complaints concerning an overemphasis on house functioning (e.g., "continual cleaning", "the repetitive work tasks") and having to do "too much work". Some respondents were critical of a perceived lack of emphasis on employment relevant training; "they didn't teach skills", "there was a lack of vocational emphasis". For others the problem was more that any lessons the repetitive work provided were redundant; "I was being asked to clean skirting boards but I already knew how to work, I had a good work history".

This lack of sensitivity to individual differences formed another important theme in responses (18% of respondents made some mention of this problem). The main comment was that the program tended to be too inflexible and rigid making too few allowances for individual differences. A number of respondents commented on the experience of "many different types being lumped together in treatment".

A further important theme emerging among respondents were problems associated with being separated from mainstream social influences (17%). Most common among these were complaints of being separated from partners and parents who in many cases (it was felt) could have offered a potentially supportive adjunct to treatment. A further common complaint was that the language, relationship and communication techniques developed in the program had proved inappropriate for application outside the program.

An equal number of respondents (17%) complained about a perceived atmosphere within the program characterised by distrust and suspicion of others. The emphasis within the program upon peer surveilance appeared to be at the base of much of this criticism with respondents complaining about having to "give people up" and the use of "shadows". Problems with the programs emphasis upon checking up on others were also evident in criticisms of practices such as the general inspection. For some the requirement to report on others conflicted with a moral code they "had learnt from childhood" and while in prison.

A number of respondents (17%) also complained about the strict rules in force within the program. Specific complaints related to the consequence of a lack of flexibility and freedom perceived to characterise participation in the program.

A number of comments were made by relatively small numbers of people, but are important to mention as they indicate areas where standards within the program need to be carefully monitored. The methods of discipline used in the program were mentioned by a number of respondents (13%). Most of these referred to the use of confrontation techniques and humiliating reprimands. Complaints about abuses within power relationships were also mentioned fairly frequently (13%). Often mentioned in this regard was the perception of being humiliated "for the enjoyment of upper levels".

Chi-Square comparisons failed to reveal any categories that differed significantly across the level groups. Analyses did, however, reveal some differences in responses between the sexes: Females more frequently listed as not beneficial the "Discipline techniques" and the "Separation from society".

6.3 Stages in the Treatment Process.

An important aim of the present research was to attempt to explore aspects of the treatment process of differential importance to different treatment clients. The following sections examine residents' perceptions of various stages in the treatment process. The first stage in this series of analyses was to examine factors considered to have influenced entry into the program.

6.3.1 Factors perceived to have influenced entry into the program.

Respondents were asked "Which of your Odyssey treatment episodes would you consider influenced you the most?" Of those responding 68% stated that their first episode of treatment influenced them most.

Respondents were then asked "how important were each of the following factors in your entering Odyssey that time?" Respondents were presented with a list of items selected from a questionnaire reported previously by Simpson and Sells (1990).

The items most frequently endorsed as either "very important" or "somewhat important" were; you "hit bottom" and realised you had to change your lifestyle (81%), you were tired of the hustle (68%), and you were afraid of being sent to jail or prison (55%).

The items that were most frequently indicated to have been either "not too important" or "not important at all" were; you got a job (or changed to a better one) (98%) and you were influenced by your church or religion (95%).

Chi-square testing revealed significant differences across the level attainment groups in responses to two of the above questions. Those in the Level 4 group more frequently indicated having been "afraid of violating parole or probation" as an important factor influencing their entry to Odyssey. Few of those below pre-treatment indicated this as important to their entry. Those in the Induction group least frequently indicated having "hit bottom" as important to their entry.

Analyses were also conducted to explore for differences between male and female responses. These analyses revealed significant differences for only one item: Females more frequently recalled "health or medical problems" as having been important to their entry.

Table 5: Importance of factors influencing program entry.

Responses	Very important/ Somewhat important (%)	Responses	Very important/ Somewhat important (%)
You "hit bottom" and realised you had to change your lifestyle.	81%	You were afraid of overdosing or having health problems.	17%
You were tired of the hustle.	68%	Someone important to you died.	15%
You were afraid of being sent to jail or prison.	55%	You went to jail or prison and couldn't get drugs.	9%
You had family responsibilities to take care of.	46%	You were divorced or separated.	9%
You were threatened with actions from your spouse or family if you didn't quit.	32%	The drugs you wanted were not available.	8%
You had health or medical problems.	27%	You moved to a different city or neighbourhood.	7%
You could not get money to buy your drugs.	26%	You were afraid you would lose your job if you didn't quit.	7%
The cost of drugs got too high.	23%	The quality of drugs got too bad.	7%
You were threatened with actions from your close friends if you didn't quit.	19%	You were influenced by your church or religion.	5%
You were afraid of violating parole or probation.	18%	You got a job (or changed to a better one).	2%

N=247.

In an attempt to obtain perceived reasons for entering treatment, phrased in the respondents' own language, the above closed response questions were followed by the open response item; "What were the three most important factors influencing your entry on that occasion?".

As distinct from some of the other open response questions summarised in this study some sense of agreement was apparent in responses to this question. Most respondents (138 or 56%) described dissatisfactions with their lifestyle as at least one of the factors influencing their entry to the program. Within this category were a large number who simply reiterated the common phrases "hit bottom" or "tired of the hustle". Some of the more substantial explanations were responses describing "wanting to change" lifestyles. For some this desire was motivated by repugnance with their present existence (e.g., "I hated my life", "my life seemed worthless", "unbearable guilt at having robbed from my daughter"). For others it was time for a change (e.g., "I had turned 30", "I was getting too old"). For others the attraction was the prospect of "feeling good about myself again" or the simpler motive of "wanting something more".

A separate category of responses referred to legal pressures (46%). Most common within this category were attempts to avoid prison[7], to meet legal conditions and to give a better impression at a forthcoming trial. For some the threat of losing legal custody of a child was described as an impetus to their treatment entry.

The family was mentioned by a relatively large proportion of respondents as at least one of the main influences upon their entry into treatment (43%). Within this category were respondents describing concerns about family responsibilities (especially with respect to children), pressure and threats from family members and concerns regarding families breaking up.

A smaller number of respondents mentioned concerns about drugs as one of the factors influencing their entry (19%). Wanting to give up using drugs was commonly mentioned, for a smaller number the experience of drugs becoming more difficult to obtain was mentioned. A surprisingly small proportion of respondents (5%) mentioned drug treatment among their reasons for entering the program.

Chi-Square analyses revealed significant differences across treatment levels only for the categories "Drugs" and "Dissatisfaction with lifestyle". Those attaining levels 3 and above in the program were less likely to list "Drugs" while those in the lower levels (particularly those attaining only pre-treatment or level 2) were more likely to have mentioned drugs as a factor influencing their entry to treatment. Those attaining level 1 were particularly low in their endorsement of the "Dissatisfaction with lifestyle" category (35%) while those graduating were particularly high (76%).

Analyses failed to reveal any significant differences between males and females with respect to their pattern of responding to this question.

6.3.2 Induction into the program.

Through their experience as participant observers in the program the researchers became interested in exploring whether some clients were entering the program with inappropriate expectations. The philosophy guiding entry into the Victorian drug treatment system emphasises client choice and hence screening, assessment and service referral occurs relatively informally. There was some evidence obtained through the follow-up interviews to support the provision of additional information to clients at the point of their entry into the Odyssey program. Clients leaving in the early stages of treatment felt that such information may have altered their decision to enter the program.

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[7] In some cases respondents admitted to having gone to Odyssey House with the intention of escaping soon after arrival. Some of these people ended up remaining in the program.

Respondents were asked "If more information about the Odyssey program had been provided to you prior to your first induction what effect would it have had?" While the majority (65%) of the 245 responding to this question considered that additional information would have made no difference to their decision to enter the program there were almost a quarter of respondents (23%) who stated that such information would have led them to not enter the program. Chi-Square analyses revealed that those in the Pre-treatment, Level 1 and Level 2 groups had more frequently responded in this way.

6.3.3 Remaining in the program.

In addition to understanding some of the factors surrounding residents' decisions to enter treatment it also seemed important to have information on the factors leading residents to remain in the program. Respondents were asked "What were some of the things that kept you in the program for the time you stayed?" Respondents experiencing multiple treatment episodes were instructed to describe the episode that influenced them the most. A maximum of three responses were coded for each of the 248 respondents to this question.

Relationships in the program were listed most frequently as factors keeping people in treatment (34%). In most cases relationships with peers were indicated, but in a smaller number of cases these relationships were with staff.

In response to this question legal pressure was very commonly mentioned (32%). Both pending court cases and legal conditions were frequently listed within this category. A common response was to report legal pressure as the initial incentive for remaining in the program and for the reasons for remaining in the program to become more internalised over time.

A desire to change was an important reason for staying in treatment for 27% of respondents. This category included reports of "wanting to change" and "to get off drugs". For others the attraction was more positive (e.g., "enjoying being drug free").

An interesting category of respondents were those mentioning a part of the program (e.g., "graduation", "safe environment") as the reason for staying (28%). Another group of respondents bearing some relationship to this category were those who perceived that their involvement in the program had resulted in personal improvements (20%). For some within this group of respondents the important factor was self-discovery; e.g., "finding things out about myself" and "seeing myself live straight". Related to these experiences were descriptions of personal improvement (e.g., "more confidence") or of sensing concern among others. A similar sized group of respondents (21%) listed responsibilities to their families or other relationships to have been factors keeping them in treatment.

Four respondents stated that they would have left earlier but found the program stalled their exit with split groups and other procedures. One woman described having to manoeuvre carefully in order to leave in possession of her child. This woman described finding herself in conflict with the program which was attempting to have an assessment conducted to establish her suitability as a mother.

Chi-Square analyses revealed significant differences across levels only for the category "Relationships in the program". Those attaining levels 4 and above in the program endorsed this category more frequently and the Induction, Pre-Treatment and Level 2 groups least frequently.

Analyses revealed a number of sex differences in responses to this question. Females less frequently described their reason for staying in the program to have been due to "Legal pressure" and more frequently to have been due to either "Family reasons" or because there were "no other more suitable alternatives available".

6.3.4 Short Term Assessment Referral and Treatment (START) program.

Analysis of the time in treatment data revealed that most residents leaving treatment left in the first (pre-treatment) stage of the program. The results of the delphi study and participant observation in the program revealed the importance of the START program (START was the name selected for the pre-treatment program from 1987).

In an attempt to further examine the program respondents that had spent some time in the START program were asked "In which ways do you think the START program could be improved?". A maximum of three responses were recorded for each of the 161 respondents to this question (those having no experience with the START program were excluded from these analyses).

In general responses showed a good deal of diversity with no consistent themes emerging. One of the more common themes was for respondents to argue that the START program should adopt a gentler approach (24%). This category of response included calls for the program to adopt a more understanding and humane approach with less emphasis on masculine toughness. A number of respondents argued that the program should adopt more positive reinforcement and less of the "you're at the bottom of the barrel" approach. A small proportion of respondents (17%) argued for a variant of this theme suggesting that access to the tougher START program should occur through a carefully graded and gentler orientation process. In contrast to these respondents were a small proportion (21%) arguing that the program had an important integrity and should be left as it is.

Other reforms advocated by ten percent or more included calls for the nature of work and training to be examined in the program (13%), for a review of the relationship of the START program to upper levels (12%) (e.g., "more exposure for START to higher levels", "more respect from upper levels"), more open relationships with those outside the program (12%) and for a more individualised approach to program planning (11%). Chi-square testing failed to reveal any differences in responses to these questions across level groups or between males and females.

6.3.5 Probe group.

The Probe is a group meeting where staff and residents determine a long and short treatment plan with a candidate ready to enter the first treatment phase of the Odyssey therapeutic community (level 1). The delphi study (Toumbourou & Hamilton, 1993) indicated those involved with the program regarded the Probe group to be amongst the most important parts of the program. Respondents to the follow-up study were asked "Did you ever go through a probe at the end of the START or Prodigal[8] programs?" (74% of respondents answered yes). Those answering yes were then asked "Which of your probe experiences had the most influence on you?". Of those answering this question 81% stated their first probe had the most influence upon them.

As was indicated in Table 4 above, when respondents were asked to assess the probe 63% of respondents rated it to have been either helpful or very helpful. In order to develop a more detailed understanding of the probe respondents were asked "In which ways were you affected?" A maximum of two responses were recorded for each of the 174 respondents to this question.

For a large proportion of respondents the probe was described as having provided an important opportunity to assess and define problems and issues that were then examined in treatment (21%). Related to this theme were respondents describing the probe as having provided better self-understanding and personal insight (21%) and having helped them recognise issues (11%) they previously "didn't want to accept".

Many respondents described the focus of the probe upon events that had occurred in the past (20%). A number of respondents described negative emotional states ("trauma", "confusion") associated with their probe (12%). Amongst those that were critical of their probe were those describing a lack of opportunities to "debrief" after these experiences. A number of respondents (10%) maintained that the conclusions reached in their probes "missed the real issues" (eg. "I disagreed that my parents were to blame for my drug use").

There was some division concerning the effectiveness of the probe as a method of developing attachment to the program. For 9% of respondents the probe was associated with the experience of bonding to the program while 8% felt uncomfortable disclosing personal details in the probe (eg. "I wasn't prepared to discuss my private life with people who would soon be back on the street"). Although a number of people raised this as a concern, it was noteworthy that only two respondents reported peers actually revealing private confidences outside the program.

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[8] The prodigal program is a variant of the pre-treatment program. It is designed for ex-residents who attained upper level status in a previous treatment episode at a similar therapeutic community.

6.3.6 Reentry stage.

Reentry refers to the final treatment phase within the therapeutic community where residents prepare to re-enter society "with out drugs". Respondents to the delphi consultation indicated the importance of the reentry stage of treatment. In an attempt to explore some of the issues surrounding treatment in the reentry program respondents who had some previous experience with the reentry program were asked "In which ways do you think the reentry program could be improved?" Seventy one respondents answered this question, a maximum of three suggestions were coded for each.

Almost a third of respondents were concerned about the relationship of the reentry program to the larger residential program (32%). There was some degree of diversity within this category of responses. Amongst the more common themes were a number of calls for the program to more actively follow-up members of the reentry program that lapse. A similar number advocated that the reentry program should be shortened and/or initiated earlier within level 4. One respondent, however, argued the reentry program should be lengthened. A number of comments argued for more freedom within the reentry program. These comments included calls for more "power" and "equality".

Over a quarter of respondents (28%) advocated the reentry program should place a greater emphasis on employment and the development of job skills. Some of the suggestions within this category were for the program to; "pay more attention to job skills", to conduct a closer "liaison with employer groups", "closer association with the CES" and remove "program barriers that make working difficult".

Another important category advocated by 27% of respondents argued for more individual flexibility and freedom in the reentry program. One fairly concrete suggestion argued by two respondents was to divide the program into three divisions; "commitment, looking for work and working".

A quarter of respondents described the importance of training in aspects of social relationship skills. Most respondents within this category advocated the development of social skills appropriate to the world outside of the program.

A smaller number of respondents (17%) argued that the issue of drinking in the program needed to be carefully examined. One respondent commented that "alcoholic graduates shouldn't monitor level 4s".

At all stages in the Odyssey program attrition is a common phenomenon. The questions reported below examined ex-residents' explanations of their departure from the program.

6.3.7 Leaving the program.

Respondents were asked to reflect on either their last exit from the program or for graduates their exit before graduating. Respondents were asked "What influenced you to leave the program that time?". Two hundred and twenty one people responded to this question. A maximum of three responses were recorded for each respondent.

A common theme emerging across responses was that of finding aspects of treatment too difficult (28%). A feature of the program mentioned by a number of respondents as difficult were the house probe outs[9]. While some respondents mentioned particular parts of the program to have caused them frustration ("feeling trapped", Saturday General Inspections), many simply stated they had become "sick of the place" or "had enough".

For a number of respondents leaving had been preceded by either conflict with the program or a perception that it was not proving appropriate for their needs (26%). Common within this category were respondents claiming to have come into conflict with program staff or regulations. A related class of responses decribed their departure from the program to have been the result of a reaction to the restrictions and pressures operating in the program (18%). For 10% of respondents leaving followed a discharge from the program for a breach of rules.

For a number of respondents, leaving the program had been mediated by developments in relationships (20%). For 17% of respondents the issues raised concerned relationships outside the program. Wanting to make contact with partners, parents or children were frequently mentioned within this category.

For a smaller proportion of respondents (10%) the decision to leave was precipitated by other factors outside the program. These factors included wanting to "organise outside", reductions in legal pressure and the advent of important occasions such as Christmas. An equally small number of respondents mentioned a desire to use drugs again as their primary reason for leaving the program (11%).

Chi-square analyses were conducted comparing responses to this question across level attainment groups. For these analyses graduates that had completed the program in one unbroken treatment episode were eliminated. Significant differences were found between level attainment groups in the categories "Finding treatment hard", "Desire to use drugs" and "Discharge for rule breach". Those attaining level 4 less frequently described their leaving as having been due to "Finding treatment hard" and more frequently as the result of a "Discharge for rule breach". "Desire to use drugs" was described as the reason for leaving more frequently by those in the induction group and less frequently by those attaining level 2 or above. Chi-square analyses revealed no significant sex differences in responding to this question.

Finally respondents were asked directly for their suggestions regarding possible modifications to the Odyssey program structure. Responses to these questions are reported below.

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[9] House probe outs are meetings in which all therapeutic community residents lose their level status and must present convincing cases to staff and other residents in order to be reinstated. These meetings are conducted in response to the discovery of more major program rule breaches such as use of drugs.

6.3.9 Suggestions for altering the program.

Respondents were asked "Do you think the Odyssey program should be changed or modified in any way? In which way should it be changed?". A maximum of three responses were recorded for each of the 235 respondents to this question.

Once again responses to this question were notable for their overall lack of consistency. One of the more common suggestions for modifying the program was for procedures to be reviewed to enable a more individualised approach to programming (18% of respondents). Within this category were a number of respondents advocating; "a more personal approach" and for more "flexibility" and "diversity" in activities.

Approximately equal proportions of respondents advocated reductions in the use of therapeutic procedures based on pressure and conflict (15%) and the introduction of approaches based on positive rewards and expectations (15%). Included within the first category were calls for minor rules to be "scrapped" and for less use of the "reprimand" and "confrontation" procedures. The second category included calls for the introduction of "more sense of community" and for the encouragement of a more "relaxed and friendly atmosphere". Other respondents argued for the introduction of a more positive approach to the programs reward structure such as "privileges" to encourage positive behaviour.

A similar proportion of respondents (14%) advocated the program examine its relationship to society. Most of those in this category advocated "more communication" and/or "involvement with outside". A smaller number considered the program should be made more like "real life".

Reforms for the lower level system were urged by 12% of respondents. Within these reforms were included calls for "more respect for lower levels" and for more "equality" between the levels. Changes to the orientation procedures operating at entry into the program were advocated by 10% of respondents. Most of these respondents suggested that the program "abolish access barriers" such as the 48 hours needs system[10].

Suggestions for improving the distribution of staff were made by a similar proportion of respondents (12%). Common within these responses were calls for more professional staff positions. A useful suggestion regarding staffing was for the program to "evaluate staff performance". The need to review the provision of work and training in the program was mentioned by 11% of respondents. A number of those making these suggestions advocated the provision of "more productive job skills".

