2001

The Effect of a Jail-Based Substance-Abuse Program on Anxiety, Depression, and Locus of Control

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THE EFFECT OF A JAIL-BASED SUBSTANCE-ABUSE PROGRAM ON ANXIETY, DEPRESSION, AND LOCUS OF CONTROL

A Dissertation
Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

by
Peggy Leigh Davis Frick
August 2001
THE EFFECT OF A JAIL-BASED SUBSTANCE-ABUSE PROGRAM ON ANXIETY, DEPRESSION, AND LOCUS OF CONTROL

A dissertation presented in partial fulfillment of the requirements for the degree of Doctor of Philosophy

by

Peggy Leigh Davis Frick

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ABSTRACT

THE EFFECT OF A JAIL-BASED SUBSTANCE-ABUSE PROGRAM ON ANXIETY, DEPRESSION, AND LOCUS OF CONTROL

by

Peggy Leigh Davis Frick

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Title: THE EFFECT OF A JAIL-BASED SUBSTANCE-ABUSE PROGRAM ON ANXIETY, DEPRESSION, AND LOCUS OF CONTROL

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Date completed: August 2001

Problem

More and more alcohol and drug users are coming into contact with the criminal justice system. Some of these individuals may have comorbid mental health issues. This present study sought to determine whether the New Avenues Substance Abuse Treatment Program, housed at the Correctional Work Center, Davidson County, Tennessee, did, in the course of treatment, have an impact on the anxiety, depression, and locus of control of those individuals completing the program.

Method

The Beck Depression Inventory-II, the Beck Anxiety Inventory, and the Rotter Internal versus External Control of Reinforcement Scale were utilized to measure
depression, anxiety, and locus of control respectively. Paired samples $t$-tests and analysis of covariance were utilized to analyze the results.

Results

The New Avenues Substance Abuse Treatment Program, while keeping its major focus on substance abuse treatment, apparently had no significant impact on the anxiety, depression, and locus of control of those completing the program over what they would have experienced just by being incarcerated in the facility during the treatment period.

Conclusions

Although depression, anxiety, and locus of control may be involved in substance abuse, substance abuse treatment as put forth by the New Avenues Substance Abuse Treatment Program did not have a significant impact on them. If the individuals had not been involved in treatment, changes in their levels of depression, anxiety, and locus of control would have occurred anyway.
I would like to dedicate this work to my children,
Bob, Kevin, and David Frick,
whose love and support were unending;
to Jenny and Michelle,
who understood;
and to my parents,
Courtland and Mildred Davis,
who instilled in me the ability to persevere.
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CHAPTER ONE

INTRODUCTION

More people than ever before are incarcerated in the United States of America. Statistics emanating from the U.S. Department of Justice cite that 5.5 million individuals were on probation, in jail or prison, or on parole at the end of 1996. This is 2.8% of all adults residing in the United States (Bureau of Justice Statistics [BJS], 1998c).

Although the crime rate has theoretically decreased, more persons are serving time, resulting in the need/call for more and bigger jails and prisons. Jail populations increased 9.4% in the 12 months prior to 1997, a figure double the average annual increase of 4.9% since 1990 (BJS, 1998d).

There are many reasons for the increase in numbers. Determinant and mandatory sentencing has been enacted in many jurisdictions and, "largely as a result, state and federal prison populations, after a decade of decline, doubled in size between 1973 and 1982" (Wexler, Blackmore, & Lipton, 1991, p. 470). By the mid-1980s, a significant increase in serious drug involvement by offenders resulted in ever-increasing prison populations (Wexler et al., 1991). The authors reported that public concern over the spread of crack cocaine created a demand for strict enforcement of punishment for drug-
related crimes. More recently, Peters (1993b) stated that:

unprecedented numbers of drug law violators have been arrested and incarcerated during the past 7 years. This trend has been accelerated by the ready availability of inexpensive cocaine in urban areas, enhanced law enforcement efforts to curtail neighborhood drug sales, and by 'zero tolerance' policies that impose minimum mandatory sentences for a variety of drug offenses. (p. 85)

Other reasons for the increasing incarcerated population include more lengthy mandatory uniform sentencing laws, public unwillingness to allow persons parole, particularly for violent offenses, and increased sentencing of drug/substance abuse offenders (Belenko, 1990; Peters, 1993a, 1993b; Wexler, 1994).

With regard to increased sentencing for drug/substance abuse offenders, approximately two-thirds of drug offenders convicted in state courts have been sentenced to incarceration (BJS, 1992). An article written by Ellen Dahnke (1998) entitled "Offering the Convicted a Hand in Kicking Drugs," stated, "An estimated 70-80% of those entering the criminal justice system have some kind of substance abuse problem" (p. 1). In the state of Illinois, admissions to prisons for drug offenses increased by 80% between 1989 and 1991. Drug offenders constituted one-fourth of all Illinois prison inmates and nearly 20% of the total prison population in 1993 (Illinois Task Force on Crimes and Corrections, 1993). As of 1994, the current proportion of federal prisoners who were drug violators had reached 60% (BJS, 1995). The Bureau of Justice Statistics (1995) stated that drug law offenders are making up a growing share of the prison and jail population nationwide:

Drug offenders accounted for 61% of sentenced inmates in Federal prisons in 1993, up from 38% in 1986 and 25% in 1980; the proportion of drug
offenders in State prisons increased from 9% in 1986 to 21% in 1991; and
the proportion of drug offenders in local jails increased from 9% in 1983
to 23% in 1989. (p. 4)

According to the Bureau of Justice Statistics (1998a), "Among the 5.3 million
convicted offenders under the jurisdiction of corrections agencies in 1996, nearly 2
million, or about 36% were estimated to have been drinking [italics added] at the time of
the offense" (p. 2). The vast majority--approximately 1.5 million--of these alcohol-
involved offenders were sentenced to supervision in the community; 1.3 million were
placed on probation and more than 200,000 were placed on parole (BJS, 1998a). The use
of alcohol during the offense usually relates to public-order crimes such as destruction of
property. In addition, approximately half of all offenders convicted of intimate violence
and confined in a local jail or a state prison had been drinking at the time of the offense
(BJS, 1998a).

The Bureau of Justice Statistics (1998b) reported that among the local jail inmates
in 1996, one-fourth were there for a violent crime, one quarter were there for a crime
against property, and one-fifth were being held for a drug crime. Seven of every 10 had
prior sentences to either probation or incarceration. Among jail inmates in 1989, 44%
used drugs in the month before the offense, 30% used drugs daily in the month before the
offense, and 27% used drugs at the time of the offense (BJS, 1995). Data from BJS
surveys show that 78% of jail inmates in 1989, 79% of state prisoners in 1991, 60% of
federal prisoners in 1991, and 83% of youth in long-term public juvenile facilities in 1987
had used drugs at some point in their lives (BJS, 1995). Those jail inmates convicted of
drug offenses most frequently reported that they were under the influence of drugs at the
time of their offense (39%) (BJS, 1995). Among violent offenders in state prisons, 61% said either they or their victims were under the influence of drugs or alcohol at the time of the offense, while 50% reported being under the influence of alcohol or drugs at the time of the offense, and 30% said that their victims were under the influence of drugs or alcohol (BJS, 1995). Thus, it can be seen that, although only 20% of jail inmates were being held for a drug crime, drugs and alcohol were involved in considerably more than 20% of the crimes committed. Of the 108,580 persons released from prisons in 11 states in 1983, an estimated 62.5% were rearrested for a felony or serious misdemeanor within 3 years, 46.8% were convicted and 41.4% were returned to prison or jail, indicating a higher than desired recidivism rate (Beck & Shipley, 1989). An additional finding of this study found that prisoners with one or more prior drug arrests were more likely to be arrested within 3 years than prisoners without a prior drug arrest (68.6% of those with prior drug arrests recidivated compared to 58.8% for all prisoners in the study).

An article by Joseph A. Califano (1998), President of the National Center on Addiction and Substance Abuse at Columbia University and former Secretary of Health, Education and Welfare, made the case that with more than 1.7 million people behind bars in America, 80% of them—in other words, 1.4 million—either "violated drug or alcohol laws, were high at the time of their offense, stole property to buy drugs, have histories of drug and alcohol abuse and addiction, or share some mix of these characteristics" (p. C7). Society has a history of incarcerating these individuals and then returning them, without treatment for their substance abuse problem, back into society to resume the criminal activity which put them in jail/prison in the first place. Some of these individuals would
no doubt be criminals no matter what. But others are doing what they need to do in order to survive in their worlds of addiction. Mr. Califano's statement is that we need to invest some time, effort, and cash in rehabilitating the rehabilitatable so that they can become productive citizens upon release:

The National Center on Addiction and Substance Abuse at Columbia University estimates that for an additional $6,500 a year, an inmate could be given intensive treatment, education and job training. Upon release, each one who worked at the average wage of a high school graduate for a year would provide a return on investment of $68,000 in reduced criminal activity, savings on the costs of arrest, prosecution, incarceration and health care, and benefit to the economy. If all 1.2 million inmates with drug and alcohol problems got such treatment and training (cost: $7.8 billion) and only 10 per cent became sober, working citizens ($8.256 billion), the investment would pay for itself with a year of work. Each subsequent year would provide billions more in savings and economic benefits. (1998, p. C7)

The Problem

According to the Bureau of Justice Statistics (1992), "a large percentage of drug users come into contact with the criminal justice system" (p. 3). Drug users reported more criminal activities and were more likely to have criminal records than are nonusers (Chaiken & Chaiken, 1990). McBride and Inciardi (1990) reported that 80% of a sample of street-injection-drug users in Miami had been in jail in the previous 5 years and nearly half had been incarcerated in the previous 6 months. Other research in Miami demonstrated that far more crime is committed by drug users than previously thought, that drug-related crime could be extremely violent, and that law enforcement cannot really control the criminality of street drug users (Inciardi, 1979, 1992; Inciardi & Pottieger, 1986, 1991, 1994). Although drug use does not necessarily start individuals on
a criminal path, it appears that, once begun, it is an extremely difficult path from which to detour.

