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AN EVALUATION OF A
METHADONE TREATMENT PROGRAMME

A thesis presented in partial fulfillment of
the requirements for the degree of
Master of Science in Psychology
at Massey University

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DEDICATION

For my parents
Jean and Terry Clark
with love

ABSTRACT

The evaluation of a methadone treatment programme was the main focus of this study. A posttest-only design, with a nonequivalent comparison group was used to evaluate both summative and formative aspects of the programme. Participants were 21 opiate abusers (methadone group) and 22 alcohol and polydrug abusers (alcohol and polydrug group) who completed a questionnaire designed to assess demographic and treatment variables, alcohol and drug usage, employment, criminal activity, health, and interpersonal relationships, in the before, during, and after treatment periods. The outcome measures revealed that the methadone programme was effective in reducing opiate, nonopiate analgesic, tranquillizer and stimulant use; decreasing high alcohol consumption to a level considered nonabusive, and decreasing the number of marijuana related criminal convictions. Unanticipated findings were a deterioration in rating of health and no change in the number of days spent sick in bed, friendship satisfaction, or number of friends out of the drug scene. No predictors of treatment outcomes were established, and there were no major differences between the methadone group, and the alcohol and polydrug group in terms of treatment effects. Recommendations for the methadone programme included detailed and procedural steps of how to cope when withdrawing from methadone treatment; health and nutrition education; and social skills and assertiveness training. These are considered essential if the philosophy and goals of the programme are to be attained.

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CHAPTER ONE

HISTORY AND PRESENT USE OF METHADONE AS A FORM OF TREATMENT FOR OPIATE ADDICTION

1.1: Origins of methadone treatment programmes.

The use of methadone hydrochloride as a treatment for opiate addiction was first introduced in the United States of America by Dole and Nyswander in 1965. It was developed at a time of extraordinary public pressure to "solve" the problem of drug addiction and addict-related crimes, and methadone treatment offered an attractive solution (Nelkin; 1973). Dole and Nyswander defined opiate addiction as a medical rather than a psychological or moral illness, based on a series of studies which indicated non-reversible permanent metabolic deficiency. They proposed the use of methadone because of its apparent ability to relieve "narcotic hunger" and in high doses, to produce sufficient tolerance to block the euphoric effect of heroin. Dole and Nyswander defined the term "narcotic hunger" as a desire to avoid the negative effects of withdrawal and therefore placed much emphasis on the "blockade effect", noting that addicts maintained on methadone would stop using heroin because they could no longer obtain the desired euphoria.

As they believed that the cause of opiate addiction was permanent metabolic change, they did not consider detoxification or establishment of a drug-free state as realistic goals in the treatment of opiate addicts, and placed major emphasis on their retention rate as an

indication of success in treatment. In a follow-up four years after the introduction of their programme, Dole and Nyswander (1968) reported a retention rate of 87% with less than 13% of admissions discharged for abusing the programme. Furthermore, 59% of their patients were described as productively employed, and a reduction in criminal activity by 90% of their sample was reported. It should be noted that they identified counselling and a wide range of support services as essential for treatment.

1.2: Practical implications of methadone treatment - changing theoretical frameworks and treatment approaches.

Since the introduction of Methadone treatment and Dole and Nyswander's (1965, 1966, 1968) subsequent reports, there has been considerable criticism of their theoretical framework and the practical implications of their treatment. Ausubel (1983) challenges the psychopharmacological assumptions on which Dole and Nyswander based their methadone programmes, stating that stabilized maintenance patients, while not intoxicated, still experience a mild euphoric effect. Additionally, he states that the claim that methadone relieves "narcotic hunger" by extinguishing euphoria-seeking drives and behaviour has not been substantiated by evaluation studies which show that methadone maintenance clients frequently abuse not only heroin but a range of other drugs including alcohol, marijuana, cocaine, and amphetamines in an attempt to re-experience to the more florid type of euphoria.

Also, many clinicians share the belief that addiction is a

pyschological as well as a physical phenomenon. From this perspective, Goldstein (1972) proposed that methadone was effective, not because it stopped the euphoric effect of heroin, but rather because it stopped the dysphoric effect of withdrawal. Goldstein showed that doses of methadone which were just high enough to stop withdrawal symptoms, were as effective as higher doses in terms of successful treatment outcome, as long as the clients were unaware of their actual dosage. There were other advantages in that clients on lower doses complained of fewer side effects, and were more alert than those on higher doses. It was observed that when clients were aware that they were on lower levels of methadone, there was an increased tendency to take other drugs.

Further to Goldstein's discovery, Wurmser (1974) and Khantzian (1974) proposed a theoretical and treatment model which viewed addictive behaviour as a maladaptive coping mechanism. This suggested that an addict could become drug free if exposed to psychological therapies designed to teach alternative coping strategies. The use of methadone was considered appropriate within this framework as it enabled the addicted person to be free of withdrawal effects and the negative social effects of opiate addiction, such as criminality and unemployment. This allowed them to think through their lives and to learn new coping mechanisms, which once learned negated the need for continued methadone treatment. Ausubel (1983) does not share the views of Wurmser, and Khantzian, regarding the role methadone plays in an addicted person's life. On the contrary, Ausubel criticises methadone maintenance programmes as constituting and perpetuating an immature coping mechanism. He suggests that methadone represents a pharmacological shield preventing addicts from dealing with the

inevitable discomforts necessary for adaptation to the real world. Also, Inciardi (1977) criticises methadone because of the potential diversion of methadone, citing evidence that methadone programmes are the source of most of the methadone that is available on the illicit narcotics market and as such may be inadvertently creating primary methadone addicts.

While a number of criticisms have been levelled at methadone treatment programmes, recent concern over the spread of A.I.D.S (Acquired Immune Deficiency Syndrome), and more longstanding worries over the spread of disorders such as hepatitis, by the sharing of needles between intravenous drug users, have caused various authors (e.g. Drew, 1986) to advocate methadone as a preventative public health measure.

One of the major advantages noted by Dole and Nyswander in their early studies (1965, 1966, 1968) was the reduction in criminal activity by opiate addicts. This is presumably because heroin users commit a high proportion of crimes in an attempt to obtain money to support their drug habit. Therefore, as heroin users have ready access to methadone, they will reduce their level of heroin use, and thus will not need to commit crimes. However, Drew (1986) is quick to point out that while methadone is a valuable health measure, it can also be used as a form of social control (in terms of controlling or helping to reduce the crime rate) and that when used as such, methadone should be outside the health system, and should not be labelled "treatment".

Finally, Kleinman, Lukoff, and Kail (1986) suggest that methadone treatment programmes can only serve as a short-term solution to opiate

drug abuse, and as such, serve to divert attention (and money) away from efforts to develop effective strategies of preventing opiate drug abuse, and the resultant long-term change in drug-abusing problems.

While there has been a great flood of debate concerning the use of methadone within the drug abuse field, particularly among theoreticians, clinicians, and politicians, the public at large have remained ignorant about the controversy. According to Senay (1985), public attitudes towards methadone treatment and addiction in general have changed little over the years and the public still tend to adopt a moralistic viewpoint. That is, "the judgement that providing legal opioids is unethical or sinful, and in any event, ineffective - it's like giving an alcoholic bourbon - is widespread" among the community (Senay, 1985, p.805). Addicts themselves tend to be ambivalent about methadone treatment, viewing it on the one hand as a free "fix", and on the other, "as a time to get straight". (Nelkin, 1973).

The controversial development of methadone treatment programmes, suggests the complexity of issues involved in the use of technological solutions to major social problems. The problem of opiate addiction has been alternately described in moral, social, psychological, legal, and medical terms. To a large extent the ambivalence towards methadone treatment is a reflection of conflicting values within society today, concerning this treatment.

1.3: Methadone use today.

While a lot of controversy still surrounds methadone as a treatment for

opiate addiction, it has nevertheless become the predominant means of dealing with opiate addicts in a number of countries throughout the world, including New Zealand.

As a result of increasing knowledge regarding methadone treatment and the development of alternative theoretical and treatment frameworks, the use of methadone in opiate addiction ranges from methadone maintenance as a permanent or indefinite treatment (and is the type of treatment envisaged by the original advocates of methadone, Dole and Nyswander, 1965), through to programmes which maintain addicts on methadone for a particular length of time and then gradually reduce the dose to zero. It is important to note that the length of both the maintenance and withdrawal period are variable depending on the particular treatment centre, its philosophy, staff, facilities, and in some cases, on the individual addict.

Finally, methadone can be used as a form of brief detoxification in which the length of time detoxifying can also vary. In order to elaborate on the type of methadone treatment programmes in operation today, three separate categories have been established, but it is important to realise that these separate categories are arbitrary, and in reality form a continuum ranging from the indefinite form of methadone treatment through to a programme of brief detoxification.

1. Brief detoxification: - is usually carried out over a period of 21 days with methadone being administered in gradually decreasing doses until a zero dose is reached. This procedure has generally been found to be ineffective (Greenstein, Resnick, & Resnick, 1984; Sorensen,

Hargreaves, & Weinberg, 1982), with most clients returning to opiate use prior to completion of the programme. However, detoxification may be justified as a component in a long-term programme which requires elimination of dependency prior to treatment (Newman, 1977).

2. Methadone maintenance as prolonged withdrawal: - which essentially involves a long stabilisation period from six weeks to perhaps several years, followed by gradual withdrawal. In conjunction with such a programme, intensive counselling and inpatient treatment may be offered. One of the underlying assumptions behind this approach is that the addicts may not be in a position to see their life drug-free unless opportunity to experience life without the negative consequences of their drug habit. Therefore a period of stabilisation with methadone is coupled with counselling, aiming ultimately towards detoxification and a drug-free life.

3. Methadone maintenance as an indefinite treatment: - within this perspective, methadone is administered to the addict for an indefinite period, possibly life-long. Within this model, addiction to opiates is considered to have similarities to diabetes, that is, it can be controlled but not "cured" permanently.

In New Zealand, methadone is either used in a brief detoxification programme or more commonly in prolonged withdrawal. The Palmerston North Alcohol and Drug Centre, the programme evaluated in the present study, operates a prolonged withdrawal type with clients remaining on methadone for a period of six weeks to fifteen months.

CHAPTER TWO

SUMMATIVE EVALUATION.

2.1: The evaluation process

Riecken (1977), offers the following definition of evaluation;

"Evaluation is the measurement of desirable and undesirable consequences of an action designed to achieve some objective that the actor values. Action means a conscious attempt to change individual or group behaviour or psychological state in a valued direction - the negative case being the prevention of negatively valued change... A programme of action includes one or more treatments, which are the sets of operations or specific steps undertaken to produce the desired effects, and these effects can be called the objectives of the programme." (Riecken 1977, p.394).

A number of concepts and terms which refer to various aspects or types of evaluation have appeared within the field of programme evaluation. For example, the term summative evaluation (also known as outcome evaluation) is used to describe research which focuses on whether the programme in question accomplishes its objectives or goals (Brook, 1985). In addition, an evaluation may need to study in detail the process by which the service (in the present context a treatment programme) is delivered to the recipients. This aspect of evaluation aimed at providing corrective feedback to organisers is known as

formative or process evaluation (Brook, 1985). The above definitions, concepts, and terms, serve to briefly illustrate those factors involved in evaluating a programme.

2.2: Introduction and summary of outcome research.

Summative or outcome evaluations analyse the impact of effects of a programme and asks whether it works and is effective (Kidder, 1981). In the context of methadone treatment, Ben-Yehuda(1981) stated that;

"in measuring a patient's success in a methadone programme, we really want to assess the change which has taken place within the patient. We want to know if the drug addict has changed his (sic) previous life-style - characterized by disrespect, disorganization, chaos, and irresponsibility - to a structured and organized way of life which is oriented to rehabilitation. Such a view points to a continuum of different degrees of success and necessitates the usage of more than one criteria to assess it" (Ben-Yehuda 1981, p.87).

This statement highlights a controversial and somewhat confused aspect of evaluation research into drug treatment programmes, criteria for successful treatment. This is perhaps not surprising when one considers the debate and controversy surrounding the philosophy, values, and goals of methadone programmes, from which criterion development stems.

In terms of outcome research, the type of programme in operation is of

fundamental importance because the type of programme defines the types of questions which are addressed in terms of criteria for success. Therefore it is important to identify, define and quantify the specific goals of a programme. For example, an indefinite methadone maintenance programme would not consider a drug-free life a measure of success, but may consider retention rate as a more valid criterion. Indeed, in the past the most popular and widespread criterion for success was retention in treatment (Dole & Nyswander, 1965, 1966, 1968; Cohen, 1976; Dale & Dale, 1973). This criterion was a reflection of the philosophy of methadone treatment programmes at the time and was the length of time an addict stayed in a programme. In many cases as clients would be expelled from the programme for abuse of illicit drugs, or would have to go to jail, the retention criterion also encompassed these factors.

Brief detoxification programmes tend to use abstinence at some period following treatment as a criterion for success (Angle & Parwatikas, 1975; Senay, Dorus, Goldberg, & Thornton, 1977; Schwartzman & Kroll, 1977) and have often found very low success rates. Senay et al. (1977) for example found a relapse rate of 90% to 95% following a period of brief detoxification, with a slightly lower relapse rate over a longer period of detoxification: Follow-up was one month after treatment.

Changes in the crime rate has been used as the sole outcome criterion of methadone treatment by others, utilizing police arrest records as data (Bowden, Maddux & Esquivel, 1978; Sechrest & Crim, 1979). Bowden et al. compared official police arrest records of 100 heroin addicts

one year before admission with those one year after admission into a methadone programme. Results indicate a 14% reduction in the total number of criminal charges, which they suggest, displays a modest reduction in criminal behaviour as a result of methadone maintenance. Still others have used employment (Black, Ellis, & Spielman, 1977) and have investigated patterns of employment in terms of duration, consistency, type of work and income with results indicating an increase in employment while on methadone.

Finally, illicit opiate use has been utilized as a measure of success (Wallace & Keil, 1978). Random urine checks have been used to determine whether a client was using opiates while on the methadone programme and in some cases resulted in such clients being expelled from the programme.

It seems that each of the criteria above measures success to some extent and could be said to be representative of the programme goals, but each on its own, could not be regarded as sufficient criterion. In recent years, there has been a more realistic trend to view success as a multifaceted outcome, utilizing several of the above criteria to determine success.

In the United States of America, the National Institute on Drug Abuse has sponsored several large nationwide evaluation studies. The results of the largest of these, the Drug Abuse Reporting Project (D.A.R.P), was reported by Sells and Simpson (1979). They found in a follow-up study three years after termination of methadone treatment, that 56% of clients had decreased their opiate and non-opiate drug use, including

26% who were abstinent from drugs. There was also a reduction in criminal activity and an increase in rate of employment; 39% were employed before treatment, whereas, 62% were employed in the year after leaving treatment. Sells and Simpson also noted that those clients who remained in treatment for less than three months did significantly worse than those who remained in treatment longer than three months. Similarly, in a follow-up study of heroin addicts five years after first admission to a methadone treatment programme, 79% had significantly decreased their use of heroin, and unemployment dropped from 51% to 19%. However, little or no change was seen in the use of other drugs, or in the percentage of subjects who spent time in jail (Judson, Ortiz, Crouse, Carney, & Goldstein, 1980).

Gunne and Gronbladh (1981) utilized a control group within their evaluation design. In this study, thirty-four drug addicts aged 20 to 24 years old, with a history of four to eight years heroin abuse, were randomly assigned to a methadone maintenance programme (M.M.P) or to an untreated group. The untreated controls were not allowed to apply for entrance to the programme for two years. Two years later, the researchers found that 12 of the M.M.P clients were abstinent and employed, whereas five had recurrent drug abuse problems. Of the controls, one was drug-free and gainfully employed, 12 were continually abusing heroin, two were in prison, and two had died. Thus, Gunne and Gronbladh concluded that the rehabilitation rate was 76% for the methadone group and six percent among the control group. However, the authors do not state what their admission criteria were, nor discuss the serious ethical issues of their design. In a longitudinal study, ten years of indefinite methadone maintenance treatment in a single

clinic, was reviewed (Cushman, 1977). The results from 547 clients showed that there was a high retention rate, increased employment, and a decrease in opiate abuse. Cushman noted that many were dependent on public assistance for living expenses and medical care. An interesting finding was the high amount of in-patient hospital care, given to clients for drug-related reasons. It was found that only a small number (15%) appeared to achieve full economic independence and a drug-free state. However, a drug-free state would not be expected from M.M.P.

In a study of methadone maintenance clients conducted by Graham-Bafus, Allen, and Gordon (1984), those who had been in the programme longer than six months decreased their use of illicit drugs, decreased criminal activities, and increased their self-support. Additionally, Harlow and Anglin (1984) found that entry into methadone maintenance was followed by; 1) a decrease in daily heroin use, 2) a slight increase in daily marijuana use, and 3) an increase in regular employment. Only two evaluation studies of methadone treatment have been undertaken in New Zealand as far as the present writer is aware. These were conducted by McLeod and Priest (1973) and Lewis (1981), both studies were carried out in Auckland city. McLeod and Priest in a study of an early programme which consisted of little more than a methadone dispensing service, found that at the end of eight months, only seven clients out of an initial 32 were still attending the methadone programme regularly. Also, urine testing frequently indicated use of opiates, amphetamines, and barbiturates. In the other study, Lewis interviewed 26 clients three years after admission to a methadone treatment programme at the Auckland Drug Dependency Clinic.

A reduction in opiate use was found for 84% of the sample, 53% were abstinent from narcotics in the year preceding the interview, while 96% had an improved level of social functioning.

In conclusion, the findings of the above studies complement a growing body of literature that has generally found that clients in methadone treatment programmes decrease their opiate drug use, have better employment records, and that outcome will be worse if the treatment period is less than three months. However, conclusions concerning criminality, other drug and alcohol usage, health, and social support remain, at best, equivocal.

2.3: A critique of evaluation studies

It has been pointed out that the claimed clinical successes of the methadone maintenance treatment programmes have been inflated by the ambiguity of the questionnaire data and by flawed methodological designs. However, some criticisms which have been levelled at these studies are in fact not due to faults with the research itself, but rather stem from the characteristics of the community, and as such, are unavoidable. The community setting provides a complex and often hostile environment in which to conduct research. Indeed, Cowen (1978) points out that certain errors in designing and conducting programme evaluations in community mental health (C.M.H) settings are directly related to the special hazards involved in doing research in the community. These hazards include;

"A. The low priority that programme evaluation research may have

in an agency's hierarchy of values.

- B. The researcher may be - or be seen as - a foreign body in the system.
- C. The threat that evaluation research poses for a programme's funding or personnel.
- D. Difficulties in gaining entry into community systems.
- E. The complex research demands that longitudinal programmes impose.
- F. The vulnerability of community programmes to change after they start.
- G. The involvements of community review bodies.
- H. Growing concerns about human rights and the invasion of privacy." (Cowen 1978, p.793)

These factors should be taken into account whenever one is conducting or critiquing community evaluation research. Therefore, a critical analysis and discussion of shall be the focus of this section.