Chi-square analyses revealed differences across levels only in responding to the category refering to "Orientation procedures". Those in the Induction group most frequently commented on this while few in the higher levels made any mention of this issue. Chi-square testing failed to reveal differences between males and females in responses to the above question.

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[10] Residents returning to the program after leaving against program advice during a previous treatment episode are requested to conduct 48 hours of work for the program in their free time as a penalty.

CHAPTER 7: RESULTS - OUTCOMES FOLLOWING TREATMENT LEVEL ATTAINMENT.

This study aimed to compare changes in behaviour from the period before treatment to the period after treatment across the seven treatment levels. The study had been designed to provide information regarding the association of treatment level attainment and outcomes following treatment. In the sections that follow pre to post treatment associations with level attainment are presented for the domains of drug use, criminal involvement and employment.

7.1 DRUG USE.

One of the primary aims of the therapeutic community is to alter the behaviours associated with illicit drug use. Analyses revealed a linear association between reductions on various indices of drug use and higher level attainment. Linear associations were most clearly in evidence when the year following exit from treatment was used to measure outcomes. The year following exit from treatment was, however, often separated from treatment entry by only a few days for those exposed to the lowest amounts of treatment and by many years for those exposed to the highest amounts of treatment. As improvements were observed in all groups over time it was considered important to extend measurement beyond the commonly used year of exit period to also examine outcomes using a fixed period from treatment entry. These analyses, controlling for the time elapsing from treatment entry, typically demonstrated a weaker linear association between level attainment and reduced drug use, although for most analyses a significant relationship continued to be observed.

7.1.1. Opiates.

Heroin was most frequently listed as the primary problem drug at entry to the program. At induction 80% reported heroin in this way. Based on information obtained at follow-up 80% were using opiates on a daily basis at least some time in the year prior to their first induction to treatment. For those using on at least a daily basis this pattern of use continued for an average of 44 weeks (SD=13 weeks) through the year prior to their induction. Over each of the follow up years, there were a small number of cases (about 3%) reporting use of other opiates such as morphine sulphates and in two cases legally available compounds containing opiates (e.g., codeine). Often these drugs were used in association with heroin.

Death through heroin overdose has imposed a relatively large drug related cost to Australian society through the loss of person years (Collins & Lapsley, 1991). Although it is unclear whether the risk of overdosing is higher amongst frequent or infrequent opiate users, anecdotal evidence suggests risks may be associated with the spectrum of opiate use. These considerations recommended the analysis, in the persent study, of changes in opiate use.

The first set of analyses examined changes in the frequency in each sample registering any opiate use (excluding legal methadone) comparing the year before their first entry into the program with the first and second years after their last exit from the program. For the purposes of comparability the period following program exit was used to measure outcomes. The majority of existing therapeutic community outcome studies have utilised this base. Figure 8 graphically depicts these changes.

Rates of opiate use in the year prior to treatment were based on information recorded at induction into the Odyssey program. Chi-square analyses confirmed there were no significant differences in reported rates of opiate use across levels in this period with 87% in the aggregated sample reporting some use. Repeated measures[11] were based on reported rates of opiate use in the first year following exit from the program as recorded in the follow-up interview. A separate analysis compared the year prior to treatment with rates of use in the second year following treatment exit.

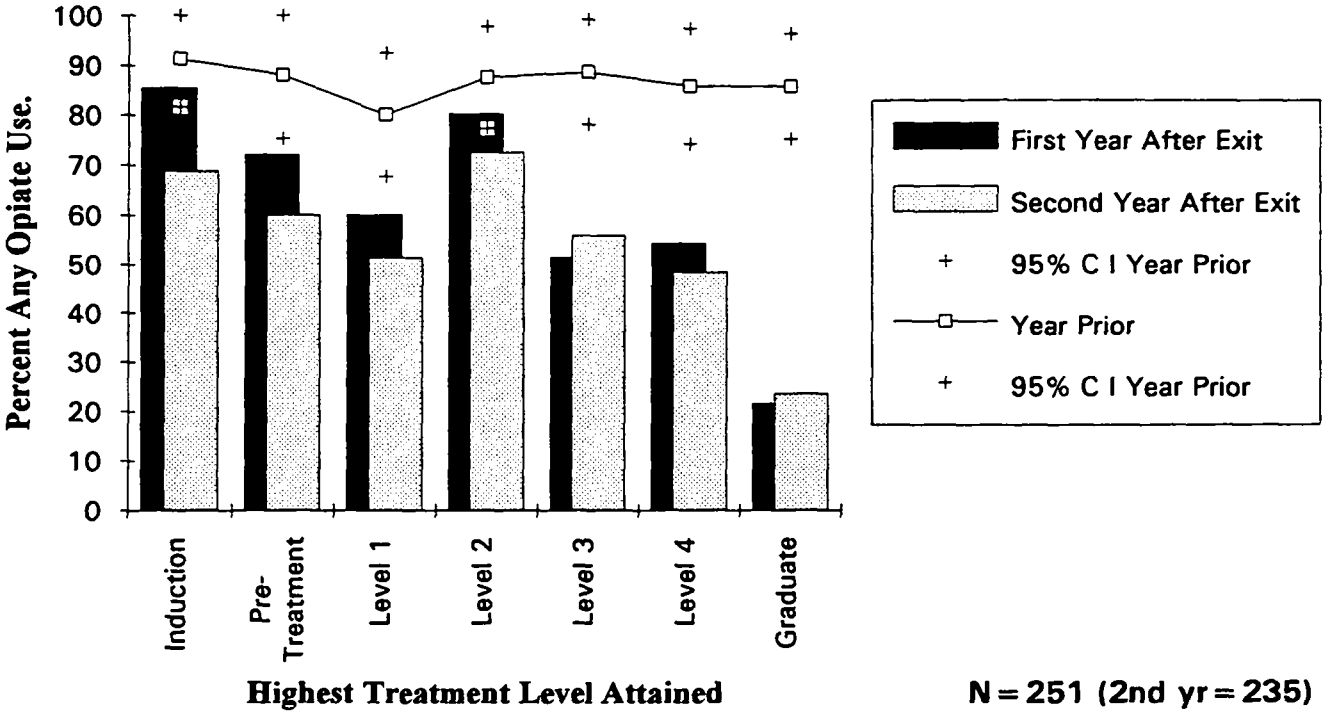

Figure 8: Percentage reporting any use of opiates (excluding methadone) across seven program defined treatment levels: Year prior to treatment compared to the first and second years after treatment exit.

[11] Repeated measures analyses were conducted, using SAS (1990) procedure CATMOD. For this and the analyses that follow the weighted-least-squares approach was used to estimate parameters. Grizzle, Starmer and Koch (1969) have demonstrated the utility of this approach for hypothesis testing using repeated measures designs.

Analyses revealed that for both the first and second years following exit from treatment all main and interaction effects were significant. The implication of these analyses was that rates of use of opiates had decreased from the year prior to entry to treatment compared to either the first or second years following exit from treatment and that this decrease had differed according to treatment level attained (details of outcomes are presented in the appendices, Table A3).

For the first year following exit from treatment the linear trend across levels was significant ($X^2_{(1, N=251)}=21.4$, one-tailed $p<.0001$). In none of the analyses conducted for this report were the quadratic or cubic components of level trend found to be significant. Planned comparisons were used to establish whether improvements were greater for those attaining higher levels[12]. Comparisons contrasted the induction only treatment attainment level (the group exposed to least treatment) with each of the higher level groups. In the first year following exit from treatment 85% of the Induction group reported some opiate use. Compared to this group rates of opiate use were significantly lower in the Level 3 (51% reporting use), Level 4 (54%) and Graduate groups (21%). By the second year following exit from treatment rates of use in the Induction group had declined (down to 69%) such that significant differences were, by that stage, only revealed between the induction and graduate levels (24% reporting use).

The reduction in opiate use evident amongst those in the Induction group, experiencing little exposure to the Odyssey program (from the year prior to treatment to the years after treatment exit), suggested that factors outside of the treatment environment may have been influential in reducing their use. The above analysis of outcomes, based as it was, upon an outcome period set from treatment exit tended to obscure the processes of temporal improvement occurring in the groups experiencing little exposure to treatment. Pre to post treatment comparisons for these groups were separated often by only a few days while the same comparisons for longer staying cohorts were in most cases separated by years.

In an effort to control for the influence of the different periods of time elapsed between measurements a further set of analyses were conducted using standard periods of time from time of program entry as the outcome measure. The following figures present rates of heroin use in the year prior to and for the six years following first admission to the Odyssey House program for the seven treatment level attainment groups.

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[12] In these and the analyses that follow planned comparisons were conducted using the CATMOD repeated measures procedure for weighted least squares estimates (the analytic strategy is described in the appendices at section 10.2).

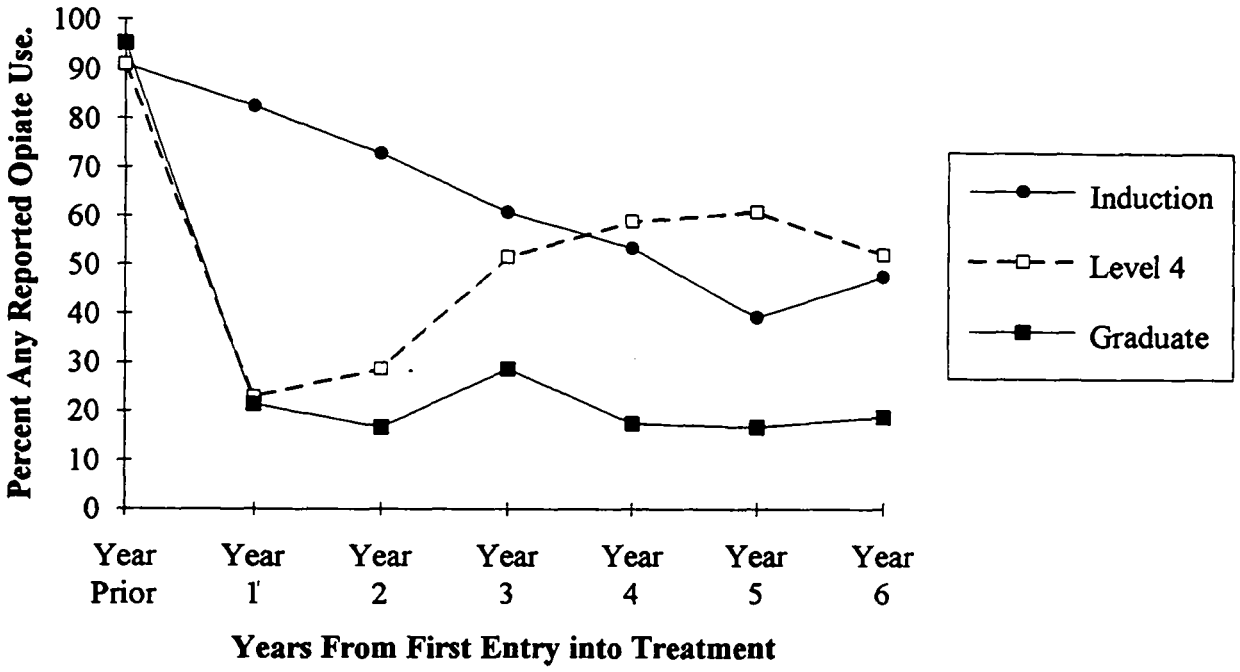

Figure 9: Any use of opiates year prior to entry to Odyssey and six years after entry; Induction group compared to Level 4 and Graduates.

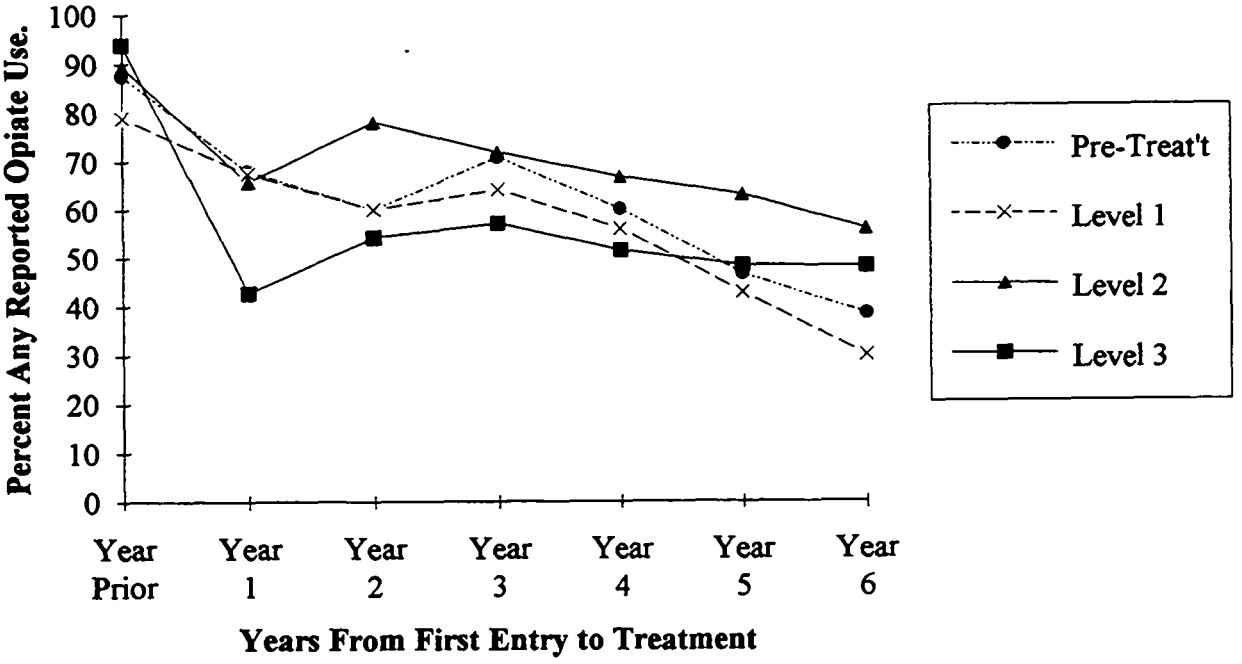

Figure 10: Any use of opiates year prior to entry to Odyssey and six years after entry; Pre-treatment group, Levels 1 to 3.

The most obvious trend in the above figures was the overall pattern of reduction in opiate use that occurred over time across each of the level groups. Examination suggested differences with respect to the rate of reduction of opiate use across the different treatment level groups.

For those exposed to little treatment (Induction and Pre-treatment) rates of heroin use demonstrated a steady process of decline from the years prior to treatment entry to the years after. For those experiencing more exposure to treatment (Levels 1 to 3) there was a period of reduced heroin use (apparently associated with the period of involvement in the therapeutic community) followed by a slight rise in rate of use (associated with the period after treatment exit). Following these post treatment increases, rates of opiate use then appeared to stabilise but at a rate below that in the pre-treatment year.

The pattern of change evident for the Level 4 group was broadly similar to that described above for Levels 1 to 3. An important difference was an apparent higher rate of return to opiate use around the point of treatment exit within the Level 4 group.

At the end of the period observed comparisons revealed those not attaining graduation in the program had converged into an overall pattern of similarity with respect to their rates of opiate use. Following their last exit from treatment graduates continued to demonstrate differentially lower rates of opiate use compared to non-graduates however.

Analyses revealed that when measures were obtained such that they better controlled for the influence of improvements occuring over time, level attainment exerted far less influence upon outcomes. To control for the influence of temporal improvements analyses were conducted selecting an outcome period matching across levels the time elapsing from treatment entry. Attempts to select a suitable standard period following entry to treatment were restricted by a number of practical considerations. As follow-up interviewing had been based on an opportunistic, retrospective tracking of subjects, the time interval expiring from treatment entry to interview was not standardised across subjects. Although the average period elapsing from entry to treatment to interview was 5.6 years, there were significant differences across levels in the period elapsed.

To control for these differences, time elapsed from interview was included as a covariate in analyses where the most recent year was used to assess outcomes. In all cases years to interview failed to contribute significant effects to the models analysed. Following this finding consideration of parsimony led to the adoption, in reporting, of a simpler model which excluded this term.

A further outcome period, used in the present study to attempt to standardise the period of time elapsing from entry to treatment to outcome, was the period from the fourth to the sixth year following entry to treatment. Data relating to the fourth to sixth year following first entry to treatment was available for most of those in the target sample, using official record data (71% for convictions, 73% for methadone use and 85% for fourth year incarcerations). The choice of this period was also supported by consideration of the temporal spread of residents' cumulative involvements with the

program. At the end of the fourth year 80% of the target sample had completed their last exit from the program. By the end of the sixth year this figure had risen to 93%.

When changes in opiate use were measured using an outcome base controlling for the amount of time elapsed following entry to treatment, level attainment had only a weak association with outcomes. For the fourth year following entry to treatment the linear trend across levels failed to reach significance ($X^2_{(1, N=218)}=5.7$, one-tailed $p=.02$). Although the discrete components of level trend could not be identified, the evidence demonstrated that level attainment (particularly graduation) continued to significantly influence outcomes in this period. The effects of both level attainment and the interaction of time of measurement with level attainment were each significant in this period. Planned comparisons for the fourth year revealed significant differences for only the Induction and Graduate groups (with respective rates of opiate use of 53% and 18%, $p<.001$) (Table 3).

When analyses were conducted using the most recent year prior to entry to treatment as the outcome period (an avaerage of 5.6 years from entry to treatment) rates of use within the Induction group had fallen further to 44%. Largely as a result of improvements across each of the treatment exposure groups level attainment did not demonstrate a significant association with reduced opiate use in this period.

Each of the above analyses (and those that follow) were conducted using the seven treatment attainment levels as the independent variable. The inclusion of additional covariates in these analyses was rejected on two grounds. Firstly regression analyses predicting treatment outcomes tended to reveal that the variables significantly predicting level attainment were not themselves significantly related to treatment outcomes. Secondly in the few cases where level predictors were demonstrated to influence outcomes (e.g., bringing children into the Odyssey program) testing revealed that level attainment continued to demonstrate a substantial independent effect (see section 7.6).

Evidence demonstrating reductions in the rates of opiate use for lower treatment exposure groups raised the possibility of prescribed methadone (or other forms of treatment) having been utilised to control opiate use. Information relating to the use of methadone in the years following entry to treatment was available from two sources; self reports for the interviewed sample and from official records held by the state health department. As the officially recorded information also included details of non-interviewed members of the target sample these records were preferred for analyses.

In Victoria methadone is the most common form of treatment for heroin. Methadone is typically prescribed by a medical practitioner. The Methadone Program Client File is the official state record for clients registering for a course of addiction treatment with a medical practitioner. Although failure to register clients is an offence (with a potential penalty of deregistration) an unknown level of underreporting is believed to be associated with the file. As there is no reason to believe errors associated with the file are systematic it was considered an appropriate basis for the analysis that follows.

Data were obtained examining post-Odyssey treatment experiences over a three year period spanning the fourth to sixth years after the first entry to the Odyssey program (records for earlier years were considered by Health Department officers working with the file to be less comprehensive). As details of methadone registrations were provided in late 1992 it was possible, for most subjects to examine sixth year outcomes. These analyses were restricted to 313 subjects (73% of the target sample) for whom a minimum of five and a half years had elapsed following their first induction (and for whom complete details of time in treatment were available).