The number of substance abusers who are also committing crimes is certainly not decreasing. Travis (1996) reported that 70% of the arrestees sampled by the Drug Use Forecasting program have tested positive for recent drug use. In an earlier report the Drug Use Forecasting (DUF) program of the National Institute of Justice (NIJ, 1993), whose job it is to monitor the drug use of new arrestees in 24 American cities, found in 1992 that 47% to 78% of male arrestees tested positive for at least one illicit substance. In Chicago, for instance, the DUF determined that 69% of the men arrested tested positive for some drug, 56% tested positive for cocaine, 19% for opiates, 26% for marijuana, and 32% of all arrestees tested positive for two or more drugs (NIJ, 1993). In New York, 83% of all arrestees tested positive for cocaine and 27% for heroin (NIJ, 1993). Not only do these people use drugs on the street, but they continue to use drugs when incarcerated:

High rates of drug use are also found among incarcerated offenders. Specifically the prevalence of drug use among jail inmates has risen substantially in the past several years and is nearly seven times greater than it is among the general population. (BJS, 1991, p. 5)

In addition to the drug- and alcohol-related crimes resulting in incarceration, it has been documented that persons with psychoactive substance use disorders also suffer from high rates of psychiatric disorders (Busto, Romach, & Sellers, 1996; Group for the Advancement of Psychiatry Committee on Alcoholism and the Addictions, 1991). Kokkevi and Stefanis (1995) found in studying 176 opiod-dependent men from both
prison and treatment services that the lifetime and current prevalence of any mental disorder, excluding substance use disorders, were 90.3% and 66.1% respectively. Utilizing DSM-III, the most prominent Axis I disorders for the group were anxiety (31.8% lifetime prevalence and 16.5% last month) and affective (25% lifetime and 19.9% last month) disorders. On the Center for Epidemiological Studies-Depression (CES-D) scale, these researchers found high levels of depressive symptoms (71.5%) as well as increased rates of self-reported suicide attempts (27.4%): "Psychiatric disorders seem to precede drug dependence in the majority of cases" (p. 329). In reporting the findings of the Epidemiologic Catchment Area (ECA), Regier et al. (1990) found that the national comorbidity rate of mental disorders with alcohol disorders was 37% and with drug disorders 53%. The comorbidity rate of alcohol and drug disorders was 47.3%. In studying 75 subjects presenting for addictions treatment, Charney, Paraherakis, Negrete, and Gill (1998) found that 53.7% of the sample met DSM-IV criteria for a current nonsubstance use Axis I diagnosis, 13% had two or more current nonsubstance use diagnoses, and 35.2% met criteria for an Axis II diagnosis. They also note that lifetime comorbidity rates were 60% for mood disorders and 49.1% for anxiety disorders (p. 125).

In working with both inmates and substance users, one finds that having an external locus of control is problematic both in terms of substance use and general adjustment (Hunter, 1994). The construct of locus of control concerns the belief that personal outcomes are either the result of others or outside forces (external) or the result of one's own actions (internal) (Rotter, 1966). One finds that both types of populations--both inmates and substance abusers--tend to blame something outside themselves rather
than take responsibility for their behaviors. The inmates without a substance abuse problem might blame their parents, their environment, their economic status, their friends, and anything else except themselves. The substance abusers will blame all of these and the substance as well. It is well known among those who work with the incarcerated population that inmates do not take personal responsibility for being in jail. The cause is always something or someone outside of themselves. In other words, it is someone else's fault that the inmates were arrested and incarcerated. In working with inmates, most practitioners work toward getting the inmates to take responsibility for their behavior. In other words, the practitioner attempts to move the inmates from an external locus of control wherein he blames others toward an internal locus of control where the inmate learns personal responsibility for behavior.

The Rationale

The Davidson County Sheriff's Department conducts a substance abuse program called the New Avenues Substance Abuse Treatment Program at the Correctional Work Center in Nashville, Tennessee. Nashville, like the rest of the United States, has seen an increase in drug- and alcohol-related crime. The rationale for providing substance abuse treatment to addicted criminal offenders is that these individuals commit crimes to obtain money to support their drug habits (Lurigio & Swartz, 1994). The Bureau of Justice Statistics (1992) reported that criminal activity is two to three times higher among those who are frequent users of heroin and cocaine than among sporadic users or nonusers. McGlothlin (1978) found that property crimes increased proportionately to drug use.
Compared to involvement in property crime, addicts commit relatively few violent offenses, including violent predatory crimes to support their drug habits (Ball, Shaffer, & Nurco, 1983; Goldstein, 1981; Hunt, Lipton, & Spunt, 1984), although there is some evidence suggesting that recent increases in cocaine use are associated with significant increases in violent crime (Datesman, 1981; Simonds & Kashani, 1980; Spunt, Goldstein, Bellucci, & Miller, 1990).

It only makes sense that if the offenders’ addictions can be reduced, controlled, or eliminated, then the level of their criminal activity should also be lessened because of a lessened need to obtain money to buy drugs and/or alcohol. By recognizing that “drug addiction typically occurs as only one part of an entire constellation of problems and deficits” (Swartz, 1993, p. 131), and addressing these in addition to the addiction, the incarcerated substance abuser has a chance to become a productive member of society. Swartz (1993) has stated that many addicts are undereducated, have psychological and medical problems, have poor social skills, and lack both the skills and training for employment. The profile of multiple deficits and problems is especially true of addicts who come to the attention of the criminal justice system, who in addition to the above, by definition, have legal difficulties (p. 131).

Since substance abuse may go hand-in-hand with anxiety and depression disorders, it is important to know if these were affected by going through treatment. Numerous studies have come to the conclusion that mental illness and substance abuse are connected. Charney et al. (1998) determined that 53.7% of his cohort met DSM-IV criteria for a current Axis I non-substance abuse diagnosis. Of these, 22.4% were found
to have primary depressive disorders, 8.4% had substance-induced depression, and an additional 5.6% had symptoms indicating a mix of these two. Weiss et al. (1988) found that 31.3% of the alcoholic drug-abusers met criteria for some form of depression and 5.3% met criteria for panic/anxiety disorder, while 24.2% of the nonalcoholic drug-abusers met criteria for some form of depression, and 3.8% met criteria for panic/anxiety disorder. In another study Weiss and Mirin (1989) reported that 23% of 84 subjects met anxiety criteria. In a more recent study of depressed outpatients, Abraham and Fava (1999) concluded "that alcohol and cocaine use in this sample of depressed outpatients conformed to a pattern of self-medication". Christie et al. (1988) in an order-of-onset study of data from the Epidemiologic Catchment Area survey on over 20,000 persons found that nearly 75% of the persons aged 18 to 30 with both depression and substance abuse indicated that the depression came first. These are but a few of the studies indicating a link between depression, anxiety, and apparent self-medication with substances. It would be considered appropriate to study the New Avenues Substance Abuse Treatment Program in light of these other studies to determine if the program effectively helps those who self-medicate mental illness with both legal and illegal drugs.

In addition, research (Hunter, 1994) has shown that a person's locus of control can affect criminality generated by addictions as well as the addiction process itself. Therefore, it is also important to determine if the New Avenues Substance Abuse Treatment Program is effective in facilitating a positive change in locus of control. A by-product of improvement in these areas may be better compliance with aftercare, which, in turn, would result in less frequent returns to a life of crime.
Rotter (1966) made the point that the effects of reward or reinforcement preceding behavior depend in part on whether the person perceives the reward as contingent on his own behavior or independent of it:

When a reinforcement is perceived by the subject as following some action of his own but not being entirely contingent upon his action, then, in our culture, it is typically perceived as the result of luck, chance, fate, as under the control of powerful others, or as unpredictable because of the great complexity of the forces surrounding him. When the event is interpreted in this way by an individual, we have labeled this a belief in *external control*. If the person perceives that the event is contingent upon his own behavior or his own relatively permanent characteristics, we have termed this a belief in *internal control*. (p. 1)

The question, then, is, "Does the individual believe that he/she has control over his/her own life or is what happens to him/her a result of forces beyond his/her control?"

Blatier (2000) conducted a study in France with a group of 68 prisoners, 10 of whom were isolated, convicted in jail; 18 of whom were nonisolated, convicted in jail; 6 of whom were isolated, awaiting trial; 20 of whom were nonisolated, awaiting trial; and 14 of whom were employed in prison-controlled building sites outside the prison. Blatier found that the greatest effect on whether internal attributions were preferred had to do more with where the person was with regard to their penal situation of being convicted, accused, or on work release rather than whether they were serving their sentence in prison or were allowed to serve their sentence while working outside the prison. She found the most internally oriented were those on work release. Those awaiting trial were next, and those who were serving their conviction without benefit of work release were the most external. Blatier also reported that there were a number of studies on delinquents which have found that their locus of control is external.
An internal locus of control wherein one feels he/she has some control over outcome would appear also to represent a sense of responsibility. Blatier (2000) stated that

One can predict that people who consider reinforcements to depend on their own behavior will be more apt to manifest normative behavior than those who think that such reinforcements are beyond their control. (p. 98)

Being incarcerated is not considered to be normal behavior by the majority of society. Those who work in the criminal justice system generally see inmates as being very much into blaming other people or circumstances for their predicament so that they do not have to take responsibility (P. Mulloy, personal communication, December 12, 2000). The New Avenues Substance Abuse Treatment Program encourages inmates to take responsibility for their substance abuse and the resulting punishments. Being able to acknowledge that one made choices which resulted in incarceration is a big step in taking responsibility for oneself. One would expect that the individual's locus of control would begin as external and move in the direction of becoming more internally oriented as the treatment program progressed as it did in Hunter's (1994) study of federal inmates in a cognitive substance abuse treatment program. The mean I-E Scale score for those in Hunter's study completing treatment was 7.05, signifying an internal locus of control while the mean for those still awaiting treatment was 11.95, signifying a more external locus of control. Since the program under study was Rational Emotive Therapy-based rather than cognitive-based, it will be interesting to see if the same progression occurs.

It is fairly evident from the number of people incarcerated for drug- and alcohol-related crime in this country that enforcement and/or punishment have not led to a
reduction in drug and alcohol use and resultant criminal activity. Enforcement and/or punishment have, however, resulted in overcrowded facilities and individuals being released from those facilities who have not learned any new or different alternatives for living. It is past time to try other alternatives which work and can be provided on a large scale. In order to determine what works and what would be most effective, program evaluation is an absolute necessity.

While a small number of jails provide in-jail substance abuse programs to decrease addictions, no one has actually studied the effectiveness of the programs with regard to a decrease in anxiety or depression or a difference in locus of control. The lack of outcome research other than in regards to recidivism, particularly for jail-based inpatient programming of 40 hours per week, points out a need for additional research focused on outcomes other than recidivism. If the cycle of substance abuse can be broken at the jail level, then there is no need for the individuals to progress to the prison level. Instead, they may be able to become productive citizens who contribute to society instead of taking away from it. These people will no longer commit crimes. They will not waste their lives and potential by being incarcerated, perhaps for life, in prison. They will not cost the taxpayer untold millions of dollars both in crime and in incarceration costs and will, in fact, be able to contribute to the tax base.

As can be seen, research is limited with regard to jail-based substance abuse treatment programs. There have been a number of studies concerning the number of persons incarcerated due to substance abuse/use, either in the buying or selling of drugs or alcohol or in what a person was willing to do to obtain the substance (Ball et al., 1983;

**The Purpose**

If one hypothesizes that anxiety and depression as well as locus of control affect the addiction process, then an effective substance abuse treatment program will show a downward progression of the level of anxiety and depression as well as a movement from
external locus of control toward internal locus of control. Therefore, the purpose of this study was to investigate the effectiveness of the New Avenues Substance Abuse Treatment Program conducted by the Sheriff's Department in Davidson County, Tennessee, which also includes the city of Nashville, not by demonstrating a decrease in substance use and recidivism but by demonstrating a decrease in anxiety and depression levels and movement from external toward internal locus of control on the part of those participants successfully completing the treatment program.

**The Research Question**

What will be the effect of the New Avenues Substance Abuse Treatment Program on anxiety, depression, and locus of control among participating inmates?

**The Research Hypotheses**

The research hypotheses for the study are as follows:

1. There will be a difference between the pretest and posttest Beck Depression Inventory II (BDI-II) scores of the experimental group.

2. There will be a difference between the pretest and posttest Beck Depression Inventory II (BDI-II) scores of the control group.

3. There will be a difference between the pretest and posttest Beck Anxiety Inventory (BAI) scores of the experimental group.