1. The problem of sample definition and data bias

Critics have claimed positive results to be artificially inflated by the exclusion of the experience of programme dropouts (Jacobs, Doft, Karras, & Koger, 1979). These researchers found evidence for such criticism in their study which showed that 37% of the clients who were terminated as programme failures did significantly worse in terms of drug abuse, criminality and social productivity in comparison to those clients still involved in the programme. According to Klein (1977), most studies report data on the residual subjects who have remained on

methadone, and not for the entire cohort admitted into the programme. As Klein states, client attrition data is crucial for a correct understanding of improvement rates of "successes".

Also, in terms of the data collected, Cowen (1978) suggests that clients can bias data by responding in a socially desirable manner, excessive use or avoidance of extreme ratings, and by halo effects. Also, staff or service providers, while important data sources, represent a potential source of bias if they do not complete essential forms or if they complete them carelessly or incorrectly. They may also feel that it is their own effectiveness that is being evaluated and thus, feel threatened. One way of countering these biases is to include behavioural anchor points in the overall evaluation net and to have observers (staff, clients, significant others, etc.) with different stakes and perspectives involved in the study (Cowen, 1978).

2. The Problem of client categorisation and generalisability

McCaslin and Ershoff (1978) in a review of methadone evaluation studies found that a large number failed to include any reference to the characteristics of the clients on whom outcome data was being reported. Secondly, when sociodemographic characteristics were described, few offered the information in terms of relationship to treatment outcome (Klein, 1977). McCaslin and Ershoff state that

"when sociodemographic characteristics of the treatment population are omitted, we are unable to 1) generalise results beyond a specific setting or, 2) determine which patients are most affected

by, or susceptible, to a particular type of treatment, combination of treatments, or, indeed any treatment at all" (McCaslin & Ershoff 1978, p.1275-1276).

Allied to this problem, Cowen (1978) points out the hazard of design problems when one wishes to generalise research findings to a wider setting. For example, a researcher may study a particular treatment approach, such as methadone maintenance withdrawal in one Alcohol and Drug Centre, but wish to generalise about methadone treatment programmes in a number of centres. The problem in doing so is that each centre has its own special defining qualities and practices (for example, urban/rural population, high/low staff turnover etc.) and that the ability to generalise research findings, depends on representativeness of design on all relevant dimensions. As Cowen says,

"if a community programme evaluation study seeks to reach conclusions that transcend a particular setting, it must adequately sample the situations and variables that are central to its generalisation focus, as well as the usual adequate sampling of subjects" (Cowen 1978, p.796).

The problem of generalisation of results over time is countered by using follow-up in evaluations. The stated purpose of follow-up is to make certain that effects observed when a programme ends continue to mirror the programme's impact. Therefore, follow-up data demonstrates generalization about a programme's effects over time as well as preventing under or overestimation of the programme's impact (Cowen,

1978).

3. Outcome variable problems

A. Variables which confound outcome measures:

A variable which confounds most outcome measures of drug abuse treatments according to Klein (1977), is age at onset of drug use: The earlier the onset of addiction, the poorer the socialisation of the addict. Addicts who were younger when they first became dependent commit a disproportionate number of crimes and are more likely to be dismissed from methadone programmes for noncompliance with programme rules. Age at entry into the programme is also important in terms of treatment outcome: Advancing age appears to enhance adherence to the rules of the programme and help to retain a person in treatment. With increasing age the addict tends to "mature out" of the drug scene and therefore indicators of success such as decreasing criminality and increasing employment, may be a function of age and maturation rather than the treatment per se (Klein, 1977; Ausubel, 1983).

B. Drug Abuse:

While most evaluation studies would use drug abuse as an outcome variable, it is often not clear what is meant by this term. For example, some studies have focused specifically on heroin abuse while not assessing other forms of drug usage such as cocaine, barbiturates, alcohol and amphetamines (Klein, 1977). This is a major flaw, as one would expect the goals of methadone treatment programmes to be to

decrease all drug usage.

C. Criminal Activity:

In a large number of studies, the effects of treatment on criminal behaviour are ambiguous, in part due to methodological problems (Bowden, Maddux, & Esquivel, 1978). These studies have either failed to report on the behaviour of dropouts or those dismissed from the programme; based their findings on self-reports rather than police records; or, most importantly, lumped all arrests or all convictions together, and thus, possibly recorded a temporary decline in drug charges only, as one might expect while methadone is being supplied (Kleinman, Lukoff, & Kail, 1977).

D. Employment:

"When employment status has been used as an outcome criterion it is usually dichotomised as 'yes-employed' or 'no-unemployed'" (Klein, 1977, p.844). Therefore, no consideration is given to the type of job; whether it is a full- or part-time job; length of stay in each job and degree of job satisfaction. In addition, socio-economic status, cultural, and gender factors are often not taken into account. Another variable that is also often ignored is the general economic situation of a country and specifically a geographical area which of course, affects employment opportunities (Klein, 1977).

4. Problems of control

Problems of control like those of criteria are common to most areas of psychological research. Some methadone evaluation studies have been criticised for not using adequate control groups. Unfortunately these writers seldom state just what an 'adequate' control group is, or more to the point, how to provide control without violating important ethical principles and a client's right to treatment. It is important to stress that the realities of a community setting militate against using true experimental control groups for both political and ethical reasons. Therefore, one has the option to employ comparison groups with the inevitable problems they create, or to use no form of control at all (Cowen, 1978).

5. Outcome measures as sole measures of success

A high proportion of studies evaluating methadone treatment programmes focus solely on outcome criteria as measures of success. While most researchers would agree that outcome goals are important to any such programme and thus need to be assessed, it is also agreed that such measures by themselves are insufficient for a full evaluation study (Szapocznik & Ladner, 1977). This is best summed up by Lukoff and Vorenberg (1972), "The presentation of outcome measures by themselves is insufficient for evaluative purposes, because little understanding of the factors that might predispose toward success and failure is provided" (Lukoff & Vorenberg 1972, p.489).

In summing up, an analysis of a number of evaluation studies reveals

that criterion measurements are often ambiguous; drop-out rate is often not mentioned; distortion of results, and sociodemographic and treatment variables were often not taken into account. However, it is also important to stress that some perceived 'problems' of the evaluation studies were in fact difficulties inherent within the community context in which this type of research is carried out.

CHAPTER THREE

FORMATIVE EVALUATION

3.1: Factors relating to or influencing outcome variables

The formative or process aspects of an evaluation study ask how the programme works or what factors are related to or influence the outcome variables (Kidder, 1981). As such, formative evaluation provides essential feedback to programme organizers and recipients. This chapter will focus on predictors such as demographic, psychosocial, within-treatment factors, and alcohol and polydrug abuse variables in terms of how they relate to the outcome criteria in methadone treatment.

3.1.1: Demographic variables

AGE: The relationship between age at admission and treatment outcome or success mentioned already has been investigated by various researchers. Overall, there does tend to be a trend for individuals who were older on admission to be more successful in rehabilitation after treatment as well as remaining in treatment for a longer period of time (Szapacznik & Ladner, 1977). As stated in an earlier section, this suggests the "maturing out" process proposed by Winick (1962) i.e., that addicts tend to give up opiates as they get older. The relationship between age of first heroin use and success in methadone treatment programmes has also been well researched: A number of studies did not find any relationship between these two variables

(Babst, Chambers, & Warner, 1971; Judson & Goldstein, 1981; Sells, Chatham, & Joe, 1972), whereas Williams and Johnston (1972) found that individuals who became addicted at a later age in life were more likely to succeed in methadone programmes.

EDUCATION: Some investigators have found that clients who were better educated were more likely to succeed in methadone programmes (Judson & Goldstein, 1982; Rosenberg & Patch, 1972). Others did not find a relationship between these variables (Babst, Chambers, & Warner, 1971; Sells, Chatham, & Joe, 1972).

EMPLOYMENT: Clients who were employed at the time of admission have consistently had a more favourable outcome at follow-up than unemployed clients (Babst, Chambers, & Warner, 1971; Judson and Goldstein, 1982; Perkins & Bloch, 1970). Similarly, employment during treatment and in the post-treatment period seems positively correlated with lower ,opiate drug use, less criminal involvement and retention in treatment (Rothenberg, 1978; Simpson, 1981; Sells, Chatham, & Joe, 1978; Szapocznik & Ladner, 1977). It must be pointed out, of course, that correlation does not imply causation.

ETHNICITY: Ethnicity as a predictor of outcome has not been widely investigated, however a few studies carried out in the United States of America, have found that ethnicity contributed to methadone programme drop-out rates, with Blacks dropping out more frequently than Whites (Rosenberg & Patch, 1972; Szapocznik & Ladner, 1977).

LIVING SITUATION: Judson and Goldstein (1982) found that if a client

on the methadone programme was living with an addict at the time, this was predictive of a poor outcome and tends to confirm clinical impression which holds that both members of an addicted couple should be treated simultaneously. Babst, Chambers, and Warner (1971) found that divorced clients were most likely to fail in treatment whereas the relationships between 'married' versus 'nonmarried' versus 'living together' versus 'single' clients, and outcome, is unclear or has not been investigated.

CRIMINAL CONVICTIONS: Most studies have established a negative correlation between the likelihood of successful outcome and higher numbers of criminal convictions on entry into the programme (Babst, Chambers, & Warner, 1971; Judson & Goldstein, 1982; Perkins & Bloch, 1970).

GENDER DIFFERENCES: Most of the evaluation studies on drug treatment programmes to date are based on all male samples (Bale, Vanstone, Kuldau, Elashoff, & Zarcone, 1980; Sells & Simpson, 1979) or are able to include such a small sample of women, that comparisons between the two groups are not statistically viable (Simpson & Lloyd, 1977; Stimmel, Goldberg, Rotkopf, & Cohen, 1977). In such cases, the researchers tend to generalise from male experience to the whole population (Stanley & Wise, 1983). The unique experience of female opiate addicts and issues that relate to them in rehabilitation have received little attention despite the fact that there are a growing number of females entering the drug subculture and hence drug treatment programmes (Bahna & Gordon, 1978).

Studies that have investigated gender differences have generally found that women addicts feel significantly more guilt, are more isolated and experienced greater self-doubt than male addicts. Also, they believed they were more deviant and less worthwhile than their male counterparts. Additionally, women tended to be introduced into the drug scene by a male partner and at the time of drug treatment were likely to be living with a male addict (Beschner & Thompson, 1981; Bahna & Gordon, 1978; Hall & Arbor, 1979; Tunving & Nilsson, 1985).

Women, as a gender group, have a number of different or unique experiences from men, which may contribute to their pattern of drug abuse. The relationship between abuse of alcohol and drugs, and sexual abuse is an example. It has been estimated that between 50% to 85% of women seeking treatment for drug or alcohol problems have been sexually abused (Beschner & Thompson, 1981; Fergusson, 1983). Furthermore, research has found evidence for a relationship between menstrual cycle phases and alcohol and drug-taking behaviour (Gaulden, Littlefield, Putoff, & Sievert, 1964; Sutker, Libet, Allain, & Randall, 1983). For example, normally cycling women reported significantly more negative moods, more frequent drinking, and drug-taking to relieve tension and depression, and more frequent solitary drinking at menstruation. These relationships were not observed among women using oral contraceptives. Therefore, it appears that women addicts have special needs and concerns which must be part of any drug treatment programme, if women are going to be encouraged into and benefit from such programmes.

SUMMARY: These demographic factors may be summarised in this way: employment is a good predictor of successful outcome; a large number

of convictions and living with an addict not in treatment are predictors of poor outcome; women are more likely to do worse than men if issues that are relevant to them are not taken into account; black people are more likely to drop out of treatment than white people and the older a person is at admission to treatment - the greater the likelihood of success. The evidence is inconclusive about the relationship between age of first opiate use, and level of education.

3.1.2: PSYCHOSOCIAL VARIABLES

1. Psychopathology:

Khantzian and Treece (1985) noted that a comparison of diagnostic studies of narcotic addicts from the 1920's up to 1970 demonstrated consistent trends. They noted that the dominant diagnoses (50% to 90%) were of personality disorders, with antisocial and sociopathic features highlighted. There were also low but consistent frequencies of psychotic (up to 20%) and neurotic (up to 14%) diagnoses. Khantzian and Treece in their own study, diagnosed and classified a diverse sample of 133 narcotic addicts using D.S.M.III criteria. They found that 77% of the sample met criteria for one or more diagnoses on axis I (just under half the sample were clinically depressed) and 65% met the criteria for a personality disorder. In total, 93% of their sample met the criteria for a psychiatric disorder other than substance abuse. Overall, the two most prominent diagnoses were affective and personality disorders, although the latter diagnoses might be confused because substance abuse is one of the diagnostic criteria for both antisocial and borderline personality disorders. Furthermore, severe

psychopathology was associated with a more extensive and severe history of substance abuse of all kinds, and was indicative of a poorer outcome. Unfortunately these authors did not state or separate results into gender, age, and ethnic groups, which could have provided valuable information.

On the other hand, Jacobs, Doft, and Koger (1981) did not find any relation between the level of symptom distress and client's performance or well-being in a methadone treatment programme - even though clients had levels of distress comparable with psychiatric patient populations. They administered the Symptom Check List (S.C.L.-90, Derogatis, 1977), a psychiatric symptom test to 264 methadone clients and found that 63% of their sample scored above the normal level of symptom distress, with the highest scores obtained on the depression and paranoid scales. Interestingly, they observed that female clients were significantly more distressed than male clients and suggested that the S.C.L.-90 is useful in highlighting client subgroups who are in particular distress.

2. Stressful life events:

Clients on a methadone maintenance programme were studied to determine which factors influenced a return to drug usage while in treatment (Krueger, 1981). Psychosocial data, the Zung Depression Scale (Zung, 1965), and the Social Readjustment Rating Scale (S.R.R.S, Holmes & Rahe, 1967), were collected on 48 clients during a heroin free period on a methadone maintenance programme and again after they returned to heroin use (duration of study was for one year). This information was compared with a control group of those who remained drug-free while on

methadone. Results showed that the group of clients returning to heroin use had such events as recent loss, depression and personal distress coinciding with the occurrence of heroin use. Additionally, their S.R.R.S. scores on relapse were significantly higher than those of the control group, and their own scores during their drug-free period. Krueger suggests that stressful events must be taken into account in terms of understanding, and treating clients on methadone programmes.

In a survey (Prusoff, Thompson, Sholomskas, & Riordan, 1977) of 106 opiate addicts maintained on methadone, it was found that one-third were clinically depressed and those depressed clients reported significantly more stressful life events such as financial difficulties, and more arguments than non-depressed methadone clients. Unfortunately, the authors did not state how this affected drug usage.

3. Self-perceived factors:

Although there has been little attention to clients' perception of factors responsible for successful rehabilitation (Angle, Hadley, & Odium, 1979), one study that did investigate such factors for 40 methadone clients, found that they most frequently attributed their successful rehabilitation to the following factors; A supportive relationship, particularly with a drug-free person, a satisfying job, and personal coping skills (Abrahms, 1979). Conversely, the withdrawal or absence of such events was associated with subsequent reinvolverment in the drug subculture and with drug abuse. Abrahms states that the importance of incorporating clients' experiences and self-appraisals of

success is such that:

"The building of natural environmental support through family therapy, marital counselling and/or 'buddy systems', along with teaching constructive social interaction skills, anticipation of and resistance to peer pressure from previous drug-using associates, and systematic post-treatment therapeutic contacts may inoculate patients from resorting to substance abuse under stressful conditions." (Abrahms 1979, p.1080)

3.1.3: Within-treatment factors

The ability to remain drug-free and function well in the community has been found to be related to a variety of within-treatment variables, with conditions surrounding detoxification of particular importance (Senay, Dorus, Goldberg, & Thornton, 1977). Factors that were associated with successful rehabilitation up to six years after treatment were; careful preparation for withdrawal and gradual dose reduction, being in treatment for a period of more than twelve months duration, and favourable staff impressions as to clients' progress (Stimmel, Goldberg, Rotkopf, & Cohen, 1977). The relationship between duration of treatment and successful outcome has been noted by Lewis (1981) and possibly reflects the important role played by rehabilitative factors such as psychological, social, health and counselling services available at treatment centres. Unfortunately, these factors have not been analysed separately, and therefore, the importance of these variables individually is not known.

The number of previous attempts to rehabilitate or the number of times on a methadone programme as a predictor of outcome has resulted in contradictory findings. Szapocznik and Ladner (1977) found that the more attempts at rehabilitation on methadone programmes, the greater the likelihood of success. Others have found no relationship at all (Babst, Chamber, and Warner, 1971): Still others have found an inverse relationship (Williams & Johnston, 1972) with a higher number of previous attempts being negatively correlated with retention in treatment. However, it can be stated that withdrawal from methadone maintenance cannot be assumed to succeed even with the highly motivated, unless the person is sufficiently rehabilitated to enable them to cope with the demands and pressures of everyday life. This may require several attempts and abstinence may never be achieved. However, it should be pointed out that abstinence per se does not necessarily signify optimal functioning (Stimmel, Goldberg, Rotkopf, & Cohen, 1977) and occasional drug use may not lead to either re-addiction (Robins, 1979; Zinberg, 1979) or a capricious lifestyle (Bale, Van Stone, Elashoff, Zarcone, & Kuldau, 1980).

3.1.4: Alcohol and polydrug abuse

Throughout alcohol and drug treatment centres internationally, multiple substance abuse is increasingly recognised as a problem (Greene, 1979). Sometimes this means a person will primarily be abusing one drug and also intermittently using a range of other drugs, or more commonly, abusing two or more drugs (including alcohol) sequentially. Therefore, as one would expect there is a tendency for opiate addicts to abuse a wide range of other substances (Robins, 1979). Vaillant (1966)

reported that the ability to decrease opiate use was associated with substitution of a wide variety of other substances. In fact, alcohol was the primary substitute for 46% of his sample.

The literature indicates that alcohol is likely to be the first drug abused by addicts and the most frequently used drug prior to opiate dependency (Gerston, Cohen, & Stimmel, 1977). Therefore, it is not surprising that alcohol represents the drug most frequently abused by persons on methadone treatment programmes. Furthermore, Gerston et al. (1977), found that alcohol abuse was a major factor in preventing successful rehabilitation while on the methadone programme. Similarly, alcoholism was a factor in 26% of the terminations from a New York methadone treatment centre (Joseph & Appel, 1985). These authors go on to state that the majority of methadone clients who are abusing alcohol had drinking problems prior to their admission into the methadone programme. However, noticeable increases in the consumption of alcohol were evident during and after withdrawal from methadone. The accumulated evidence suggests alcohol abuse after treatment is not the result of treatment programmes per se, but represents the inability of methadone treatment programmes to effect long-term change and control over alcohol consumption and abuse (Khuri, Millman, Hartman, & Kreek, 1984). This highlights the need for methadone programmes to be flexible enough to include a multimodal approach (Gerston, Cohen, & Stimmel, 1977) utilizing controlled drinking, abstinence, or antabuse; and that it is imperative that alcohol problems are dealt with simultaneously with the opiate problem.