Lists of names (interviewed and not-interviewed subjects) identified with dates of birth were sent with a request to establish the number on each list registered on methadone programs in specified periods. Health Department officers were informed only that the information was required for a Department of Public Health and Community Medicine "Health Services Research Project".

The method of batching the above information meant that it was not possible to separate cells to enable repeated measures analyses to be conducted. Separate analyses using CATMOD were consequently conducted for all years prior to treatment entry (based on self-reported entry to a methadone program as recorded at induction to Odyssey) and for the fourth to sixth years following treatment entry.

The results of this analysis suggested that an important component of the reduction in opiate use in evidence for those not graduating the Odyssey program may have been associated with methadone use. Results demonstrated that in the fourth to sixth years following first entrance to Odyssey House 28% of ex-residents were recorded on the methadone register at least once. There were differences across levels in the frequency of clients registering for methadone programs with the result that the effect of level attainment was significant (analysis revealed a significant effect for the linear component of level trend, $X^2_{(1,\ N=313)}=17.3$, one-tailed $p<.0001$). Planned comparisons revealed that rates of methadone registration in the Induction group (51% registered) were significantly higher than all other groups except the Level 2 group (33% registered). Residents graduating the Odyssey program were least frequently registered (14%).

7.2 Other Drug Use.

Although the majority of clients entering the Odyssey program did so with a problem related to heroin use, there were a number of other drugs clients reported as problems at admission to the program. The second most frequently indicated primary drug problem reported at induction related to the use of amphetamines. At induction 11% of the target sample reported amphetamine use to be their primary drug problem while 47% of those interviewed reported some use of amphetamines in the year prior to treatment. In almost all cases amphetamines were administered intravenously.

Rates of amphetamine use declined for all groups from the year prior to treatment to the fourth year following entry to treatment and the most recent year prior to interview. By these years aggregate rates of use had declined to 17% and 15% respectively. For each of these periods repeated measures analyses revealed significant reductions in amphetamine use for all subjects regardless of the level they had attained in the program when comparisons were made against the year prior to entry to treatment. These results supported the importance of factors other than Odyssey treatment as explanations for these improvements.

Evidence supported the view that level attainment in the Odyssey program was associated with reduced use of tranquillisers. At the time of induction into the Odyssey program 48% of those interviewed recalled having used tranquillisers. The most common types of tranquillisers used were benzodiazepines with brand names including Valium, Rohypnol and Serepax. There were no significant differences across level attainment groups in reported use of tranquillisers in the year prior to induction. Although rates of use remained relatively stable for those not attaining at least level 3 in the program, for those proceeding to this level or above tranquilliser use demonstrated a stable pattern of decline. Figure 11 graphically depicts changes in tranquilliser use from the year prior to induction into treatment to the years following exit from treatment and for the most recent year.

Repeated measures analyses demonstrated that treatment level attainment was associated with differential reductions in rates of tranquilliser use. Significant effects were demonstrated for the interaction of level attainment and time of measurement regardless of whether outcomes were based on the years following exit from treatment or a fixed time from treatment entry. Visual inspection suggested a clear trend for improvements to be more prominent for those attaining level 3 and above in the program. Due to overall low rates of use in the most recent year (5.6 years after entry to treatment) planned comparisons failed to reveal significant differences between the groups in this period.

Although marijuana is classified as a restricted substance there are different views, amongst treatment service providers, regarding the seriousness of marijuana use. Within the Odyssey program using marijuana is regarded as a breach of program rules and treatment aims include complete abstinence from its use. At induction to the Odyssey program 66% reported some use of marijuana. Rates of use did not significantly differ across level groups. Figure 12 presents details of changes in rates of marijuana use from the year prior to the years following exit from the program and for the most recent year prior to interview.

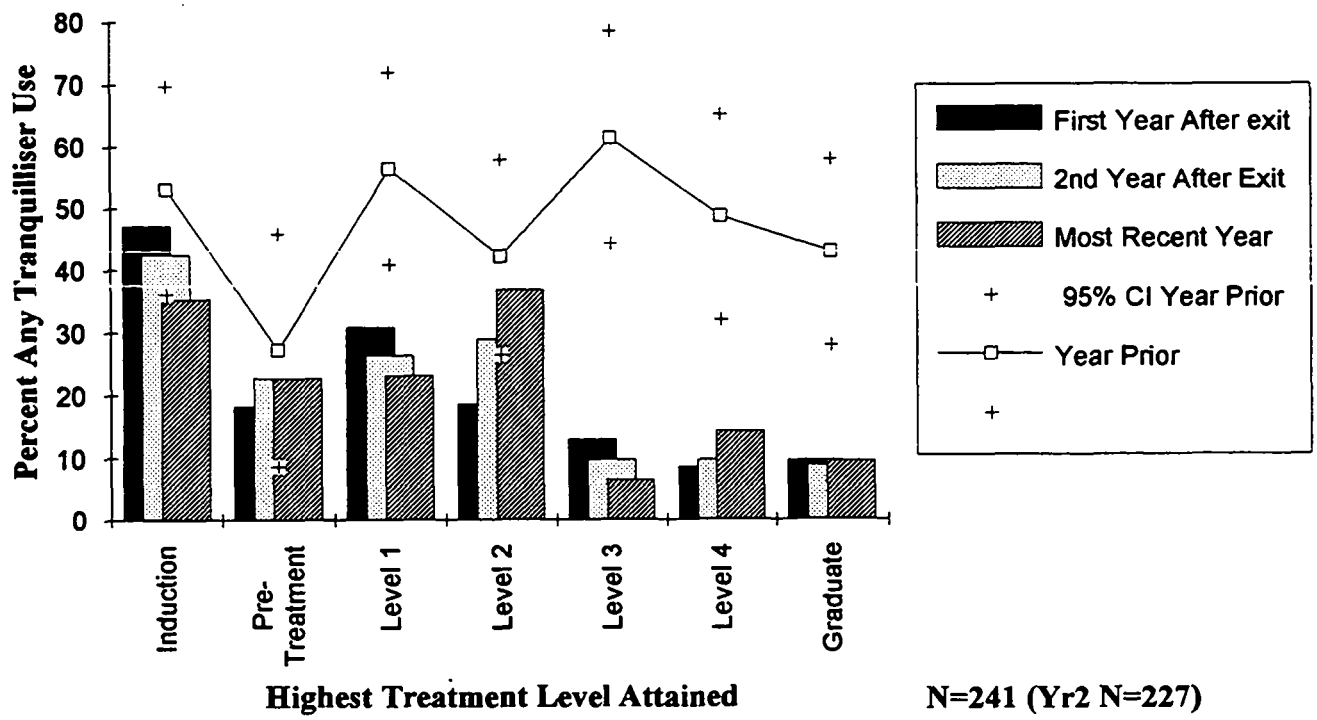

Figure 11: Percent Any Use of Tranquillisers - Year Prior to Entry Compared to Outcome Years.

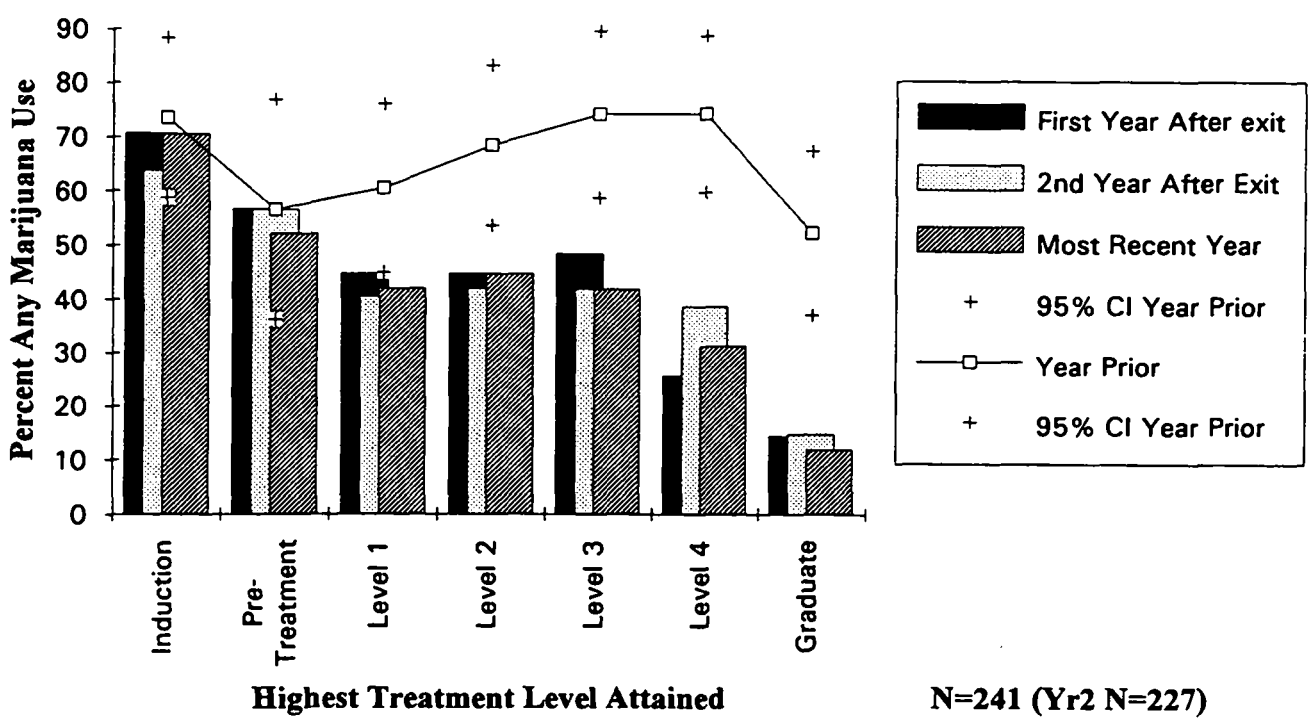

Figure 12: Percent Any Use of Marijuana - Year Prior to Entry Compared to Outcome Years.

Inspection of Figure 12 revealed that changes in rates of marijuana use appeared to be associated with level reached within the Odyssey program. Rates of use demonstrated a stable pattern for those in the Induction group (the lowest treatment exposure group). However rates of use reduced in the first year following admission to treatment for the Pre-treatment to Level 3 groups and from that point appeared to remain relatively stable.

Repeated measures analyses supported the view that treatment level attainment was associated with differential reductions in rates of marijuana use. Significant effects for level attainment were demonstrated regardless of whether outcomes were based on the years following exit from treatment or a fixed time from treatment entry. In the year prior to interview planned comparisons revealed rates of marijuana use were significantly lower for the Level 1 (42%), Level 4 (31%) and Graduate groups (12%) compared to the Induction group (67%).

Analyses were also conducted examining the association between changes in ex-residents' reported consumption of alcohol and treatment level attainment. Respondents were asked to recall both the frequency and amount of their alcohol consumption through particular periods. An alcohol consumption index was then developed. The index was scored for any subject drinking alcohol for thirty days or more in any year in amounts at or above those that have been recommended by the National Health and Medical Research Council (NHMRC) to be potentially hazardous or harmful (above 2 standard drinks for women and 4 for men) (National Health and Medical Research Council, 1992).

Analyses using this index revealed a relatively stable pattern of alcohol consumption across the periods examined. In the year prior to treatment a fifth (20%) of respondents reported drinking above NHMRC recommended levels for 30 days or more. There were no significant differences across levels in the percentage reporting alcohol consumption at these levels. From the year before treatment to each of the outcome years rates remained stable. In the first and second years following exit from treatment 21% and 22% across the sample described drinking in a hazardous way. There were no significant differences across levels in these periods. This pattern remained stable into the fourth year after admission to treatment and into the most recent year prior to interview where 20% and 22% respectively reported hazardous alcohol use. Once again there were no differences between levels in these periods with respect to reported rates of harmful alcohol use.

At the time of the follow-up interviews respondents were also questioned regarding their experience with relapse and craving upon leaving treatment. Responses to these questions are reported below.

7.3 Relapse.

The pattern of increasing rates of opiate use within the Level 4 group (and to a lesser extent the Level 3 group) in the years associated with their departure from the Odyssey program emphasised the importance of examining the circumstances surrounding relapses. Respondents were questioned regarding their relapse experiences following exit from the program. Analyses of this information revealed that level attainment in the program was associated with longer periods from program exit to relapse. Peer pressure and relationship stresses were more frequently cited as reasons for relapse by non-graduates attaining level 4. Details of these analyses are presented below.

Respondents to the follow up interview were asked; "After your **last** exit from the Odyssey program has there been an occasion where you consider yourself to have relapsed in your drug usage?". Of the 252 responding to this question 190 or 75% answered "yes".

Those answering yes were then asked to estimate how long after their exit from the program their relapse had occurred. Survival analyses (using SAS procedure Lifetest) were conducted to compare periods clients spent out of the program prior to relapse. These analyses revealed significantly longer periods prior to relapse for those attaining higher levels of treatment.

At the time of interview 42% of cases had not relapsed. Including these cases revealed that the median time drug free following exit from treatment to either relapse or interview increased with higher level attained. The median time drug free was almost 2 years for Graduates (673 days), around 6 months for Levels 3 and 4 (220 days and 167 days respectively), 2 months (or 60 days) for Level 2 and less than a week for those leaving prior to attaining level 2, (4 days for Level 1, 2 days for Pre-treatment and 1 day for Induction). The evidence supported the view that for those achieving higher levels in the Odyssey program a considerable period had elapsed following exit from the program prior to their first relapse.

Following this question respondents were asked "What were some of the reasons for this relapse?". One hundred and ninety people responded to this question. A maximum of three responses were coded for each respondent.

The most common theme in responses to this question referred to social factors precipitating relapse. These responses could be broken down into reports of peer pressure (23%) (eg. "everyone I knew was either on drugs or at Odyssey House"); relationship stresses (14%) and isolation (10%). A related group of responses described a life event (other than a relationship) as a precursor to their relapse (15%). Reports of legal problems (e.g., "bingeing prior to prison term") and unemployment figured prominently among these responses.

Psychological precursors to relapse were also relatively frequently reported. Within this category 19% of respondents described emotional factors particularly associated with depression and low self esteem to have precipitated relapse (e.g., "disappointment with myself"). A smaller proportion reported their use to have been a method of coping with pain or stress (13%).

Also commonly reported were accounts emphasising the attraction of drugs (17%). These accounts included the desire to feel the effects of using drugs and responses to craving. For 13% of respondents their use was explained as simply the continuation of a "habit".

A small number of respondents described their use as the result of a reaction to treatment (13%) (e.g., "I felt let down by Odyssey", "I didn't spend long enough in treatment").

Chi-square testing revealed a number of differences across levels with respect to patterns of responding to this question. Categories demonstrating significant differences between levels included "Attraction of drugs", "Continuation of a habit", "Peer pressure" and "Relationship stresses". The Induction and Pre-treatment groups more frequently described "Attraction of drugs" while "Peer pressure" was more frequently described by those attaining levels 2 to 4. "Relationship stresses" were particularly common among Graduates and to a lesser extent Level 4 groups.

Analyses were also conducted to explore for sex differences in responses to this question. These analyses revealed females to be significantly more likely to describe their relapses as a method of "Coping".

LEVEL 4 RELAPSES IN PROFILE.

PAUL: AN UNFORTUNATE ENCOUNTER.

Paul had a long history of conflict with the law beginning at age 11 when he was convicted for an offence related to vanadalism. His first incarceration occured when was 13 when he spent 1 month in Turana following another conviction related to vandalism. The experience appeared to make some impact on Paul as following this, despite a number of convictions (driving and drug use), Paul managed to avoid being reincarcerated. Paul entered Odyssey House aged 20 following a failed attempt to reduce his heroin use in an outpatients program. His main reason for entering Odyssey at that time he described as "fear of being sent to prison". Paul's treatment consisted of one episode of 2.5 years ending in late 1984 following a disagreement with staff. Paul had wanted permission to go out with his girlfriend but this wasn't granted and he came to the conclusion the staff in charge didn't care about his situation. He became angry and left the program. After he left the program he attempted to remain in contact through the then embryonic Odyssey outpatients program but after 8 months he stopped attending. For 2 years following his departure from the program he worked as a car wash manager. Throughout this time he remained drug free drinking only moderately. In the course of managing the car wash he discovered an employee in the act of putting a needle in his arm. "It entered my mind to have a taste" and from this point a period of 4 years of intermittent daily heroin use was initiated. Paul ended up spending 2 terms in prison and at the time of interview was facing charges including theft and resisting arrest.

LEVEL 4 RELAPSES IN PROFILE (CONT.).

MARK: BORED WITH NORMALITY.

Mark entered the Odyssey House program shortly after his 27th birthday. Six months prior Mark had been released on paroie after serving fifteen months in prison for charges related to fraud (this had been Mark's first conviction and incarceration). In the months prior to his admission to Odyssey Mark had been using heroin intravenously on multiple occassions each day. This pattern of use had been occurring for a number of years. Mark recalled his main reasons for entering Odyssey to have been due to increasing difficulties finding money to support his drug use. Mark remained in the Odyssey program for close to two years. Mark was discharged from the program after he was found to have used heroin. At that time Mark was living and working outside of the Odyssey program in the re-entry stage of level 4. Mark had the option of seeking readmission to the program (at the entry level) but felt "angry" with himself and didn't re-enter. Eventually Mark reported that his anger coalesced as determination and for eighteen months after his departure from the program he remained continually employed and drug free. At this time he began using marijuana very occassionally. Five months after this, faced with insecurity relating to his employment, Mark began using heroin on an occassional basis. During this period Mark was retrenched from his employment, his employer blaming lack of work due to the recession. A month after leaving employment Mark reported falling into a despondent apathetic emotional state. At this time he began mixing again with people he knew to be regular users of heroin and from this time his previous habit of regular daily heroin use was reinstated, continuing for a period of seven months. At the end of this period Mark was remanded in custody following fraud charges. Two months later Mark was bailed back into the Odyssey program. Recalling his experience Mark felt that unemployment had not been the major reason for his relapse, although it had been a factor. He gave two other reasons to explain his relapse. Firstly he felt he had inadequate support within the community and recommended the program provide some link to ongoing support for people in his situation. He suggested such support might be provided by attempting to develop associations with groups such as Narcotics Anonymous. Secondly he felt that, in part, his relapse had been "self-inflicted" to the extent that he nursed some desire to return to the excitement of "living on the edge" as a heroin user. He had found himself at times getting bored with normality.

7.4 CRIMINAL INVOLVEMENT.

While Odyssey House is promoted mainly as a drug treatment program much of the program's resources are devoted to interventions with populations that have overlapping involvements with the legal system comprising police, courts and prisons. The analyses below explore the association of treatment in the program with a variety of indexes of criminal involvement.

Analyses were conducted comparing the frequency in each treatment level registering on a number of indices of criminal behaviour. The indices selected for examination included self-reports of illegal income, official records of convictions and periods of incarceration.