4. There will be a difference between the pretest and posttest Beck Anxiety Inventory (BAI) scores of the control group.

5. There will be a difference between the pretest and posttest Rotter Internal...
versus External Control of Reinforcement Scale (I-E Scale) scores of the experimental group.

6. There will be a difference between the pretest and posttest Rotter Internal versus External Control of Reinforcement Scale (I-E Scale) scores of the control group.

7. There will be a difference in the posttest BDI-II scores between the experimental group and control group.

8. There will be a difference in the posttest BAI scores between the experimental group and control group.

9. There will be a difference in the posttest I-E Scale scores between the experimental group and the control group.

**Limitations**

Using a quasi-experimental design because it was not possible to randomly assign individuals to either the experimental group or the control group was a limitation for this study. Members of the experimental group, those graduating from the New Avenues Substance Abuse Treatment Program, not only volunteered for the program or were court ordered to the program but also had enough motivation to complete the program. Members of the control group volunteered for the testing only. Although both groups exhibited serious alcohol and drug problems as evidenced by scores achieved on the Michigan Alcoholism Screening Test and the Drug Abuse Screening Test at pretesting, it could be possible that randomly assigning individuals may have caused changes in the overall depression, anxiety, and locus of control scores.
The fact that the study was limited to a particular jail facility within Davidson County because that was where the New Avenues Substance Abuse Treatment Program was housed could be a limitation for the study. The sample in the study may not adequately represent the general jail population because they were housed in a work release facility. For example, inmates with maximum security designations would not be allowed to work outside the jail and would, therefore, not be housed at the Correctional Work Center. If inmates have an assault charge, they would not be eligible for work release. Also, some inmates might not be able to work outside the facility due to physical or mental disabilities. These individuals would also be housed at the main jail.

The small sample size of the control group could be considered a limitation for this study. The larger the sample size, the more easily significance can be determined.

In working with incarcerated individuals one might find a tendency for them to deliver socially acceptable responses. Although the consent form stated that participation would in no way affect an individual’s charges or sentence or result in any special treatment, it was still possible that the individuals--both in the experimental group and the control group--still wanted to present themselves in a positive light. This limitation could apply to all three instruments, the BDI-II, the BAI, and the I-E Scale.

**Definitions**

The following terms are defined as they are used in this discussion:

**Anxiety**: Anxiety is conceptually defined by the psychiatric definition found in the Random House Unabridged Dictionary (edited by Flexner, 1993) as "Psychiatry. a
state of apprehension and psychic tension occurring in some forms of mental disorder" (p. 96). It was operationally measured by the Beck Anxiety Inventory (Beck, Epstein, Brown, & Steer, 1988).

**Depression:** "A condition of general emotional dejection and withdrawal; sadness greater and more prolonged than that warranted by any objective means" (Random House Unabridged Dictionary, edited by Flexnor, 1993, p. 535). It was operationally measured by the Beck Depression Inventory (Beck, Steer, & Brown, 1996).

**Locus of Control:**

An individual's belief about the source of control of the reinforcements he or she receives; an internal locus of control indicates a belief that one's reinforcements are brought about by one's own behavior and attitudes, whereas an external locus of control indicates a belief that reinforcements are in the hands of other people, of fate, or of luck and that one is powerless with respect to these outside forces. (Schultz, 1990, p. 484)

Locus of control was operationally measured by the Rotter Internal versus External Control of Reinforcement Scale. (Rotter, 1966)

**Organization of the Study**

Chapter 1 contains a statement of the problem. Chapter 2 discusses a review of the literature. Chapter 3 details selection of the samples, the method for collection of data, the instruments involved, and the type of analysis utilized. Chapter 4 describes the research samples and examines the results. Chapter 5 discusses the findings of the study as well as implications and recommendations for further study.
CHAPTER TWO

REVIEW OF THE LITERATURE

Introduction

Although there are numerous statistics available from the Bureau of Justice concerning the whys and wherefores of drugs and alcohol use and crime, very little research has been conducted on substance abuse programs in the jail setting. Peters (1993b) stated that "results of evaluation conducted within jail substance abuse treatment programs are limited to a handful of studies" (p. 105). This is possibly due to the fact that the use of substance abuse treatment programs is not widespread in correctional institutions. Husband and Platt (1993) stated that "there is a serious lack of substance abuse treatment programs in many of the nation's jails; this is in spite of the fact that a substantial number of the nation's prisoners have been identified as substance abusers or are incarcerated for drug-related crimes" (p. 31). From the Drug Treatment Program Survey conducted by the American Jail Association and reported on in 1992, Peters and May noted that only 28% offered any treatment other than detoxification (57% of all the jails in the country responded). Only 19% reported having funded drug treatment programs. Only 7% had comprehensive treatment programs defined as including group counseling, drug education, transition planning, and referral to outside treatment.
agencies. Fewer than 6% of the jails responding offer at least 10 hours a week of drug
treatment. According to Peters (1992), common treatment approaches include
psychoeducational interventions, therapeutic communities, and chemical
dependency/self-help approaches.

Several states, including Delaware, Florida, Wisconsin, Texas, and New York, as
well as the Federal Bureau of Prisons have instituted substance abuse programs. Most
research involving persons who are incarcerated and involved in substance abuse
programs has been in these state prisons and in federal prisons. In addition, most of the
research has been centered around recidivism. Swartz (1993) stated that for the
policymakers in criminal justice, the most crucial, and perhaps the only, criterion for
evaluating alcohol and drug programs is recidivism. Other benefits go unnoticed. If
recidivism is not lowered, then funding is curtailed.

Some far-sighted individuals, recognizing that traditional methods of punishment
such as repeated probation, jail, or prison time were not working for the typical
drug/alcohol abuser and addict, began experimenting with alternatives designed to stop
the revolving door of the justice system. One such program was begun by Judge Stanley
Goldstein, Dade County, Florida, in 1989 in the form of a drug court. His idea was to
divert the nonviolent drug offenders from the prison system into treatment. Because he
saw addiction as a disease, he believed in helping those who wanted help. Patterned after
this innovative program, there are now 275 drug courts in 48 states which have diverted
approximately 100,000 individuals into treatment programs of up to a year (Johnson,
1998). According to author Kevin Johnson, up to 20% of individuals in these outpatient
settings relapse, leaving 80% successful. Johnson saw this as being a better percentage than for addicts who are jailed and referred to treatment programs as part of their probation or parole.

Peters (1993b) noted that psychoeducational approaches generally have considerable flexibility in format due to the short-term needs of most jails, i.e., people may be incarcerated for a few hours up to a year, with the majority in jail for a relatively short period of time before being out on bond. Psychoeducational approaches follow the theory that substance abuse/dependence are determined by many factors, including biological, psychological, and social effects. By addressing the deficits in these areas the person can obtain a more balanced lifestyle. Drug education and awareness are combined with the learning of coping skills such as problem-solving skills, anger management, and the avoidance of active drug users. Due to the short-term incarceration of many jail offenders, after-care services are oftentimes recommended for ongoing treatment, and resources in the community are available to the inmate being released.

When looking at community-based residential therapeutic communities, research has found them to be viable and most effective when utilized by those who exhibit low levels of social deviance and who remain in treatment the longest (Condelli & Hubbard, 1994; McLellan & Alterman, 1991; Yablonski, 1989). It appears that this is true for the drug-involved criminal as well—that those who participate in treatment over a long period of time tend to recidivate less frequently. Some prison research done by Wexler et al. (1990) appeared to indicate that those involved in long-term therapeutic rehabilitative communities while in prison also have a higher success rate adapting to the free world.
and are less likely to be rearrested and returned to prison.

Nonetheless, research is extremely limited, particularly for jail programs. It has lagged behind the implementation of substance abuse programs probably because it was felt that direct treatment was where the limited resources should go (P. Mulloy, personal communication, July 21, 1999). According to Inciardi et al. (1997), most of the studies conducted on the effectiveness of treatment for drug-involved offenders have focused on the number who completed treatment and, most typically, only in prison-based programs. Where outcome research has been attempted, the individuals have not been followed for long periods of time; there has been only limited use of comparison groups; use of standardized instruments has been limited; and appropriate statistical analysis has not been accomplished (Forcier, 1991; Rouse, 1991).

Some studies have examined the relationship between individual offenders' background characteristics and treatment outcome. Variables which have been shown to increase the likelihood of recidivism include race (Hepburn & Albonetti, 1994), prior arrests (Hepburn & Albonetti, 1994; Lattimore et al., 1995), age of first arrest (Rossi et al., 1980), marital status (Rhodes, 1986), and gender (Lehman & Simpson, 1990). In a study of probationers completing a 4-month residential treatment program, Broome et al. (1996) studied the relationship between rearrest and several elements of the treatment process. In this study, the re-arrest rate was 36%. Survival analysis (analysis of those who did not reoffend versus those who did) indicated that reoffending was directly related to "poorer during-treatment ratings by probationers of self-esteem, counselor competence, and peer support from others in the treatment program" (p. 487). The authors found these
factors to be better predictors of rearrest than the traditional demographic factors mentioned previously. Although these factors are much harder to define than demographics, one can see how therapeutic factors could either enhance or destroy a person's chance for success.

**Work Release**

Work release programs began in the 1970s and are a form of partial incarceration where the inmate is paid for work on the outside while at the same time living within the walls of a jail or prison. It is a way of allowing the inmates to gradually reenter and readjust to the real world. The belief in trying to integrate work release and therapeutic community is that "therapeutic community treatment enhances the effectiveness of work release in reintegrating inmates back into society" (Peters, 1993b, p. 350).

**Therapeutic Communities**

According to Peters (1993b), "Therapeutic communities have been developed to address the needs of the chronic substance abuser, and are premised on the belief that recovery from addiction is a long-term process requiring major changes in values and lifestyles" (p. 102). He went on to say that "they are highly structured, with well-defined community norms governing behavior, sanctions for these behaviors, and a hierarchy of responsibility" (p. 102). Therapeutic communities emphasize treating drug abuse as a disorder of the whole person and seek to change the client's negative ways of thinking, feeling, and acting. "The major goal of treatment is to produce lasting life-style changes, particularly in the areas of developing positive social identities, and living drug free and..."
crime free" (Nielsen et al., 1996, p. 350). DeLeon (1994) stated that

the treatment perspective (of therapeutic communities) is that drug abuse is a disorder of the whole person; that the problem is the person and not the drug, that addiction is a symptom and not the essence of the disorder; and that the primary goal is to change the negative patterns of behavior, thinking, and feeling that predispose drug use. (p. 321)

Participants in a jail therapeutic community are isolated from other areas of jail housing in order to promote a sense of community as well as to insulate the participants from the negative peer influence of those not in treatment (Peters, 1993b).

Peters (1993b) outlined the stages of therapeutic community programs as orientation to the system of rules, sanctions, and treatment activities; participation in a highly structured regimen of daily activities; and community reentry. The approach is one of social learning wherein there is immediate, consistent feedback from peers and staff regarding any inappropriate behavior, lack of motivation or commitment to treatment, and responsibility to others in the program. It is also deemed important that vocational and educational skills be emphasized so that inmates will be able to be employed after jail/prison. Examples of therapeutic community interventions are the IMPACT program at the Cook County Jail, Chicago, Illinois, and the Key program in the Delaware state prison system. These are long-term interventions lasting 4 months to a year or more.