As one would expect, a number of researchers have found that multiple

drug users and alcoholics were more likely to fail than those who primarily abused opiates (Babst, Chambers, & Warner, 1977; Szapocznik & Ladner, 1977). Also, Judson and Goldstein (1982) established that a history of heavy alcohol use or heavy drinking during treatment, were warnings of poor global outcome as well as poor outcome in terms of abstinence from opiates.

CHAPTER FOUR

INTRODUCTION TO THE PRESENT RESEARCH

4.1: Background and aims of the present study

The present study was carried out at the Palmerston North Alcohol and Drug Centre (P.N.A.D.C) at the request of staff members that their methadone programme be evaluated. It was thought that such research would give valuable information about what happened to opiate addicts once they left the programme and thus provide useful guidelines for changes or modifications to the existing programme. Following this request, the present researcher initiated contact with staff at the P.N.A.D.C which resulted in clarification of programme goals, and the establishment of communication between the researcher, and staff members.

Methadone treatment is reknowned as a controversial treatment approach throughout the world. Such attitudes as "it's like giving bourbon to an alcoholic" are commonplace. Also, a great deal of publicity has been given to deaths resultant from diverted methadone. Consequently, methadone programmes within New Zealand are vulnerable to negative publicity and perhaps, public overreaction aimed at reducing or stopping the availability of such treatment. Therefore, it is essential that the efficacy of methadone treatment programmes within New Zealand be established, by evaluative research, and this information made available to the general public, in order to act as a buffer, in what is, a politically charged area.

The research to be reported here is concerned with the initial investigation of both summative and formative aspects of treatment at the P.N.A.D.C, and to explore the importance for this programme of some of the general findings reported in the literature. The programme was assessed in terms of the six stages of evaluation postulated by Williamson, Prost, and George (1978); general effectiveness, means-ends analysis, internal validity, goal-outcome congruence, external validity, and construct validity. The six stages of evaluation posed by Williamson et al. (1978), provide a thorough and efficient model by which to assess the P.N.A.D.C's methadone programme. General effectiveness determines whether or not the programme has had any effects or induced changes in the recipients, means-ends analysis compares the programme emphasis to programme goals, and internal validity ascertains the extent to which outcomes are a consequence of the programme. Goal-outcome congruence relates outcomes to programme objectives, external validity is concerned with the generalisability of findings to other communities, and construct validity inspects how well programme rationale translates into operational definitions of goals and objectives. Utilizing such a model of evaluation in the present study, produces an integrated evaluative approach, encompassing theoretical, methodological and organizational components. Williamson et al. (1978) intended such a model to be linked into the programme, to facilitate assessment of, and if indicated, modification and improvement of the programme.

The present study was subject to a number of the environmental constraints outlined earlier. Time limitations prohibited the collection and follow-through of clients from entry into the programme,

but rather, necessitated the collection of data about the clients after they had received the programme. These constraints pose threats to both internal and external validity, and serve to highlight the need for a thorough assessment of all facets relevant to evaluation research.

The protocol for methadone treatment in New Zealand, suggests that the goals of methadone treatment programmes were for opiate dependants to adopt healthy, self-fulfilling, and productive lifestyles, and to achieve an eventual drug-free existence. Treatment consisted of methadone maintenance as prolonged withdrawal, and continuation of this treatment might be contingent on clients participating in various programmes (ie. Narcotics Anonymous, Women's groups), or on taking antabuse as directed by the P.N.A.D.C team.

The present study firstly gathered data on a number of outcome variables including employment, criminal activity, alcohol and drug use, health, and interpersonal relationships. Secondly, possible contributing components to success or failure were examined. These were divided into four categories; demographic variables, the extent of alcohol and polydrug abuse, psychosocial variables, and treatment variables. As a large amount of information was collected, not all data will be utilized for the present study, but rather, some serve as the starting point for a more broad ranging, longitudinal study for the P.N.A.D.C.

The present study examines the extent of improvement occurring while clients are on methadone and the degree of improvement maintained

following detoxification and alongside this, attempts to identify some of the contributing or predictor factors in this process.

CHAPTER FIVE

METHOD

5.1: Subjects

The subjects were 94 clients of the P.N.A.D.C: Group One ($\bar{N}=34$) was the experimental group and consisted of all the clients accepted into the methadone treatment programme between May 1984 and May 1985 inclusive. The sample consisted of 15 women (44.1%) and 19 men (55.9%) with an age range of 21 - 35 years. Criteria for admission to the methadone treatment programme were;

- 1) a habit of opiate abuse must be established (needle tracks, knowledge of drug subculture)
- 2) clients must express a desire to become drug-free, and
- 3) have a commitment to attending a therapeutic programme or group (individual counselling, narcotics anonymous, or women's group for example), as well as methadone treatment

Group Two ($\bar{N}=30$) were polydrug abusers (classified in the present study as abusing two or more drugs, or if the two drugs were alcohol and marijuana, a further drug must also be being abused in order to fit the criterion) and Group Three ($\bar{N}=30$) were alcohol abusers, who did not fit the criteria for either groups one or two. Groups two and three were non-equivalent comparison groups whose members were selected on the basis that they had been admitted for assessment or treatment at the P.N.A.D.C on one or more occasions during the period of May 1984 to May

1985 inclusive. Both comparison groups were matched to the methadone group for age and sex, this was first achieved by systematically going through the P.N.A.D.C's files between May 1984 and May 1985 inclusive and selecting those clients who fitted the criterion for age. A total population of 12 women (30%) and 28 men (70%) who were polydrug abusers, and 11 women (12.5%) and 77 men (87.5%) who were alcohol abusers. From this population, a sample was randomly selected for both groups of men. All women were included in the sample as their numbers were already lower than the number of women in the experimental group. Therefore, the subjects for the polydrug group (group two) consisted of 12 women (40%) and 18 men (60%) and the alcohol group (group three) consisted of 11 women (37%) and 19 men (63%). A summary of the total number of subjects and those who were interviewed for each group is presented in Table 1.

TABLE 1

Total number of subjects and those who were interviewed in three different groups of drug abusers

Subjects	Group One	Group Two	Group Three
Interviewed	21	11	11
Refused	-	1	-
Dead	1	-	-
Unable to Locate	12	19	19
Total	34	30	30

For Group One, 62% of the sample completed the questionnaire; whilst both Group Two and Three had a low completion rate of 37%. Due to a low return rate of the questionnaire, for both the alcohol group, and the polydrug group, these two groups were combined to form one comparative group; subsequently called the alcohol and polydrug group.

5.2: PALMERSTON NORTH ALCOHOL AND DRUG CENTRE (P.N.A.D.C)

The P.N.A.D.C is an outpatient agency dealing with a wide range of alcohol and drug dependency-related problems. The centre serves a city population of approximately 65,000 and has a relationship with the inpatient detoxification ward at the Palmerston North Hospital and has nine beds at its disposal. The centre employs a multidisciplinary team of health professionals including a psychologist, social workers, and counsellors.

5.3: QUESTIONNAIRE

The questionnaire used in the present study (Appendix 1 presents the questionnaire sent out to the methadone group - the only difference between this questionnaire, and those sent out to the alcohol and polydrug group, was the word 'methadone' was excluded), was substantially based on one developed and used by the Auckland Drug Dependency Clinic. Several additional items were added, these were:

- A. A section for evaluation of the client, by a significant other (see Appendix 2 - the word 'methadone' was excluded from the evaluation form sent out to significant others).

This section of the questionnaire was sent out to significant others along with an introductory letter (see Appendix 3) stating what the research was about and what was required of them

- B. Questions pertaining to educational background of parents (or caretakers) as well as estimation of gross incomes both for the subjects, and her or his parents (or caretakers).
- C. Counsellors' overall evaluation of the clients' progress (see Appendix 13).
- D. Clients' evaluation of the treatment services received.
- E. Hopkins Symptom Checklist - 21 (HSCL-21) (Walkey and McCormick, 1985); this is a 21 item psychiatric symptom checklist derived from the Hopkins Symptom Checklist - 58 (HSCL-58), (see Appendix 4 for checklist with key to items and subscales).

Overall, three types of information were collected:

1. Summative Measures: Self-reports of drug usage (including opiates, nonopiate analgesics, barbiturates and sedatives, tranquillizers, hallucinogens, stimulants, marijuana, and alcohol), criminal activity, employment, health, and interpersonal relationships, during the periods two months prior to treatment, twelve months prior to treatment, during treatment, and in the two months prior to completing the questionnaire were collected. These data were collected as outcome measures reflecting the behavioural goals of the methadone treatment programme. Also, clients' evaluation of the methadone treatment programme and services, was collected.

2. Demographic Factors: These included age at admission into the programme, and age of first use of all drugs, educational background, socio-economic status, employment, living situation, ethnicity and gender as well as parental alcohol and drug use, educational, vocational and socio-economic status.

3. Formative Measures: The Hopkins Symptom Checklist - 21 was used as a measure of psychosocial functioning. Walkey and McCormick (1985) indicated that there were three replicable subscales of the HSCL-58 interpreted as, general feelings of distress, somatic distress and performance difficulty.

Data on within-treatment factors including, the duration and number of admissions for treatment, separated into inpatient and outpatient treatment, detoxification, and methadone treatment were collected.

A large proportion of the data gathered was based on self-report and consequently subject to distortion. Ben-Yehuda (1980) reported, however, that previous studies on drug abuse have shown these data have a high degree of reliability and validity. In the present study, evaluations of the subjects functioning from:

- (i) alcohol and drug counsellors who had worked with each subject,
and
- (ii) significant others in the subject's life,
were collected as additional checks of validity.

5.4: PROCEDURE

5.4.1: Pilot Study

Initially, a pilot study was carried out to test whether the questionnaire was easily understood and completed by subjects. This resulted in some minor modifications to the questionnaire, the final version of which was used in the present study.

5.4.2: Design

A posttest-only design with non-equivalent comparison groups was used in the present study.

5.4.3: Location of Subjects

Initially subjects were traced from addresses held on treatment files at the P.N.A.D.C. However, this often proved unsuccessful due to frequent changes in residence among the drug-taking population. In such cases, the social network of friends, and family, and other agencies with whom they might have had contact with were approached, but without revealing the purpose for which clients were required hence preserving confidentiality. Once located, each subject was contacted by post explaining that they had been selected to participate in a research project and asking them to phone the P.N.A.D.C in order to obtain further information and make an appointment for an interview to complete a questionnaire (see Appendix 5 for copy of initial letter). Those subjects who lived outside the Manawatu district for whom

transport to the centre could not be arranged were posted out questionnaires to be filled in.

All subjects were requested to sign a consent form explaining the purpose of the research, promising confidentiality and stating that they were willing to sign a consent form, and answer the questionnaire (see Appendix 6). If subjects failed to respond to the introductory letter or failed to return their posted out questionnaire, a reminder notice was sent out, or if a telephone number was known, they were telephoned. When subjects were available for an interview (to fill in the questionnaire), the interview was carried out by a trainee clinical psychologist at the P.N.A.D.C. Those who completed the questionnaire autonomously, returned it by post.

5.4.4: Data Analysis

All data analysis was undertaken with using the S.P.S.S.X programme (S.P.S.S.X users guide, 1986). All missing data in the present study, was excluded from analyses. The statistical tests utilized in the present study, and the rationale for their use, is presented in Appendix 7. Finally, the retrospective pre-treatment measures used in the analyses were two months prior to the methadone programme, and post-treatment measures were two months prior to completing the questionnaire.

SUMMATIVE EVALUATION

Means and medians for outcome measures: The medians of drug use,

health (rating scale), and interpersonal relationships, for the time intervals of pre, during, and after treatment were calculated. The scales used for all drugs (excluding alcohol), were; 0-no use, 1-less than once a week, 2-once a week, 3-more than once a week, 4-once a day, and 5-more than once a day. The rating scale for health was 1-poor to 3-O.K to 5-excellent and for satisfaction of friendships 1-most dissatisfied to 3-O.K to 5-highly satisfied. Number of friends in and out of the drug scene were grouped into the following categories 0(no friends), 1(1 to 3 friends), 2 (4-6), 3(7-10), 4(11-15), 5(16-20) and 6(more than 20). Means for alcohol use, employment, health and criminal activity were based on mls consumed per week, number of weeks worked, days spent sick in bed, and criminal convictions respectively, in the pre, during and post treatment periods. The median for global functioning, a composite of several outcome criteria designed to assess overall rehabilitation was also calculated, in the pre, and post-treatment periods. Criteria included were opiates, nonopiate analgesics, tranquillizers, marijuana, alcohol, criminal activity-marijuana, nondrug and drug related convictions, employment, ratings of health and friendship satisfaction.

Change rates for outcome measures: The change rates for each outcome measure, were calculated by subtracting the mean rate occurring over the pre-during, during-post, and pre-post treatment periods, yielding a quantitative measure of improvement(+), deterioration(-) and no change(0). Mean change rates for all drug use (excluding alcohol) ranged from -5 to +5; rating scales for health and friendship satisfaction ranged from -4 to +4; number of friends in and out of the drug scene ranged from -6 to +6. The composite measure for global

functioning theoretically extended from -15 to +15, the heaviest weighting given to opiate use (-5 to +5) and criminality (-3 to +3 - a combination of the three types of convictions), each of the remaining variables contributed -1 to +1. Change rates for alcohol use, employment, health and criminal activity are based on change in mls consumed per week, weeks worked, days spent sick in bed and criminal convictions respectively.

A reversal of signs (+) and (-) for employment, ratings for health and friendship satisfaction and number of friends out of the drug scene data was necessary as a negative score was indicative of improvement in functioning and a positive score of deterioration in functioning.

Counsellors and clients ratings of outcome measures: The degree of change occurring pre-post for clients on criteria drug use, alcohol use, employment, health, and criminal offending according to both counsellors and clients was analysed. A change rate was calculated for both counsellors and clients. On the counsellors evaluation form (see Appendix 2), the change rates for all outcome measures (drug use, alcohol use, employment, interpersonal relationships, health, and criminal offending) were given a value of (-1),(0),(+1), indicating deterioration, no change, or improvement over the pre-post period. From the clients' evaluation questionnaire, the drug criteria (a combination of opiates and nonopiates) was calculated to yield similar values of -1,0,+1 as that of counsellor change rates; similarly, criminal offending (combination of criminal convictions marijuana, nondrug, drug related) yielded an overall value of +1 to -1. All other criteria i.e., alcohol, health, employment, and interpersonal

relationships also contributed +1 to -1.

FORMATIVE EVALUATION

To determine what variables were associated with the most change in opiate intake and overall rehabilitation, mean change rates on these two criteria were calculated for a number of variables (demographic, psychosocial, treatment, alcohol and polydrug use).

Treatment factors: Firstly, treatment types - treatment for drug dependency was categorised as methadone only or a combination of methadone, inpatient (including detoxification and inpatient) and outpatient services. Secondly, time spent in treatment - the cumulative total of months spent in all treatment programmes for drug dependency and then subdivided into one year or less, and more than one year. Thirdly, the number of treatments for drug dependency were subgrouped as (1-3) and (4-7).

Alcohol and polydrug use: Polydrug use - a composite score of drug usage (excluding opiates and alcohol) two months prior to treatment, with each drug ranging from 0-no use to 5-daily use and then categorised into low polydrug use (0-10) and high polydrug use (11-30). Alcohol use - at two months prior to treatment. The cut-off point between low and high intake was taken as 266 mls (men) and 213 mls (women) consumption per week, the level considered to be maladaptive and hazardous in a psychological, physical and social sense (Alcohol Advisory Services, cited in Lewis, 1981).

Psychosocial variables: Hopkins symptom checklist-21 - three subscales

were utilized; general feelings of distress, somatic distress and performance difficulty. Questions pertaining to each subscale were subtotalled yielding a low-moderate (7-14) and a moderate-high (15-28) score.

Demographic variables: Gender, ethnicity, age at admission (25 years and under or over 25 years), age of first opiate use (18 years and under or over 18 years), employment (prior, during and after treatment), education and criminal convictions low (1-9), high (10-23) were all examined.

5.4.5: Feedback of findings to participants, staff, and programme organisers:

A brief outline and summary of the research findings was sent out to all participants (see Appendix 8), stating that a full documentary report would be sent out to staff at the P.N.A.D.C and made available for them to view in the centre's library. Also, participants were encouraged to make contact with the author if further information was requested.

CHAPTER SIX

RESULTS

The types of data obtained from the summative and formative measures included categorical data (gender, ethnicity of respondents, and age of first opiate use) and continuous and quasi-continuous data (age, income, health, employment, alcohol and drug use and criminal activity). The presentation of results is organised into three major sections comprising demographic factors, summative evaluation, and formative evaluation.

6.1: DEMOGRAPHIC FACTORS

A wide range of demographic data was obtained for both groups of drug abusers as is presented in Table 2: There were more males (62%) in the methadone group, whilst the alcohol and polydrug group had more female (59%) participants. There was a predominance of Pakehas (86% methadone, 95% alcohol and polydrug), and incomes of \$20,000 or less (76% respectively). The majority of subjects in both groups had attained no school qualifications (81% methadone, 64% alcohol and polydrug), and the mean age at time of completing the questionnaire was approximately 26 years (methadone) and 28 years (alcohol and polydrug).

TABLE 2

Number, means, and standard deviations for demographic data of two different groups of drug abusers in the pre-post treatment period

Demographic Data	Methadone Group ($\bar{N}=21$)		Alcohol and Polydrug Group ($\bar{N}=22$)	
	\underline{n}		\underline{n}	
GENDER				
Female	8		13	
Male	13		9	
ETHNIC GROUP				
Maori	1		1	
Pacific Islander	2		-	
Pakeha	18		20	
ACCOMMODATION				
Own home	2		3	
Parents home	1		4	
Rent	16		12	
Other	2		3	
LIVING SITUATION				
Single	4		9	
Married	3		4	
Separated/divorced	1		4	
Widowed	1		-	
Living with partner	9		4	
In a relationship but not living together	3		1	
INCOME				
\$20,000 or less	16		17	
More than \$20,000	1		3	
EDUCATION				
No school exams passed	17		14	
School exams passed(S.C/U.E)	4		8	
	\bar{X}	S.D	\bar{X}	S.D
AGE(at time of completing questionnaire)	26.5	3.6	27.8	6.6
SCHOOL LEAVING AGE	15.1	.9	15.3	2.0

Table 3 shows the level of polydrug and alcohol use, age of first regular drug use, parental drug usage, and whether participants live with others who abuse drugs.