7.4.1 Illegal Income.

The most common class of offences at the point of induction to the Odyssey program were those relating to various methods of deriving income to purchase drugs. Interviewed subjects were asked to retrospectively indicate whether they had been receiving illicit income in different periods. In the following examination of illicit income subjects spending the full year in prison were considered unable to receive such income and were hence excluded from the base used to calculate rates of involvement in this activity.

In the year prior to treatment 80% of the 220 responding to this question reported having received at least some level of illicit income. Chi-square testing revealed no significant differences between levels with respect to the percentage reporting illegal income in this period. Repeated measures analyses were conducted to examine the association of treatment with reductions in reported receipt of illicit income.

From the year before treatment to the first year after exit from treatment all levels demonstrated a significant reduction in the percentage reporting receipt of illicit income. By this period rates of reported receipt of illicit income had fallen to 35% aggregated across level groups.

The amount of reduction in rates of receipt of illicit income differed significantly across level groups (testing for level trend revealed a significant linear component, $X^2_{(1, N=220)}=9.1$, one-tailed $p=.003$). Planned comparisons for this period revealed significant differences between three of the six contrasts. Those in the Induction only group reported relatively high rates of receipt of illicit income (69%) in this period. Compared to this group rates were lower among those attaining level 1 (24%), 4 (23%) and for those graduating the program (8%).

From the first year to the second year following treatment exit reported receipt of illicit income dropped further to 29% across the aggregated sample. Reported receipt of illicit income continued to differ significantly across level attainment groups.

Improvements amongst those in the lowest treatment level attainment group suggested the importance of conducting analyses using an outcome baseline controlling for improvements over time amongst those exposed to little treatment.

These analyses suggested that reductions in receipt of illicit income were mainly the result of temporally related improvements also occuring outside of the Odyssey treatment environment. Significant reductions were observed in all groups by the most recent year prior to interview with 27% across the sample reporting receipt of illicit income. There were no significant differences associated with level of treatment attained (the method used to record interview data made it difficult to obtain information relating to the receipt of illicit income in the fourth year following entry to treatment).

The above analyses were based upon self-reports. Further analyses were conducted using official records of convictions and incarcerations to explore associations with treatment level attainment. These analyses are reported below.

7.4.2 Conviction Records.

In an attempt to provide an additional independent method for identifying criminal involvement official conviction records were sought. The most conveniently accessible set of records relating to convictions in Victoria's courts, during the period relevant to this study, were those held by the Victoria Police.

At the time of interview subjects were asked for consent for access to their police records. Of the 255 interviewed 207 or 81% consented to these records being accessed. Analyses revealed no differences in self-reported conviction rates in the year prior to interview for those agreeing to release this information compared to those not agreeing.

Records for consenting interviewed subjects were supplemented with official police data for the non-interviewed subjects. Police conviction information for these subjects was obtained using an analogous procedure to that described above for obtaining official methadone data. As the batching procedure was conducted in March 1993 data were obtainable for 362 subjects (or 85% of the target sample) relevant to their first year following exit from treatment and for 304 subjects (or 71% of the target sample) relevant to the fourth to sixth years following treatment entry. Subjects for whom less than five and a half years had elapsed from treatment entry to the date records were retrieved were eliminated from these analyses.

Details of convictions relating to the period prior to entry to treatment relied upon official police records for consenting interviewed subjects and upon self reports at induction to treatment for the non-interviewed subjects (interviewed subjects not agreeing to the release of this information were excluded from these analyses). Due to the method used to conduct batching it was not possible to identify case information relating to changes in opiate use across the periods analysed. For this reason this data was not analysed using repeated measures procedures. A number of seperate analyses were, however, conducted comparing the same cohort in the year prior to induction and the year following exit. A further set of analyses also compared the three years prior to treatment entry with the fourth to sixth years following entry to treatment. Each of these examinations used procedure CATMOD.

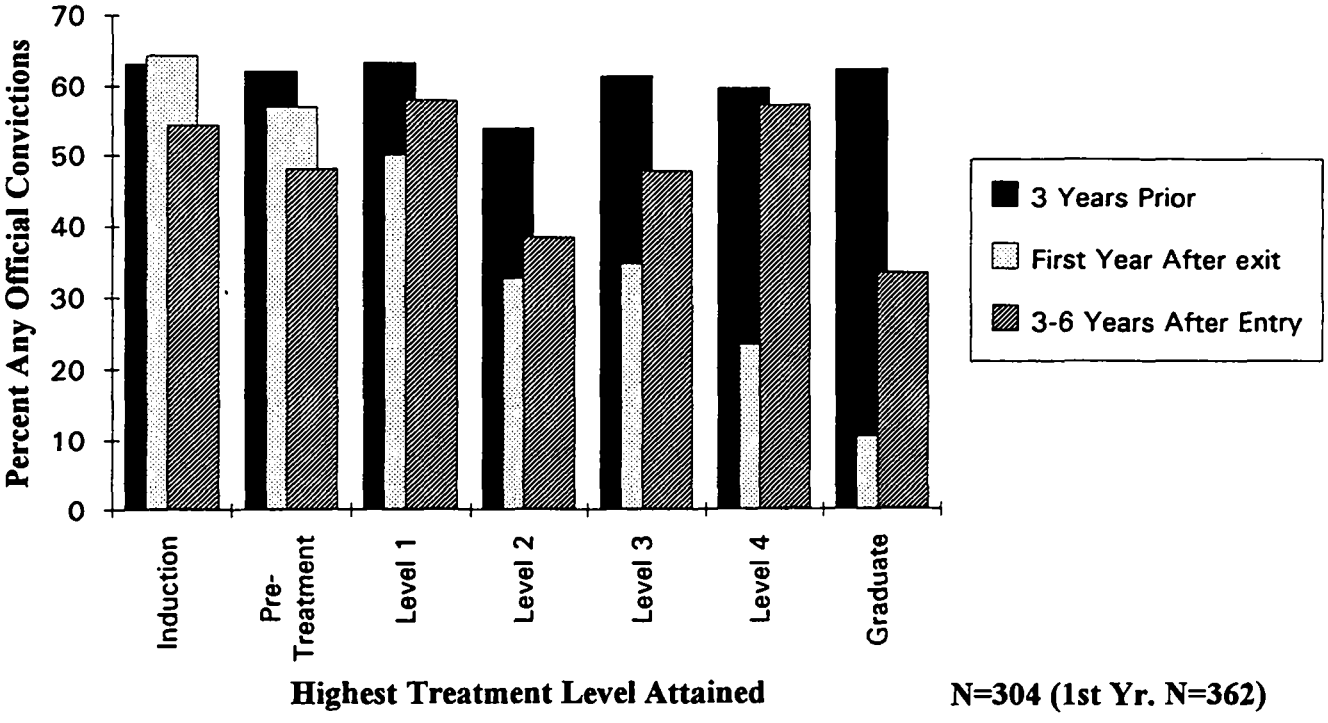

Figure 13: Percentage registering any conviction on official police records across seven treatment levels. Comparing three years prior to treatment entry, year following exit and fourth to sixth years following entry to treatment.

Analyses suggested that reductions in rates of convictions were associated with treatment level attainment particularly in the first year following exit from treatment. Analyses for the three years prior to treatment entry demonstrated no significant differences across level attainment groups in conviction rates. Through this period 61% aggregated across levels registered one or more convictions.

From the three years prior to treatment to the year following exit the conviction rate was lower at 40% Given the smaller span of years examined in the post treatment period the finding of a reduction was not unexpected. Analyses using CATMOD revealed that conviction rates were significantly lower for those attaining higher treatment levels compared to others in this period. Compared to the induction group (64% convicted) there were fewer convictions in the year following treatment for all levels attaining level 2 or higher. Conviction rates were particularly low for Graduates in this period.

In an attempt to match the periods associated with comparisons a further analysis was conducted exploring conviction rates in the fourth to sixth years following entry to treatment. When this period was examined a slightly higher rate of convictions (48%) were observed; largely as a result of higher conviction rates within the upper treatment levels. Partly as a result of these changes there were no significant differences across treatment level attainment groups with respect to their conviction rates in the fourth to sixth year following entry to treatment.

A final measure of criminal involvement examined in the present study was based on official reports of incarcerations. These analyses are pesented below.

7.4.3 Incarceration Records.

Official details of incarcerations are recorded in Victoria by the Office of Corrections (OOC). Following approval of the research protocol by the OOC, together with a criminal record clearance for those conducting the study, access to incarceration records was granted. Access arangements enabled dates of entry and exit from Victorian prisons to be recorded for each of the subjects entered into the target sample (including non-interviewed subjects).

OOC computerised records were commenced in early 1985 (records were retrieved from this time until the date of access in early 1993). Induction information prior to 1985 is retrievable through manual search facilities within OOC archives. Resources were, however, unavailable to support the cost of such a manual search. For this reason for the analyses that follow incarcerations occurring prior to entry to the Odyssey program were based on self reports recorded on Odyssey treatment induction records.

Figures 14 & 15 compare rates of incarcerations for the Induction group (the lowest level attainment group) against rates for the Level 4 and Graduate groups (the highest treatment level attainment groups) for all years prior to first admission to the Odyssey program and for the six years after this first admission. The second figure compares incarceration rates in the Pre-treatment group against each of the intermediate levels from 1 to 3.

A number of trends are evident from the above figures. One of the more prominent trends for the aggregated sample over the years examined was that of a decline in rates of incarceration associated with increasing time from induction. For those exposed to little treatment (induction and pre-treatment) rates of incarceration demonstrated a pattern of stability or slight increase in the first and second years after their first entry to Odyssey treatment. This was then followed by an apparent process of decline from the years prior to treatment entry to the years after.

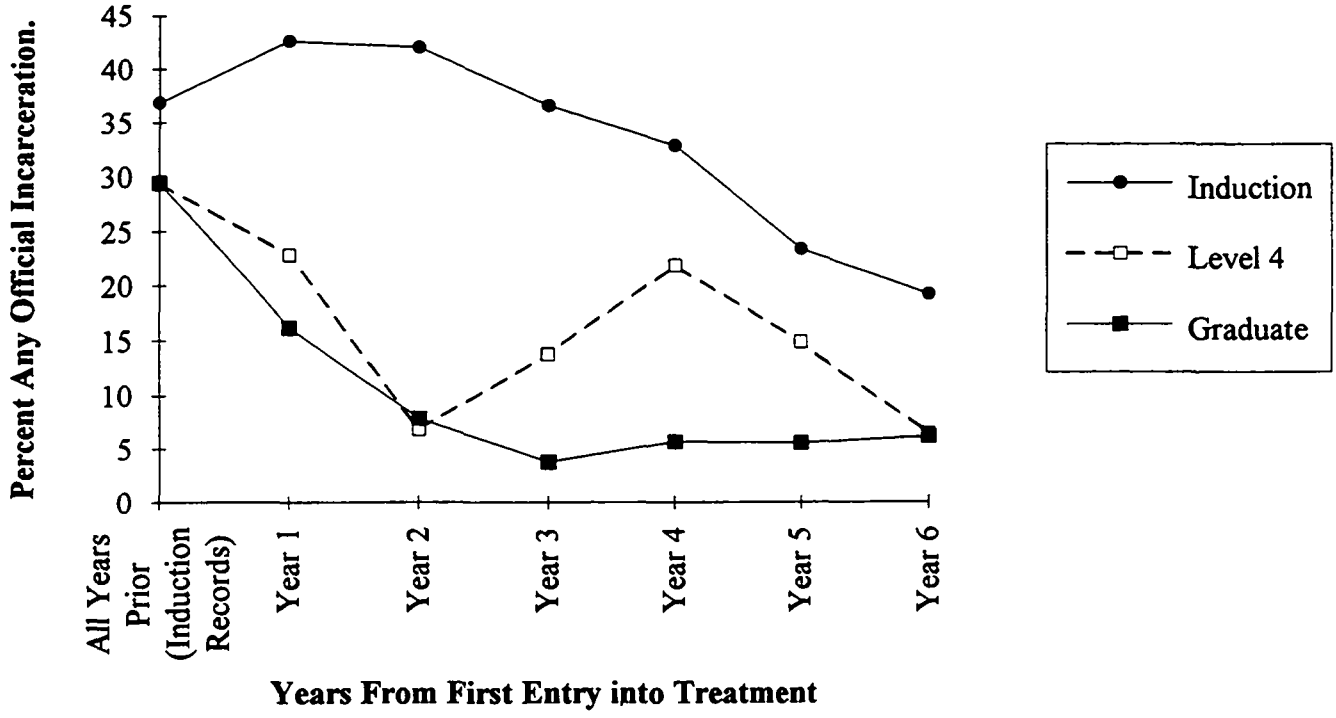

Figure 14: Official incarceration rates for 6 years following entry to Odyssey House: Induction group compared to Level 4 and Graduate groups.

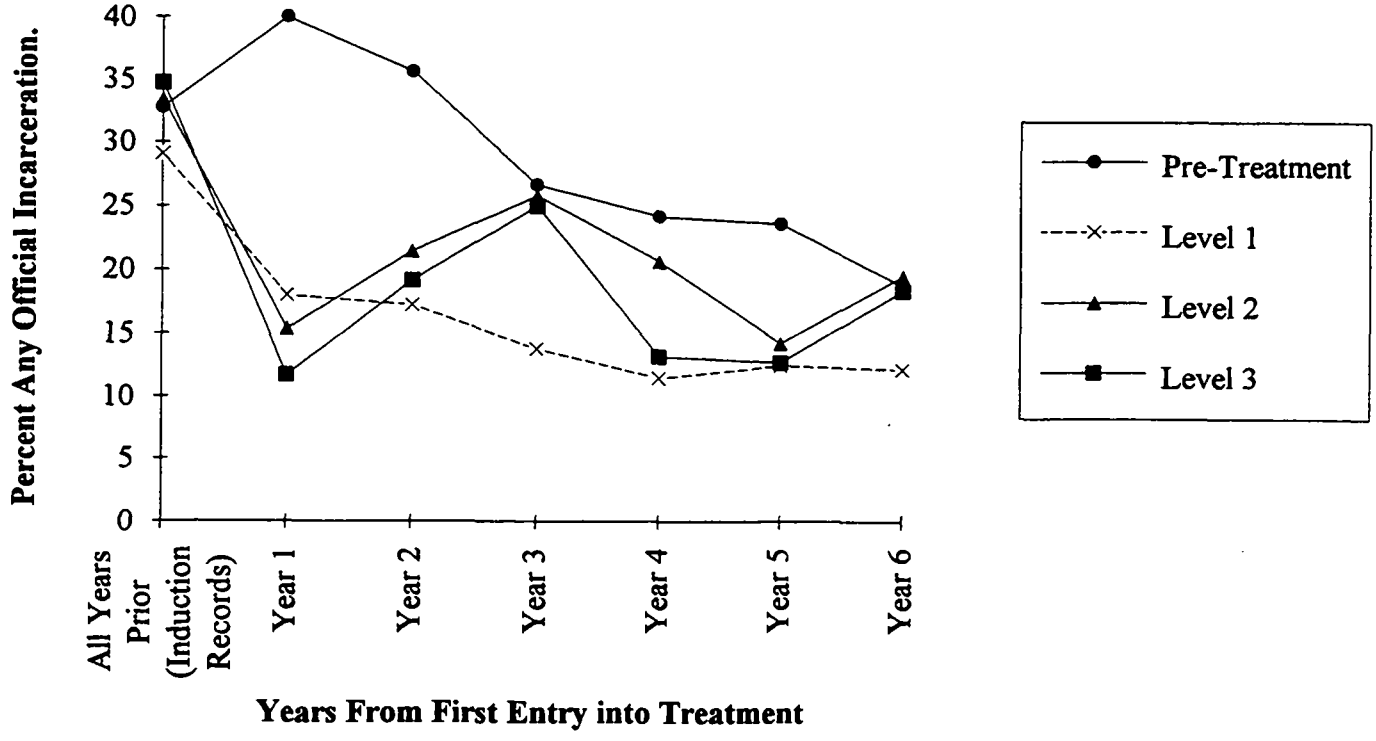

Figure 15: Official incarceration rates for 6 years following entry to Odyssey House: Pre-treatment, and Levels 1 to 3.

For those experiencing more exposure to treatment (levels 2 to 4) there was a period of reduced incarceration rates (apparently associated with the period of involvement in the therapeutic community) followed by a slight rise in rates (associated with the period after treatment exit). Following these post treatment increases, incarceration rates returned to their overall pattern of declining incidence over time.

Chi-square analyses confirmed there were no significant differences across the seven treatment level attainment groups in reported incarceration rates in all years prior to first admission to treatment with 32% across the aggregated sample reporting at least one previous incarceration. Repeated measures were based on reported incarceration rates in the fourth year following first admission to treatment. A separate analysis compared the year prior to treatment with incarceration rates in the fourth to sixth years following first admission. Each of these analyses were conducted using the seven treatment attainment levels as the independent variable.

Analyses revealed that for both the incarceration rates in the fourth year following first admission to treatment and in the fourth to sixth years following first admission reductions occurred for all subjects regardless of the level they had attained in the Odyssey program. By the fourth year aggregated incarceration rates had reduced to 19% and for the fourth to sixth years following first admission to 26%.

7.4.4 Composite Measures.

The above measures provided some indication of changes in criminal behaviour associated with the program. In an attempt to further aid interpretation an index of criminal involvement was developed by combining each of the above discrete measures. This index was scored for any self-reported receipt of illicit income, any officially recorded conviction or any period of incarceration at any time in the years analysed. For the incarceration and conviction measures official information was used where possible. In cases where official information was not available self-reports, as recorded in the follow-up information, were used.

Information relating to illicit income was available only for those that had been interviewed at follow-up and was not coded such as to enable behaviours in the fourth year from entry to treatment to be easily identifiable. For this reason analyses of outcomes using the composite index were restricted to the most recent year prior to interview and to the first and second years following exit from treatment.

Figure 16 below presents information relating to outcomes on the composite index for each of the level attainment groups.