Therapeutic communities have received the most attention with regard to prison treatment programs. Inciardi et al. (1997) studied the effectiveness of a multistage therapeutic community treatment system (KEY Program) instituted in the Delaware correctional (prison) system. Treatment there takes place in three stages which
correspond to the client's changing correctional status—incarceration, work release, and parole. The study analyzed 18-month follow-up data for those who received substance abuse treatment in: (1) a prison-based therapeutic community only; (2) a work release therapeutic community followed by aftercare; and (3) the prison-based therapeutic community followed by the work release therapeutic community and aftercare (Inciardi et al., 1997). The groups were compared to a no-treatment comparison group, meaning individuals who did not participate in these programs although they may have participated in other types of programs such as Alcoholics Anonymous (AA) and Narcotics Anonymous (NA). Inciardi and associates indicated that those participating in the two-stage (work release and aftercare) and three-stage (prison, work release, and aftercare) models had significantly lower rates of drug relapse and criminal recidivism. They believed that the results support the effectiveness of a multistage therapeutic community model for drug-involved offenders, and the importance of a work release "transitional" therapeutic community in this model.

In integrating the concepts of work release and therapeutic community, CREST in the Delaware correction system attempts to change clients' old behaviors and attitudes. Objectives of the program are to help the clients: increase self-esteem; develop the prosocial values of responsibility, accountability, and honesty; form trusting familial relationships; develop discipline and self-control; see the negative impact of behavior on self and others; deal with confrontation without reacting violently; and learn about addiction and acknowledge that they have substance abuse problems (Nielsen & Scarpitti, 1995). This program is peer-based with the clients instrumental in running the program,
providing feedback and help to others in the program, and being members of the therapeutic community. Working in the outside community is integral to the program concept following the first 3 months of intensive treatment. This gives the client the opportunity to face some of the problems he or she will encounter when released, such as being confronted by the opportunity to obtain drugs, while at the same time having the support of the CREST community in effectively dealing with those problems. At the 6-month follow-up 16.2% of the CREST participants had relapsed according to self-report as compared to 62.2% of the comparison group. Of the CREST participants 14.7% had been rearrested at 6 months while 35.4% of the comparison group had been rearrested (Nielsen et al., 1996). (It should be noted that the CREST group and the comparison group were not matched groups. Fewer comparison subjects had been incarcerated for drug-related crimes than the CREST group, and fewer comparison subjects reported any substance abuse problems than the CREST group.)

Nielsen et al. (1996) investigated the CREST component of the above program and found that combining the therapeutic community concept with rehabilitation in the form of work release resulted in lower relapse and recidivism rates for participants than for those in a comparable comparison group. They also determined that the CREST program had similar effects on relapse and recidivism across sexes, racial/ethnic groups, and different age categories. CREST by itself is, according to the authors of the study, "the nation's first therapeutic community and work release center for drug involved offenders" (p. 349). It combines the basic elements of both modalities and hopes to accomplish change in the inmate.
The Cook County Jail program in Chicago, Illinois, known as IMPACT---Integrated Multiphase Program of Assessment and Comprehensive Treatment---was begun in February, 1991, (Peters, 1993b) as a demonstration project. Treatment services are contracted by Gateway, Inc., and are carried out in a therapeutic community setting. The program is 12-step in focus supplemented by educational and vocational services. Case management services are provided to each inmate admitted to the program to assist in coordinating follow-up treatment services and to track treatment participation and progress. Male inmates are treated on a residential basis while female inmates live in the general population and participate in services on a nonresidential basis. Inmates must recognize a substance abuse problem and be willing to participate in structured treatment. If there is any evidence of a potential of violence toward staff or participants or if there is evidence of psychosis or suicidal behavior, inmates are denied admission to the program.

As a demonstration project, IMPACT experienced multiple problems, not the least of which was sending approximately 50% of the participants off to prison following treatment (Lurigio & Swartz, 1994). It is considered general knowledge among those familiar with prisons that the drug problem inside prison is at least as severe as that outside on the street. The Bureau of Justice Statistics (1991) reported that the prevalence of drug use among jail inmates had risen significantly and, at that time, was approximately two times greater than in the general population. Inappropriate court-ordered referrals were made without screening, resulting in inmates being returned to the general population. Inadequate interfacing with other agencies also resulted in other inmates being released or completing their sentences in the middle of treatment.
Available research on this program reported recidivism rates, finding that the 6- to 8-month IMPACT program substantially reduced rearrest rates in a population of severe, crime-prone drug addicts (Swartz et al., 1996).

Interventions/Wilmer, Dallas County, Texas, is the product of a joint effort with the Dallas County judiciary, the Dallas County Supervision and Corrections Department, the State of Texas Criminal Justice Division, and Interventions Co., a not-for-profit treatment provider. It is a 300-bed substance abuse treatment program that "is part of a continuum of care focused on preventing drug and criminal recidivism in substance abusing criminals incarcerated in Dallas County, Texas" (Barthwell et al., 1995, p. 39). The program combines therapeutic community technology with 12-step programming, behavior modification, job training (each inmate must have a job in order to graduate), educational, and medical/psychiatric elements. There are individual treatment plans that are based on an extensive workup in which a number of domains are assessed to determine the individual's status. Upon completion of the 6-month-long therapeutic community core, the person has two options. For those whose return to a life of drugs and crime would be almost certain because of poor support, there is a transitional live-in, work-out 3-month phase. Following successful completion of this component, the person then moves into a 6-month-long aftercare component. For those who have good, positive support in the community, the 6-month aftercare component is begun immediately upon completion of the residential 6-month therapeutic community component. Aftercare is intensive, requiring weekly attendance at group, monthly visits with a probation officer, and urine screens. Female participants have special program support such as parenting
and family education groups to help them learn communication and maintain contact with children and other family members.

**Dual Diagnosis Treatment**

Interventions Co., having wide experience with substance-abusing populations, realized that not only did these people have problems with drugs and/or alcohol, but most, if not all, had deficits in many areas, including concurrent psychiatric disorders. The prevalence of depression and the related possibility of suicide was so frequent in the female population that a psychiatrist conducted a formal psychiatric evaluation on every female admission (Barthwell et al., 1995). The male participants were screened for psychiatric disorders, and a full psychiatric evaluation was sometimes ordered. "The presence of a major mental illness, such as bipolar affective disorder or schizophrenia, does not exclude potential admissions from the program. If such cases are stabilized on medication, these individuals can and do participate fully in all program activities" (p. 42). According to Barthwell et al. (1995), the exclusionary criteria are: (1) acute psychiatric problem requiring inpatient psychiatric treatment, such as active psychosis, current risk of suicide, or severe depression; (2) history of arson; (3) history of sex offenses; (4) repeat conviction for violent crime; (5) mental retardation severe enough to preclude participation in the therapeutic program; and (6) being a major drug dealer.

On-site psychiatric services combined with an Interventions philosophy that recognizes the frequent co-occurrence of substance abuse with major mental illness means that many offenders can be served who would by virtue of their mental illness (e.g., depression, mania) be unacceptable to many in-jail/prison TCs [Therapeutic Communities]. The history of separation between drug abuse treatment and mental illness treatment requires an organizational commitment
to dual programming and considerable training. It is the experience of Interventions, consonant with much nationwide experience, that when the organization makes a commitment to dual programming and provides adequate training and supervision, the divisions of the past disappear and a commitment to a unified service-oriented culture characterizes the treatment program. (p. 45)

**Jail-based Day Treatment**

Linn County, Florida's, alcohol and drug treatment program, Inmate Recovery Program (IRP), is a 5-week treatment program that takes place in the jail facility. This program is a day treatment program, as opposed to a therapeutic community, where the inmates are in the general population when they are not participating in the program. In-jail treatment consists of a group of approximately 12 spending 5 hours per day 5 days a week for 5 weeks receiving group treatment. In addition, each client has 1 hour of individual therapy per week and attends 12-step groups in the evenings. The inmates are exposed to topics related to substance abuse and recovery such as the disease concept, physical mechanisms of addiction, psychological mechanisms of addiction, medical consequences of drug abuse, codependency, and the relapse and recovery processes (Hughey & Klemke, 1996). Reading assignments, homework, sharing, and writing assignments are required. The overall thrust of the program is to make inmates take an in-depth look at themselves, at their substance use/abuse behaviors, and to develop alternative behaviors. The inmates are also expected to develop an aftercare program. Research on this program took the form of comparing pre- and post-arrest records for 226 program completers, 34 inmates who began the program but did not complete it, and a control group of 134 inmates housed at the same facility. The study by Hughey and
Klemke (1996) found that all three groups had significantly lower arrest rates in the year following treatment. However, in the 1- to 5-year follow-up, graduates of the program were found to have significantly more favorable post-program criminal records than the control group for three of the six recidivism indicators—total number of arrests, days until first arrest, and number of new convictions. The three other indicators were average number of probation violations, average number of substance abuse arrests, and average percentage of time incarcerated. Noncompleters' poorer outcome showed statistically significant differences for all six of the recidivism indicators in the study (Hughey & Klemke, 1996).

The Disease Model

The Jail Substance Abuse Program, developed by the Washington County Health Department in Hagerstown, Maryland, is an approximately 6-week-long program in a 17-bed treatment unit. Aftercare in the community is an integral part of on-going recovery. Participants are approximately 90% sentenced and 10% unsentenced (Peters, 1992). Treatment is based on the disease model and emphasizes a range of didactic and educational interventions. Incentives for participation include an opportunity for reduction in jail sentence, received by 62% of the inmates and for enrollment in a halfway house or other community treatment. Admission criteria include alcohol or drug dependency and an inability to interrupt the pattern of substance abuse. There was no reference by Peters (1992) to any mental health screening.
Case Management Model

In 1989 Wisconsin funded the Treatment Alternative Program, which was patterned on the Treatment Alternatives to Street Crime (TASC). Both programs utilize case management as community-based supervision with alcohol and drug treatment to aid the substance-abusing offender. The Case Management model is used to "break the cycle of addiction-criminality-arrest-prosecution, conviction, incarceration, release, readdiction and rearrest" (Weinman, 1990, p. 141). According to Anglin and Hser (1991), participation in this program is encouraged by utilization of diversionary dispositions of substance-involved sentencing such as deferred prosecution, creative community sentencing, and pre-trial intervention. Individuals are not incarcerated during treatment. However, violation of treatment results in the client being returned to the criminal justice system for legal proceedings. Hubbard, Rachel, Craddick, and Cavanaugh (1988) compared clients remanded by the criminal justice system to voluntary drug-treatment clients and found that TASC clients improved as much as voluntary clients with respect to drug use, employment, and criminal behavior in the first 6 months of treatment. They also tended to remain in both residential and outpatient drug-free modalities 6 to 7 weeks longer than voluntary clients.

Biopsychosocial Model

According to Arcidiacono and Saum (1995), the philosophy of the Federal Bureau of Prisons for providing substance abuse treatment in 33 of their facilities assumes that each individual is responsible for the choices he or she has made as well as the
consequences for those choices:

The behaviors previously exhibited as a result of these choices are thought to be stimuli for the drugs-crime nexus. Consequently, the Federal Bureau of Prisons' biopsychosocial model of treatment incorporates a number of approaches that focus on the inmate's biological, psychological, and social circumstances as they relate to drug use and criminal behavior. (p. 105)

The Bureau of Prisons has a six-part drug treatment strategy to provide appropriate treatment for offenders based on their individual needs. These include (1) orientation, screening, and referral, (2) drug abuse education, (3) nonresidential treatment, (4) residential treatment, (5) community-based transitional services, and (6) evaluation (p. 106). In the initial phase the person's psychological functioning and drug use history are assessed to determine if the individual is in need of additional treatment over and above that of substance abuse treatment. Evaluation of these programs is concerned with relapse and recidivism.