TABLE 3

Numbers, means, and standard deviations of drug-related factors
in two different groups of drug abusers

Drug-related factors	Methadone Group ($\bar{N}=21$)			Alcohol and Polydrug Group($\bar{N}=22$)		
	\underline{n}	\bar{X}	S.D	\underline{n}	\bar{X}	S.D
AGE OF FIRST USE						
Opiates	21	18.5	3.3	6	18.5	2.7
Nonopiate analgesics	19	21.4	4.5	10	17.6	3.3
Barbiturates and sedatives	11	19.9	4.1	7	19.6	4.8
Tranquillizers	14	18.9	3.9	10	18.5	3.8
Hallucinogens	18	16.7	1.9	8	17.0	2.7
Stimulants	13	18.5	4.0	7	17.7	3.7
Marijuana	21	15.4	2.4	16	16.4	4.0
Alcohol	19	15.9	3.8	21	15.6	3.5
LIVE WITH OTHERS WHO ABUSE DRUGS						
Yes	13			4		
No	4			9		
POLYDRUG USERS						
Low(0-10)	6			14		
High(11-30)	13			8		
ALCOHOL USERS						
Low(less than 266mls)	19			3		
High(more than 266mls)	2			19		
ALCOHOL						
Mother-none	7			5		
-light	8			13		
-moderate	2			1		
-heavy	4			3		
Father-none	2			1		
-light	4			10		
-moderate	6			3		
-heavy	9			8		
PRESCRIBED DRUGS						
Neither parent uses	10			5		
One parent has-mother	7			5		
-father -				4		
Both parents used	4			4		
NARCOTICS						
Neither parent uses	19			19		
One parent uses-mother-				-		
-father	2			-		

The first two drugs to be used regularly by both groups were marijuana and alcohol. There were no major differences in age of first use

between groups, except for non-opiate analgesics; the mean age of first use by the alcohol and polydrug group was earlier by approximately three years. A larger proportion of the methadone group (68%), than the alcohol and polydrug group (36%), were categorised as high polydrug users; and overall, respondents in the methadone group were using a wider range of drugs on a regular basis than respondents in the alcohol and polydrug group. This is shown by the fact that approximately 15 more methadone group subjects used opiates than the alcohol and polydrug group; nine more used nonopiate analgesics, and 10 more used hallucinogens. For alcohol use, only 10% of the methadone group were classified as high users, whilst 86% were so in the alcohol and polydrug group. Most participants in the methadone group live with others who abuse drugs (77%), whilst most do not in the alcohol and polydrug group (31%). Both groups overall described their mother's alcohol intake as none to light, and their father's as moderate to heavy: parents were described as not using narcotic drugs at all (91% methadone, 100% alcohol and polydrug group). Finally, prescription drugs were indicated as being used regularly by one or both parents in 74% of the alcohol and polydrug group, and 52% of the methadone group.

6.2: SUMMATIVE EVALUATION

The mean rates of change for a variety of outcome criteria in the pre-post treatment period, and significance levels of comparisons between two groups of drug abusers are presented in Tables 4 and 5.

TABLE 4

Median changes for outcome criteria between two different
groups of drug abusers in the pre-post treatment period

Outcome criteria	Methadone($\bar{N}=21$)			Alcohol and polydrug($\bar{N}=22$)		
	\underline{n}	\bar{M}	R	\underline{n}	\bar{M}	R
Opiates	21	+4.00	8.00	6	+2.00	7.00
Non-opiate analgesics	19	+2.00	10.00	10	+1.00	9.00
Barbiturates and sedatives	5	+1.00	4.00	5	+ .00	6.00
tranquillizers	19	+1.00	8.00	11	+4.00	7.00
Hallucinogens	4	+1.00	2.00	4	+1.50	4.00
Stimulants	6	+1.00	4.00	6	+1.00	5.00
Marijuana	17	+1.50	6.00	15	+3.00	10.00
Interpersonal relationships	20	.00	6.00	21	+1.00	6.00
Health rating	21	-1.00	6.00	21	-1.00	5.00
Global functioning	21	+5.00	14.00	22	+3.00	16.00

Note: \bar{M} = median

R = range

+ = improvement or reduction in intake

- = deterioration or increase in intake

There were no significant differences between groups at $p < .01$

Table 4 shows that there were no statistically significant differences between groups, on all outcome criteria presented, in the period two months prior to treatment and in the two months immediately prior to completing the questionnaire.

TABLE 5

Change rates, numbers, standard deviations, and significance levels for outcome criteria, between two different groups of drug abusers in the pre-post treatment period

Outcome criteria	Methadone (N=21)			Alcohol and Polydrug(N=22)			df	t
	<u>n</u>	\bar{X}	S.D	<u>n</u>	\bar{X}	S.D		
Alcohol	20	+80.15	207.78	22	+397.05	364.38	40	3.41***
Employment	20	+ 9.50	19.05	20	+25.25	22.13	38	2.41
Health (days sick in bed)	19	+11.21	29.03	17	+6.06	14.21	34	.66
Criminal Activity (convictions)								
Marijuana	14	+1.78	2.67	3	+.68	.58	15	.71
Other drug	11	+1.09	2.55	4	+2.50	3.11	13	.90
Nondrug	8	+1.38	2.07	6	+1.00	2.37	12	.32

Note: + = improvement or reduction in activity
 - = deterioration or increase in activity

*** $p < .001$

As presented in Table 5, there was a significant difference between groups on the outcome criteria alcohol, $t(40) = 3.42$, $p < .01$, reflecting a greater reduction in alcohol intake by the alcohol and polydrug group.

The overall evaluation by counsellors of clients' progress, was compared to clients' assessment on a variety of outcome measures (drugs, alcohol, health, employment, interpersonal relationships, and criminal offending) and no significant differences between these

evaluations were found for any measures, except health ($\bar{M} = +1.00$, $R = 2.00$ counsellors; $\bar{M} = -1.00$, $R = 2.00$ clients; Wilcoxon z-score = -2.62 , $p < .01$). Thus, on all other measures, counsellors rated change in clients in the same direction as the clients themselves, in the pre-post treatment period (see Appendix 13 for table of results). For health criteria, counsellors perceived an overall improvement in clients' health, whilst clients perceived an overall deterioration.

Tables 6, 7 and 8 present the medians and means for outcome criteria in the pre, during, and post conditions, as well as the change rates, and significance levels for the methadone group in the pre-during, during-post, and pre-post treatment periods.

As shown in Table 6, a highly significant reduction in opiate use occurred in the pre-during (Wilcoxon z-score = -2.02 , $p < .001$) and pre-post (Wilcoxon z-score = -3.68 , $p < .001$) treatment periods. This change rate reflects an improvement in the methadone group from more than once daily prior to treatment, to no use during treatment, and less than once weekly use in the post treatment period. For non-opiate analgesics, a similar reduction occurred in the pre-during period (Wilcoxon z-score = -3.72 , $p < .001$). The use of these drugs increased however, during the during-post period (Wilcoxon z-score = -2.29 , $p < .05$). There was however, still a significant reduction in nonopiate analgesic use in the pre-post (Wilcoxon z-score = -2.67 , $p < .05$) treatment phase, but this was at a lower level of significance than the pre-during treatment phase.

Therefore, drug use decreased from more than once a day use prior to

treatment, to no use during treatment; with an increase after treatment, to a use of once a week. For drug outcome criteria, barbiturates and sedatives, there was a significant reduction in use in the pre-post treatment period only (wilcoxon z-score = -2.02, $p < .05$): This saw drug use prior to treatment at a level of less than once a week, decreasing to no use at all after treatment.

There was a significant reduction in drug usage for tranquillizers, in the pre-during (wilcoxon z-score = -2.70, $p < .01$) and pre-post (wilcoxon z-score = -1.99, $p < .05$) treatment periods. This change rate reflects an improvement in the methadone group from use more than once a week prior to treatment, to use less than once a week during treatment, and after treatment. Similarly, for drug criteria stimulants, there was a decrease in use, in the pre-during (wilcoxon z-score = -2.20, $p < .05$), and pre-post (wilcoxon z-score = -2.20, $p < .05$) periods; indicating a reduction in use from less than once a week prior to treatment, to no use at all after treatment. Interestingly, there was a significant reduction in marijuana use in the during-post (wilcoxon z-score = -2.68, $p < .01$), and pre-post (wilcoxon z-score = -2.75, $p < .01$) treatment phases; indicating a decrease in the use of this drug, from more than once a day use prior and during treatment, more than once a week after treatment. There were no significant differences during any treatment period for drug outcome criteria hallucinogens, reflecting no major decrease or increase in intake within the methadone group.

TABLE 6

Medians, change rates, and significance levels in drug usage
outcome criteria for the methadone group in the pre, during,
and post-treatment periods

outcome criteria	pre	change pre-during	during	change during-post	post	change pre-post
<hr/>						
OPIATES (n=21)						
\bar{M}	5.00	+4.00***	.00	.00	1.00	+4.00***
R	3.00	3.00	3.00	8.00	5.00	8.00
NONOPIATE ANALGESICS (n=19)						
\bar{M}	5.00	+4.00***	.00	-1.00*	1.00	+2.00*
R	4.00	5.00	3.00	8.00	5.00	10.00
BARBITURATES and SEDATIVES (n=5)						
\bar{M}	1.00	+1.00	.00	.00	.00	+1.00*
R	3.00	3.00	3.00	3.00	.00	4.00
TRANQUILLIZERS (n=19)						
\bar{M}	3.00	+1.00**	1.00	.00	1.00	+1.00*
R	4.00	6.00	5.00	8.00	4.00	8.00
HALLUCINOGENS (n=4)						
\bar{M}	1.00	+1.00	.00	.00	.00	+1.00
R	.00	2.00	2.00	.00	.00	2.00
STIMULANTS (n=6)						
\bar{M}	1.00	+1.00*	.00	.00	.00	+1.00*
R	4.00	4.00	3.00	3.00	.00	4.00
MARIJUANA (n=18)						
\bar{M}	5.00	.00	5.00	+ .50**	3.00	+1.50**
R	2.00	4.00	4.00	5.00	5.00	6.00

Note: \bar{M} = median

R = range

+ = improvement or reduction in intake

- = deterioration or increase in intake

* $p < .05$ ** $p < .01$ *** $p < .001$

TABLE 7

Means, change rates, and significance levels in outcome criteria
employment, alcohol, health, and criminal convictions for the
methadone group in the pre, during, and post-treatment periods

Outcome criteria	Pre	Change pre-during	During	Change during-post	Post	Change pre-post
EMPLOYMENT (n=20)						
\bar{X}	6.14	+ 5.86*	12.00	+3.55	15.55	+ 9.50*
S.D	10.36	12.66	17.50	19.14	20.44	19.05
HEALTH						
In bed sick (days) (n=19)						
\bar{X}	15.42	+11.42	4.00	- .21	4.70	+11.21
S.D	28.12	29.65	7.94	8.32	8.64	29.03
ALCOHOL (n=20)						
\bar{X}	202.71	+99.21	103.00	+10.70	88.21	+80.15
S.D	362.64	232.96	259.28	35.10	262.76	207.74
CRIMINAL ACTIVITY (convictions)						
Marijuana related (n=14)						
\bar{M}	3.36	+ 2.93***	.17	-1.14*	1.36	+1.78*
R	1.91	2.15	.36	2.07	2.02	2.67
Other drug related (n=11)						
\bar{X}	2.75	+ 2.46**	.43	-1.00	1.31	+1.09
S.D	2.01	2.07	.76	2.37	1.97	2.55
Nondrug related (n=8)						
\bar{X}	3.38	+ 2.25**	.30	+ .09	.50	+1.38
S.D	1.77	2.71	.68	1.04	.85	2.07

Note: + = improvement or decrease in activity
 - = deterioration or increase in activity
 * $p < .05$ ** $p < .01$ *** $p < .001$

Table 7 shows there were significant differences in employment, in the pre-during ($t(20) = -2.12$, $p < .05$), and pre-post ($t(19) = -2.23$, $p < .01$) treatment periods; representing a mean increase in number of weeks worked of approximately six and ten weeks respectively. For marijuana-related criminal convictions, there was a highly significant

reduction in the number of criminal convictions, in the pre-during ($t(17) = 6.24$, $p < .001$) period, of approximately three convictions. There was also a significant decrease in the pre-post ($t(14) = 2.55$, $p < .05$) treatment period for marijuana-related criminal convictions. Interestingly, there was also a significant effect observed for marijuana-related convictions in the during-post ($t(14) = 2.29$, $p < .05$) period, indicating an increase in the number of convictions for this criteria, once clients came off the methadone programme. Criminal activity for other drug-related convictions, saw a significant decrease of approximately two to three convictions in the pre-during ($t(11) = 3.94$, $p < .01$) treatment period. Similarly, there was a significant reduction in the number of nondrug-related convictions in the pre-during ($t(8) = 5.22$, $p < .01$) period of approximately two. No significant effect occurred for health criteria - days spent sick in bed, and alcohol intake.

As shown in Table 8, ratings of health (on the rating scale) were significantly different in the during-post (wilcoxon z-score = -2.82 , $p < .01$) and pre-post (wilcoxon z-score = -2.97 , $p < .01$) phases; reflecting a median decrease in perception of health from a level of "Better than O.K" prior to treatment, to "O.K" during treatment, to "less than O.K" after treatment. For outcome criteria interpersonal relationships, there was a significant decrease in the number of friends in the drug scene (wilcoxon z-score = -2.67 , $p < .01$) even though the change rate was zero, this merely reflects the fact that the statistical test used concentrates on the mean rank of the scores (Meddis, 1984). On the other hand, there were no significant effects observed for other interpersonal relationships criteria - number of

friends out of the drug scene, and friendship satisfaction. Finally, the methadone group achieved a significant overall improvement in global functioning - a composite measure - during the pre-post (wilcoxon z-score = -3.06, $p < .05$) treatment period. The means, medians, and change rates of outcome criteria for the alcohol and polydrug group are presented in Appendix 9, Appendix 10, and Appendix 11.

TABLE 8

Medians, change rates, and significance levels in outcome criteria health rating scale, interpersonal relationships, and global functioning for the methadone group

Outcome criteria	Pre	Change pre-during	During	Change during-post	Post	Change pre-post
INTERPERSONAL RELATIONSHIPS						
Friends in drug scene (n=20)						
M	2.50	-	-	-	2.00	.00**
R	6.00	-	-	-	6.00	5.00
Friends out of drug scene (n=20)						
M	1.00	-	-	-	2.00	+ .50
R	5.00	-	-	-	5.00	7.00
Friendship satisfaction (n=20)						
M	3.00	-	-	-	3.50	.00
R	4.00	-	-	-	4.00	6.00
HEALTH						
Rating scale (n=21)						
M	4.00	.00	3.00	-1.00**	2.00	- 1.00**
R	4.00	4.00	4.00	5.00	3.00	6.00
GLOBAL FUNCTIONING (n=21)						
M	13.00	-	-	-	7.00	+5.00***
R	6.00	-	-	-	13.00	14.00

Note: + = improvement or decrease in activity
 - = deterioration or increase in activity
 * $p < .05$ ** $p < .01$ *** $p < .001$

Numbers and percentages of methadone subjects who improved, deteriorated, or were unchanged from pre-treatment to post-treatment on those outcome criteria for which significant changes were observed (see Table 6, Table 7 and Table 8), are shown in Table 9.

TABLE 9

Numbers and percentages of methadone subjects who improved, deteriorated, or were unchanged, from pre-treatment to post-treatment on those outcome criteria for which significant changes were observed

Outcome criteria	TYPE OF CHANGE					
	n	No change %	Improvement %	Deterioration %	No use n	use %
Opiates	21	5	86	9	-	-
Nonopiate analgesics	19	21	63	16	2	10
Barbiturates & sedatives	5	-	100	-	15	75
Tranquillizers	19	6	72	22	1	5
Stimulants	6	-	100	-	13	68
Marijuana	18	33	56	11	1	5
Criminal activity (convictions) marijuana	17	35	53	12	-	-
Employment	20	25	55	20	-	-
Health (rating scale)	21	24	5	71	-	-
Global functioning	21	-	95	5	-	-

Over the pre-post treatment period, 86% of the methadone group had reduced their opiate use, and had also reduced their drug usage of non-opiates analgesics (63%), tranquillizers (72%), and marijuana (56%). There was also a reduction in the number of marijuana related criminal convictions by 53% of the methadone sample. An improvement in global functioning was evident for 95% of the sample, and an increase in the number of weeks worked by 55%. Only a small proportion of the methadone group were using barbiturates and sedatives (25%), or stimulants (32%), but for those that were, there was a reduction in use for all subjects. The health rating was the only criterion on which a deterioration in the pre-post treatment period occurred, for the majority (72%) of the clients.

Evaluation of the methadone treatment programme by recipients of the service (methadone group) is shown in Table 10 (evaluation of treatment services at the P.N.A.D.C by the alcohol and polydrug group is displayed in appendix 12). In evaluating the programme overall, a large proportion of the clients rated the programme as "somewhat helpful" (79%), whilst 21% rated it as "very helpful". Factors that were particularly liked by the clientele included programme attributes such as "not having to resort to crime to get a 'taste'", or "got rid of the needle habit" and personal needs such as "chance to get your life in some sort of order", or "time to think things through". Noted dislikes of the programme were staff/client relationships ("lack of trust displayed by staff") to pick-up of methadone, for example, the large amount of travel required by clients in areas outside of Palmerston North and the fact that it required clients to mix with others in the drug scene while awaiting their methadone dose.

Evaluation of the treatment services received by the alcohol and polydrug group is presented in Appendix 12.

TABLE 10

Evaluation of the P.N.A.D.C methadone treatment programme by the methadone group

Methadone group ($\bar{N}=21$)		<u>n</u>
<u>Evaluation of treatment</u>		
Likes	-personal needs	1
	-programme attributes	8
	-staff	3
	-both personal needs/programme attributes	6
Dislikes	-staff/client relationships	7
	-pick-up of methadone	1
	-both staff/client relationships and pick-up of methadone	13
Overall Evaluation		
	-very helpful	4
	-somewhat helpful	15
	-not at all helpful	-

6.3: FORMATIVE EVALUATION

An analysis of a wide range of variables (treatment factors, alcohol and polydrug use, psychological, and demographic) to determine which were associated with the most change in opiate use and global functioning yielded no significant differences (see Appendices 14 & 15). Therefore no variables were found to be predictors of the outcome criteria opiate use or global functioning.