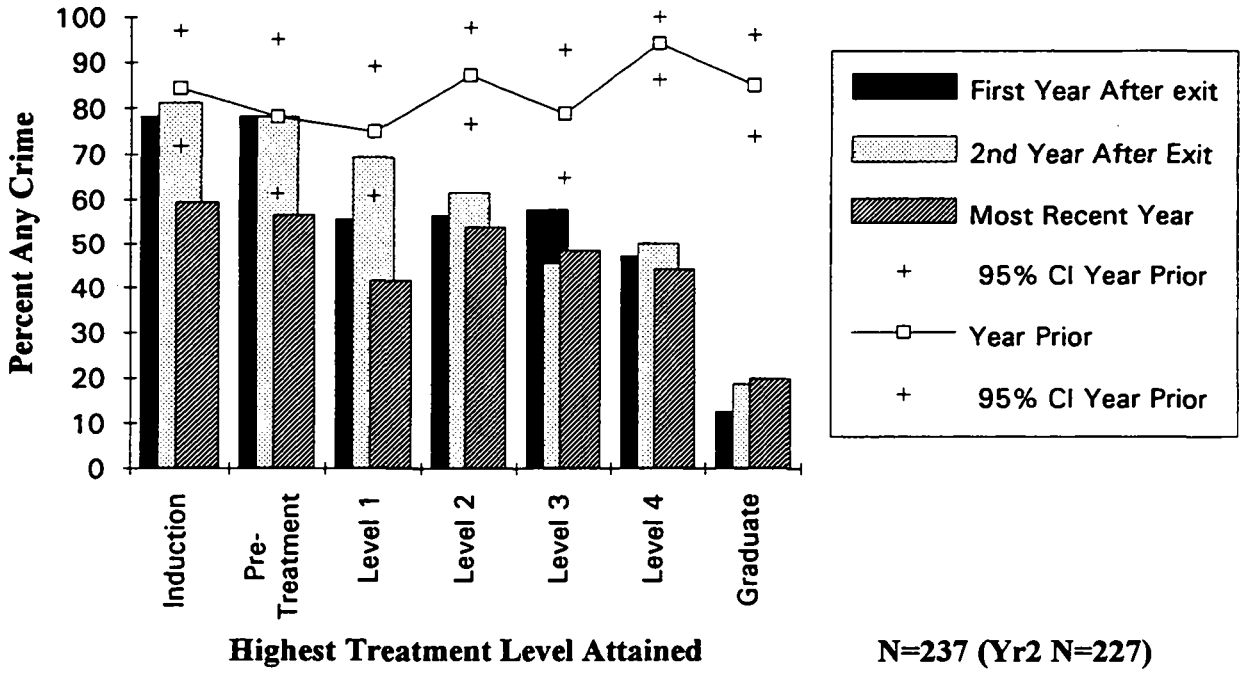

Figure 16: Percentage any official incarceration records, police conviction records or self-reported illicit income.

Results for analyses conducted with this index demonstrated no differences in the year before treatment (with 84% registering some level of criminal involvement). Chi-square analyses revealed no differences in rates of criminal involvement across treatment level attainment groups in this period. From the year prior to interview to the first and second years following exit from treatment the percentage registering on the crime index reduced significantly (to 53% and 57% respectively). Repeated measures analyses revealed significantly greater reductions associated with higher level attainment in each of these periods.

From the year before treatment to the year prior to interview (an average of 5.6 years after entry to treatment) further decreases were demonstrated. By this period rates of criminal involvement across the aggregated sample had almost halved to 45%. Once again the amount of decrease differed significantly across level attainment groups. Planned comparisons for the year prior to interview revealed higher rates of criminal involvement in the Induction group (60%) compared to the Graduate group (20%).

The above measures examined the association of level attainment in the program with indices related to criminal involvement. Drug treatment aims not simply to reduce involvement in these activities, however, but also to promote socially productive lifestyles. The following analyses examine the association of the program with changes in levels of employment.

7.5 EMPLOYMENT.

The association of the program with employment was examined by comparing the number of weeks ex-residents reported having been employed in the years prior to and following treatment. For these analyses part-time employment was converted to proportions of full-time equivalent weeks employment and Australian Bureau of Statistics (1990) definitions of employment were used.

Inspection of the data for reported employment revealed it to approximate the normal distribution (skewness and kurtosis below 1.7). For this reason SAS (1990) General Linear Modelling procedure 'GLM' for repeated measures was selected to test for across treatment changes.

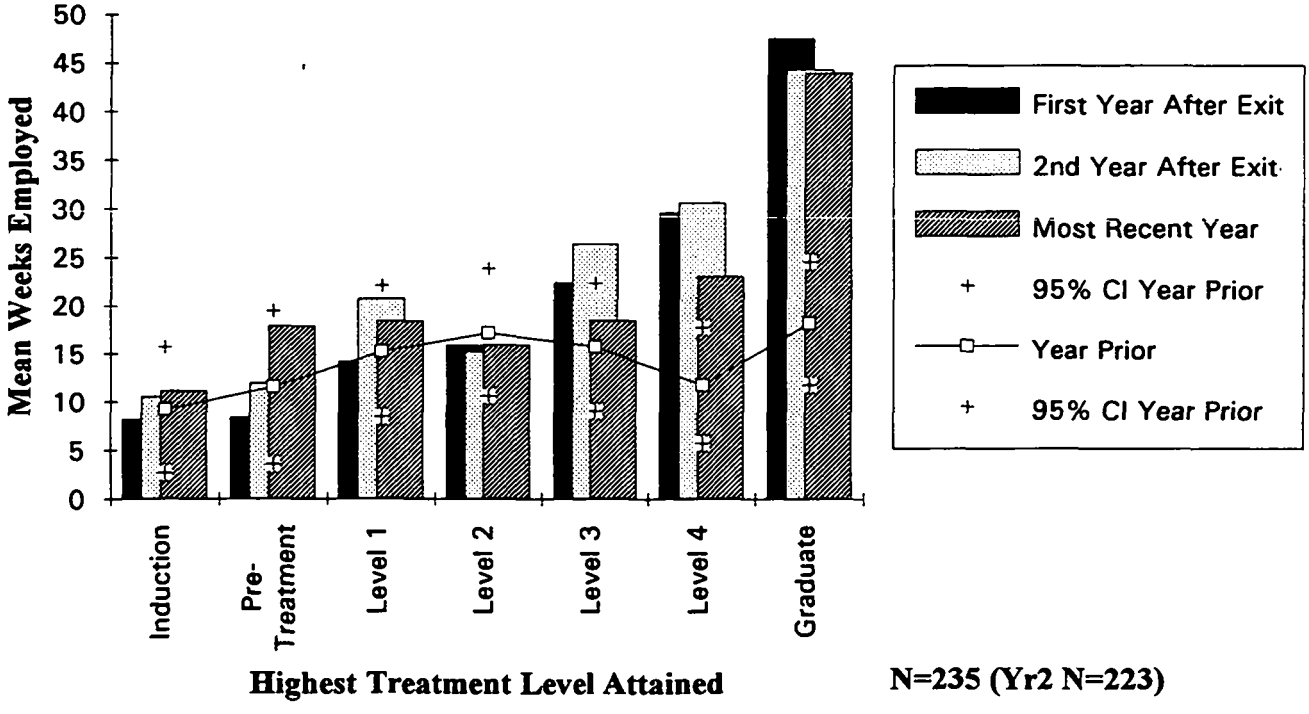

Figure 17: Mean weeks equivalent full-time employment.

Analyses revealed no significant differences across levels in the year before treatment. The average period of employment during this year was 15 weeks (*SD*=20). From the year before treatment to the year prior to interview there was an overall increase in amount of time employed (rising to an aggregate mean of 22 weeks, *SD*=23). Increases in employment were associated with higher level attainment (analysis of level trends revealed significant effects for only the linear component, $F_{(1, 234)}=22.7$, one-tailed $p<0.0001$).

Analyses suggested increases in employment were particularly associated with graduation from the program. Planned contrasts were conducted and revealed significant differences only between the Induction group (average employment 11 weeks) and the Graduate group (average employment 44 weeks) in the year prior to interview.

The above analyses provide details regarding changes in the mean length of time subjects were employed in each year of outcome. In an attempt to assess more clearly changes in rates of employment analyses were also conducted examining subjects employed for half the year or more in each of the outcome years. Defining employment in this way followed the procedure developed by Hubbard et al., (1989). Figure 18 presents details of these analyses.

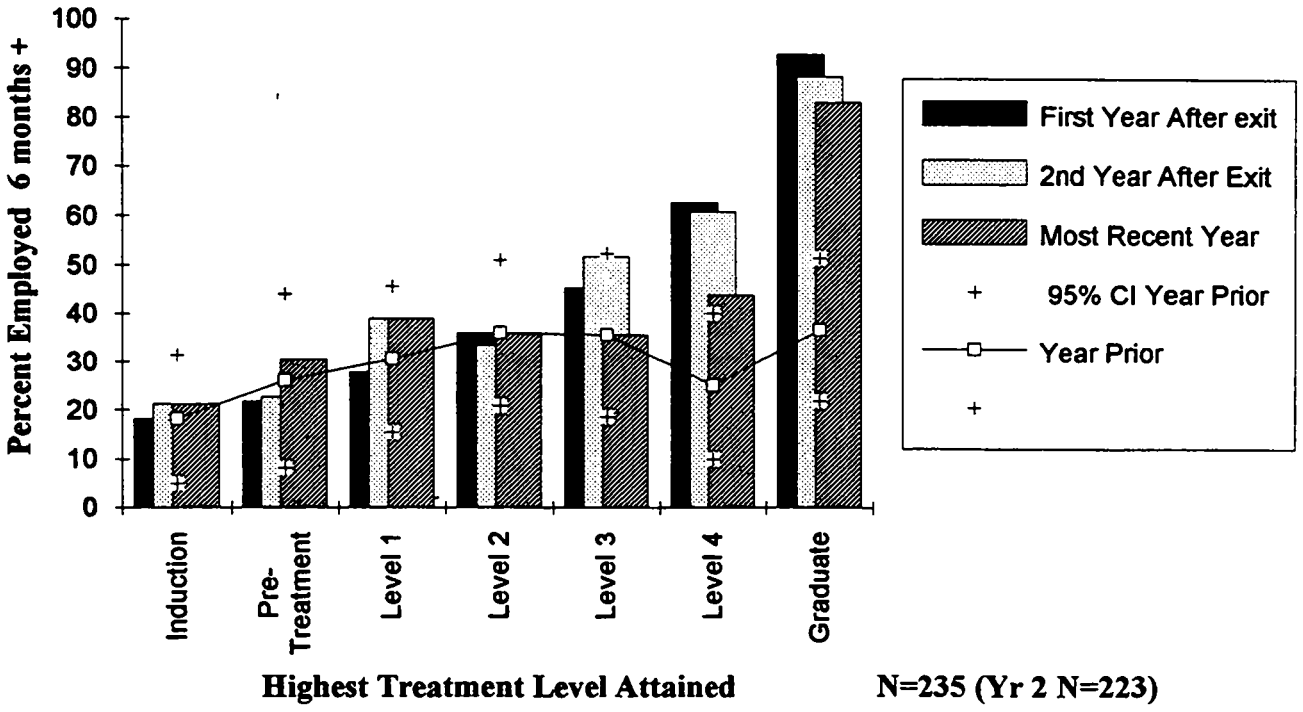

Figure 18: Percentage employed 6 months or more.

Analyses revealed that in the year prior to their first entry to treatment 30% of residents aggregated across all level groups had been in employment for at least half the year. Chi-square testing revealed no differences across level groups in these rates in this year. By the first year following exit from treatment employment rates had increased significantly to 46%. This increase was associated significantly with higher level attainment in treatment (analysis of the repeated measures model revealed a significant effect for only the linear component of the across level trend, $X^2_{(1, N=235)}=38.8$, one-tailed $p<.0001$). Planned contrasts revealed significant differences for three of six comparisons. The percentage in the Induction group employed for at least half the year was low in this year (18%) in comparison to all other levels from 3

and above. A similar pattern of outcomes applied to employment in the second year following exit from treatment.

Evidence suggested that despite high levels of unemployment in the general economy the employment gains made by those attaining higher levels in the Odyssey program tended to be sustained in the years to interview.
Evidence suggested that despite high levels of unemployment in the general economy the employment gains made by those attaining higher levels in the Odyssey program tended to be sustained in the years to interview. In the year prior to interview 43% of respondents reported employment for at least half the year. These rates remained significantly above those reported in the year prior to treatment entry. Employment gains were again significantly associated with higher level attainment (with only the linear component of the across level trend significant, $X^2_{(1, N=235)}=18.0$, one-tailed $p<.0001$). Significantly higher levels of employment were indicated in the Graduate groups (83%) compared to the Induction group (21%).

7.6 TIME SPENT IN TREATMENT.

In previous research the most common measure of amount of treatment has been time spent in treatment. For comparative purposes the present study also examined time spent in treatment. Seven time in program (TIP) bands were selected for examination; less than seven days, seven days to less than three months, three months to less than six months, six months to less than one year, one year to less than two years, two years to less than two and a half years and more than two and a half years. These periods were selected based on proposed minimum critical treatment criteria (e.g., De Leon et al., 1972; Simpson & Sells, 1982; Hubbard et al., 1989), on the basis of pragmatic considerations (relating to the desirability of evenly distributing sample sizes across cells) and on the basis of statistical considerations (relating to the desirability of equalising degrees of freedom for measures of level attainment and time in treatment measures).

Analyses using TIP as the independent variable revealed a similar pattern of outcomes to that described above for level attainment (although effect sizes tended to be smaller). When outcomes were measured from the date of exit from treatment improvements tended to be linearly associated with TIP. When outcomes attempted to control for the time elapsing from treatment entry effects were of a weaker magnitude. Despite the reduction in their magnitude significant effects for the linear component of TIP were observed for injecting drug use and employment when outcomes were based on the most recent year prior to interview (Toumbourou, 1994, provides details of these analyses).

The evidence described above demonstrated that the two measures of amount of treatment used in this study demonstrated positive associations with outcomes. Given the advantages of both attaining a higher level in treatment and of spending more time in treatment it seemed reasonable to expect that those spending longer in a particular level attainment group would demonstrate advantages at treatment outcome. To investigate this proposition an additional dichotomous independent variable was developed by identifying those remaining for the median time or longer in their level attainment group.

Analyses utilising this measure revealed that for most domains additional time spent within a particular level failed to demonstrate significant differences (Toumbourou, 1994). Significant effects were demonstrated, however, in two analyses; one using official conviction records the other self-reports of employment outcomes.

When official conviction records for the fourth to sixth years following entry to treatment were examined the main effect of additional time in treatment was found to be significant ($X^2_{(1, N=304)}=7.5$, one-tailed $p=.006$). The direction of differences in this period were, however, the reverse of expectations. The aggregated group remaining for the median time or longer in their level demonstrated a higher rate of convictions (55%) compared to those remaining for less than the median time (40%). These differences appeared to be stable across level groups. The interaction effect of additional treatment and highest level attained was not significant[13].

Analyses conducted to examine improvements in employment (employed 26 weeks or more) in the most recent year also demonstrated a significant effect for additional time spent in treatment ($X^2_{(1, N=235)}=11.8$, one-tailed $p=.05$). The direction of this effect was, once again, the reverse of expectations: Fewer of those remaining for the median or longer in treatment were employed (38% were employed 26 weeks or more) compared to those remaining for less than the median time (48%).

The above analyses suggested that it was the attainment of level progress that was of particular importance in predicting treatment outcomes. Level progress occurring over longer periods of time was associated with either few differences or disadvantages at outcome. Similar conclusions were suggested by regression analyses competitively contrasting the predictive utility of level attainment against time in treatment. Details of these regression analyses are provided in the sections that follow.

7.7 REGRESSION ANALYSES.

7.7.1 Regression Analyses of Level Attainment and Time in Treatment.

Separate analyses, presented earlier in this report, demonstrated differences on a number of the independent variables examined in this study. For example factors differentiating treatment level attainment included age at induction and being legally bailed to treatment. In addition to these factors a range of measures identified through the delphi study (Toumbourou & Hamilton, 1993) and within the literature were considered important to investigate with respect to their ability to predict experience in treatment. The relative contribution of each of these factors was examined using seperate regression analyses to predict the highest level attained, the total time spent in treatment and additional time spent within levels.

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[13] It is important to note that this effect was partialy explained by a higher pre-treatment conviction rate for those spending the median time or longer in their level.

These analyses sought to identify predictors based both on single variables but also, to increase the range of predictors, to identify predictors formed through two variable interactions. Eleven variables were examined in these analyses. The variables examined were sex, age at admission, WAIS measured total intelligence (education was used to estimate IQ in cases where data were missing[14]), any previous incarcerations, any convictions prior to age 16 (both this and the previous measure were based where possible upon official information), any bail conditions applying at admission to treatment, any treatment experiences prior to entry, any children accompanying resident into the facility, any previous suicide attempts and a diagnosis of personality disorder. A total of fifty-five two-variable combinations were formed from the above eleven variables.

In an attempt to reduce the number of interactions requiring further testing an initial set of analyses were conducted using SAS procedure GLM. All two-variable interaction terms demonstrating an association with a probability above .15 with each of the three predicted variables (level attainment, time in treatment or additional time within levels) were eliminated from further analyses.

At the next step in analyses interval variables were disaggregated into dichotomous items. Decisions regarding disaggregation attempted to provide both clinically useful categories and also some equivalence in cell sizes. Age at induction was divided into four groups of approximately equal cell numbers; 18 to 20, 21 to 25, 26 to 29 and 30 and higher. Total WAIS intelligence was divided into three approximately equal sized groups; less than 90, 90 or more but less than 100 and 100 or more. Duration of opiate use was modified to measure whether or not opiates had been used for the median time of 5 years or more. Each of the interaction terms retained through the earlier steps were again examined using SAS procedure GLM, but in this case using the above dichotomous items. Predictors with a probability of association above .15, in each of the three analyses, were once again eliminated from the next step.

Interaction terms retained through the above step, together with the full range of sixteen discrete variables, were finally entered into the SAS logistic regression procedure using the step-wise selection option and a $p \leq .05$ inclusion criteria. In terms of their predictive utility the most successful of these analyses were those predicting graduation and the attainment of level 1 or above.

In the first analysis predictors of the highest level attained were examined. This analysis returned four variables significantly predictive of highest level attainment ($X^2_{(4, N=293)}=37.3$, two-tailed $p<.0001$). After adjusting for the effect of the three other predictors, those with a WAIS intelligence of 100 or above were two and a half times more likely to attain a higher level in the program (odds ratio adjusted for other predictors (OR) 2.5, 95% confidence interval [1.6 - 4.0]). Bringing children into the program also functioned to, independently, more than double the odds of higher level attainment (OR 2.3, [1.1 - 5.1]). Two negative predictors of higher level attainment were also found to provide independent predictive utility. Being below age 21 and not

[14] Testing had revealed a reasonable correlation between regression scores for education and measured intelligence ($r=.47$, $p<.0001$, $N=176$).

on bail presented a five-fold reduction in ones' probability of attaining a higher level (OR 0.2, [0.1 - 0.5]). Having been aged between 21 and 25 with previous incarceration experiences at induction more than halved the probability of attaining a higher level (OR 0.4, [0.2 - 0.7]). The regression equation formed through this procedure demonstrated a relatively low level of predictive utility, across the seven level attainment groups, with only 48% of matched pairs concordant (Somer's D=.25).

Separate regression analyses conducted to predict attainment of particular levels were more fruitful. The most successful of these was a step-wise logistic regression which significantly predicted graduation through the selection of four independent predictors ($X^2_{(4, N=275)}=34.5$, two-tailed $p<.0001$). The four predictors were WAIS intelligence of 100 or above (OR 5.7, [2.4-13.4]), having used opiates for five years or more while also not having been on bail at induction (OR 5.1, [2.0-13.2]), having had previous experience with treatment (OR 2.8 [1.2-6.2]) and having an IQ above 90 but less than 100 while also having been on bail at induction (OR 3.0 [1.0-9.0]). The regression equation derived from the above predictors successfully classified 86% of the observed cases.

Another analysis having predictive utility was that describing attainment of level 1 or above. Attainment of level 1 or above was optimally predicted by two negative indicators ($X^2_{(2, N=275)}=14.0$, two-tailed $p<.001$). Having been previously incarcerated prior to induction while also having either an IQ of less than 90 (OR 0.35 [0.2-0.7]) or an IQ between 90 and 100 (0.3 [0.1-0.7]) each independently reduced the odds of attaining level 1 or above by around a third. The derived regression equation managed to successfully classify 80% of the observed cases.