**Comorbidity--Substance Abuse and Depression**

With regard to comorbidity of psychiatric and substance abuse/dependence disorders, Charney et al. (1998) studied the relationship between depression and the outcome of addictions treatment. Of the 75 clients recruited for the study upon entering addictions treatment, 22.4% were found to have primary depressive disorders, 8.4% had substance-induced depressions, and 5.6% had mixed features of primary and substance-induced depressions as measured by the Hamilton Rating Scale for Depression, Global Assessment Scale, and Beck Depression Inventory. In total the psychiatric assessments for this cohort indicated that 53.7% met DSM-IV criteria for a current nonsubstance use...
Axis I diagnosis, 13% had two or more current non-substance use Axis I diagnoses, and 35.2% met criteria for an Axis II diagnosis (Charney et al., 1998). Seventy of the 75 subjects in the study (93.3%) were reinterviewed after 3 months. The depressed patients had longer duration of abstinence and greater decreases in symptomatology. Those with substance-induced depression achieved an almost complete remission of primary substance use.

Brown et al. (1998) studied the theoretical and clinical role of depression among cocaine abusers in treatment, studying 89 subjects following 2 weeks of substance-abuse treatment. They found that high rates of major depressive disorder were found but were determined to be unrelated to pretreatment substance abuse. Depression was related more to alcohol use among these subjects than to cocaine use.

Results of studies trying to ascertain an association between depression and addiction treatment outcome have been mixed. Generally they indicate that patients with substance use disorders and psychiatric comorbidity have worse prognoses than those with no psychiatric diagnoses, including a decreased rate of remission, an increased vulnerability for relapse, higher readmission rates, and a need for more inpatient and outpatient treatment services (Alterman, McLellan, & Shifman, 1993; Loosen, Dew, & Prang, 1990; Moos, Mertens, & Brennan, 1994). On the other hand, some show no association between depression and retention in treatment or between depression and rate of relapse (Araujo et al., 1996; Miller, Klamen, Hoffman, & Flaherty, 1996; Sellman & Joyce, 1996). A study by Charney et al. (1998) determined that persons with an intake diagnosis of primary or substance-induced depression performed well following
treatment, particularly in terms of mean duration of abstinence and decreased symptom severity. The Beck Depression Inventory (BDI) and Hamilton Psychiatric Rating for Depression (Ham-D) scores declined to scores that correspond to mild or no depressive pathology. Thus, the study indicated that at least for this particular treatment program it was possible to treat depressed patients and make an impact on both their addiction and their depression.

**Substance Abuse and Locus of Control**

With regard to locus of control and substance abuse treatment, Hunter (1994) conducted a study in a federal prison. Using the Rotter Internal versus External Control of Reinforcement Scale (I-E Scale) with both a waiting-list control group and an experimental group, he found that the inmates completing a 9-month residential, cognitive substance abuse treatment program displayed significantly more internal loci than those waiting for treatment. During the 500-hour program, inmates were housed in a separate residential unit of approximately 100 individuals. Each cohort within the unit consisted of 20 to 25 individuals. Staff included a doctoral-level psychologist and several drug treatment specialists. Personal choice was heavily emphasized. Inmates were helped to develop and complete goals in an individualized treatment plan and learned how choices determine direction in life. Hunter observed the same outcome in regard to work loci of control as well.

Costello (1982) completed a study examining the relationship between locus of control and depression in college students and psychiatric outpatients. She found a high
correlation between depression and locus of control. With age factored out, the
correlation between external locus of control and depression increased. As Rotter (1990)
stated:

Internal versus external control refers to the degree to which persons expect that a reinforcement or an outcome of their behavior is contingent on their own behavior or personal characteristics versus the degree to which persons expect that the reinforcement or outcome is a function of chance, luck, or fate, is under the control of powerful others, or is simply unpredictable. (p. 489)

Therefore, if people feel that they have an impact on what happens to them, they are less likely to be clinically depressed.

As previously mentioned, the lack of outcome research other than in regard to recidivism, particularly for jail-based inpatient programming of 40 hours per week, points out a need for additional research focused on outcomes other than recidivism. If the cycle of substance abuse can be broken at the jail level, then there is no need for the individuals to progress to the prison level. Instead, they may be able to become productive citizens who contribute to society instead of taking away from it. These people will no longer commit crimes. They will not waste their lives and potential by being incarcerated, perhaps for life, in prison. They will not cost the taxpayer untold millions of dollars both in crime and in incarceration costs; and will, in fact, be able to contribute to the tax base.
CHAPTER THREE

METHODOLOGY

Hypothesizing that anxiety and depression as well as locus of control affect the addiction process, one would expect that an effective substance abuse treatment program, in addition to promoting abstinence from chemical use and decreased recidivism, would also show a decrease in the level of anxiety and depression as well as a movement from external locus of control toward internal locus of control on the part of those completing the New Avenues Substance Abuse Treatment Program. The purpose of this study was to examine the effects of the New Avenues Substance Abuse Treatment Program on the anxiety, depression, and locus of control among participating inmates in the Davidson County Correctional Work Center, Davidson County, Tennessee.

This chapter contains the following information with regard to the study: (1) the type of study; (2) the selection of the research sample; (3) the description and explanation of the instruments used; (4) the treatment of the experimental group; (5) the null hypotheses; and (6) method of data analysis.

The Type of Study

This study is a quasi-experimental design using the non-equivalent pretest-posttest
control group design. A quasi-experimental design was necessary due to the inability of
the researcher to randomly select and assign participants to each group. Although
individuals may have volunteered for either or both groups, the groups are considered to
be intact groups, not allowing for randomization of participants. The non-equivalent
pretest-posttest control group design has to do with nonrandomized intact groups. There
is 1 treatment, 1 experimental group, and 1 control group. Subjects are both pretested and
posttested following treatment of the experimental group. The nonequivalent group
quasi-experimental design using pretesting and post-testing of both an experimental
group and a control group may be diagrammed as follows:

\[ \begin{align*}
G1 & \quad O1 \quad X \quad O2 \\
G2 & \quad O3 \quad O4 
\end{align*} \]

where G1 is the experimental group, i.e., those individuals who graduated from the New
Avenues Substance Abuse Treatment Program thereby being available for both pretesting
and posttesting; G2 is the control group, i.e., those individuals who had volunteered for
the study and were present at both the pretesting and posttesting of the control group; X1
is the experiment or treatment (New Avenues Substance Abuse Treatment Program) for
the experimental group (those completing the New Avenues Substance Abuse Treatment
Program.); O1 is the pretest for the experimental group; O2 is the posttest for the
experimental group; O3 is the pretest for the control group; and O4 is the posttest for the
control group. The pretest for both the experimental and control groups consisted of
being administered the Michigan Alcohol Screening Test, the Drug Abuse Screening
Test, the Beck Depression Inventory-II, the Beck Anxiety Inventory, and the Rotter
Internal versus External Locus of Control Scale. The posttest for both the experimental and control groups consisted of being administered the Beck Depression Inventory-II, the Beck Anxiety Inventory, and the Rotter Internal versus External Control of Reinforcement Scale. This design was chosen due to the use of nonrandomized subjects in intact groups; the use of both an experimental and a control group; and the use of both pretest and posttest measurements.

Selection of the Research Sample

The experimental research sample of 64 inmates were selected by virtue of the fact that they completed the New Avenues Substance Abuse Treatment Program at the Davidson County, Tennessee, Correctional Work Center during a prescribed period of time and volunteered to participate in the study. The control sample was derived from inmates housed at the Correctional Work Center who volunteered to participate in the study and who were still housed at the Correctional Work Center at the time of posttesting. Pretesting for both groups began on a staggered basis on April 24, 2000, and continued at approximately 2-week intervals until sufficient subjects were attained. Posttesting for both groups was completed on September 17, 2000. Pretesting was done before each group of 12 inmates entered the 45-day treatment program. Posttesting was done when treatment was completed by the experimental group. Due to attrition from both the groups because of bonding out of the facility, sentence completions, disciplinary procedures, or facility transfers, considerably more individuals were given the pretest than the posttest. For the experimental group, 95 individuals were given the pretest but only
64 were given the posttest just prior to graduation. Ninety-six individuals were pretested as the control group, but only 29 were still at the Correctional Work Center and available for post-testing. Both groups were considered to be intact groups so that randomization was not possible. All subjects were tested on a voluntary basis with full knowledge that participation in the study would not affect treatment, sentencing, or otherwise gain them special treatment.

**The Instrumentation**

Three instruments were used for the study. They were the Beck Depression Inventory-II (BDI-II); the Beck Anxiety Inventory (BAI); and the Rotter Internal versus External Control of Reinforcement Scale (I-E Scale). Two additional instruments were utilized to make sure that participants in both the experimental group and the control group had substance abuse problems. These were the Michigan Alcoholism Screening Test (MAST) and the Drug Abuse Screening Test (DAST).

1. The Beck Depression Inventory—Second Edition (BDI-II) is a 21-item self-report instrument developed by Aaron T. Beck, Robert A. Steer, and Gregory K. Brown, copyrighted in 1996. It is used for measuring the severity of depression in psychiatrically diagnosed as well as normal populations of adults and adolescents ages 13 and older. The BDI-II differs from the original Beck Depression Inventory in that it attempts to assess all the symptoms corresponding to criteria for diagnosing depressive disorders as found in the *American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders—Fourth Edition* (Beck et al., 1996). Another difference between the two is
that the time frame the client is responding to is that of "two weeks prior and including today" rather than the original "in the last week."

Each item on the BDI-II is scored on a 4-point scale ranging from 0 to 3. To obtain the client's score, circled responses are added. The maximum score is 63. The scoring guidelines found in the BDI-II Manual (Beck et al., 1996) for persons diagnosed with major depression are as follows: A score of 0 to 13 represents minimal depression, 14-19 represents mild depression, 20-28 represents moderate depression, and 29-63 is indicative of severe depression. Reliability of the BDI-II is measured in two ways. With regard to internal consistency, the coefficient alpha for 500 outpatients was .92; for 120 college students tested by Beck, it was .93. The test-retest reliability for 26 Philadelphia outpatients administered the BDI-II at first and second therapy sessions approximately 1 week apart was .93, indicating significance at the \( p < .001 \) level (Beck et al., 1996).

Factor analysis by Dozois, Dobson, and Ahnberg (1998) indicated that two factors accounted for 46% of the variance (p. 85). The items that loaded on the first factor which appeared to represent the Cognitive Affective dimensions of self-reported depressive symptomatology included past failure, worthlessness, self-dislike, pessimism, self-criticalness, indecisiveness, guilty feelings, suicidality, punishment feelings, and sadness (p. 86). Items on Factor 2 consisted mostly of changes in sleep, fatigue, loss of energy, irritability, agitation, loss of interest in sex, loss of interest, loss of pleasure, and changes in appetite. They are in line with representing a Somatic-Vegetative symptom dimension (p. 86).