CHAPTER SEVEN

DISCUSSION

The results of the present study confirm that the methadone programme has succeeded in achieving a number, although not all of its objectives. These objectives were that there would be:

1. A major reduction in opiate use
2. A decrease in criminal activity
3. An increase in employment
4. Improved health
5. Improvement in interpersonal relationships

While P.N.A.D.C clients were on methadone, the programme was effective in reducing use of opiates, non-opiate analgesics, tranquillizers, and stimulants; improving employment, decreasing criminal convictions that were marijuana related, other drug related, and nondrug related. There was also an improvement in global functioning, and a reduction in the number of friends in the drug scene.

These results are generally similar to findings from methadone research, both within New Zealand and overseas. A reduction in opiate use, and improvement in employment has been noted by nearly all studies (Cushman, 1977; Lewis, 1981; Sells & Simpson, 1979). A decrease in other illicit drug use, and criminal activity was also found by Graham-Bafus, Allen, and Gordon (1984), and Sells and Simpson (1979).

Anticipated reductions or improvements, in drug use for barbiturates and sedatives, hallucinogens, or alcohol intake, for clients in the pre-during treatment period did not occur. There was no significant change in the number of days sick in bed. Similarly, there was no change for interpersonal relationships in terms of friendship satisfaction, and number of friends in the drug scene for clients during and after treatment, compared to before methadone treatment. Such a finding, combined with the fact that clients decreased their number of friends in the drug scene suggests that the methadone group is having difficulty initiating and maintaining new friends outside of the drug scene. Therefore, it may be appropriate to combine social skills and assertiveness training into the methadone programme in order for such clients to develop such skills.

Vaillant (1966) reported that the ability to decrease opiate use was associated with substitution of a wide variety of other substances, particularly alcohol. Lewis (1981) also found alcohol use increased for a number of clients at followup.

Furthermore, researchers have found that multiple drug users and alcoholics were more likely to fail in treatment than those who primarily abused opiates (Babst, Chambers, & Warner, 1971; Szapocznik & Ladner, 1977). The present study did not find such an association, but instead found a trend towards decrease in all drug use, which was not always a statistically significant one. In the case of alcohol intake for example, there was a decrease in the mean amount of alcohol drunk in a week (mls) across all treatment phases, which upon visual inspection one may have expected to be statistically significant.

However, surveillance of raw data indicates that only two clients within the methadone group were drinking alcohol at a level (266 mls or more) considered maladaptive and hazardous, prior to the methadone programme. In the during and post-treatment periods, the weekly alcohol intake for these two clients decreased to well below this level: All other recipients were not considered to be abusing alcohol prior, during, or after treatment using the above criterion. Therefore, in actual fact, it appears that the methadone programme was effective in reducing heavy alcohol intake to a level considered nonabusive. A viable explanation for current findings is that the P.N.A.D.C, as the title suggests, services both alcohol and drug abuse related problems, unlike other centres in larger cities that serve either drug-related or alcohol-related problems. Consequently the staff are knowledgeable in both areas and are likely to be aware of, and deal with alcohol abuse even though the presenting problem is opiate abuse.

Examination of maintenance of changes at post-treatment, produced a number of interesting, and some unanticipated results. The causal attribution of any post-treatment effects to the methadone programme is questionable, as there is no control for experiences once clients left the present programme. In other words, it is difficult to establish whether the cause of observed effects at follow-up are due to the methadone programme, or the result of other influences, such as maturation. This does not make attempts to look at such follow-up data futile, as valuable information pertaining to trends and effects across time can be obtained. The improvements which occurred during treatment in opiate, nonopiate analgesic, tranquillizer, stimulant use, and

employment were maintained at follow-up. Part of the improvement in marijuana related criminal convictions was maintained, although a significant deterioration occurred in the during-post period. This is in line with Wardlaw's (1978) findings that a substantial proportion of drug users commit criminal offences prior to addiction or heavy drug use: Thereby suggesting that criminality is not necessarily resultant from addiction to heroin, and will not subsequently decrease after drug rehabilitation. The two improvements which were not maintained were: other drug and nondrug related criminal convictions in which the significant effect did not hold over at post-treatment. Such a finding, is similar to that of Bowden, Maddux, and Esquivel (1978), in which only a small reduction (14%) in total criminal behaviour occurred for those on a methadone programme. Overall, this tends to suggest that a reduced intake or improvement, which occurred while clients were in methadone treatment in most - although not all - outcome criteria was being sustained approximately one year after treatment for the majority of clients, although whether this is resultant of attending the methadone programme is open to conjecture.

Interestingly, there was a significant change in nonopiate analgesic use in the during-post time phase, indicating that level of use increased once clients came off the methadone programme, although there was still an overall decrease in usage at follow-up (post), in comparison to prior to treatment.

Other changes observed in the during-post and pre-post treatment phases were - a decrease in drug use for barbiturates and sedatives (during-post), and marijuana (during-post and pre-post). Surprisingly,

no significant effect occurred pre-during treatment for either marijuana, or barbiturate and sedative use. Perhaps, this illustrates the continued effects of methadone treatment suggesting that as new skills are learnt, and new ways of coping in a drug-free state are developed, drugs are no longer required.

An unexpected deterioration in ratings of health by clients at follow-up, in comparison to prior and during the methadone programme, was found. This finding differs from the other health criterion - days spent sick in bed, a more quantifiable measure in which there were no significant changes across the treatment periods. As the two measures are not directly comparable, it is difficult to state which one more accurately portrays the situation, and perhaps it is better not to, but rather to view the two in tandem when making inferences. Therefore, clients perceived their health as deteriorating once they came off methadone, while at the same time, days sick in bed did not change significantly: Health, on both criteria was expected to improve.

Self-report methodology threatens the validity of the data, thus a check was introduced in the present study, whereby counsellors' appraisal of treatment outcomes were compared to clients' self-rating. These comparisons revealed no differences for any outcome criteria except health, which supports the validity of the self-report data provided by clients. Explanation of the difference in health is perhaps due to the fact that the measure used for comparison was the health rating, which is a more subjective measure, much more difficult to compare than the other more overt health criterion. Evaluation of the clients by a significant other was also initiated, but

unfortunately, could not be utilized for the present study due to a low return rate (methadone, 33%; alcohol and polydrug, 23%).

The difficulties, both in political and ethical terms of employing a true experimental control group have been reiterated by Cowen (1978). The present study utilized a nonequivalent comparison group, with two specific functions. Firstly, to aid interpretation of outcome results attributable to the P.N.A.D.C's programme. Although the alcohol and polydrug group was not receiving methadone, they had the same ancillary services (i.e., women's group, individual and group counselling) and staff counsellors available as the methadone group. Additionally, the objectives of treatment were similar - a decrease in all drug use, improvement in health, employment, interpersonal relationships and decreased criminal activity. While the comparison group data does not necessarily lead to direct inferences about programme attributes, it does aid such inferences. The second function of the nonequivalent comparison group was of a more exploratory nature, to look at similarities and differences between the two groups in terms of a number of variables such as demographic factors, drug use and parental drug use.

Results reveal that the change rates were similar between groups in the pre-post treatment period for opiate, nonopiate analgesic, barbiturate and sedative, tranquillizer, hallucinogen, stimulants, and marijuana use. Also, there were no major differences between groups in health (rating and days sick), all criminal activity (marijuana, other drug, and nondrug related), interpersonal relationships, and global functioning. Viewing these results in tandem with mean changes across

time for the methadone group, and taking into account difficulties in making inferences, findings tend to suggest that the P.N.A.D.C is effective in achieving most - although not all - of their programme objectives. In the case of the health rating criterion for example, there was an unexpected perceived deterioration in health by clients in both groups.

The only other unanticipated difference between groups on outcome criteria were the alcohol and polydrug group achieved a greater mean reduction in alcohol intake than the methadone group in the pre-post treatment period. The difference in mean change rates between groups for alcohol consumption, deserves further scrutiny. To qualitatively interpret the differences, one must also view mean changes across time for each group (refer to Tables 6 and 7, and Appendices 9 and 10). Inspection reveals that the average alcohol intake for the alcohol and polydrug group, two months prior to treatment was much higher ($\bar{X}=611.7$, S.D.=215.5) than that of the methadone group ($\bar{X}=91.9$, S.D=204.6), and hence, the alcohol and polydrug group had a greater mean amount of alcohol to decrease across treatment phases. As well as this, the majority of subjects within the methadone group, were consuming alcohol at a level considered nonhazardous. This difference may well be, therefore, a function of different starting levels of consumption rather than differential programme effects.

Overall, the treatment outcomes for the alcohol and polydrug group, and the methadone group were remarkably similar, suggesting that the methadone treatment programme at the P.N.A.D.C is as effective as their treatment approaches for alcohol and other drug addictions.

While viewing group changes across time is a useful method of establishing significant effects, it can mask individual differences. A useful adjunct is to view the direction of change - if at all - within the methadone sample, essential information from the clinician's viewpoint. Overall, the majority of clients in the methadone group improved on all significant criteria except health (see Table 8). There was a one hundred percent improvement on the criterion stimulant use, and barbiturate and sedative use, although few people within the methadone group were using this drug (six and five in order). Also, there was an improvement in employment (55%), and marijuana related criminal convictions (53%). These results, are similar to those found by Sells and Simpson (1979), in which opiate and nonopiate drug use decreased, as well as a reduction in criminal activity, and increased employment.

The number of clients improving in opiate use (84%) and global functioning (95%) - a composite measure taking into account drug use, employment, criminal activity, health, and interpersonal relationships, indicates a highly favourable degree of rehabilitation has taken place. Interestingly, more people improved in terms of overall rehabilitation (as measured by the composite criterion - global functioning) than reduced their opiate intake, suggesting that for a minority, rehabilitation has occurred despite relapse to narcotic use. These findings are similar to those of the other New Zealand study carried out by Lewis (1981).

Rating of health saw the majority (71%) of clients perceive their health as having deteriorated after withdrawing from the methadone

programme, with only 5% noting an improvement, and 24% no change. It is difficult to know why this should have occurred, when a number of other criteria rated an improvement; indeed, one would have expected health to have improved with the resultant decrease in drug use. One possible explanation is that because methadone itself is an analgesic drug, which may artificially enhance the sense of wellness of recipients. Further, there may have been adverse effects associated with being on the drug, and detoxification from it. This certainly bears further investigation, although it is important to note that no increase in days spent in bed sick another health measure was reported.

Having established that a majority of clients within the methadone sample improved on a variety of outcome measures, whilst some deteriorated or showed no change; the next vital step is to determine whether any specific subgroup (such as an ethnic or gender group) within the sample can be isolated or shown to selectively deteriorate while others improve. Such information can provide valuable knowledge to an organisation in terms of the match between the treatment, treater and treated. Previous research has consistently demonstrated that the following demographic factors are good predictors of outcome: Employment, and older age at admission to treatment are indicative of successful outcome (Perkins & Bloch, 1970; Szapocznik & Ladner, 1977); poor outcome relates to a large number of convictions, and living with an addict not in treatment (Judson & Goldstein, 1982); women are more likely to do worse than men, and black people are more likely to drop out of treatment than white people if issues relevant to them are not taken into account (Rosenberg & Patch, 1972; Tunving & Nilsson, 1985). Further, the ability to function well in the community, and maintain

reduced drug use has been found to be related to being in treatment for a period of twelve months or more (Stimmel, Goldberg, Rotkopf, & Cohen, 1977). The number of previous times on a methadone programme has produced no consistent trend (Szapocznik & Ladner, 1977; Babst, Chambers, & Warner, 1971; Williams & Johnston, 1972). Finally, psychopathology as a predictor of outcome has not been clearly demonstrated, with some studies finding severe psychopathology indicative of a poorer outcome (Khantzian & Treece, 1985), and others establishing no relationship at all (Jacobs, Doft & Koger, 1981).

The present research did not find any links between demographic factors, treatment variables, or psychopathology as influencing variables on the outcome criteria - opiates use and global functioning (see Appendices 13 & 14). Results on variables ethnicity and living situation (living with an addict or not) need to be viewed cautiously because firstly, there were only three Polynesians (14%) within the methadone sample compared to 18 Pakehas (86%), hence statistical conclusion validity is threatened by the small sample size. Secondly, there was a problem in the way the question pertaining to living with an addict or not was presented (see questionnaire, Appendix 1), which generally resulted in only those people sharing rented accommodation answering the question. Also, the question did not tap whether the person who lived with the addict was in treatment too, thereby creating a confounding problem. While the small sample size may explain why earlier research was not confirmed by the present study, it is also possible that the P.N.A.D.C's methadone programme was effectively matching the specific needs of subgroups within the methadone sample as ancillary treatment options. For example, the P.N.A.D.C runs a women's

group especially designed to meet the unique needs of women, which suggests, that if women are encouraged into methadone programmes which are sensitive to their requirements, they tend to do at least as well as men.

An exploratory analysis of drug-related and demographic factors for both the methadone and alcohol and polydrug group raises some interesting issues (see Tables 2 and 3). The first two drugs to be used on a regular basis for both groups were alcohol and marijuana, beginning at an average age of approximately 15 to 16 years old. This was also the most common age (fifteen years) for subjects in both samples to leave school, which accounts for the lack of educational qualifications, and perhaps the lack of higher incomes.

Interestingly, the majority of clients in both groups recorded their mothers' intake as either none or light (methadone, 71%; alcohol and polydrug, 82%); whilst a high proportion (43% methadone; 36% alcohol and polydrug) indicated that their fathers' intake was heavy. This agrees with research that has generally found that children of alcoholics are a population at risk for alcohol and drug related problems (Hawley & Brown, 1981; Woodside, 1983). Both groups also noted that a majority of parents were using prescription drugs on a regular basis (52% methadone; 72% alcohol and polydrug) but not narcotics (90% methadone; 100% alcohol and polydrug). Surprisingly it would seem, that more of the methadone group were considered high polydrug users (68%) than the alcohol and polydrug group (36%). However, it is not so unusual when one considers that the alcohol and polydrug group has been combined and consequently has subjects who are

abusing only alcohol.

A notable difference between the two groups is the fact that the majority of clients within the methadone group were living with others who abused drugs (76%), whereas most were not in the alcohol and polydrug group (64%). As previously stated, it is difficult to infer anything from this variable, due to the structuring of the question.

The clients' evaluation of the treatment programme they received, can provide fruitful information for programme organisers and staff alike. According to its recipients, the methadone programme was useful in helping to get rid of the needle habit, and in providing personal space in which to develop new interests and skills. Certain dislikes of the programme were procedural in nature ie. the way in which methadone was required to be picked up in person every day at the centre, particularly by those who had to travel in from outlying districts. Also disliked in relation to 'pickup', was the mixing with others in the drug scene (also on methadone) while awaiting their methadone dose. The lack of trust between staff and clients was cited as a dislike by participants in the methadone programme. However, it needs to be pointed out that the P.N.A.D.C methadone programme has certain restraints placed on it by the protocol (Drugs Advisory Committee, 1982) for methadone administration. One such restriction, is that methadone must be picked up every day by each person on the programme.

6
7.1: Limitations of the present study and suggestions for future research

The present study generally confirms that a number of the goals and objectives of the methadone programme were met. However, any conclusions are limited by a posttest-only design, self-report methodology, nonrandom assignment of subjects, and lack of an experimental control group.

An ex post facto design contains a number of confounding variables such as normal maturation processes in subjects, history of events which occur between pre, during and post treatment, which were not the result of the treatment per se (Cook & Campbell, 1976). Furthermore, the data collection utilized self-report methodology, and apart from the post-treatment measure, was retrospective in nature which raises questions concerning the validity of the data and possible halo effects concerning change. However, a reliability check was used in the present study ie. counsellor's evaluation of change in clientele in regards to outcome criteria.

Multiple comparisons were used in the present research which can compound errors, often known as fishing or error rate problems, although attempts were made to protect the alpha, in the present study, by increasing the statistical level to $p < .01$, for all post-hoc (formative evaluation) comparisons. Also, subjects were not randomly assigned to groups and there was no true experimental control group.

Differential loss of subjects from the experimental, and comparison

groups introduces a bias in the sample. Nathan and Lansky (1978) advocate that treatment dropouts, and those unable to be located at follow-up should be included in all analyses, and regarded as treatment failures. The present study excluded those unable to be located at time of completion of the questionnaire, and therefore treated such people as neither treatment failures or successes. The rationale for this was that the reason for such absences was unclear; the return rate may have resulted in a negative bias occurring in the 62% (methadone) and 37% (alcohol and polydrug) interviewed, as the accessibility of clients may reflect their current involvement in the local drug scene, with the justice system, or the centre; while inability to contact a former client may be evidence of successful completion of treatment, and cutting of ties with the drug taking population. However, clinical experience suggests that a sector of the alcohol and drug taking population have reading/writing difficulties and may not have answered either the introductory letter or questionnaire for this reason. Unfortunately, little if any research has investigated this factor, although if one looks at the age of first alcohol or drug use and the lack of educational qualifications of those interviewed, the suggestion is certainly viable and warrants further investigation.

A cross-sectional design as employed in this study collects a considerable amount of information at one point in time, and while much can be revealed by this kind of data, detailed and in-depth information pertaining to individuals within a group is not tapped. Therefore, one suggestion for future research is to do an individual case history on each person in the present sample, in an attempt, to gather more

qualitative information. This, combined with repeating the questionnaires at some point in time would provide pertinent information regarding individual differences, and it may be possible to note trends, and extrapolate future trends. Repeating the questionnaire would also provide a measure of the reliability of the self-report data.

Overall, the present questionnaire was clear, and tapped essential information, but some changes are recommended for future use. Firstly, the question about whether the client's living with others who abuse drugs or not, should be more clearly set out, and ask whether the addicted others were also in treatment. A specific question asking whether the clients were in any treatment at the time of completing the questionnaire would also be advantageous in helping to isolate contributing factors.

It is also recommended that the P.N.A.D.C build in an evaluation as part of their methadone programme, thereby developing a feedback loop, from which formative information gathered, will lead to the updating, improvement, augmentation or modification of the existing programme in a continuous fashion. Such a method would also help prevent biases resulting from reading/writing difficulties, and subject attrition.

Finally, the P.N.A.D.C's methadone programme appears to have been individually tailored to suit each recipient, which is practically sound, but does make it more difficult to isolate causal factors.

7.2: Critique and overview of the P.N.A.D.C's methadone treatment programme in light of the present study

Williamson, Prost and George's (1978) evaluation model supplies a comprehensive framework with which the data from the present evaluation can be critically related to aspects of the P.N.A.D.C's methadone programme. Briefly reiterated, Williamson et al.'s framework comprises six components: General effectiveness, means-ends analysis, internal validity, goal-outcome congruence, external validity and construct validity.