Somewhat less successful with respect to predictive accuracy was an analysis predicting attainment of level 3 or above. Only 65% of observed cases were successfully predicted by the regression equation derived through this analysis. Attainment of level 3 or above was optimally predicted by three variables ($X^2_{(3, N=270)}=16.3$, two-tailed $p<.001$). Having an IQ above 100 (OR 1.9 [1.1-3.3]) or having been in a treatment program prior to entry to Odyssey (OR 1.8 [1.1-3.1]) each independently functioned to almost double the odds of attaining level 3 or above. Having been aged between 21 and 25 with previous incarceration experiences at induction more than halved the probability of attaining level 3 or above (OR 0.4, [0.2 - 1.0]).

Two additional analyses were conducted to investigate predictors of other measures of amount of treatment received. The first analysis examined predictors of amount of time spent in treatment. A second analysis examined predictors of those remaining for the median time or longer in their level attainment group.

A regression equation significantly predictive of time spent in treatment ($X^2_{(4, N=287)}=27.3$, two-tailed $p<.0001$) was obtained through the selection of the same set of four variables predicting level attainment. Two positive predictors were intelligence of 100 or higher (OR 2.3, [1.4 - 3.6]) and bringing children into the program (OR 2.3, [1.1 - 4.9]). The two negative predictors were being below age 21 and not on bail (OR 0.3 [0.1 - 0.8]) and being aged between 21 and 25 with previous incarceration experiences (OR 0.5, [0.3 - 1.0]). The derived regression equation once again failed to reveal substantial predictive utility with only 47% of matched cases concordant (Somer's D=.23).

The final regression analysis attempted to predict those remaining for the median time or longer in their level attainment group. Although significantly predictive ($X^2_{(3, N=270)}=16.5$, two-tailed $p=.002$) this analysis was the least successful in this series with respect to its predictive utility. Three negative predictors of spending a higher amount of time in levels were obtained. Those with a duration of opiate use of 5 years or more were about half as likely to spend the median time or more in their level (OR 0.5, [0.3-0.8]). Other negative predictors were having an IQ from 90 to less than 100 and no previous incarceration experience (OR 0.4, [0.2-0.7]) and being aged between 26 and 29 and also having used opiates for less than 5 years at induction (OR 0.4, [0.2-1.0]). The derived regression equation had a predictive probability close to chance (only 55% of observed cases were accurately classified). Following the finding that having been convicted in the three years prior to treatment entry was predictive of longer time within level groups (7.6) this variable was added as a predictor in these analyses but failed to demonstrate independent effects.

7.7.2 Regression Analyses of Outcomes.

In an attempt to assess the contribution of treatment attainment against other factors apparently related to treatment outcomes a further series of logistic regression analyses were conducted. Across the three domains examined level attainment was the most important predictor of outcomes in the year following exit from treatment but was less important when outcomes were examined in the most recent year prior to interview.

Predictors included in these analyses were sex, previous incarcerations, convictions prior to age 16, bail conditions applying at admission to treatment, treatment experiences prior to entry, children accompanying residents into the facility, age at induction divided into the four groups described earlier, total WAIS intelligence divided into three groups and opiate use for five or more years. Behaviour on the predicted variable in the year prior to treatment entry was also entered as a predictor. In addition to these variables each of the two variable interaction measures that had demonstrated significant prediction of either level attainment, time in treatment or additional time within levels were included as predictors.

The final set of variables to be entered into these analyses were those relating to treatment. The treatment measures included in these analyses were dichotomous items measuring non-Odyssey treatment experiences following exit from the program, whether or not residents had belonged to the highest total time in program group (two and a half years or more), median or higher time spent within levels and graduation. Two final variables, each with seven levels, measured total time in program and level attainment. The addition of two variables measuring both time in program and level attainment aimed to ensure time in program and level contributions to outcomes had not been solely explainable either due to the effects of graduation or having been in the the longest time in program group.

The first analysis predicted opiate use in the year following exit from treatment. In this and the other analyses a step-wise selection criteria was once again utilised. Four independent predictors were found to optimally account for opiate use in the year following treatment exit ($X^2_{(4, N=199)}=52.8$, two-tailed $p<.0001$). The first variable selected (having the highest score-test value) was level attainment. Higher level attainment was the most stable predictor of a reduced probability of opiate use in the year following exit from treatment (OR 0.6, [0.5 - 0.7]). Opiate use extending for 5 years or more independently contributed to an increased probability of opiate use in the first outcome year (OR 4.3 [2.1 - 8.9]). Those bringing children into the program evidenced a lower probability of opiate use following treatment exit (0.15 [0.04 - 0.60]) as did those aged 30 or above but not on bail at induction (OR 0.08, [0.008 - 0.83]). The derived regression equation accurately classified 75% of observed cases.

Attempts to predict opiate use in the most recent year prior to interview were less successful. Two variables provided significant prediction ($X^2_{(2, N=199)}=10.3$, two-tailed $p=.01$, 60% correctly classified). Those treated in other programs in the years following exit from Odyssey were more than twice as likely to use opiates in the most recent year (OR 2.1, [1.2 - 3.8]). Those aged 30 or above who had also not been on bail at admission were less likely to be using opiates in this period (OR 0.15, [0.02 - 1.3]).

Regression analyses also found level attainment to be the most important predictor of reduced criminal involvement (indicated by any official incarceration, conviction or self-reported illicit income) in both the year following exit from treatment and also in the most recent year prior to interview. Six independent predictors significantly accounted for criminal involvement in the year following exit from treatment ($X^2_{(6, N=192)}=64.2$, two-tailed $p<.0001$, 77% correctly classified). The most stable predictor of a reduced probability of criminal involvement in the year following treatment exit was higher level attainment (OR 0.6, [0.5 - 0.8]). Other factors independently contributing to a reduced criminal involvement were being female (OR 0.3 [0.1 - 0.7]), being aged between 26 and 29 while also having used opiates for less than 5 years at admission (OR 0.2 [0.05 - 0.6]) and being aged from 18 to 20 at admission (0.3 [0.1 - 0.9]). In this analysis graduation also demonstrated a further independent reduction to the probability of criminal involvement (OR 0.3 [0.07 - 1.0]). Having been bailed to Odyssey at induction independently predicted a higher probability of criminal involvement in the year following exit from treatment (OR 3.1, [1.4 - 7.2]).

In the most recent year three variables significantly predicted outcomes ($X^2_{(3, N=195)}=21.0$, two-tailed $p<.001$, 64% correctly classified). Attaining a higher treatment level was again the most stable predictor of reduced criminal involvement (OR 0.8, [0.7 - 0.9]). Those aged between 26 and 29 who had used opiates for less than 5 years at admission (OR 0.2, [0.05 - 0.7]) evidenced an independently reduced probability of criminal involvement. Those incarcerated prior to admission were more likely to be criminally involved in the most recent year (OR 2.1, [1.1 - 3.9]).

In the year following exit from treatment four independent predictors optimally accounted for those employed for 26 weeks or more ($X^2_{(4, N=186)}=68.9$, two-tailed $p<.0001$, 76% correctly classified). Increased likelihood of employment was most stably predicted by higher level attainment (OR 2.0 [1.6 - 2.5]). Having been employed for 26 or more weeks in the year prior to admission also independently increased the probability of employment in the year following treatment exit (OR 3.9, [1.8 - 8.4]). Two predictors independently contributing to a reduced probability of employment following treatment were being both aged between 21 and 25 and also previously incarcerated at admission (OR 0.2, [0.05 - 0.7]) and having used opiates for 5 years or more at admission (OR 0.3 [0.1 - 0.6]).

Three independent predictors significantly described employment outcomes in the most recent year ($X^2_{(3, N=185)}=33.46$, two-tailed $p<.0001$, 67% correctly classified). Graduating the program was the most stable predictor of employment in this period (OR 12.2, [3.4 - 43.6]). Those spending the median time or more in levels (OR 0.3, [0.15 - 0.6]) and those who had used opiates for 5 years or more at admission (OR 0.4, [0.2 - 0.8]) were less likely to be employed in the most recent year prior to interview.

Findings for the above regression analyses tended to support the importance of level attainment in the prediction of treatment outcomes. Analyses demonstrated level attainment to be the most important predictor of outcomes for each of the domains examined when the year following exit from treatment was examined. Although variables measuring time in treatment were included, level attainment proved the more important predictor in all domains. When the most recent year prior to interview was used to assess outcomes prediction was, generally, less successful. Level attainment remained important in predicting reduced criminal involvement and graduation was important in predicting employment in this period. The evidence suggested, however, that opiate use in the most recent year tended to be influenced by factors outside the domain of the Odyssey program.

CHAPTER 8: CONCLUSIONS.

This report has presented findings from an outcome research project undertaken by a team of researchers examining the Odyssey House therapeutic community in Melbourne, Australia. The study utilised a quasi-experimental design to explore changes associated with different levels of treatment on a range of measures.

8.1. The Effectiveness of Treatment at Odyssey House.

This study found, as hypothesised, that outcomes from the Odyssey program (measured as change from the year prior to treatment to the years following exit from treatment) were associated with amount of treatment received. The pattern of findings associated higher level attainment in the Odyssey program with increases in employment and with decreases in illicit drug use and criminal behaviour.

The present research relied upon uncontrolled or "naturalistic" selection into treatment level groups. Formally it would be correct to say that this type of design cannot prove causality. This is correct because for any observed improvement associated with exposure to treatment there always remains the possibility that this improvement was itself the result of unidentified factors associated with level selection.

Although it is formally correct that the present study cannot prove causality the same statement would be true of other research designs including those utilising experimental allocation to treatment conditions. Following Cook and Campbell (1979) it is argued that the practical potential of field research is less to prove causal connections between events and more so to build an adequate case for such connections by testing the range of plausible challenges that can be raised to refute their existence.

To the extent that the analyses conducted in the present research were unable to refute the hypothesis that the Odyssey program exerted a cause-like influence on a number of treatment outcome domains this hypothesis remains the best working alternative. This research was unable to refute this hypothesis despite the devotion of considerable effort to the identification of treatment level selection factors and non-treatment influences upon recovery. Both quantitative and qualitative research techniques were used in the present study to identify factors having the potential to mediate treatment effects.

A literature review helped to uncover those factors that had previously been empirically identified as treatment moderators. This somewhat limited information was supplemented with a delphi study examining the perceptions of staff and clients having experience with the program (Toumbourou & Hamilton, 1993). Items raised in the delphi were then subjected to empirical investigation.

The delphi study was particularly useful in identifying the importance of client factors as potential determinants of treatment outcome. A number of the factors identified in the delphi study (intelligence, age, previous experience in treatment and duration of opiate use) were subsequently found, using regression analyses, to significantly predict level attainment in the program.

Regression analyses were subsequently conducted examining the independent contribution to treatment outcomes of these factors compared to amount of treatment. These analyses supported the view that level attainment made an important and unique contribution to treatment outcomes.

In the context of the movement to reduce the harm associated with drug use the finding that exposure to the program was associated with a lower proportion of deaths in the follow-up period was important. Official records demonstrated a trend toward proportionally fewer deaths amongst those proceeding to level 1 or above within the Odyssey program. As these trends were not statistically significant the findings reviewed below are based primarily on information for those surviving to interview (although official records include some years of information for those dying prior to the follow-up period).

Improvements in employment demonstrated a reasonably convincing causal connection to level attainment. Increases in the number of weeks ex-residents reported working following treatment were apparent for those attaining the third level in the program with graduates demonstrating a differential level of improvement. In contrast to the improvement in employment outcomes demonstrated for residents attaining higher levels in the program, those exposed to little treatment tended to demonstrate a relatively fixed pattern of low levels of employment in the years before and after treatment. The overall lack of change amonsgst those experiencing little exposure to the Odyssey program supported the view that exposure to the program was associated with increasing employment at outcome.

Reductions in levels of illicit drug use (opiate, tranquilliser and marijuana use) from the year before treatment to the years following treatment were observed. Analysis of these changes revealed a somewhat common pattern associated with treatment level attainment. Graduates typically demonstrated the highest level of reductions and these reductions appeared to be maintained in the years following treatment. Typically analyses revealed reductions in drug use in the years following exit from treatment for non-graduates attaining higher levels. Over time two trends tended to operate resulting in the eventual merging of rates of opiate use amongst non-graduates. Firstly improvements following treatment tended to decay with time for the upper level groups and secondly use of opiates tended to decrease with time for the lower level groups. Non-graduate reductions in use of some substances (particularly tranquillisers) tended to reveal more stability however.

An important component of the Odyssey program is devoted to the management of legal problems. A composite measure of criminal behaviour incorporating any incarcerations, convictions or receipt of illicit income was utilised in this study. Reductions in criminal behaviour were found to occur for all groups regardless of their exposure to the Odyssey program (a number of studies have commented on the tendency for criminal behaviour to reduce in adulthood). Analyses were conducted controlling for the effect of temporal improvements in criminal behaviours revealing higher reductions in criminal involvement for those graduating the Odyssey program compared to other levels.

Before accepting the program's role in reducing criminal behaviour it must be noted that on each of the discrete measures of criminal involvement used in this study improvements appeared to be largely explained by temporal factors independent of exposure to the Odyssey program. When the period of time elapsing between treatment entry and follow-up assessment was matched those in the comparison groups demonstrated similar levels of improvement compared to those attaining higher levels.

These findings applied to a range of independent domains including self-reported rates of illicit drug use and official records of both convictions and incarcerations. Analyses did however demonstrate advantages for those attaining higher levels in the Odyssey program during the period they were in treatment and in the period more immediately following their departure. Incarceration rates (and presumably rates of receipt of illicit income) were reduced during the years spent in the Odyssey program. Rates were also lower following treatment exit for those attaining higher levels in the program according to official records of convictions and incarcerations and self reports of received illicit income.

Self-reports for those that were incarcerated revealed that use of opiates (and other injecting behaviour) remained typically high while in prison. In contrast there were almost no reports of opiates having been used while in the Odyssey program. Given the risks associated with injecting drug use these differences are important. The evidence suggested that despite the similarity of outcomes at the end of the period examined those remaining in the Odyssey program may have derived benefits above those applying to prison populations. The relative advantages of these various alternatives are further discussed below.

8.2 Types of Clients Suited for Treatment at Odyssey House.

An important dilemma for those faced with the task of recommending treatment for heroin users is that of determining an appropriate form of treatment for particular clients. Identification of the details of residents entering the Odyssey program demonstrated a number of common characteristics. Very common characteristics included reports of involvement in intravenous drug use (91%), a primary drug problem relating to opiates (80%) and reported prior convictions (85% of cases). In the face of such homogeneity it should not be suprising that it was difficult to find client descriptors predictive of client progress in the program.

The present study used a number of techniques to attempt to classify client types suited more particularly to the treatment approach adopted by the Odyssey program. Experience as participant observers being inducted into the Odyssey program revealed that there was little descriptive information or assessment at induction. As is the case at other points in the Victorian drug treatment system the clients determination to enter treatment is the main influence on treatment entry. The clients ability to select appropriately may be enhanced in cases where more information is provided.

Clients actions in remaining in treatment or leaving provide one indicator of suitability for treatment. In the present study regression analyses were used to attempt to identify the characteristics of clients more likely to remain to later stages of treatment or to complete treatment. Higher level attainment in the Odyssey program was found to be predicted by factors descriptive of ability to learn (i.e., intelligence) and by life stage and phase factors perhaps associated with addiction career explanations (age, duration of opiate use, legal conditions and responsibility for children). The use of logistic regression procedures to predict discrete treatment events (e.g., graduation) and the incorporation of interaction terms into the range of predictors appeared to offer advantages over regression analyses conducted previously that have assumed predictors to be universal across client groups (e.g., De Leon, 1984). Although the present analyses represent a beginning, in the absence of replication across separate samples generalising from the present predictors to other therapeutic community treatment populations should be avoided.

8.3 Effectiveness Compared to Other forms of Treatment (Treating Similar Clients).

An important question still actively pursued by researchers is that of the relative effectiveness of different forms of treatment. This question can be restated in the present study to ask how outcomes from the Odyssey program compared with those for alternative programs servicing similar client groups.

In an attempt to provide some information relating to this issue comparisons were conducted assessing outcomes from the Odyssey program against available published information. As comparable Australian studies have not been published comparisons reported below were conducted using US information. As the Odyssey sample primarily reported problems related to the use of heroin studies reporting treatment outcomes for the US cohort of primary heroin users treated in the early 70s were preferred.

Table 6 and Figures 19 and 20 present details of comparisons for sub-samples from the present study against findings for the Drug Abuse Reporting Program (DARP - Simpson and Sells, 1982) and a prospective study conducted by Bale, Van Stone, Kuldau, Engelsing, Elashoff and Zarcone (1980). The Odyssey population appeared broadly comparable to the DARP sample but appeared less well educated and more criminally involved compared to the sample examined by Bale and associates. In addition to these differences the methadone sample examined by Bale and associates were also more likely to have experienced other treatment programs prior to their entry to Bale's study and were in all cases veterans. These differences were likely to have explained some of the improved outcomes noted in the Bale study.

Table 6: Comparison of findings for the Melbourne Odyssey House program compared to findings from selected previous studies (Comparisons limited to males using heroin on a daily basis in 3 months prior to admission).

VARIABLE	% PRE-TREATMENT	% CHANGE FOLLOWING TREATMENT
Any heroin use in the past month (or jail)?	Prior to Admission	Year after entry.
(Comparison data from Bale et al., 1980).	Methadone 100% Other TC 100% Odyssey 100%	Methadone -53% Other TC -48% Odyssey -42%
Any daily use of opiates?	2-3 months prior	Year after exit.
(Comparison data from Simpson and Sells, 1982).	Methadone 100% Other TC 100% Odyssey 100%	Methadone -74% Other TC -61% Odyssey -36%
Any use of opiates?	2-3 months prior	Year after exit.
(Comparison data from Simpson and Sells, 1982).	Methadone 100% Other TC 100% Odyssey 100%	Methadone -44% Other TC -42% Odyssey -26%
Any convictions?	All years prior	Year after entry.
(Comparison data from Bale et al., 1980).	Methadone 80% Other TC 80% Odyssey 70%	Methadone -58% Other TC -50% Odyssey -37%
Any jail years prior and/or in jail at 1 year?	All years prior	In jail at 1 year?
(Comparison data from Bale et al., 1980).	Methadone 43% Other TC 43% Odyssey 70%	Methadone -33% Other TC -30% Odyssey -52%
Any jail?	All years prior	Year after exit.
(Comparison data from Simpson and Sells, 1982).	Methadone 75% Other TC 83% Odyssey 70%	Methadone -47% Other TC -50% Odyssey -31%
Employed 6 months or more?	Year prior.	Year after exit.
(Comparison data from Simpson and Sells, 1982).	Methadone 33% Other TC 20% Odyssey 33%	Methadone +24% Other TC +41% Odyssey +2%

In order to make the comparisons sub-samples were selected from the Odyssey follow-up data fitting the client descriptions reported by Bale et al., (1984) and Simpson and Sells (1982). Both of these studies referred exclusively to males using opiates in the months pior to treatment admission. As each of the comparion studies were prospective all treatment admissions were included. To adjust for this difference findings for the Odyssey sub-sample were reweighted using the population profile of all post-induction admissions remaining 10 days or longer in treatment. This last criteria referred to the minimum time used to define "in treatment" in the Bale et al., (1984) study. It was assumed that a similar time period would have been required for Simpson and Sells (1982) to have conducted their first in treatment assessment.