As the BDI-II was designed to assess depressive symptoms as outlined by the
DSM-IV covering all of the nine symptoms, content validity is good. Construct validity was determined by the fact that 191 outpatients endorsed more items on the BDI-II than on the BDI-IA, the immediate predecessor to the BDI-II (p. 27). In determining convergent and discriminant validity of the BDI-II, 84 of the 127 Philadelphia outpatients were asked to complete BDI-IA forms at home 1 week after completing the BDI-II. The correlation was .84 ($p < .001$) (p. 27). The BDI-II has been shown to be positively related to the Beck Hopelessness Scale ($r = .68$) and the Scale for Suicide Ideation ($r = .37$). It was more positively correlated ($r = .71$) with the Hamilton Psychiatric Rating Scale for Depression than to the Hamilton Rating Scale for Anxiety ($r = .47$), thus showing a robust discriminant validity between depression and anxiety. This is a copyrighted instrument available from the Psychological Corporation.

2. The Beck Anxiety Inventory (BAI) is a 21-item self-report scale measuring the symptoms and severity of anxiety in adult and adolescent psychiatric outpatients developed in 1988 by Beck et al. According to the BAI Manual (Beck & Steer, 1993), "the BAI was constructed to measure symptoms of anxiety which are minimally shared with those of depression, such as those symptoms measured by the revised Beck Depression Inventory" (p. 1).

The respondent is asked to indicate how much he or she has been bothered by each symptom during the past week, including the day of administration. The descriptive statements of anxiety symptoms are rated by the individual using the following 4-point Likert scale: "Not at all," which garner no points; "Mildly; it did not bother me much," which is worth 1 point; "Moderately; it was very unpleasant, but I could stand it," which
is worth 2 points; and "Severely; I could barely stand it," which is scored as 3 points. Scores from the 21 statements are totaled. The scoring recommended in the 1993 manual is as follows: scores of 0 - 7 represent minimal anxiety; scores of 8 to 15 represent mild anxiety, scores of 16 to 25 represent moderate anxiety; and scores of 26 to 63 represent severe anxiety (Beck & Steer, 1993).

Items for the BAI were drawn from three earlier self-report instruments which measure various aspects of anxiety: the Anxiety Check List developed by Beck et al. (1985) which purports to measure the severity of anxiety in depressed patients; the PDR Check List developed by Beck in 1978, which measures the common side effects of antianxiety and antidepressant medications described in the Physician's Desk Reference, 1977; and the Situational Anxiety Check List also developed by Beck in 1982, which appraises the severity of somatic and cognitive symptoms of anxiety in general and two situations in particular--public speaking and an anxiety-provoking situation of the client's choosing (p. 2).

Internal consistency of the BAI in its final form was measured with a diagnostically mixed sample of 160 outpatients. Beck et al. (1988) reported that the BAI had internal consistency reliability (Cronbach coefficient alpha = .92). Test-retest reliability with a subsample of 83 outpatients in the same study where the outpatients completed the BAI at intake and 1 week later took the BAI again showed a correlation of .75 (p < .001). Creamer, Foran, & Bell (1995) conducted a test-retest situation with college students. The first administration was in the middle of the semester, which would presumably be a time of low stress, while the second was 7 weeks later, 2 weeks prior to
exams, which would probably be a time of higher stress. The correlation was .62.

Content validity is derived from the fact that the items for the BAI as previously noted were derived from three earlier self-report instruments which measure various aspects of anxiety. The content of the items also corresponds to the symptom criteria as seen in the DSM-III-R used for diagnosing anxiety disordered clients (Beck & Steer, 1993).

Beck and Steer (1993) indicated that the concurrent validity when the BAI is correlated with the Hamilton Anxiety Rating Scale-Revised as reconstructed by Riskind, Beck, Brown, and Steer (1987) was .51. When correlated with the anxiety subscale of the Cognition Check List it was also .51. They concluded that the BAI performs well when related to other accepted clinical measures of anxiety.

It has been found that other measures of anxiety are highly correlated with measures of depression. However, in correlating the BAI with the Hamilton Psychiatric Rating Scale-Revised (Hamilton, 1960) as reconstructed by Riskind, Beck, Brown, & Steer (1987), the correlation was significant at $r = .25 (p < .05)$ whereas the correlation between the BAI and the BDI was significantly higher at $r = .48 (p < .001)$. The BAI had a correlation of $.22 (p < .05)$ when the BAI was correlated with the depression subscale of the Cognition Check List. The magnitudes of these correlations were found by Beck et al. (1988) in their survey of literature to be lower than those for other self-report measures of anxiety.

With regard to factorial validity, Beck et al. (1988) determined that the BAI had two significant ($r = .56, p < .001$) dimensions when examining their 160 diagnostically
mixed sample of outpatients. The two dimensions were predominantly somatic aspects of anxiety and both subjective and panic-related aspects of anxiety. Hewitt and Norton (1993) found that in comparing the BAI factor load with the BDI factor load, all of the BAI items loaded on the Anxiety factor, whereas 20 of the BDI items loaded on the Depression factor (p. 412). The BAI is a copyrighted instrument available from the Psychological Corporation.

3. The third instrument utilized in the study was Rotter's Internal versus External Control of Reinforcement Scale (I-E Scale), a 29-item forced-choice instrument. Twenty-three items measure locus of control, and the 6 remaining items are referred to as "filler" items. Each item offers a forced-choice internal and external alternative. The score is determined by the number of external items endorsed. Rotter's (1966) definition indicated that an internal locus of control characterizes individuals who think they can have a direct effect on events, whereas an external locus of control indicates a belief that events are not dependent on one's actions but are a matter of luck or chance or reflect the power others have over a person. The instrument is scored by looking at the number of answers reflecting an external locus of control. The higher the score, the more external is the participant's locus of control. The lower the score, the more the client feels in control of his world. Mirels (1970) determined through factor analysis that there were two independent factors for this instrument: felt mastery over the course of one's life, and the extent to which the individual citizen is deemed capable of exerting an impact on political institutions. The items deal with the subjects' belief about the nature of the world. "They are concerned with the subjects' expectations about how reinforcement is controlled"
(Rotter, 1966, p. 10). None of the items directly addressed the preference for internal or external control—only with the subjects' beliefs about how something is controlled. Rotter's instrument is seen as a generalized construct and, according to Ang and Chang (1999), assumes that internality and externality are opposite ends of a continuum (p. 528).

Rotter's theoretical basis for this instrument comes from his social learning theory, wherein "a reinforcement acts to strengthen an expectancy that a particular behavior or event will be followed by that reinforcement in the future" (Rotter, 1966, p. 2). Once an expectancy is built up, failure of reinforcement causes the expectancy to be extinguished. Inmates may perceive that they have no control over their life. As each incident where others are telling them what to do and when to do it builds on other incidents, the inmates are receiving reinforcement that they really do not have any control. It may not occur to them that although they are being told what to do and when to do it, they do have control over how they view the situation as well as how they react to it.

Internal consistency for this measure was consistent with a range of .65 to .76 depending on the gender of those measured (Rotter, 1966). Females consistently measured higher than males. Test-retest reliability with a month intervening between administrations with prisoners at a Colorado reformatory was .78. For university students, test-retest reliability at 1 month was .60 for males and .83 for females. This instrument appears to have face validity. Blatier (2000) administered the instrument to prisoners who were not a part of her study in order to test its validity and found validity was good as measured by a Cronbach's alpha of .85. In considering discriminant validity, one might assume that high internal locus of control and good adjustment would go hand
in hand. Research has shown that there is, indeed, an "interaction between internality and experience of success. The internal subject with a history of failure must blame himself" (Rotter, 1966, p. 16). The external subject would be more likely to blame others, circumstances, fate, or luck for any failure. A person with a high external score may, according to Rotter, signal a defensiveness related to significant maladjustment. A high external score may also signal a passivity such that the person feels that no matter what they do, it does not matter. This instrument was used by permission of Julian B. Rotter (see Appendix B).

In addition to the three discussed instruments, the Michigan Alcoholism Screening Test (MAST) and the Drug Abuse Screening Test (DAST) were utilized to ensure that members of the experimental group and members of the control group exhibited similar problems with substances.

4. The Michigan Alcoholism Screening Test (MAST) was developed by M. I. Selzer in 1971 in order to screen persons for alcohol abuse/dependence. It is an instrument designed to determine the extent of a client's alcohol problem. The original MAST was made up of 25 items. However, item number 7 receives a score of zero whether it is answered in the affirmative or negative. The 25 items are scored "yes" or "no". Depending on the item, endorsing "yes" as an answer results in a score of 0, 1, 2, or 5. "Yes" responses to items 8 (Have you ever attended a meeting of Alcoholics Anonymous?), 19 (Have you ever gone to anyone for help about your drinking?), or 20 (Have you ever been in a hospital because of drinking?) are considered to be diagnostic in and of themselves, receiving a score of 5. Depending on the item, endorsing "no"
responses garners a score of either 0 or 2. Total possible points are 53. If a person scores
a total of zero to 3, she or he would be considered non-alcoholic, that is, expressing no
symptomology denoting a problem with alcohol. A score of 4 is suggestive of alcoholism
and a score of 5 or more is considered to be indicative of definite alcoholism (Selzer,
1971). Selzer normed the MAST using 116 alcoholics and 103 non-alcoholic controls.

Zung (1982) reported test-retest reliability of .97 for a 1-day test-retest interval, .86 for a 2-day interval, and .85 for a 3-day interval using a 120-subject inpatient
psychiatric population. Internal consistency as reported by Skinner (1979) in studying
208 alcoholics and drug addicts was .90. It is generally conceded that the MAST has high
face validity, dealing directly with behaviors related to alcoholism. However, Selzer
believed that even in an alcoholic’s denial she or he will still score high enough to render
the correct determination of alcohol pathology (1971). He cited an earlier study wherein
99 known alcoholics were told to lie about their drinking problems. Nonetheless, 92% of
them were correctly identified as having a problem by the MAST. According to Hedlund
and Vieweg (1984), MAST specificity, or its ability to correctly identify non-alcoholics,
ranged from 36% to 95%. Depending on the population, its sensitivity to identification
ranged from 88% for general psychiatric patients to nearly 100% for inpatient alcoholics.
The major drawback to the MAST is that under the original instructions MAST scores do
not differentiate current alcoholics from recovering alcoholics (Hedlund & Vieweg,
1984). A copy of the instrument is included in Appendix A.