General effectiveness is a form of summative evaluation, and looks at whether the treatment has brought any changes to the recipients. Pre-during and pre-post treatment changes were apparent for a number of outcome measures (see Table 4 and Table 5) as was hypothesised. Means-ends analysis assesses whether the programme content and emphasis matches programme goals. These goals were to adopt healthy, self-fulfilling and productive lifestyles, and to achieve a drug-free existence which were then operationally defined by the following objectives - drug and alcohol use (divided into different categories of drugs ie. opiates, tranquillizers etc), employment, criminal offending, health, and interpersonal relationships. Treatment strategies representative of these emphases include individual and group counselling (aimed at helping the client to deal constructively with crises in their life); attendance at narcotics anonymous (N.A) or alcoholics anonymous (A.A), emphasis on sobriety; specialist and education programmes, and supply of methadone (as an initial alternative to the drugs a person was using). While the effectiveness

of these various treatments were not assessed individually, information gathered from this evaluation indicated the need for social skills and assertiveness training to be incorporated into treatment strategies.

Internal validity examines the degree to which programme outcomes can be attributed to treatment. One of the main threats to internal validity in drug treatment programmes which has been suggested is that of maturation. Winick (1962) proposed a 'maturing out' hypothesis that suggested that addicts tend to give up opiates as they get older. However, the present study did not find any relationship between age of admission into the treatment programme, nor age of first heroin use, and treatment outcomes. These findings are similar to a number of studies which also did not find a relationship between these variables (Babst, Chambers, & Warner, 1971; Judson & Goldstein, 1981). The assessment of the programme's internal validity in the present evaluation was threatened by the ex post facto design, non-random assignment of subjects, lack of control group and reliability problems such as self-report methodology. It is fair to point out though that a number of these difficulties ensued out of environmental constraints inherent within a field or community setting. Also, a concerted attempt was made in the present study to remedy these limitations through the use of a nonequivalent comparison group, and observers (staff, clients) with different stakes and perspectives.

Goal-outcome congruence is used to analyse the match between objectives and programme outcomes. The objectives of the present methadone programme were to reduce all drug and alcohol use, leading towards a drug-free state; the improvement of health, employment, interpersonal

relationships, and criminal offending. The programme outcomes appear to be reflecting the objectives to quite a high degree with only one criterion (health) showing a deterioration.

External validity notes whether programme results can be generalised to other people, settings and times. Surveying the demographic statistics, there is an overrepresentation of Pakehas, and whilst there were no ethnic differences in programme outcomes, the small sample size of Polynesians renders inferences questionable. It would indeed, be premature to label the present programme or centre, monocultural, but future studies would need to investigate this possibility. Both men and women were well represented, which is in line with recent research findings that there are a growing number of females entering the drug subculture (Bahna & Gordon, 1978).

To determine the generalisability of present outcomes to other methadone programmes would require statistics on clientele demographic factors, treatment methods and procedures for each centre. A factor that suggests the present programme outcomes are generalisable to other settings is that present programme goals were based on standardised protocol established by the Drugs Advisory Committee (1982) for all methadone treatment programmes throughout New Zealand. Circumstances which suggest the outcomes may be population specific are the geographical isolation of the area which tends to make the drug sub-culture in this region small and close-knit. Before such statements regarding generalisability of outcomes to other populations can be made, further investigation is warranted.

Finally, construct validity assesses the relationship between the theoretical rationale of the programme and programme goals, treatment and outcome. The rationale underlying the present programme were: 1) people have the capacity and the potential to lead fulfilling lives without the use of pharmacological support, and 2) that at the time of presenting for help, the support provided by the various drugs an individual is using, may be essential for their physical and emotional continuation, and therefore the total removal of this support without providing alternatives may be to the detriment of the individual. The rationale is well matched to programme goals i.e., adoption of healthy, self-fulfilling and productive lifestyles, and to achieve an eventual drug-free existence. Treatment approaches also tie in with the rationale - methadone administration as initial alternative to the various drugs a person was using; counselling, education programmes to enable clients to develop new skills and attitudes for a productive, drug-free life. Outcomes support the rationale that people who have been dependent can lead potentially fulfilling lives without drug use.

The present study has served its main function of providing information on a series of programme outcomes and possible influencing variables on such outcomes. Focus of the present study was to provide a front-end feasibility study from which, a more in-depth, ongoing evaluation can be developed and utilized.

7.3: Implications of the present research

The findings of the present study have important implications for the P.N.A.D.C's methadone programme specifically, and generally for the alcohol and drug field. Health, as perceived by recipients deteriorated upon completion of the methadone programme, although days spent sick in bed did not change across time. This could mean that clients were not being adequately prepared for methadone withdrawal and cessation, and have not acquired adequate health care skills to deal with a drug-free state. Therefore, health and nutrition education, coupled with detailed information of the likely effects associated with coming off methadone, and a step-by-step plan of how to cope with such problems may prove fruitful.

While there was a decrease in the number of friends participants had in the drug scene (generally viewed as favourable), there was not a concomitant increase in friends outside of the drug subculture, nor an improvement in friendship satisfaction. It appears then, that clients within the methadone group are not gaining or making new friends, and could probably benefit from a combination of social skills and assertiveness training, and assistance in generating new interests and activities.

The fact that there was no change in nondrug related convictions across time, and that effects of other drug related offences were not sustained once clients were no longer on methadone, suggests that the methadone programme did not succeed in reducing criminal activity which was one of its stated objectives. This implies that the P.N.A.D.C will

need to specifically and actively address recidivism among clientele, as opposed to passively awaiting reduced criminality as a by-product of the methadone programme.

Of particular importance for programme organisers and staff concerning recipients' evaluation of the service, was the reported dislike of having to mix with others in the drug subculture while collecting methadone. This could seriously undermine the programme, particularly if drug-talk or drug dealing took place. Therefore, ways to prevent such occurrences need to be established and the lack of trust between staff/clients cited by recipients may mean that a better dialogue between the two parties is needed.

Finally, from a more global perspective, both the methadone group and the alcohol and polydrug group began drinking alcohol and smoking marijuana regularly at an age of fifteen, which coincided with leaving school and may have prevented them from obtaining educational qualifications. Perhaps more importantly, a number described their fathers as heavy drinkers (43% methadone; 36% alcohol and polydrug). Such findings have important implications for alcohol and drug prevention programmes which would need to target parental attitudes to alcohol and implement education awareness programmes in schools at a young age.

CHAPTER EIGHT

SUMMARY AND CONCLUSIONS

The present study clearly indicates that the P.N.A.D.C's methadone programme appears to effectively; reduces use of opiates, nonopiate analgesics, tranquillizers, and stimulants, and decrease high alcohol consumption to a level considered nonabusive. Employment is also improved. These treatment effects were maintained at a follow-up approximately one year later. There was also a significant improvement in global functioning, and number of friends out of the drug scene, in the pre-post treatment period.

Unanticipated findings were a deterioration in health rating, and no changes in friendship satisfaction, number of friends out of the drug scene, hallucinogen use, and nondrug related criminal convictions. Also, significant effects for other drug related convictions were not maintained after treatment: Marijuana related convictions were the only type of criminal activity that produced a maintained reduction in number of convictions. Overall, this suggests that the P.N.A.D.C's methadone treatment programme has not significantly reduced criminal activity, and thereby, not attained that specific objective.

There were no major differences between the methadone group, and the alcohol and polydrug group on all outcome criteria, except that of alcohol. However, in the case of alcohol intake, group differences were a function of starting levels of consumption, rather than differential treatment effects. Overall, treatment outcomes for both

groups were remarkably similar, suggesting that the P.N.A.D.C's methadone programme is as effective as other treatment approaches developed within the alcohol and drug field.

A feature of the present study was the investigation of whether any influencing variables or predictors of treatment outcomes could be ascertained: No such relationships were found, which perhaps suggests that the programme is matching the treatment, treater, and treated. However, further more in-depth information is needed before such a conclusion can be made.

While a great deal of information was obtained from the present study, an evaluation design incorporated into the present programme as part of its protocol would be able to tap into more individual and group trends or fluxes. Such an approach would enable collection of data as clients enter the programme and follow-through, providing a continual feedback loop to programme sponsors, staff and clientele; allowing modifications and changes to take place on a continuum.

The implications for the P.N.A.D.C's methadone programme, generated by the present results are that - detailed and procedural steps of how to cope when coming off the methadone programme, combined with health and nutrition education should be made available, as well as, social skills and assertiveness training. Directive attention towards criminal activity is also essential if the philosophy and goals of the programme are to be attained.

APPENDIX 1
METHADONE EVALUATION QUESTIONNAIRE

R:

LIVING SITUATION: (Tick appropriate box [☒)

- ☐ SINGLE
- ☐ MARRIED
- ☐ SEPARATED
- ☐ DIVORCED
- ☐ WIDOWED
- ☐ LIVING WITH PARTNER
- ☐ IN A RELATIONSHIP BUT NOT LIVING TOGETHER

DEPENDANTS _____

Do you have primary responsibility to these child(ren)? - (Yes/No)

Do you share responsibility with (an)other adult(s)? - (Yes/No)

In which type of Accommodation do you live?
 (circle one option)

Own home. 1

Parent's home. 2

Board. 3

Rented accommodation (shared). . . 4

Rented accommodation (single). . . 5

Other:

1. _____ 6

2. _____ 7

APPENDIX 1 continued

If you share rented accommodation, do you live (excluding children)
(circle option)

Alone

With a friend/flatmate

With a group of friends or flatmates (i.e. more than 2)

With a partner/spouse

Do you consider any of the people you live with abuse/use (Rule out
one option) alcohol or drugs? _____ (Yes/No).

NATIONALITY:

a) What nationality are you?

Specify: _____

b) What ethnic group do you identify with? []

[] MAORI

[] ASIAN

[] PACIFIC ISLAND

[] EUROPEAN OR PAKEHA

[] OTHER (specify)

APPENDIX 1 continued
EDUCATION:

- a) Age when you left school. []
- b) Reasons for leaving school [☒]
- [] EXPELLED/ASKED TO LEAVE
- [] BORED/DIDN'T ENJOY IT
- [] FAMILY REASONS
- [] COMPLETED EXAMS
- [] OTHER (specify)
- c) School exams passed [☒]
- [] SCHOOL CERTIFICATE (or
(its equivalent))
- [] UNIVERSITY ENTRANCE
- [] 7TH FORM
- [] NONE
- d) Tertiary education achieved (please tick [☒] those achieved before
 Methadone treatment, and cross [☒] those achieved after or during
 Methadone treatment).
- [] DEGREE
- [] DIPLOMA
- [] PART DEGREE/DIPLOMA
- [] TEACHING CERTIFICATE
- [] OTHER (specify)
- e) Trade/Technical qualifications: ([☒] those achieved before
 Methadone treatment and [☒] those achieved during or after
 Methadone treatment.
- [] TRADE CERTIFICATE
- [] APPRENTICESHIP
- [] TECHNICAL COLLEGE COURSE
- [] OTHER (specify)

APPENDIX 1 continued

FAMILY BACKGROUND:a) What is your parents' living situation? [☒]

[] MARRIED

[] LIVING TOGETHER

[] SEPARATED

[] DIVORCED

[] WIDOWED

b) How old were you when your parents:-

SEPARATED []

DIVORCED []

WIDOWED []

c) Who primarily raised you when you were growing up?

1. _____

2. _____

3. More than two specify _____

d) At what age did you first live away from home? []

e) At what age did you become financially independent? []

APPENDIX 1 continued

For both your mother and father (or caretakers) please circle the number below corresponding to their most advanced formal educational qualification:

	Mother/ Caretaker	Father/ Caretaker
None _ _ _ _ _	00	00
School Certificate / 5th form qualification _ _ _ _ _	01	01
University Entrance / 6th form qualification _ _ _ _ _	02	02
Upper 6 th / 7 th form qualification	03	03
Undergraduate diploma/ certificate	04	04
Teachers College Certificate/ Diploma _ _ _ _ _	05	05
NZ Trades Certificate or advanced trades certificate	06	06
Bachelor's degree _ _ _ _	07	07
Post graduate qualification _ _	08	08
OTHER: Specify _ _ _ _ _	09	09

APPENDIX 1 continued

- b) For both your mother and father (or Caretakers) enter their main/last occupation on the corresponding line.

Mother's/Caretaker's Occupation: Specify _____

Father's/Caretaker's Occupation: Specify _____

- c) Please give an estimate of the gross incomes of each of your parents/caretakers for the last financial year.

	Mother/ Caretaker	Father/ Caretaker
No income _ _ _ _ _	1	1
Less than \$5,000 _ _ _ _	2	2
\$5,001 - \$10,000 - - - -	3	3
\$10,000 - \$15,000 _ _ _ _	4	4
\$15,001 - \$20,000 _ _ _ _	5	5
\$20,001 - \$30,000 _ _ _ _	6	6
\$30,001 - \$40,000 _ _ _ _	7	7
More than \$40,000	8	8
Don't know _ _ _ _ _	9	9

PARENTAL DRUG USE WHILE YOU WERE GROWING UP. ☒

- a) How would you describe your father's/caretaker's use of alcohol?
☐ NEVER DRANK
☐ LIGHT DRINKER
☐ MODERATE DRINKER
☐ HEAVY DRINKER
- b) What was your father's/caretaker's average weekly intake of alcohol? ☐
- c) How would you describe your mother's/caretaker's use of alcohol? ☒
☐ NEVER DRANK
☐ LIGHT DRINKER
☐ MODERATE DRINKER
☐ HEAVY DRINKER
- d) What was your mother's/caretaker's average weekly intake of alcohol? ☐
- e) Have your parents/caretaker's used narcotics or other illicit drugs? ☒
☐ BOTH PARENTS
☐ NEITHER PARENT HAS
☐ MOTHER
☐ FATHER
☐ DON'T KNOW
- f) Have your parents/caretaker's regularly used prescribed drugs? ☒
☐ BOTH PARENTS HAVE
☐ NEITHER PARENT HAS
☐ MOTHER
☐ FATHER
☐ DON'T KNOW

TREATMENTS:

- a) How long were you addicted before your first Methadone treatment? ☐

APPENDIX 1 continued
b) Number of Treatments:

Starting with your first treatment for drug dependency, please list all treatments, by type etc., including all separate periods on Methadone treatment. Include Ward 5 and other inpatient treatment, e.g. Hanmer Springs, Totara Trust etc., as well as out-patient treatment.

<u>TREATMENT</u> <u>No.</u>	<u>TYPE</u>	<u>WHEN</u> <u>BEGAN</u>	<u>WHERE</u>	<u>HOW</u> <u>LONG</u>	<u>REASONS FOR</u> <u>LEAVING</u> (Use Code Below)
1	Methadone Maintenance	1980	Palmerston North Alcohol & Drug Centre	3 mths	3

Place appropriate No. in final column:-

Code of Reason for Leaving

1. Quit or Expelled
2. To hospital, jail, death
3. To another treatment programme
4. Completed treatment programme.

DRUG USE

Place appropriate code in each square.

Code of Drug Use

1. No use
2. Less than once a week
3. Once a week
4. More than once a week
5. Once a day
6. More than once a day

a) In the time period stated, what drugs have you used?

APPENDIX 1 continued

	In year prior to Methadone treatment.	In 2mths prior to Methadone treatment	During Methadone treatment	Up until 2 months ago	In the last 2 months
OPIATE USE (Heroin, morphine, palfium, opium, pethedine)					
NON-OPIATE ANALGESIC (Diagesic Doloxene, Codeine, Temgesic)					
BARBITURATES & SEDATIVES (Tuanil, Doriden, Barbitol, Seconal)					
TRANQUILLIZERS (Mogadon, Valium, Serepax, Ativan, Librium)					
HALLUCINOGENS (L.S.D., Mescaline)					
STIMULANTS (Amphetamines, Cocaine, Ritalin, Dexedrine, Methidrine)					
MARIJUANA - and derivates					
ALCOHOL - (Average weekly consumption rather than code)					

APPENDIX 1 continued
OF FIRST DRUG USE

a) At what age did you first begin using these drugs regularly?

<u>DRUGS</u>	<u>AGE</u>
OPIATES (Heroin, morphine etc.)	
NON-OPIATE ANALGESICS (Digesic etc.)	
BARBITURATES & SEDATIVES (Tuinal etc.)	
TRANQUILLIZERS (Mogadon etc.)	
HALLUCINOGENS (L.S.D. etc.)	
STIMULANTS (Amphetamines etc.)	
MARIJUANA & DERIVATIVES	
ALCOHOL	

EMPLOYMENT (full-time or part-time)

a) How many weeks have you worked in the following periods of time:

	<u>NO. OF WEEKS WORKED</u>
1. In the year prior to Methadone treatment	
2. In 2 months prior to Methadone treatment	
3. During Methadone treatment	
4. Since completing Methadone treatment	

APPENDIX 1 continued

b) List the type of work done during that time

1.

2.

3.

4.

c) Please give an estimate of your gross income during the last financial year (Circle answer).

No income - - - - -	1
Less than \$5,000 - - - - -	2
\$5,001 - \$10,000 - - - - -	3
\$10,001 - \$15,000 - - - - -	4
\$15,001 - \$20,000 - - - - -	5
\$20,001 - \$30,000 - - - - -	6
\$30,001 - \$40,000 - - - - -	7
More than \$40,000 - - - - -	8
Don't know - - - - -	9

APPENDIX 1 continued

CRIMINAL ACTIVITY

a) Please list the number of arrests and convictions in the following periods of time

	<u>MARIJUANA RELATED</u>	<u>OTHER DRUG/ ALCOHOL RELATED</u>	<u>NON-DRUG RELATED</u>
No. of arrests prior to Methadone treatment			
No. of convictions prior to Methadone treatment			
No. of arrests during Methadone treatment			
No. of convictions during Methadone treatment			
No. of subsequent arrests			
No. of subsequent convictions			

b) Please indicate participation in any criminal activity not known of by the Police (excluding drug usage)

	<u>MARIJUANA RELATED</u>	<u>OTHER DRUG/ ALCOHOL RELATED</u>	<u>NON-DRUG RELATED</u>
Prior to Methadone treatment			
During Methadone treatment			
Since treatment finished			

a) Are you a member of any Club or do you participate in any organized community activity, (e.g. sport, music, drame, etc.)

<u>ACTIVITY</u>	<u>WHETHER PARTICIPATED BEFORE METHADONE TREATMENT</u>
1. i	
2.	
3.	
4.	

	<u>IN DRUG SCENE</u>	<u>OUT OF DRUG SCENE</u>
b) How many close friends do you have now?		
How many close friends did you have prior to the Methadone treatment?		

APPENDIX 1 continued

- c) Are you satisfied with your friendships?
Rate satisfaction on the scales provided. []

<u>In most recent 2 months:</u>	<div style="display: flex; justify-content: space-around; width: 100%;"> 12345 </div> <div style="display: flex; justify-content: space-between; width: 100%;"> MOST DISSATISFIEDO.K.HIGHLY SATISFIED </div>
<u>In 2 months prior to Methadone treatment:</u>	<div style="display: flex; justify-content: space-around; width: 100%;"> 12345 </div> <div style="display: flex; justify-content: space-between; width: 100%;"> MOST DISSATISFIEDO.K.HIGHLY SATISFIED </div>

HEALTH

- a) How many days spent in bed sick?