Compared to results reported for both the DARP study (Simpson and Sells, 1982) and the study conducted by Bale et al., (1980) comparable findings for the Odyssey program demonstrated slightly lower improvement rates. Poorer outcomes for the Odyssey program appeared to be mainly due to the demonstrated effects of treatment in the program being applied to a relatively small proportion of the total population entering the program.

How effective was the Odyssey program compared to programs of comparable length? In an attempt to explore this question outcomes from the program were compared to those reported previously for the Phoenix House program running in New York (De Leon, 1984). As the Phoenix study had attempted to examine the association of outcomes with time spent in treatment sub-samples were selected for these analyses stratified to parallel the Phoenix House time in treatment bands.

There were a number of reasons to support this comparison as an appropriate one. Firstly the pattern of presenting drug problems evident in each program was basically similar with 84.0% of the Phoenix population (De Leon, 1984) as against 80.0% of the Odyssey population reporting an opiate as their primary drug problem at admission. Secondly the psychological profile of male and female Phoenix residents (as reported by De Leon, 1984, Table A3) appeared to be very similar to those for the Odyssey population (Appendix Table A2).

Analysis revealed that when the Odyssey program was competitively compared to indices reported previously for a study of the 1970-71 cohort exiting the Phoenix House program outcomes were generally comparable. Outcomes appeared poorer however for the non-graduates in the Odyssey program completing 20-26 months of treatment compared to those for the Phoenix program. Although only a small subset of the data available from the present study could be utilised in the Phoenix House comparison subsequent analyses confirmed the findings of a reduction in improvement for the longest staying non-graduate residents. Analyses (not reported here) revealed residents remaining above the median time in treatment at each level tended to be more frequently registered on police conviction records or to be not employed following treatment (Toumbourou, 1994).

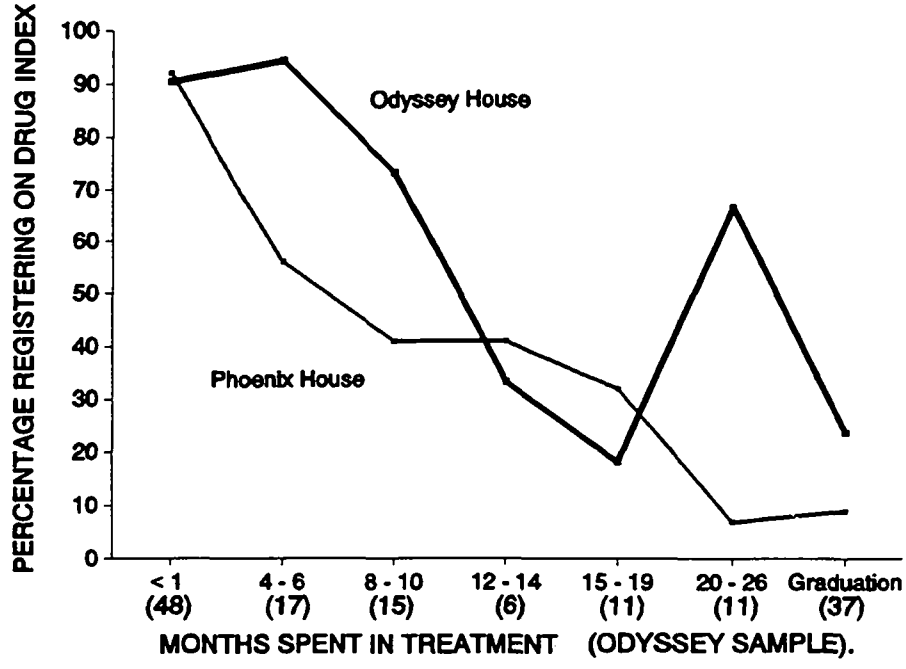

Figure 19: Comparative outcomes on De Leon's (1984) Drug Index: Odyssey House Melbourne compared to 1 year outcomes for Phoenix House New York.

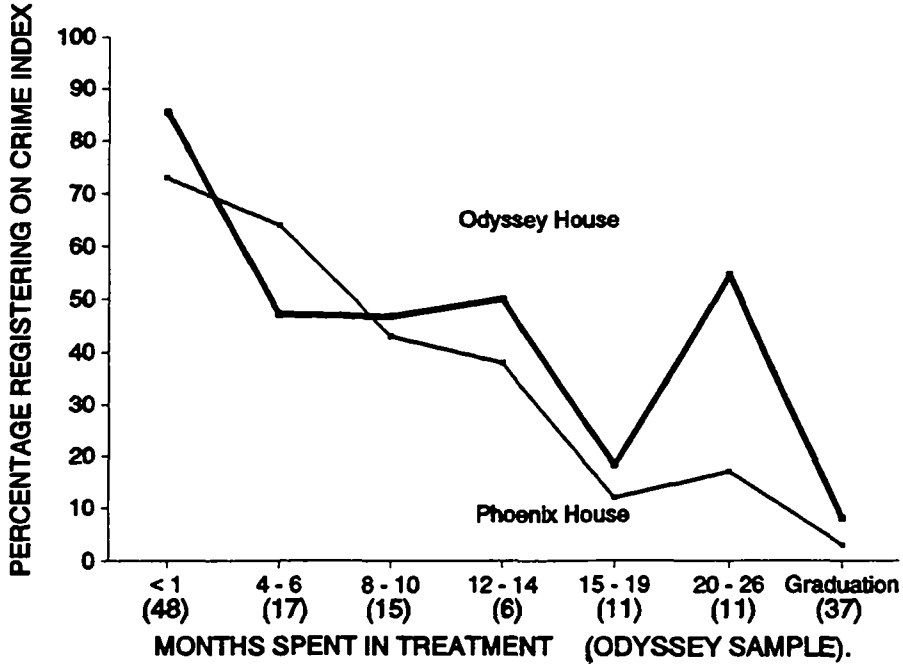

Figure 20: Comparative outcomes on De Leon's (1984) Crime Index: Odyssey House Melbourne compared to 1 year outcomes for Phoenix House New York.

8.4 Searching for The Effective Components of Therapeutic Community Treatment.

A fundamental contention guiding the present research was that the level system represented an important component of therapeutic community treatment. Evidence for this proposition was obtained from a number of sources. Regression analyses competitively assessing the contribution of level attainment and time in treatment to outcomes tended to emphasis the predictive importance of level attainment. Further support for the importance of the level system was derived through the delphi study where both staff and residents tended to regard aspects of the level system to be among the most important aspects of the Odyssey program (Toumbourou & Hamilton, 1993). Ex-resident evaluations obtained in the follow-up study (Table 4) also demonstrated aspects of the level system to have been rated amongst the most helpful aspects of treatment (by those attaining higher levels in the program).

Evidence reported in this document revealed an association between level attainment and improvements in functioning following treatment. Although these improvements were in large part the result of differential benefits applying to graduation, independent benefits were also demonstrated (particularly in terms of delay of relapse [and recidivism], increased employment and reduced use of some substances such as tranquillisers) for non-graduates attaining higher levels.

Evidence suggested at least two main mechanisms by which level attainment conferred advantages. Firstly level attainment acted as an indicator of ability to learn. In support of this proposition was the finding that intelligence was amongst the more important predictors of level attainment.

Secondly it appeared that experience in the upper levels was itself responsible for improving functioning at outcome. Regression analyses revealed important advantages for higher level attainment groups in the years following their exit from treatment independent of intelligence. Although some of these advantages were inflated by time related improvements, advantages on particular domains such as employment were revealed to have only occurred in the period immediately following experience in the higher treatment levels.

Although level attainment is introduced through the present study as a useful predictor of therapeutic community treatment outcomes, level attainment cannot occur independently of an investment of time. A useful analysis in the context of attempts to understand the effects of level attainment may be to examine the activities carried out by higher level therapeutic community residents, while they are in treatment, and ask if there are practices that could be usefully incorporated at earlier points in the treatment process.

In this context it is important to note that an examination of perceived reasons for remaining in the program revealed higher level groups more frequently indicated relationships as a factor holding them in treatment. This is an interesting finding suggesting that attempts to understand the process of therapeutic community treatment might be advanced by examining the nature of (and opportunities for) relationship influences in the program. These areas have been relatively neglected in studies to date.

8.5 Therapeutic Community Treatment Versus Prison.
Evidence presented in this report suggests that many treated in the Odyssey program saw their treatment as an alternative to prison. Support for this assertion can be derived through inspection of the high proportion of respondents indicating they were facing legal conditions at entry to treatment (Table 5). Further support can be derived from the emphasis respondents placed upon "legal pressure" as an explanation for having entered and remained in the program. In contrast to those progressing to higher levels in the program rates of incarceration were very high in the years following treatment for those in the contrast groups (Figures 14 and 15).

Given evidence that the program provided, for many, a prison alternative it is relevant to ask whether participation in the program provided any benefit or prevented any harm that may have otherwise been associated with a spell in prison. The evidence supported the view that during the period of their involvement in the program those completing higher levels demonstrated reductions in rates of opiate use compared to those in lower level groups who evidenced both high rates of incarceration and opiate use throughout these years. In large part due to a high rate of relapse following exit from the program rates of opiate use tended to merge into an overall pattern of similarity in the years following treatment.

The program functioned to reduce use of opiates against rates applying for the comparison groups that more frequently entered prisons. In addition to these advantages the program also managed to demonstrate reductions in the pattern of use of opiates (in line with harm reduction principals). Use of tranquillisers, marijuana and intravenous drug use all tended to reduce in association with involvement with the program. In addition to these benefits the program also managed to demonstrate an improvement in employment outcomes. These improvements appeared of particular importance given the typically low rates of employment demonstrated at entry to treatment. The present study did not examine other public health risks such as unprotected sex. As the Odyssey program uses peer surveillance to ensure that the rule forbidding sex in the program is complied with it seems likely that involvement in the program would have reduced the risk of unprotected sex for residents, compared to that applying to prisoners.

Information presented by the Odyssey program suggests that in addition to all of the above benefits the program also functions with lower per unit costs than do prison programs. All of the above benefits sum to provide a set of appealing reasons for consideration of the therapeutic community as a viable prison alternative.

Improvements in employment outcomes are an important area that differentiate the therapeutic community approach from alternative methods of treatment. It is often argued that the role of drug treatment should be limited to reduction of drug related harm. The therapeutic community movement has tended to aim for more than this advocating the intervention of treatment into domains asociated with growth and development (De Leon, 1985). Having established these ambitious goals it remains for the therapeutic community movement to demonstrate benefits in domains other than those assessed within alternative programs aiming to simply contain drug use. In the present analysis there is evidence associating level attainment with improvements in employment. Ex-residents frequently outlined advantages associated with personal growth when asked to describe how the program had benefited them.

The current aims of treatment policy are framed on the assumption that, for many treatment clients, it is unrealistic to expect more than the reduction of drug related harm. Critics of the therapeutic community approach will no doubt seize with vigour the finding that the improvements in employment noted in this report tended not to be sustained through the full follow-up period.

Despite this finding the results of both the present study and those of previous reports associate treatment in the therapeutic community with a differential improvement in employment outcomes (De Leon, 1984; Simpson and Sells, 1990). In their 12 year follow-up of treatment outcomes from the DARP Simpson and Sells (1990) reported that those exposed to more therapeutic community treatment demonstrated better employment outcomes compared to groups exposed to alternative treatment modalities such as methadone. Attempting to convert these changes into sustainable benefits remains an important challenge for the therapeutic community movement.

8.6 Toward Better Therapeutic Community Treatment.

> *"It is really the pleasure of the blessed gods that the wise Odysseus shall return to Ithaca" (p. 27, Homer, 1963)*

The present report highlights a number of directions having the potential to benefit the therapeutic community treatment offered through the Odyssey program. Evidence presented in the present report demonstrates that the Odyssey program had a significant positive impact on those attaining higher levels in the program. Although somewhat limited with respect to their relevance, available comparisons suggested that benefits associated with participation in the Odyssey program may have applied to relatively fewer residents than is the case with alternative therapeutic community models or methadone programs. This problem appeared to be a consequence of large numbers of residents leaving the Odyssey program without having achieved substantial progress with respect to level advancement. Evidence from the current report provided some indication regarding approaches the Odyssey program might usefully consider in attempts to improve level advancement. An attempt will be made in the following sections to describe this evidence.

Evidence from the Community Oriented Program Environment Scales (COPES) demonstrated differences in the ratings of those experiencing only the lower levels of the Odyssey program compared to those attaining higher levels. Typically those experienced with only the lower treatment levels rated the program to be high on qualities that have not been associated with successful therapeutic community treatment. This evidence raises two important related points. Firstly those in the lower levels appear to receive a fundamentally different program to those reaching higher levels and secondly the program that is received in these levels may be therapeutically less beneficial.

A frequent objection raised regarding the use of retrospective subjective evaluations is their potential to be distorted as a result of experiences occuring during or after treatment exit. For example it can reasonably be argued that such impressions may have been influenced by factors such as cognitive dissonance (Festinger, 1957). Dissonance explanations are relevant in this context given that those least successful in the program have the choice of either accepting personal responsibility for their failure or alternatively finding reasons to blame the program.

Accepting that such factors provided an important incentive for more critical recollections of the program by the lower level groups the finding of a number of areas of agreement between different level attainment groups was of particular note. A number of parts of the Odyssey program were rated as helpful by most program participants regardless of the treatment level they had attained. Most important amongst these were environmental and social influences. These included the drug free environment (also described as among the most important program components in the delphi study - Toumbourou & Hamilton, 1993) experience with the "examples" of positive role models and removal from past associates.

Conversely there were a number of program parts that were rated by most participants as unhelpful regardless of their level attainment status. These included the reprimands, request for audience, Odyssey language (jargon), minor rules, repetitive work tasks and the pull-up sheet. In the context of attempts to hold people in treatment it is important to note the relatively high helpfulness rating revealed in this study for practices such as the exercises amongst those leaving prior to attaining higher levels in the program (Table 4).

Those leaving without ever experiencing the upper treatment levels were less likely to describe various aspects of the level system as helpful. As is stated above one interpretation of these findings is to argue that the lower level program actually provided a different and potentially inferior treatment experience. It is instructive that a variety of aspects of the confrontational component of the Odyssey program were typically rated as amongst the less helpful parts of the Odyssey program by those experienced only in the lower levels. Research by Bale et al., (1980) implicated demands for involvement in the therapeutic community to be one of the factors responsible for reducing retention in these programs, in the initial stages.

The apparent failure of the Level 4 group to maintain advantages they had made while in treatment stood in contrast to the outcomes observed amongst the graduates. A number of explanations may be posited to account for these differences. Despite the fact that there were a number of differences found to characterise the Level 4 and Graduate groups the suggestion that outcome differences between these groups were the result of differences between them prior to treatment is unattractive. Although regression analyses did find factors such as intelligence had been predictive of level attainment, these factors were typically poor predictors of outcomes following treatment. In almost all analyses level attainment was found to provide the most stable prediction of outcomes following treatment.

A more attractive explanation for the differences in outcomes for the Level 4 and Graduate groups can be developed by examining differences between these groups in the ongoing support they received from the Odyssey program after their departure from treatment. In the case of graduates continued access to other graduates was supported and encouraged. In some cases graduates were employed in the program.

In contrast a policy equivalent to a process of shunning applied to the Level 4 group through the period examined in this report. Those that had breached program rules and were not willing to accept the penalties imposed by the program were not permitted to have any further contact with those involved in the program. It should be noted that this policy was somewhat modified after 1987 when an outpatients program was available for those leaving the Odyssey program requiring ongoing support.

A number of lines of evidence supported the view that the withdrawal of social support from the Level 4 group made an important contribution to their high rates of relapse. Evidence demonstrated that for the majority of the Level 4 group relapses did not occur for substantial periods of time (6 months or more). When asked to describe the reasons for their relapses negative peer pressure (associating with people who were using drugs) figured prominently. In the absence of more detailed information regarding the relationship circumstances and living arrangements of ex-residents it is difficult to be definitive regarding the relative importance of negative peer pressure relative to other factors such as social isolation as precipitators of relapse. It should be noted that research conducted by Havassy, Hall and Wasserman (1991) implicates social isolation as a critical post-treatment factor influencing relapse. Billings and Moos (1983) have also presented evidence supporting the importance of post treatment social support as an important factor influencing outcomes.

Increasingly treatment programs are being influenced by the quality assurance approach which provides a framework within which treatment practices can be evaluated against research evidence and expert opinion (Mattick & Hall, 1993). The present report has not attempted to systematically assess program components from this perspective. This form of analysis would appear of value in the context of attempts to simplify the delivery of the Odyssey program however.

8.7 A Postscript: The Program's Response.

It is important to acknowledge that the Odyssey program has already taken significant action on a number of the issues emerging in this report. In early 1987, in response to staff recommendations, the Melbourne Odyssey program introduced a number of changes to its operation. These changes included a decreased reliance upon Dr Judianne Densen Gerber, the US psychiatrist who had been important in the establishment of the Odyssey program in Australia. Dr Gerber had been paid to travel to Australia to conduct supervision meetings in the Melbourne program through the early 1980s. This arrangement was terminated in 1986.

Other important changes included a change of name to the pre-treatment component of the program from "Pressure-Cooker" to "Short Term Assessment, Referral and Treatment (START)". A determination to reduce the amount of time people spent in residential treatment and the development of an out-patients program.

From early in 1993 the Odyssey program implemented a further set of changes aimed at improving retention and outcomes. These changes were partly implemented in response to findings from the present research but also recognised changed circumstances following from a Victorian government redevelopment of alcohol and drug services. A number of changes were introduced to attempt to improve integration between the therapeutic community and sources of support within the wider community. These changes included the incorporation in the early treatment stages of a night for interaction with families, increased opportunities for letter contact with people outside the program and the introduction of a policy of treating couples together rather than separately.

The induction and assessment stages of the program were altered to include an increased emphasis upon the identification of positive strengths clients brought to treatment. In line with the original objectives of the research a capacity for on-going evaluation was introduced into the program through the inclusion of a monitoring process. Monitoring was conducted in conjunction with a strategic process attempting to develop an earlier engagement with the program on the part of new residents. The questionnaire being used for monitoring included measures examining retention and resident COPES ratings. The program monitoring aimed to measure whether the changes being strategically introduced to the program were in fact improving client evaluations' and increasing retention.

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10.0 APPENDICES.

10.1 Details of Clinical Data.

Appendix Table A1: Details of Wechsler Adult Intelligence Scale (WAIS) test results.