5. The Drug Abuse Screening Test (DAST) was developed parallel to the MAST
as substance abuse other than that of alcohol came to the forefront of societal needs for
treatment. It was thought by Skinner, the developer of the DAST, that the consequences incurred by both drug and alcohol abusers would be similar (Skinner, 1982). Originally developed by Skinner in 1982, the DAST consisted of 28 items. Thereafter, he developed a 20-item version, which can be used to provide a more detailed assessment of problems related to drug abuse as opposed to the 10-item version, which is better suited for "screening and case finding purposes" (p. 30). In conducting an evaluation study of the DAST with a sample of 256 drug/alcohol abuse clients, the DAST-20 correlated almost perfectly with the original DAST (.99) (p. 31). The internal consistency reliability estimate was a coefficient alpha of .92 for 256 who voluntarily sought help for drug and alcohol problems, and a factor analysis of item intercorrelations suggests a unidimensional scale (p. 31). Skinner evaluated concurrent validity by correlating the DAST with background variables, frequency of drug use, and psychopathology. From this he found that a greater range of problems that were associated with drug abuse were associated with more frequent use of cannabis, barbiturates, and opiates (p. 31). The largest correlations with respect to psychopathology were with sociopathic tendencies of impulse, expression, and deviation. Those who scored high on the DAST also tended to engage in reckless actions and express attitudes that were markedly outside the social norm. The DAST was also positively correlated to interpersonal problems, suspiciousness, depressive symptoms, and a preoccupation with bodily dysfunctions. Skinner found that the DAST total score "clearly differentiated among clients with (1) drug problems only, versus (2) mixed drug/alcohol problems, versus (3) alcohol problems only" (p. 31).
The DAST-28 is a 28-item instrument, answered in a yes/no fashion. All "yeses" garner one point. The points are added, and 28 is the highest score possible. Scoring is related to the degree of problems related to drug abuse. A score of 0 would mean that there were no problems related to drug abuse for the individual answering the questionnaire. A score of 1-5 represents a low level of problems related to drug abuse, 6-10 represents a moderate level of problems related to drug abuse, 11-15 represents a substantial level of problems related to drug abuse, and 16-28 represents a severe level of problems related to drug abuse. Skinner states,

In review, the DAST provides a brief and inexpensive index of the extent of problems related to drug abuse. Thus, one may move beyond the identification of a drug problem and obtain a reliable estimate of the degree of problem severity. DAST scores could be used to corroborate information gained by other assessment sources.(p. 31)

A copy of the DAST is included in Appendix A.

**Procedure**

**The Experimental Group**

Having received written permission (see Appendix B) to conduct this study at the Davidson County Work Release Center from Paul Mulloy, Director of Treatment Services for the Davidson County Sheriff's Office, the following procedures were followed. The experimental group was given the MAST and DAST by program staff as part of the intake for the pre-program orientation. The BDI-II, BAI, and I-E were administered on a group basis the Thursday or Friday prior to beginning the 45-day New Avenues Substance Abuse Program. As 12 men enter the program at a time, it was
necessary to do the instrumentation on a staggered basis, approximately every 2 weeks, until a total of at least 60 participants had been tested in the experimental group. Prior to administration of the instruments, all participants were given the consent form (see Appendix C). The consent form was explained, and any questions were answered by the author. The participants received a signed copy of the consent form for their records. The inmates then participated in the treatment program as outlined under Treatment of the Experimental Group. On the Tuesday or Wednesday prior to completion of the 45-day program, each participant again took the BDI-II, the BAI, and the I-E Scale. At both administrations, the instruments were read to the participants by this author due to the wide variation in reading ability on the part of group participants. Results were given to the participants on an individual basis, and they were also afforded the opportunity to ask questions.

The Control Group

Having received written permission (See Appendix B) to conduct this study from Paul Mulloy, Director of Treatment Services for the Davidson County Sheriff's Department, the control group was taken from jail inmates coming into the Correctional Work Center who volunteered for the study and who expected to be at the Correctional Work Center at least 7 weeks. Administration was on a staggered basis coinciding with the incoming experimental group. The control group also received the consent form (see Appendix C), had it explained to them, and had any questions answered prior to group administration of the instruments. After signing the consent form, all participants
received a copy of the signed form. Again, all instruments were read to the participants due to the wide variation in reading ability and/or the illiteracy of some inmates. Each inmate was asked to complete the MAST and DAST in addition to the BDI-II, BAI, and I-E Scale in a group setting on an individual basis. Use of the MAST and DAST was needed to ensure that the populations were matched with regard to substance abuse. On the last Tuesday or Wednesday prior to the experimental group's completion of the treatment program, the control group was also administered the BDI-II, the BAI, and the I-E Scale on a group basis with the instruments being read to them.

**Treatment of the Experimental Group**

New Avenues Alcohol and Drug Treatment Program is a jail-based drug and alcohol rehabilitation unit operated by the Davidson County Sheriff's Office and based at the Davidson County Correctional Work Center. New Avenues is the only state-licensed, jail-based alcohol and drug treatment program in the state of Tennessee. The treatment period itself is 45 days in length preceded by a 3-week pre-program orientation. Participants are strongly encouraged to continue their recovery by attending aftercare one time per week at the Day Reporting Center for 1 year in addition to attending appropriate 12-step meetings:

The primary mode of therapy is daily group counseling, lectures, and individual counseling. The clients are held accountable for their behavior through a highly structured community separate from inmates who are not in treatment. A twelve-step model (using the Twelve Steps of Alcoholics Anonymous) [see Appendix D] is coupled with reality therapy and rational emotive therapy concepts. (Davidson County Sheriff's Office, 1998a, p. 2)

In conjunction with the treatment, attendance at Alcoholics Anonymous, Cocaine
Anonymous, and Narcotics Anonymous is required. If the person does not have a high-
school diploma or a GED, he must actively pursue a GED while in the program.
Individuals who were unemployed prior to treatment are required to attend Job Readiness
classes. Other programs such as First Book, a parenting class, and Wellness and
Nutrition are offered on a voluntary basis. Following release from jail, the client is
expected to continue his recovery process by attending aftercare group sessions once a
week for a year at the Day Reporting Center as well as attending 90 Alcoholics
Anonymous, Narcotics Anonymous, or Cocaine Anonymous 12-step meetings in 90 days.
Following the 90 meetings in 90 days, the graduate is expected to continue attending
approximately five 12-step meetings per week. The individual is also expected to obtain
a sponsor to help him work through the other steps of the 12-step program. Other
arrangements are made to assist the client in solving early recovery issues such as
admission to a halfway house or other housing placement if necessary. The client may
choose, following graduation from New Avenues, to become involved in the domestic
violence program, which runs concurrently at the same facility.

Referrals to New Avenues are made from a variety of sources including self-
referral, judges, district attorneys, defense attorneys, public defenders, probation/parole
officers, family members, correctional staff, substance abuse professionals, community
agencies, or former clients. All participants have been convicted of either a misdemeanor
(sentence of less than 1 year) or a felony (sentence exceeding 1 year). The men are
housed in different pods—dormitory-style living space, depending on the program in
which they are currently involved. The client moves to the treatment pod approximately
3 weeks prior to his group's starting so that he may become oriented and may also participate in rational emotive therapy believed to facilitate the client's work in New Avenues. Programming involved 40 hours per week, which is what makes this particular treatment program unique. Correctional staff have been cross-trained so that they may give extra support nights and weekends when treatment staff are off premises.

During the 3-week pre-program orientation, the inmates completed a psychosocial assessment and the instruments, which they had agreed to do as part of being in the program. They also signed a contract agreeing to aftercare. In addition to completing 15 video assignments, which include watching the video and writing an essay, participants read *I'll Quit Tomorrow*, *The Big Book of Alcoholics Anonymous*, *Step Zero*, *A Merry Go Round Named Denial*, and additional material as suggested by the program staff. An additional 15 writing assignments including Criminal Thinking Tactics, My Criminal Career, My Autobiography, a Peer Group Assignment, Denial handout, a paper on What I Did to Get Myself Here, Pros and Cons of Addictive Behavior, Things I Can and Cannot Change, A Look at Myself, Recovery Resources, Positive Changes, Areas of Blocks and Strengths, a Dishonest Handout, Recovery Lifestyle Changes, and a Gratitude List were completed before the inmate advanced to the actual treatment phase of the program. Each of these writing assignments had guidelines the participant had to follow in order to successfully complete the assignment and move onto the actual treatment group.

During the 45-day treatment program, participants met with their particular counselor 2 days per week, both morning and afternoon for 1 1/2 hours each time. Two other days a week they met both morning and afternoon for 1 1/2 hours each time in their
specific group to work on assignments given by the facilitator. On Fridays, the group met with everyone in the pod both morning and afternoon for 1 1/2 hours each time for the spiritual facet of the program facilitated by the Chaplain/Counselor. There was a lecture or a pertinent video shown daily between the two meeting times. At 3:30 each afternoon, there was a pod activity which was treatment-related. In the evening, the men had a wrap-up session in which rules were read and concerns were discussed. There was time following that for the men to attend AA or work on their assignments. On occasion, the men were allowed to watch special events on television if the pod had earned this reward. This was normally a sporting event such as the All Star Game.

Specifically, each group meeting started with the first stanza of the Serenity Prayer (see Appendix E) and introductions wherein the inmate introduced himself by first name only followed by "criminal alcoholic," "criminal addict," or "criminal alcoholic and addict," followed by how he was feeling. Each group ended with the Serenity Prayer. The initial meeting with the facilitator present utilized sentence-completion response cards. The sentences dealt with feelings, with thoughts, with how a person sees himself, or with a variety of other topics having to do with addiction and the addiction process. The second meeting dealt with the Johari Window which presents that concept that there are four aspects of oneself including the public self, the secret self, the self to which one chooses to be blind, and the unconscious and not visible self. In addition, the addiction side of the Addiction and Recovery Cycle which shows the progression of an addiction was discussed. Day 2, the participants met in a group without a facilitator, read about the Johari Window and wrote out how they thought each one of the windows applied to them.
They also read an assignment on "Perfectionism" and wrote a paragraph as to what it was about and a paragraph as to how it applied to them. Day 3, the group began First Step Orientation for Step 1 (of the Alcoholics Anonymous Twelve Steps), "We admitted we were powerless over alcohol—that our lives had become unmanageable" to make sure they understood what was expected. Participants were asked to write out three specific examples for each area, including their age or approximate year of the example, the situation, the consequences, the feelings they had then, and how they felt about it now.

The 14 areas were as follows:

1. Kinds, amounts, and frequency of use of chemicals—Prepare a list of the types of alcohol and drugs used, when, how much, and how often for the early stage of use, the middle stage of use, and the late stage of use. Give one example from each stage.

2. Preoccupation with chemicals—Write about thinking about usage, looking forward to using, planning, hiding, and protecting your supply. Use three examples for each.

3. Attempts to control use of chemicals--Include attempts at cutting down, quitting, switching, previous treatments, and geographic moves.

4. Effects on physical health—hangovers, liver damage, injuries as a result of using, weight loss or gain, and disrupted sleep pattern.

5. Effects on sexuality and sex life—State how using has affected your feelings about yourself as a man and its effect on your sexual performance. Feelings?

6. Effects on emotional or feeling life--What kinds of feelings did you have about yourself, others, such as anger, resentment, self-pity? Were chemicals used to mask uncomfortable feelings?

7. Effects on social life and friends--Write about increased isolation, rejection, people you don't see anymore because of your using chemicals. Write about the type of people with whom you associate.

8. Effects on spiritual life--How has your drug usage affected your relationship with
a Higher Power as you see him? If you have had a religious affiliation in the past, how has this changed?

9. Effects on work—Write about lost jobs, changed productivity on the job, include your performance as a homemaker, mother, father, student, etc.

10. Effects on finances—Make an itemized list of all money spent by you and others as a result of your chemical use and include costs of chemicals, fines, accident damages, hospitalization, treatment cost, etc.

11. Effects on character—List 10 values (things that are important to you) and give examples of how you have compromised them (went against them) as a result of your usage.

12. Insane behavior, loss of memory, blackouts—Write about things you ordinarily would not have done if you had not been using chemicals.

13. Accidents caused by other dangerous situations produced by use of chemicals, i.e., passing out in a chair with a lighted cigarette; driving while under the influence of chemicals. (Include destructive behavior toward self.)