Days Sick

In year prior to Methadone treatment	
During Methadone treatment	
Since treatment completed	

- b) How would you rate your state of health? (Rate health on scales provided).

- i) Since treatment was completed:

12345

POORO.K.EXCELLENT

- ii) During Methadone treatment:

12345

POORO.K.EXCELLENT

- iii) In 12 months prior to Methadone treatment:

12345

POORO.K.EXCELLENT

APPENDIX 1 continued

EVALUATION:

a) How would you rate the treatment you received?

☐ Very helpful

☐ Somewhat helpful

☐ Not at all helpful

b) Was there anything you particularly liked about the treatment programme?

☐ Yes

☐ No

If Yes What did you particularly like? _____

c) Was there anything you particularly disliked about the treatment programme?

☐ Yes

☐ No

If Yes What did you particularly dislike? _____

APPENDIX 1 continued

Is there anyone we can contact who has known you well or lived with you for a period of time, e.g. spouse, partner, parent - to comment on how you have changed?

YES NO

If YES what is their name and contact phone number or address:

.....
.....

Would you agree to be contacted in 12 months to complete a further questionnaire?

YES NO

METHADONE EVALUATION QUESTIONNAIRE

APPENDIX 2

EVALUATION FORM FOR SIGNIFICANT OTHERS AND COUNSELLORS

_____ was on methadone treatment programme within the period of May 1984-May 1985. We would like to know whether you believe that they have changed a number of behaviours since commencing that treatment.

Please place a cross on the line in the position, which indicates the amount of change you believe has occurred.

1. USING DRUGS

					[]
much more frequently	a little more frequently	unchanged	a little less frequently	much less frequently	Don't know

2. USING ALCOHOL

					[]
much more frequently	a little more frequently	unchanged	a little less frequently	much less frequently	Don't know

3. CRIMINAL OFFENDING

					[]
many more offences	a few more offences	unchanged	a few less offences	many less offences	Don't know

4. WORKING

					[]
much worse work record	worse work record	unchanged	better work record	much better work record	Don't know

5. HEALTH

					[]
Health is much worse	Health is worse	unchanged	Health is better	Health is much better	Don't know

6. Participation in a club or organized community activity (e.g. sport, drama etc.)

					[]
Much less participation	Less participation	unchanged	More participation	Much more participation	Don't know

7. Relationships/Friendships with People

					[]
Much worse	Worse	unchanged	better	much better	Don't
relationship/	relationship/		relationship/	relationship/	know

Any additional comments: _____

APPENDIX 3
INTRODUCTORY LETTER SENT OUT TO SIGNIFICANT OTHERS

25 November 1986

Dear

A research project is currently being undertaken by a research team from the Palmerston North Hospital Board and Massey University. The project is concerned with the changes that occur in a person's life as a result of addiction and the effect on her/his well-being.

_____, a participant in the project, has given your name as a contact person able to comment on changes which may have occurred as a result of attending the alcohol and drug centre. This entails completing the attached questionnaire. We would very much appreciate it if you would take part in this study. If you have any questions you wish to ask, do not hesitate to call us. Our telephone number is (063) - 72066 or 74921. Phone collect if you live outside the Manawatu area. An early return of the questionnaire would be very helpful.

Thankyou

Yours Sincerely,

RESEARCH TEAM

Ms J. Clark

Mr G. Beaumont

Mr M. Johnson

INSTRUCTIONS: How have you felt during the past seven days including today? Use the following scale to describe how distressing you have found these things over this time.

APPENDIX 4
HOPKINS SYMPTOM CHECKLIST 21 WITH KEY TO ITEMS

- | Not at all
1 | A little
2 | Quite a bit
3 | Extremely
4 |
|--|---------------|--|----------------|
| P 8. Difficulty in speaking when you are excited [] | | G 41. Feeling inferior to others [] | |
| P 9. Trouble remembering things [] | | S 42. Soreness of your muscles [] | |
| P 10. Worried about sloppiness or carelessness [] | | P 45. Having to check and double-check what you do [] | |
| G 26. Blaming yourself for things [] | | S 49. Hot or cold spells [] | |
| S 27. Pains in the lower part of your back [] | | P 51. Your mind going blank [] | |
| G 29. Feeling lonely [] | | S 52. Numbness or tingling in parts of your body [] | |
| G 30. Feeling blue [] | | S 53. A lump in your throat [] | |
| G 34. Your feelings being easily hurt [] | | P 55. Trouble concentrating [] | |
| G 36. Feeling others do not understand you or are unsympathetic [] | | S 56. Weakness in parts of your body [] | |
| G 37. Feeling that people are unfriendly or dislike you [] | | S 58. Heavy feelings in your arms and legs [] | |
| P 38. Having to do things very slowly in order to be sure you are doing them right [] | | | |

AGE:

SEX:

Key to items:

- = General feelings of distress
- = Somatic distress
- = Performance difficulties

APPENDIX 5
INITIAL LETTER SENT OUT TO SUBJECTS

Dear

You have been selected to participate in a research project being undertaken by a research team from the Palmerston North Hospital Board,

The project is concerned with the changes that occur in a person's life as a result of addiction and the effect on his/her well-being.

Your participation in this study would involve an interview which would take about one hour.

We would appreciate it if you would give us a call as soon as you receive this letter. If you live outside Palmerston North call us collect. This will allow us to explain more fully what the interview involves, as well as find a convenient time for the interview.

There is usually someone in our office every weekday between 8.30 a.m. and 5.00 p.m. Our telephone number is (063) - 72066 or 74921. If we do not hear from you after a reasonable length of time we shall telephone you or call on you to explain further what our research involves and why we want to talk to you.

Yours sincerely,

RESEARCH TEAM

Ms J Clark
Mr G Beaumont
Mr M Johnson.

APPENDIX 6
CONSENT FORM SIGNED BY SUBJECTS

CONSENT

Research Questionnaire:

Research Team: Ms J. Clark
 Mr G. Beaumont
 Mr M. Johnson

Statement to be read by, or to, patient before taking part in research project.

We would like to explain to you some of the research we are doing, and ask if you would help with it.

We are looking at the results of treatment for addiction with the aim of increasing our understanding and developing better treatments.

We are aware that different people may require different treatments.

You can help us by completing the questionnaire as well as you can. The information you supply will be treated with the utmost confidentiality and any information that may identify you will be known only to the investigators. Any identifying information will be removed before your responses are analysed, and your responses will be grouped with others for analysis.

If you have any questions before you choose whether to sign up for this research project please ask them.

You do not have to participate in the study, and your decision will not affect any decisions about your regular treatment.

After a reading of the above statements, I have no immediate questions unanswered, and I am willing to answer the questionnaire.

Signed:..... Patient

..... Witness

..... Date

APPENDIX 7

RATIONALE FOR STATISTICAL ANALYSIS

The present study utilized the following four tests:

- 1) T-test for independent-samples: This test compares sample means between two groups on a single variable. It was therefore, thought to be an appropriate test for comparing means between the alcohol and polydrug group, and the methadone group - when data was of an interval nature (ie. alcohol, employment, criminal convictions, and health (days sick in bed)).
- 2) Mann-Whitney U test: Tests whether two groups are drawn from the same population, by rank-ordering each subject's score, and computing the test statistic U. It was deemed appropriate for comparisons between the alcohol and polydrug group, and the methadone group - when data was a) ordinal and rankable (ie. all drug usage except alcohol, health rating scale, interpersonal relationships, and global functioning), and b) when imprecise hypotheses were being tested (Meddis, 1984). It was also used to compare counsellors' and clients' evaluation of mean outcome measures; and analysis of all formative measures (ie., variable associated with the most change in opiate intake, and overall rehabilitation), was conducted with this test.
- 3) T-test for paired-samples: Such a test compares the means of two variables with each other, from the same sample. Thus, this test was considered suitable for comparisons of pre-post, pre-during, and during-post outcome measures, for interval data.

4) Wilcoxon matched-pairs signed-ranks test: Such a test is based on the difference scores (for each matched pair) obtained by subtracting the score for amply 2 from its paired score in sample 1. These differences are then rank ordered. It was considered an appropriate test for comparison of pre-post , pre-during, and during-post outcome measures (all drug usage except alcohol, health (rating scale), global functioning, and interpersonal relationships because such data was ordinal and rankable (Meddis, 1984).

5) Multiple comparisons: When several or more comparisons are involved in the analysis of an experiment, an increased vulnerability to type I error results. The present study utilized multiple comparisons and criteria: In order to counteract such an error problem, all post hoc comparisons required a higher level of probability ($p < .01$) to occur, before a statistical difference resulted. This is also known as protecting the alpha. Post hoc comparisons included all formative evaluations, evaluations between clients and counsellors, and comparisons between the methadone group, and the alcohol and polydrug group.

Whereas, for planned comparisons (specific hypotheses based on the goals and objectives of the programme), which can be confirmed or unconfirmed, utilized the uncorrected PC rate of $p < .05$, recommended by Keppel (1982). Planned comparisons in the present study were summative evaluations, involving outcome measures for the methadone group.

APPENDIX 8

FEEDBACK LETTER TO PARTICIPANTS

Earlier this year, you took part in a research study conducted at the Palmerston North Alcohol and Drug Centre. The main purpose of the study was to evaluate the Methadone treatment programme at this centre. In order to do this, we looked at alcohol and drug usage, employment, criminal activity, health and relationships with friends and others. We also compared findings between those of you who had been on the Methadone programme, and those of you who hadn't, but who had also attended The Alcohol and Drug Centre.

The results indicated that the Methadone programme had been effective in:

1. Reducing drug usage for opiates, non-opiate analgesics, tranquillizers, and stimulants.
2. Decreasing high alcohol consumption to a level considered non-abusive.
3. Increasing the number of weeks worked.
4. Decreasing the number of marijuana-related criminal convictions.

These findings were maintained approximately one year after treatment.

Unanticipated findings were:

1. A deterioration in rating of health and no change in number of days spent sick in bed.
2. No change in friendship satisfaction, or number of friends out of the drug scene.
3. No change in the number of criminal convictions related to drugs, (other than marijuana) or non-drug related.

Also, there were no major differences (in terms of alcohol and drug usage, employment, criminal activity, health, and friendship satisfaction) between those of you who were on the Methadone programme, and those of you who were not.

The evaluation of the Methadone programme that you provided showed that most found the programme 'somewhat helpful'. Noted likes were - able to get rid of the needle habit, and develop new interests and skills. Certain dislikes included having to pick up the Methadone every day, especially by those travelling in from outlying areas, and having to mix with others in the drug scene during 'pick-up'. Also, lack of trust between staff and clients was disliked.

Recommendations included providing more detailed information concerning how to cope with coming off the Methadone programme, as well as possibly including social skills and assertiveness training into the programme. Also, improving communication between staff and clients, and looking at different ways people could collect their Methadone (especially so that mixing with others in the drug scene did not occur), was recommended.

Upon completion of the research, a full documentary report will be given to staff at the Palmerston North Alcohol and Drug Centre, and made available for anyone to view, in the Centre's library.

Finally, a sincere thanks for helping with this study.

Yours sincerely

RESEARCH TEAM:

J. CLARK
G. BEAUMONT
M. JOHNSON

APPENDIX 9

Medians, change rates, and significance levels of drug usage outcome criteria for the alcohol and polydrug group, in the pre, during, and post-treatment periods

Outcome criteria	pre	Change pre-during	during	Change during-post	post	Change pre-post
<hr/>						
OPIATES (n=6)						
M	3.00	+3.00*	.00	.00	.00	+2.00
R	4.00	4.00	.00	4.00	4.00	7.00
NONOPIATE ANALGESICS (n=10)						
M	4.00	+3.50**	.00	-1.50	1.00	+1.00*
R	2.00	5.00	1.00	5.00	5.00	9.00
BARBITURATES and SEDATIVES (n=5)						
M	4.00	+4.00	.00	-1.00	1.50	+ .00
R	2.00	4.00	1.00	6.00	5.00	6.00
TRANQUILLIZERS (n=11)						
M	4.00	+1.50*	.00	.00	.00	+4.00**
R	4.00	6.00	5.00	10.00	5.00	7.00
HALLUCINOGENS (n=4)						
M	1.50	+1.50	.00	.00	.00	+1.50
R	3.00	2.00	1.00	2.00	1.00	4.00
STIMULANTS (n=6)						
M	1.00	+1.00*	.00	.00	.00	+1.00
R	4.00	1.00	3.00	4.00	5.00	5.00
MARIJUANA (n=15)						
M	5.00	+2.00**	.00	.00	.00	+3.00**
R	4.00	5.00	5.00	10.00	5.00	10.00

Note: M = median

R = range

+ = improvement or reduction in intake

- = deterioration or increase in intake

*p<.05 **p<.01 ***p<.001

APPENDIX 10

Means, change rates, and significance levels of outcome criteria
alcohol, health, criminal convictions, and employment for the alcohol
and polydrug group in the pre, during, and post-treatment periods

Outcome Criteria	pre	change pre-during	during	change during-post	post	change pre-post
<hr/>						
EMPLOYMENT (n=20)						
\bar{X}	11.81	+1.00	12.73	+24.25***	34.77	+25.25***
S.D	28.44	10.98	29.89	26.08	30.75	22.13
HEALTH						
In bed sick (days) (n=17)						
\bar{X}	10.12	+7.77*	4.00	- .47	5.30	+ 6.06
S.D	13.45	14.58	7.30	8.70	6.79	14.21
ALCOHOL (n=19)						
\bar{X}	605.74	+518.16***	86.58	-50.45	131.63	+397.05***
S.D	247.15	279.64	206.33	221.13	184.50	364.38
CRIMINAL ACTIVITY (convictions)						
Marijuana related (n=3)						
\bar{X}	1.00	+1.00***	.00	- .33	.33	+ .68
S.D	.00	.00	.00	.58	.58	.58
Other drug related (n=3)						
\bar{X}	3.67	+3.33	.17	.00	.00	+ 2.50
S.D	2.52	2.52	.41	.58	.00	3.11
Nondrug related (n=5)						
\bar{X}	2.20	+2.00*	.57	- .18	.40	+ 1.00*
S.D	1.10	1.23	1.40	.80	.89	2.37

Note: + = improvement or reduction in intake
 - = deterioration or increase in intake
 *p<.05 **p<.01 ***p<.001

APPENDIX 11

Medians, change rates, and significance levels of outcome criteria
interpersonal relationships, health rating, and global functioning
for the alcohol and polydrug group in the pre, during, and post
treatment periods

Outcome Criteria	pre	change pre-during	during	change during-post	post	change pre-post
INTERPERSONAL RELATIONSHIPS						
Friends in drug scene (n=21)						
\bar{M}	2.00	-	-	-	1.00	.00*
R	6.00	-	-	-	6.00	9.00
Friends out of drug scene (n=21)						
\bar{M}	1.00	-	-	-	2.00	+ 1.00**
R	5.00	-	-	-	6.00	6.00
Friendship satisfaction (n=21)						
\bar{M}	3.00	-	-	-	3.00	+ 1.00**
R	4.00	-	-	-	4.00	6.00
HEALTH (rating scale) (n=)						
\bar{M}	3.00	-1.00*	3.00	.00	3.00	- 1.00*
R	4.00	6.00	4.00	6.00	4.00	5.00
GLOBAL FUNCTIONING (n=22)						
\bar{M}	6.00	-	-	-	4.00	+3.00*
R	11.00	-	-	-	4.00	16.00

Note: \bar{M} = median

R = range

+ = improvement or reduction in intake

- = deterioration or increase in intake

* $p < .05$ ** $p < .01$ *** $p < .001$

APPENDIX 12

Evaluation of the P.N.A.D.C's methadone treatment programme
by the alcohol and polydrug group

Alcohol and polydrug group ($\bar{N}=22$)	<u>n</u>
---	----------

<u>Evaluation of treatment</u>		
Likes	-personal needs	5
	-programme attributes	3
	-staff	3
	-both personal needs/programme attributes	5
Dislikes	-staff/client relationships	2
	-treatment services	4
	-both staff/client relationships and treatment services	1
Overall Evaluation		
	-very helpful	12
	-somewhat helpful	7
	-not at all helpful	3

APPENDIX 13

Change rates, and z scores for outcome measures from a group of drug abusers, and a group of drug counsellors

Outcome Criteria	Methadone group ($\bar{N}=21$)		Counsellors' evaluation ($\bar{N}=19$)		z-scores
	\bar{M}	R	\bar{M}	R	
DRUG USE	+1.00	1.50	+1.00	2.00	-1.10
ALCOHOL USE	.00	1.00	+ .50	2.00	- .71
CRIMINAL OFFENDING	+ .33	2.00	+1.00	2.00	- .46
EMPLOYMENT	-1.00	2.00	+ .50	2.00	-1.60
HEALTH	-1.00	2.00	+1.00	2.00	-2.62*
INTERPERSONAL RELATIONSHIPS	.00	2.00	+1.00	2.00	- .98

Note: \bar{M} = median

\bar{R} = range

+1 = most improvement or reduction in intake

-1 = most deterioration or increase in intake

* $p < .01$

APPENDIX 14

Change rates for demographic factors as predictors of outcome measures- opiates and global functioning for the methadone group

Methadone Group (N=21)	n	CRITERION MEASURES			
		Opiates		Global Functioning	
		+5 to -5		-11 to +11	
		M	R	M	R
GENDER					
Female	8	+4.5	3.0	+5.5	11.0
Male	13	+4.0	8.0	+6.0	11.0
ETHNICITY					
Polynesian	3	+5.0	1.0	+7.0	5.0
Pakeha	18	+4.0	8.0	+5.5	14.0
AGE AT ADMISSION					
25 years and under	10	+4.0	8.0	+5.5	14.0
over 25 years	11	+5.0	7.0	+7.0	11.0
AGE OF FIRST OPIATE USE					
18 years and under	11	+5.0	8.0	+6.0	14.0
over 18 years	10	+4.0	7.0	+5.5	11.0
LIVING SITUATION					
Living with addict	13	+4.0	7.0	+6.0	12.0
Not living with addict	4	+5.0	.0	+8.5	7.0
PRIOR EMPLOYMENT					
Yes	11	+5.0	7.0	+7.0	12.0
No	10	+4.0	8.0	+5.5	13.0
EMPLOYMENT DURING					
Yes	11	+5.0	3.0	+5.0	11.0
No	10	+3.5	8.0	+6.0	13.0
EMPLOYMENT AFTER					
Yes	11	+5.0	8.0	+5.0	10.0
No	10	+4.0	7.0	+6.5	12.0
CRIMINAL CONVICTIONS (prior)					
Low (0-9)	9	+4.0	8.0	+6.0	10.0
High (10-23)	12	+4.0	7.0	+5.0	12.0
EDUCATION					
school qualifications	4	+4.5	2.0	+8.5	6.0
no qualifications	17	+4.0	12.0	+5.0	14.0