Highest Treatment Level Reached.	Verbal IQ. Mean (S.D.)	Performance IQ. Mean (S.D.)	Intelligence Quotient. Mean (S.D.)
Level 1 (n=53)	87.3 (12.0)	91.4 (12.5)	88.0 (11.9)
Level 2 (n=57)	92.9 (13.8)	95.6 (14.0)	93.4 (13.9)
Level 3 (n=51)	97.0 (13.5)	98.3 (12.3)	97.1 (13.1)
Level 4 (n=52)	94.8 (13.5)	96.9 (12.7)	95.0 (13.0)
Graduate(n=43)	101.9 (11.6)	103.0 (14.4)	102.6 (12.9)

Appendix Table A2: Details of Minnesota Multiphasic Personality Inventory (MMPI) test results.

	Males (n= 81) Mean (S.D.)	Females (n=28) Mean (S.D.)	Total (n=109) Mean (S.D.)
1. QSCORE	3.1 (6.6)	3.6 (7.4)	3.2 (6.8)
2. LIES	47.3 (7.0)	46.9 (5.9)	47.2 (6.8)
3. FSCALE	67.2 (17.2)	69.3 (10.6)	67.7 (15.7)
4. KSCALE	46.5 (7.8)	48.1 (9.1)	46.8 (8.1)
5. HYP	62.6 (13.1)	54.7 (7.6)	60.5 (12.4)
6. DEP	68.7 (20.0)	61.9 (14.4)	66.9 (18.9)
7. HYST	60.7 (10.2)	58.6 (8.1)	60.1 (9.7)
8. PDEV	72.3 (25.4)	77.8 (8.9)	73.7 (22.5)
9. MFEM	65.6 (9.1)	47.1 (7.8)	60.8 (11.9)
10. PARND	63.2 (15.2)	65.5 (8.4)	63.8 (13.8)
11. PSYCAS	66.6 (12.2)	62.5 (10.7)	65.5 (11.9)
12. SCHIPH	66.0 (18.1)	66.7 (11.7)	66.1 (16.7)
13. HYPOM	68.7 (10.6)	66.6 (12.1)	68.1 (11.0)
14. SOCINT	58.7 (10.1)	60.8 (8.4)	59.2 (9.7)

Table A3: Behaviours in Selected Years: 7 Level Attainment Groups.

Year Measured	Highest Treatment Level Attained. Induct'n n (%)	Pre-Tr't n (%)	Level 1 n (%)	Level 2 n (%)	Level 3 n (%)	Level 4 n (%)	Graduate n (%)	Total N (%)	Significant Effects[a] (p<.009).	TIP Trends[b] (p<.009)
Any self-reported use of opiates (year prior 86% used opiates no differences across levels).										
1st Yr - Exit	34 (85)	25 (72)	40 (60)	40 (80)	35 {51}	35 {54}	42 {21}	251 (59)	T, P, PxT	L
2nd Yr - Exit	32 (69)	25 (60)	39 (51)	40 (73)	34 (56)	31 (48)	34 {24}	235 (54)	T, P, PxT	L
4th Yr - Entry	30 (53)	20 (60)	34 (56)	29 (66)	32 (50)	33 (58)	40 {18}	218 (50)	T, P, PxT	.
Recent Year	34 (44)	25 (48)	40 (38)	40 (63)	35 (46)	35 (37)	42 (24)	251 (42)	T . .	.
Any self-reported injecting drug use (year prior 93% injecting no differences across levels)										
1st Yr - Exit	34 (92)	24 (83)	40 (70)	41 (83)	34 {56}	34 {53}	42 {21}	249 (64)	T, P, PxT	L
2nd Yr - Exit	32 (72)	24 (63)	39 (56)	41 (76)	33 (55)	30 (50)	34 {21}	233 (56)	T, P, PxT	L
Recent Year	34 (53)	24 (58)	40 (43)	41 (71)	34 (44)	34 (38)	42 {21}	249 (46)	T, P, PxT	L
Any self-reported use of tranquillisers (year prior 48% using no differences across levels).										
1st Yr - Exit	34 (47)	22 (18)	39 (31)	38 (18)	31 (13)	35 (9)	42 {10}	241 (21)	T, ., PxT	.
2nd Yr - Exit	33 (42)	22 (23)	38 (26)	38 (29)	31 (10)	31 (10)	34 {9}	227 (22)	T, ., PxT	.
Recent Year	34 (35)	22 (23)	39 (23)	38 (37)	31 (6)	35 (14)	42 (10)	241 (21)	T, ., PxT	.
Employed for 26 weeks or more (year prior 30% employed no-differences across levels).										
1st Yr - Exit	33 (18)	23 (22)	36 (28)	39 (36)	31 {45}	32 {63}	41 {93}	235 (46)	T, P, PxT	L
2nd Yr - Exit	33 (21)	22 (23)	36 (39)	39 (33)	31 {52}	28 {61}	34 {88}	223 (46)	T, P, PxT	L
Recent Year	33 (21)	23 (30)	36 (39)	39 (36)	31 (35)	32 (44)	41 {83}	235 (43)	T, P, PxT	L

[a] T - Time of Measurement, P - Time in Program, TxP - Interaction.
[b] L - Linear component, Q - Quadratic component, C - Cubic component.
{} Significant contrast against <7 day group (p<.009).

Table A3 (Cont.): Behaviours in Selected Years: 7 Level Attainment Groups.

Year Measured	Highest Treatment Level Attained. Induct'n n (%)	Pre-Tr't n (%)	Level 1 n (%)	Level 2 n (%)	Level 3 n (%)	Level 4 n (%)	Graduate n (%)	Total N (%)	Significant Effects[a] (p<.009).	TIP Trends[b] (p<.009)
Any self-reported illicit income (year prior 80% reporting receipt no level differences, excludes those in jail all year).										
1st Yr - Exit	32 (69)	20 (50)	33 {24}	38 (17)	27 (41)	31 {23}	39 {8}	220 (34)	T, P, PxT	L
2nd Yr - Exit	29 (45)	16 (50)	32 (25)	38 (42)	24 (17)	27 (26)	31 (7)	197 (29)	T, P, PxT	.
Recent Year	32 (38)	20 (30)	33 (21)	38 (37)	27 (33)	31 (23)	39 (13)	220 (27)	T, ., .	.
Any official incarcerations (year prior 32% incarcerated no-differences across levels).										
1st Yr - Exit	50 (42)	44 (39)	60 {23}	56 (27)	55 (24)	53 (17)	55 {2}	373 (24)	T, ., .	L
2nd Yr - Exit	64 (42)	62 (35)	64 (16)	63 (29)	56 (25)	54 {20}	55 {5}	418 (25)	T, P, .	L
4th Yr - Entry	64 (33)	62 (24)	61 (11)	63 (21)	53 (13)	55 (22)	53 {6}	411 (19)	T, ., .	.
4-6 Yrs- Entry	46 (37)	48 (33)	38 (13)	41 (32)	44 (16)	47 (30)	48 (17)	312 (26)	., ., .	.
Any illicit income, convictions or incarcerations (year prior 84% crime no-differences across levels).										
1st Yr - Exit	32 (78)	23 (78)	36 (56)	39 (56)	33 (58)	34 (47)	40 {13}	237 (53)	T, P, PxT	L
2nd Yr - Exit	32 (81)	23 (78)	36 (69)	39 (62)	33 {45}	32 (50)	32 {19}	227 (57)	T, P, PxT	L
Recent Year	32 (60)	23 (57)	36 (42)	39 (54)	33 (48)	34 (44)	40 {20}	237 (45)	T, ., PxT	.

[a] T - Time of Measurement, P - Time in Program, TxP - Interaction.
[b] L - Linear component, Q - Quadratic component, C - Cubic component.
{} Significant contrast against <7 day group (p<.009).

10.2 Details of Statistical Analyses.

Outcome data were examined using a 7x2 factorial design with 7 levels of treatment and 2 repeated measures on time of measurement. Categorical data were examined using SAS (1990) procedure 'CATMOD' for repeated measures designs. The response functions specified were the marginal probabilities for each of the dependent variables.

The approach adopted in procedure CATMOD enabled the partitioning and testing of a range of separate effects from multidimensional contingency table data arising when categorical variables are subject to repeated measurement. The hypotheses anticipated that a significant contribution to outcomes would be identifiable through the linear component of the across level trend. In the analyses the analytic strategy was based on the isolation and testing of three orthogonal components of level trend; the linear, quadratic and cubic components.

In addition to testing associated with the main hypothesis, analyses also attempted to identify the minimum level attainment required for improvements to be observable. Six planned comparisons were conducted contrasting improvements in functioning at outcome in the Induction group (receiving the least exposure to the Odyssey program) against functioning in each of the other level groups.

In addition to these analyses, examining level attainment trends, effects were also tested relating to time of measurement and to the interaction of time of measurement and level attainment. Time of measurement provided an indication as to whether functioning had changed across the time periods examined. The interaction of time of measurement and level attainment indicated whether such changes had been more pronounced for particular level groups. The testing strategy utilised a conservative probability adjusted for the number of tests. Probability was set at 0.1 across 11 tests yielding a criteria of .009 for each test.

10.3 Reliability and Validity of Data.

The assessment of independent variables, in the present report, relied upon information recorded by staff within the Odyssey treatment program. The decision to use this information followed previous research reporting adequate recording and management procedures within the program (Stavely, 1983).

The impression of an overall complete and systematic set of treatment records was supported by the availability, for all cases, of details relating to level attainment within the program. Some gaps were encountered however where more detailed information was requested. For nine cases (0.8%) information relating to at least one treatment episode could not be located. In these cases precise information relating to time in treatment could not be ascertained.

An assessment was made of the reliability of information relating to independent variables provided from the treatment program. Analyses were conducted comparing dates of first inductions and the date of birth recorded. These comparisons utilised two separate files, one based on induction records and the other independently recorded within clinical records.

These analyses revealed an overall high correspondence between the different sources of information. Correspondence between the two data sources was revealed in 94% of cases (to within 7 days) when date of first induction was examined ($r=.94$, $p<.0001$, $n=398$) and in 94% of cases (within 2 years) when age at induction was examined ($r=.93$, $p<.0001$, $n=393$).

These comparisons supported the overall accuracy of treatment records. In the next section dependent measures selected for the study are examined.

10.3.1 Addiction Severity Index.

The reliability and validity of the dependent measures was assessed using a variety of techniques. In a first set of analyses the major one year scales used in the above analyses were compared to information gathered from 30 day reports using the Addiction Severity Index.
At the follow-up interview respondents were asked to complete the Addiction Severity Index (ASI - McLellan, Luborsky, O'Brien and Woody, 1980). Coding for the ASI followed the instructions provided by McGahan, Griffith, Parente and McLellan (undated). A number of studies have now been conducted supporting the reliability and validity of the ASI (eg. Kosten, Rousaville and Kleber, 1983). Given this body of support the present study sought to use the ASI as a basis for checking the validity of the retrospective self report indices developed for use in this report.

As a rough check comparison was made of the one year measures used in the present study against ASI measures. These comparisons were very imprecise in that the ASI data referred to a period 30 days prior to the interview and the analyses used throughout this report referred to one year comparisons. The measures used for comparison and the Pearson correlation coefficients are reported below in Table A.4.

Each of the recent year measures used in the present study demonstrated moderate to high correlation with the well validated ASI past 30 day subscales. Given the differences in time periods the highly significant associations between the past 30 day ASI subscales and the measures used in the present study was considered to indicate a reasonable level of agreement.

Table A.4: Comparison of Scales for Most Recent Year of Follow-Up with ASI 30 Day Measures.

Comparison.	Pearson Correlation (n).
Any use of opiates in most recent year with ASI Drug Subscale (30 days).	.52 *** (244)
Hazardous or harmful use of alcohol for 30 days or more in most recent year with ASI Alcohol Subscale (30 days).	.47 *** (237)
Composite crime index (illegal income, convictions or incarcerations) most recent year with ASI Crime Subscale (30 days).	.40 *** (239).
Number of weeks employed most recent year with ASI Employment Subscale (30 days).	.69 *** (245).

*** $p < .0001$.

10.3.2 Urine testing.

The original proposal for this research project was to verify self-reports of drug use using collateral interviews. Following trialing of procedures it was clear that most respondents could not nominate a suitable person to act as a collateral informant. In July 1990 the research team went back to the ethics committee for permission to conduct urine testing. Following permission to conduct this testing arrangements were made with a private laboratory (Gribbles Pathology) for analyses to be conducted.

The laboratory selected were the same group routinely conducting testing for the Odyssey program. Testing was conducted from November 1990 through to August 1991. In this time 31 supervised urine specimens were collected and analysed representing 13% of respondents. Samples were collected either using standard procedures by Odyssey house staff, by research staff at the University or at other field settings where convenient (the tests used to screen urine samples are described below in appendix 10.5).

Table A.5 below provides details of the association between the self- reported drug use of tested respondents recounting patterns of use over the previous 5 days and the results of laboratory urine screen tests for 6 classes of drugs.

Table A.5: Congruence between self reported drug use (past 5 days) and urine drug screen tests (n=31).

Drug Type.	Percentage Congruent.	Pearson Correlations..
Amphetamine.	90%	NB
Barbiturate.	100%	NB
Benzodiazepine.	87%	0.45 **
Cannabis.	94%	0.83 ***
Cocaine.	100%	NB
Methadone	97%	0.88 ***
Opiate.	97%	0.85 ***

** $p <= 0.01$; *** $p < 0.001$.

NB: No positive self reports received.

The results of comparisons between self reported 5 day drug use and urine drug screen results revealed in Table A.5 above, demonstrated, for most drug categories, an overall pattern of consistency between self reported drug ingestion and laboratory detected drug presence. The greatest incongruence was for benzodiazepines. The only case of a client apparently overreporting drug intake was for this category of drugs.

Analyses comparing reports of drug use did not reveal any significant differences between those providing urine specimens compared with those who did not. The immediate implication of the above results was that self reports of recent drug use appeared to be reliable in most cases particularly for opiates.

10.3.3 Test-retest reliability of interview data.

A number of questions asked of clients at induction into treatment were readministered either at a point later in treatment or at the time of follow up interviewing. The reliability of self-reported measures of drug use extending retrospectively back over six years was investigated in a first set of analyses. Self-reported information obtained in the follow-up interview was compared with data obtained in the induction interview (an average of 5.6 years prior). These analyses revealed substantial correspondence for questions investigating either any use of opiates (with 92% correspondence, r=.59, p=.0001, n=225) or any injecting drug use (94% correspondence, r=.46, p=.0001, n=215) at admission.

Table A.6 presents information relevant to the test-retest correlation of items used to measure treatment moderators.

Table A.6: Test-Retest Correlation of Selected Items.

Comparison.	Correlation (n).
Duration of opiate use (induction interview compared to in-treatment reports).	0.64 *** (139)
Number of previous treatment experiences - (induction compared to in-treatment records) .	0.49 *** (157)

*** $p < 0.001$

Available comparisons suggested a moderate to high test-retest correlation for measures of treatment moderators. The above analyses provided some confidence that relevant measures provided an accurate assessment of relevant domains.

10.4 Limitations of the Data.

The present study is based on retrospective follow-up. Among the more common criticisms of such designs is the fact that allocation to treatment conditions is not based on experimental (random) assignment. The implication being that such uncontrolled selection makes it increasingly difficult to separate treatment effects from treatment selection processes.

While accepting the above argument the fact that retrospective designs have, themselves, distinct advantages needs also to be stated. Perhaps the most distinct advantage of the retrospective design is the opportunity it provides to examine the process of treatment as it occurs in the "naturalistic" setting. The pattern of outcomes observed in the present study, by acknowledging the influence of real world treatment selection processes, has a greater capacity for generalisation to treatment settings.

One of the more obvious advantages of uncontrolled selection is the opportunity it provides for identifying and observing the processes underlying selection into treatment. A feature of the present research has been its use of both qualitative and quantitative research techniques to explicate and measure the influence of the more important of these factors.

A second criticism often made of retrospective designs concerns the accuracy of data obtained. Studies established using prospective designs are often preferred on the basis of more accurate measurement. Rather than accept a blanket condemnation of the usefulness of information recorded for treatment purposes the present approach has been to attempt to evaluate the usefulness of each measure and to select a sub-set of measures with the highest reliability.

An important potential problem with prospective designs is their inability to sample on the basis of carefully specified measures of treatment experience (such as highest level of treatment attained). This is an important problem given the sample numbers that are required to enable comparison among less commonly occurring sub-populations (such as higher level attainment groups) further supporting the design choice utilised in the present study.

The large percentage of the target sample that were not interviewed raises questions regarding the generalisability of findings from the present study. A number of comparisons were conducted to assess the studies generalisability. Comparisons included analyses of the pre-treatment and in-treatment characteristics of ex-residents (as recorded on treatment records) and analyses of the post-treatment behaviour of ex-residents as recorded on official records. Each of these analyses supported the view that findings from the interviewed group could be generalised to the treatment population.

When analyses were conducted using official records of incarcerations no significant differences were found between level attainment groups in the period measured from the fourth to sixth years following entry to treatment. The similarity in groups was found to be mainly the result of lower level groups demonstrating a reduction in incarceration rates. The low prevalance of incarcerations across the sample in this period weakened somewhat the validity of the statistical assumptions underlying the test used. Visual inspection of trends, however, supported the overall interpretation reached however.

10.5 Description of Urine Screen Procedures: Gribbles Pathology.

The following outline is a brief description of the procedure used in screening the urines supplied for drugs of abuse supplied by Mr Andrew Gaal, BAppSc. GradDipAppSc. from Gribbles Pathology.

<u>Chemical Spot Tests.</u>

Trinders reagent, used for the detection of salicylates is the only chemical colour test used on a regular basis. Others may be used where applicable such as the Fujiwaras test for trichloro compounds. Their detection limits are poor and they are only used to detect overdose situations.

<u>Immunoassay.</u>

The Syva "EMIT" assay is a homogeneous enzyme immunoassay technique used for the analysis of specific classes of compounds in biological fluids. The assay is based on competition between drug in the sample and drug labelled with the enzyme glucose-6-phosphate dehydrogenase for antibody binding sites. Enzyme activity decreases upon binding to the antibody, so the drug concentration in the sample can be measured in terms of enzyme activity. Active enzyme converts oxidized NAD to NADH, resulting in an absorbance change that can be measured.

We target the following classes of drugs by immunoassay.

BENZODIAZEPINES.
BARBITURATES.
CANNABINOIDS.
BENZOYLECONINE (Cocaine metabolite).
OPIATES.
SYMPATHOMIMETIC AMINES.

The detection limit for these assays is 0.3 ug/ml except for cannabinoids which is 0.1 ug/ml.

Thin Layer Chromatography.

Thin Layer Chromatography is performed on all samples. The system utilized at Gribbles is a hybrid of the "ToxiLab" and "Modified Clarkes" system. This gives us a single system with the larger extraction potential of the modified clarkes system and the wide diversity of identification of the toxilab system. Detection limits of 0.1 - 1.0 ug/ml can be achieved depending on the type of application used and the type of drug being looked for (ie AgNO3 TLC for Morphine Det. Lim. = 0.1 ug/ml).

Gas Chromatography/ High Performance Liquid Chromatography.

Both these forms of chromatography are available for the specific identification of various drugs if required. The gas chromatography used utilizes both BP1 or BP20 capillary columns with FID and NPD detection. The high performance liquid chromatography utilizes a Cyano reverse phase column with UV detection.