Note: M = median

R = range

+ = improvement or reduction in intake

- = deterioration or increase in intake

There were no significant differences at $p < .01$

APPENDIX 15

Change rates for treatment factors, psychosocial variables, and alcohol & polydrug abuse of outcome measures - opiates and global functioning for the methadone group

Methadone Group ($\bar{N}=21$)	<u>n</u>	CRITERION MEASURES			
		Opiates		Global Functioning	
		-5 to +5		-11 to +11	
		\bar{M}	R	\bar{X}	R
<u>Treatment Types</u>					
Methadone treatment only	10	+4.0	7.0	+5.0	12.0
Methadone+inpatient+outpatient	11	+5.0	8.0	+7.0	13.0
<u>Time spent in treatment</u>					
0-1 Year	11	+4.0	8.0	+5.0	11.0
more than one year	10	+5.0	5.0	+6.5	12.0
<u>Number of treatments</u>					
0-3	13	+4.0	8.0	+5.0	14.0
4-7	8	+4.5	5.0	+6.5	11.0
<u>Polydrug users</u>					
Low (0-10 on scale)	5	+4.0	8.0	+7.0	12.0
High (11-30 on scale)	13	+5.0	6.0	+6.0	13.0
<u>Alcohol users</u>					
Low (less 266mls)	19	+5.0	8.0	+6.0	14.0
High (more 266mls)	2	+ .5	5.0	+4.5	7.0
<u>General feelings of distress on HSCL-21</u>					
Low (1-14)	16	+4.5	8.0	+6.0	13.0
Mod-High (15-28)	4	+4.5	3.0	+6.0	8.0
<u>Somatic distress on HSCL-21</u>					
Low (1-14)	13	+5.0	8.0	+7.0	13.0
Mod-High (15-28)	7	+4.0	7.0	+5.0	12.0
<u>Performance difficulty on HSCL-21</u>					
Low (1-14)	13	+4.5	8.0	+6.5	13.0
Mod-High (18-28)	7	+4.5	7.0	+5.5	12.0

Note: \bar{M} = median

R = range

+ = improvement or reduction in intake

- = deterioration or increase in intake

There were no significant differences at $p < .01$

REFERENCES

- Abrahms, J.L. (1979). Methadone maintenance patients' self-perceived factors responsible for successful rehabilitation. The International Journal of the Addictions, 14(8), 1075-1081.
- Angle, B.P., Hadley, T.R. & Odium, U. (1979). The heroin addict's view of personal change during methadone maintenance treatment. British Journal of Addictions, 74, 208-210.
- Angle, H.V. & Parwatikas, S. (1973). Methadone self-prescription by heroin addicts in an in-patient detoxification programme. Psychological Record, 23, 209-214.
- Ausubel, D.P. (1983). Methadone maintenance treatment: The other side of the coin. The International Journal of the Addictions, 18(6), 851-862.
- Babst, D.V., Chambers, C.D. & Warner, A. (1971). Patient characteristics associated with retention in a methadone maintenance program. The British Journal of the Addictions, 66(66), 195-204.
- Bahna, G. & Gordon, N.B. (1978). Rehabilitation experiences of women ex-addicts in methadone treatment. The International Journal of the Addictions, 13(4), 639-655.

Bale, R., Van Stone, W., Kuldau, M., Elashoff, A. & Zarcone, C. (1980).

Therapeutic communities as methadone maintenance. Archives of General Psychiatry, 37, 179-193.

Beaumont, G. (1985). The initial stages of an evaluation study of a methadone treatment programme. Unpublished Manuscript, Massey University.

Ben-Yehuda, N. (1980). Are addicts' self-reports to be trusted? The International Journal of the Addictions, 15(8), 1265-1270.

Ben-Yehuda, N. (1981). Success and failure in rehabilitation: The case of methadone maintenance. American Journal of Community Psychology, 9(1), 83-107.

Beschner, G. & Thompson, P. (1981). Women and drug abuse treatment: Needs and services. National Institute on Drug Abuse. U.S. Department of Health and Human Services.

Black, H.I., Ellis, K.D. & Spielman, C.R. (1977). Use of employment criterion for measuring the effectiveness of methadone maintenance programmes. International Journal of Addictions, 12, 161-172.

Bowden, C.L., Maddux, J.F. & Esquivel, M. (1978). Arrests before and during methadone maintenance. The International Journal of the Addictions, 13(6), 921-931.

- Brook, J. (1985). Course notes for 75.408. Unpublished manuscript, Massey University, Psychology Dept., New Zealand.
- Canada, A. Jr. (1972). Methadone in a 30-day detoxification programme for narcotic addicts: A critical review. International Journal of the Addictions, 7, 613-617.
- Cohen, M. (1976). Evaluating outcome criterion used in methadone maintenance programmes. International Journal of the Addictions, 11, 283-284.
- Cook, T.D. & Campbell, D.T. (1976). The design and conduct of quasi-experiments and true experiments in field settings. In M.D. Dunnette (Ed.), Handbook of industrial and organizational research (pp.223-326). Chicago: Rand-McNally.
- Cowen, E.L. (1978). Some problems in community evaluation research. Journal of Consulting and Clinical Psychology, 46(4), 792-805.
- Cushman, P. (1977). Ten years of methadone maintenance treatment: Some clinical observations. American Journal of Drug and Alcohol Abuse, 4(4), 543-553.
- Dale, R.T. & Dale, F.R. (1973). The use of methadone in a representative group of heroin addicts. International Journal of the Addictions, 8, 293-308.

Derogatis, L.R. (1977). S.C.L - 90 Manual I. Baltimore.

Dobbs, W.H. (1971). Methadone treatment of heroin addicts: Early results provide more questions than answers. Journal of American Medical Association, 218(10), 1536-1541.

Dole, V.P. & Nyswander, M.A. (1965). A medical treatment for diacetyl-morphine (heroin) addicts. Journal of the American Medical Association, 193, 646-650.

Dole, V.D. & Nyswander, M. (1966). Rehabilitation of heroin after blockade with methadone. New York State Journal of Medicine, 66, 2011-2017.

Dole, V.P. & Nyswander, M.A. (1968). Successful treatment of 750 criminal addicts. Journal of the American Medical Association, 206, 2708-2711.

Drew, L.R.H. (1986). Methadone - social control or health care? The Medical Journal of Australia, 145, 57-58.

Drugs Advisory Committee. (1982). Protocol for methadone treatment. Available from P.O. Box 5031, Wellington, New Zealand.

Fergusson, L. (1983). The hidden factor: Sexual abuse and women alcoholics. Unpublished Article, Eden Clinic: Auckland, New Zealand.

Gaulden, E.C., Littlefield, D.C., Putoff, O.E. & Sievert, A.L. (1964).

Menstrual abnormalities associated with heroin addiction.

American Journal of Obstetrics and Gynecology, 90,

155-160.

Gelb, A.M., Richman, B.L. & Peyser, N.P. (1979). Alcohol use in

methadone maintenance clinics. American Journal of Drug and

Alcohol Abuse, 6(3), 367-373.

Gerston, A., Cohen, M.J. & Stimmel, B. (1977). Alcoholism, heroin

dependency, and methadone maintenance: Alternatives and aids

to conventional methods of therapy. American Journal of

Drug and Alcohol Abuse, 4(4), 517-531.

Goldstein, A. (1972). The pharmacologic basis of methadone

treatment. In Proceedings of the Fourth National Conference

on Methadone Treatment, (pp.27-32). New York,

National Association for the prevention of the addiction to
narcotics.

Graham-Bafus, S., Allen, R.H. & Gordon, J.R. (1984). Evaluation

of a methadone rehabilitation programme. Psychological

Reports, 55, 99-106.

Greene, B.T. (1979). Concurrent and sequential use of drugs and

alcohol: Patterns, characteristics of users, and

implications for treatment and prevention. American Journal

of Drug and Alcohol Abuse, 6(4), 447-462.

- Greenstein, R.A., Resnick, R.B. & Resnick, E. (1984). Methadone and Naltrexone in the treatment of heroin dependence. Psychiatric Clinics in North America, 7(4), 671-679.
- Gunne, L.M. & Gronbladh, L. (1981). The Swedish methadone maintenance programme: A controlled study. Journal of Drug and Alcohol Dependence, 7(3), 249-256.
- Haastrups, S. & Jepson, P.W. (1984). Seven year follow-up of 300 young drug abusers. Acta Psychiatrica Scandinavia, 70(5), 503-509.
- Hall, M. & Arbor, A. (1979). Addicted women: Family dynamics, self-perceptions and support systems. Services Research Monograph Series, National Institute on Drug Abuse: U.S. Department of Health, Education and Welfare.
- Hallgrimsson, O. (1980). Methadone treatment: The Nordic attitude. Journal of Drug Issues, 10, 463-474.
- Harlow, L.L. & Anglin, M.D. (1984). Time series design to evaluate effectiveness of methadone maintenance intervention. Journal of Drug Education, 14(1), 53-72.
- Harms, E. (1975). Some shortcomings of methadone maintenance. British Journal of the Addictions, 70(1), 77-81.

Hawley, N.P. & Brown, E.L. (1981). The use of group treatment with children of alcoholics. Social Casework: The Journal of Contemporary Social Work, 62, 40-46.

Holmes, T. & Rahe. (1967). The social readjustment rating scale. Journal of Psychosomatic Research, 11, 213.

Inciardi, J.A. (1977). Methadone diversion: Experiences and issues, (Research monograph No. 488). Maryland: National Institute on Drug Abuse.

Jacobs, P.E., Doft, E.B., Karras, A. & Koger, J. (1979). Methadone evaluation: Some additional thoughts. The International journal of the Addictions, 14(2), 207-213.

Jacobs, P.E., Doft, E.B. & Koger, J. (1981). A study of SCL-90 scores of 264 methadone patients in treatment. The International Journal of the Addictions, 16(3), 541-548.

Joseph, H. & Appel, P. (1985). Alcoholism and methadone treatment: Consequences for the patient and programme. American Journal of Drug and Alcohol Abuse, 11(1&2), 37-53.

Judson, B.A. and Goldstein, A. (1982). Prediction of long-term outcome for heroin addicts admitted to a methadone maintenance programme.

Drug and Alcohol Dependence, 10(4), 383-391.

Judson, B.A., Ortiz, S., Crouse, L., Carney, T.M. & Goldstein, A.

(1980). A follow-up study of heroin addicts five years after first admission to a methadone treatment programme. Drug and Alcohol

Dependence, 6(5), 295-313.

Keil, T.J., Dickma, F.B. & Rush, T.V. (1978). Client demographics and therapeutic approach as predictive factors in the in-treatment

outcomes of opiate users. The International Journal of the Addictions, 13(5), 709-724.

Keppel, G. (1982). Design & analysis: A researchers Handbook. (2nd Ed.). New Jersey: Prentice-Hall.

Khantzian, E.J. (1974). Heroin use as an attempt to cope: Clinical observations. American Journal of Psychiatry, 131, 160-164.

Khantzian, E.J. & Treece, C. (1985). DSM-III psychiatric diagnosis of narcotic addicts. Archives of General Psychiatry, 42, 1067-1071.

Khuri, E.T., Millman, R.B., Hartman, N. & Kreek, M.J. (1984). Clinical issues concerning alcoholic youthful narcotic abusers.

Advances in Alcohol Substance Abuse, 3(4), 69-86.

- Kidder, L.H. (1981). Research methods in social relations, (4 Ed).
Japan: Holt-Saunders.
- Klein, D.F. (1977). Evaluation methodology. The International Journal of the Addictions, 12(7), 837-849.
- Kleinman, P.H., Lukoff, I.F. & Kail, A.L. (1977). A critical analysis of methadone maintenance treatment. Social Problems, 25, 208-214.
- Krueger, D.W. (1981). Stressful life events and the return to heroin use. Journal of Human Stress, 7(2), 3-8.
- Lewis, M. (1981). An evaluation of methadone treatment in narcotic addiction. Unpublished research report, Auckland University, New Zealand.
- Lukoff, I.F. & Vorenberg, J. (1972). Methadone maintenance evaluation studies: Some unresolved issues on crime and drug abuse. In Proceedings of the Fourth National Conference on Methadone Treatment. New York: Napan.
- McCaslin, F.C. & Ershoff, D.H. (1978). A critique of project evaluations. The International Journal of the Addictions, 13(8), 1263-1284.

McLeod, W.R. & Priest, P.N. (1973). Methadone maintenance in Auckland: The failure of the programme. British Journal of the Addictions, 68, 45-50.

Manahi, F. (1986). The relationship between sexual abuse and alcohol. (Available from the Alcohol and Drug Centre, Palmerston North, New Zealand.

Meddis, R. (1984). Statistics using ranks: A unified approach U.S.A: Basil Blackwell.

Nathan, P.E. & Lansky, D. (1978). Common methodological problems in research on the addictions. Journal of Consulting and Clinical Psychology, 46(4), 713-726.

Nelkin, D. (1973). Methadone maintenance: A technological fix. New York: George Braziller.

Newman, R.G. (1977). Methadone treatment in narcotic addiction: programme management. London: Academic Press.

Nurco, D.N., Ball, J.C., Shaffer, J.W. & Hanlon, T.E. (1985). The criminality of narcotic addicts. The Journal of Nervous and Mental Disease, 173(2), 94-102.

Peachey, J.E. & Franklin, T. (1985). Methadone treatment in opiate dependence in Canada. British Journal of Addictions, 80, 291-299.

Rounsaville, B.J. & Kleber, H.D. (1985). Untreated opiate addicts: How do they differ from those seeking treatment? Archives of General Psychiatry, 42, 1072-1077.

Ruiz, P., Langrod, J., Lowinson, J. & Marcus, N.J. (1977). Social Rehabilitation of addicts: A two-year evaluation. The International Journal of the Addictions, 12(1), 173-181.

Schwartzman, J. & Kroll, L. (1977). Methadone maintenance and addict abstinence. The International Journal of the Addictions, 12, 497-507.

Sechrest, D.K. & Crim, D. (1979). Methadone programmes and crime reduction: A comparison of New York and California addicts. The International Journal of the Addictions, 14, 377-400.

Sells, S.B., Chatham, L.R., & Joe, G.W. (1972). The relation of selected epidemiological factors to retention in methadone treatment. In Proceedings of the Fourth National Conference on Methadone Treatment. New York: Napan.

Sells, S.B. & Simpson, D.D. (1979). On the effectiveness of treatment for drug abuse: Evidence from the DARP research programme in the United States. Bulletin on Narcotics, 31(1), 1-11.

Senay, E.C. (1985). Methadone maintenance treatment. The International Journal of Addictions, 20(6&7), 803-821.

- Senay, E., Dorus, W., Goldberg, F. & Thornton, N. (1977). Withdrawal from methadone maintenance and expectation. Archives of General Psychiatry, 34, 361-367.
- Simpson, D.D., Joe, G.W. & Bracy, S.A. (1982). Six-year follow-up of opioid addicts after admission to treatment. Archives of General Psychiatry, 39, 1318-1323.
- Simpson, D.D. & Savage, L.J. (1981-82). Client types in different drug abuse treatments: Comparisons of follow-up outcomes. American Journal of Drug and Alcohol Abuse, 8(4), 401-418.
- Simpson, D.S. & Lloyd, M.R. (1977). Alcohol and illicit drug use: National follow-up study of admissions to drug abuse treatments in the DARP during 1969-1971. Services Research Monograph Series, National Institute on Drug Abuse. U.S. Department of health, Education and Welfare.
- Sorensen, J.L., Hargreaves, W.A. & Weinberg, J.A. (1982). Withdrawal from heroin in three to six weeks: Comparison of LAAM versus methadone. National Institute of Drug Abuse Research Monograph Service, 41, 230-231.
- SPSSX users guide (2nd Ed). (1986). N.Y: McGraw Hill.
- Stanley, L. & Wise, S. (1983). Breaking out: Feminist consciousness and feminist research. Boston: Routledge & K. Paul.

- Stimmel, B., Goldberg, J., Rotkopf, E., & Cohen, M. (1977). Ability to remain abstinent after methadone detoxification. A six year study. Journal of the American Medical Association, 237(12), 1216-1220.
- Sutker, P.B., Libet, J.M., Allain, A.N. & Randall, C.L. (1983). Alcohol use, negative mood states, and menstrual cycle phases. Alcoholism: Clinical and Experimental Research, 7(3), 327-331.
- Szapocznik, J. & Ladner, R. (1977). Factors related to successful retention in methadone maintenance: A review. The International Journal of the Addiction, 12(8), 1067-1085.
- Tunving, K. & Nilsson, K. (1985). Young female drug addicts in treatment: A twelve-year perspective. The Journal of Drug Issues, 15(3), 367-382.
- Vaillant, G.E. (1966). A twelve year follow-up of New York narcotic addicts. American Journal of Psychiatry, 123(5), 563-585.
- Walkey, F.H. & McCormick, I.A. (1985). Multiple replication of factor structure: A logical solution for a number of factors problem. Multivariate Behavioural Research, 20, 57-67.

Wallace, D.B. & Keil, T.J. (1978). Illicit opiate use during methadone maintenance. The International Journal of the Addictions, 13, 241-247.

Wardlaw, G. (1978). Drug use & crime: An examination of drug users and associated persons and their influence on crime patterns in australia. Canberra: Australian Institute of Criminology.

Weppner, R.S. (1979). Conflicting world views and the delivery of treatment to narcotic addicts: Some sociocultural observations. Social Science and Medicine, 13a(3), 257-262.

Williams, H.R. & Johnston, W.E. (1972). Factors related to treatment retention in a methadone maintenance programme. In Proceedings of the Fourth National Conference on Methadone Treatment. New York: National Association for the prevention of Addiction to Narcotics, 439-442.

Williamson, C.A., Prost, J., & George, C.F. (1978). The professional psychologist as evaluator. Professional Psychology, 9, 308-314.

Winick, C. (1962). Maturing out of narcotic addiction. Bulletin on Narcotics, 14(1), 1-7.

Woodside, M. (1983). Children of alcoholic parents: Inherited and psycho-social influences. Journal of Psychiatric Treatment and Evaluation, 5, 531-537.

Wurmser, L. (1974). Psychoanalytic considerations of the etiology of compulsive drug use. Journal of the American Psychoanalytic Association, 131, 160-164.

Zinberg, N.E. (1977). Sounding board: The crisis in methadone maintenance. The New England Journal of Medicine, , 1000-1002.

Zinberg, N.E. (1979). "Non-addictive opiate use". In R.L. Dupont, A. Goldstein, & J. O'Donnell (Eds.), Handbook on Drug Abuse (pp.303-313). Washington, D.C: National Institute on Drug Abuse.