14. Family members and/or significant others in your life always suffer because of chemical dependency. Please write out 10 specific, individual examples of things you have done to hurt these persons with your chemical abuse and include how the family member felt. (Davidson County Sheriff’s Office, 1998, pp. 57-58)

Day 4 was spent on the spirituality segment of the program. Days 5 and 6 were weekend days spent working on the Step 1 assignment and working in the kitchen. Program participants work in the kitchen on the weekends in return for treatment. Day 7 was spent working on Step 1. Day 8 was spent completing First Step Orientation with specific emphasis on number 10. Participants had to include every conceivable cost related to their substance abuse including, but not limited to, fines, court costs, restitution, damages, attorney, doctor visits for sexually transmitted diseases, previous treatment costs, pawn shops, lighters, paraphernalia, items stolen, money borrowed, money stolen, bad checks, money lost, hotels/motels, prostitutes, condoms, divorce, child support,
gasoline used while cruising to find drugs, pagers, cell phones, child support, money not
made due to loss of job, commissary money, late charges, reconnect fees, cover charges,
strip clubs, house or car being repossessed, moving expenses, jewelry, and gold teeth. On
Day 9, participants met in a group to work on Step 1. Participants also attended an
Alcoholics Anonymous meeting with a famous speaker. On Day 10, the group spent
both sessions reading their 15 harmful consequences assignment to the group and
receiving feedback. Day 11 included involvement in spirituality groups. Days 12 and 13
fell on the weekend, wherein the participants continued to work on their writing
assignments and also worked in the kitchen. On Day 14, the inmates worked in their
group without the facilitator. On Day 15, the group dealt with the difference between a
recovery code wherein one deals with honesty, openmindedness, and willingness versus
the criminal code of cover up, don't tell, and using the upper hand to get what you want.
Motives for both codes were discussed as well as the gains derived from both codes. Day
16 saw the inmates meeting for group work. Day 17 was spent working on spirituality.
Days 18 and 19 were weekend days again. Day 20 was spent working on assignments.
Step 1 alone was expected to be 10 to 15 pages, handwritten on both sides of the paper.
For the remainder of the time, Mondays and Wednesdays were spent in groups working
on assignments. On Tuesdays and Thursdays, individuals read their First Steps to the
group with the facilitator present and received feedback from both group members and
facilitator. Aftercare was set up by/for the participants with the facilitator helping.
Lectures on relapse strategies were presented. A lecture on the second and third steps and
how to work them was given by the Chaplain. Fridays were spiritual learning days.
In summary, treatment included: individual therapy, group therapy, and lectures on criminal thinking, addictions, the addiction process, and becoming aware of alternative lifestyles. In addition, 1 day per week during treatment, participants were presented with meditation exercises and lectures on spirituality. Writing was an integral part of the program. Clients were encouraged to ask for help both from staff and from fellow participants. At the completion of treatment, an aftercare plan was agreed upon by participant and staff, additional resources were given, and the instruments were administered again. Families or significant others were included in the treatment, and graduation with families present occurred at the end of 45 days.

Approximately 45 days from the first administration of the BDI-II, the BAI, and the I-E Scale, the instruments were again administered to those completing the program. Following the second administration, each individual was given his results and the opportunity to ask questions.

Treatment of the Control Group

The control group received no treatment. Members simply remained incarcerated at the Correctional Work Center for the prescribed amount of time. The control group took the instruments (MAST, DAST, BDI-II, BAI, and I-E Scale) as a pretest coinciding with the initial pretests for the experimental group. Posttesting for both occurred approximately 6 weeks following the pretest. The control group was taken from several nontreatment pods (living areas housing approximately 50 individuals in dormitory-style accommodations) at the Correctional Work Center. There was normally no interaction
between the two groups. The control group consisted of only 29 individuals, although many more (96) than that took the pretest. Due to the high mobility of individuals in this particular correctional facility, it was decided that once the pre-set number of experimental group individuals had been reached, testing of control group individuals would cease. Individuals in both groups of inmates agreed to participate in this research and received no extra benefit for participating.

The Variables

The independent variable for this study was the type of treatment, the New Avenues Substance Abuse Treatment Program, as outlined above. The dependent variables for this study were depression as measured by the Beck Depression Inventory-II, anxiety as measured by the Beck Anxiety Inventory, and locus of control as measured by the Rotter Internal versus External Control of Reinforcement Scale.

The Null Hypotheses

The null hypotheses for the study are as follows:

Null Hypothesis 1: There will be no difference between the pretest and posttest Beck Depression Inventory II (BDI-II) scores of the experimental group.

Null Hypothesis 2: There will be no difference between the pretest and posttest Beck Depression Inventory II (BDI-II) scores of the control group.

Null Hypothesis 3: There will be no difference between the pretest-posttest Beck Anxiety Inventory (BAI) scores of the experimental group.

Null Hypothesis 4: There will be no difference between the pretest-posttest Beck
Anxiety Inventory (BAI) scores of the control group.

Null Hypothesis 5: There will be no difference between the pretest-posttest Rotter Internal versus External Control of Reinforcement Scale (I-E Scale) scores of the experimental group.

Null Hypothesis 6: There will be no difference between the pretest-posttest Rotter Internal versus External Control of Reinforcement Scale (I-E Scale) scores of the control group.

Null Hypothesis 7: There will be no difference in the posttest BDI-II scores between the experimental group and the control group.

Null Hypothesis 8: There will be no difference in the posttest BAI scores between the experimental group and the control group.

Null Hypothesis 9: There will be no difference in the posttest I-E Scale scores between the experimental group and the control group.

**Method of Analysis**

The first six hypotheses were tested using paired samples correlated *t*-tests. Hypotheses 7, 8, and 9 were tested using analysis of covariance. A correlation shows the extent of relationship between two or more variables. A *t*-test compares the means of the samples. It assumes normality of the distribution of the variables in the populations from which the samples are drawn as well as homogeneity of variance. The correlated *t*-test for independent means was used to determine the differences between the experimental and control groups in relation to depression, anxiety, and locus of control. Specifically,
does the New Avenues Substance Abuse Treatment Program have an effect on depression, anxiety, and/or locus of control?

Analysis of covariance is a statistical method utilized to statistically remove the effects of extraneous variables from the dependent variable. Thus, one may wish to remove the effect or hold constant the effect of some other variable on the dependent variable of depression, anxiety, and/or locus of control. All hypotheses were tested at $\alpha = 0.05$. 

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CHAPTER FOUR

ANALYSIS OF DATA

Introduction

Hypothesizing that anxiety and depression as well as locus of control affect the addiction process, one would expect that an effective substance abuse treatment program would show a decrease in the level of anxiety and depression as well as a movement from external to internal locus of control on the part of those completing the program. Abstinence from chemical use and decreased recidivism would also be an expectation of those able to complete the New Avenues Substance Abuse Treatment Program. However, the purpose of this study was to investigate the effects of the New Avenues Substance Abuse Treatment Program conducted by the Sheriff's Department in Davidson County, Tennessee, which also includes the city of Nashville, on depression, anxiety, and locus of control among inmates successfully completing the treatment program.

This chapter contains the following information with regard to the study: (1) a description of the sample; (2) testing of the null hypotheses; and (3) a summary of the findings.

Description of the Sample

The experimental research sample, as shown in Table 1, consisted of 64 men who
were incarcerated at the Davidson County Correctional Work Center and completed the

Table 1

Experimental and Control Group Demographics (Percentages Given in Parentheses)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Experimental Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 64</td>
<td>N = 29</td>
</tr>
<tr>
<td>Mean Age</td>
<td>32.78$^a$</td>
<td>35.20$^b$</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>34 (53.0)</td>
<td>14 (48.3)</td>
</tr>
<tr>
<td>Black</td>
<td>28 (43.8)</td>
<td>13 (44.8)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1 (1.6)</td>
<td>1 (3.4)</td>
</tr>
<tr>
<td>American Indian</td>
<td>1 (1.6)</td>
<td>1 (3.4)</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than GED</td>
<td>37 (57.8)</td>
<td>13 (44.8)</td>
</tr>
<tr>
<td>More than GED</td>
<td>27 (42.2)</td>
<td>16 (55.2)</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>37 (57.8)</td>
<td>15 (51.7)</td>
</tr>
<tr>
<td>Married</td>
<td>5 (7.8)</td>
<td>6 (20.7)</td>
</tr>
<tr>
<td>Divorced</td>
<td>18 (28.1)</td>
<td>5 (17.2)</td>
</tr>
<tr>
<td>Separated</td>
<td>3 (4.7)</td>
<td>3 (10.3)</td>
</tr>
<tr>
<td>Unknown</td>
<td>1 (1.6)</td>
<td></td>
</tr>
</tbody>
</table>

$^aSD = 10.96$  $^bSD = 12.54$

New Avenues Substance Abuse Treatment Program conducted by the Davidson County Sheriff's Department, Nashville, Tennessee, in 2000. The men were housed at the Correctional Work Center while they underwent treatment and worked on weekends only. The mean age was 32.62 with a range of 18 to 61 years of age and a standard deviation of
10.96. The experimental group included one American Indian (1.6% of the experimental group population), one Hispanic (1.6%), 28 Black Americans (43.8%), and 34 (53.0%) Caucasians. Thirty-seven subjects (57.8%) needed their GED (equivalent of a high-school diploma) while 27 subjects (42.2%) already had a GED, had graduated from high school, and/or had some post-high-school training. Nineteen subjects were in the program by court order. Twenty-nine subjects reported they had referred themselves. Ten subjects reported being referred by their public defender or attorney, 2 subjects by their probation officer, and 4 subjects were referred by other sources. Thirty-seven subjects (57%) were single, 5 subjects (7.8%) were married, 18 subjects (28.1%) were divorced, 3 subjects (4.7%) were separated, and 1 subject (1.6%) reported undetermined marital status. All the men had scores on the Michigan Alcoholism Screening Test and/or Drug Abuse Screening Test indicating a problem with either alcohol (97%), drugs (36%), or both alcohol and drugs (34%).

The control group, as shown in Table 1, consisted of 29 men who were available for both pretest and posttest administration of the instruments and who were incarcerated at the Correctional Work Center but not undergoing substance abuse treatment at this time. All control group members were court-ordered to be at the Correctional Work Center. The mean age was 35.20 with a range of 18 to 61 and standard deviation of 12.54. The control group included one American Indian (3.4% of the control group), one Hispanic (3.4%), 13 Black Americans (44.8%), and 14 Caucasians (48.3%). Thirteen subjects (44.8%) needed a GED, and 16 subjects (55.2%) had already graduated from high school or had a GED. No subjects had post high-school-training or education.
Fifteen subjects (51.7%) were single, 6 subjects (20.7%) were married, 5 subjects (17.2%) were divorced, and 3 subjects (10.3%) were separated. All of the men in the control group evidenced some problem with alcohol and/or drugs with all of them indicating a serious problem as reported on the MAST (100%) and/or DAST (48%). (See Table 2.) Fourteen or 48% of the control group indicated severe problems with both alcohol and drugs. These men may or may not work outside the Correctional Work Center. There was no contact between the two groups. All subjects volunteered to participate in the research study knowing that participation would not affect treatment, sentencing, or otherwise gain them special treatment.

Table 1 demonstrates that the experimental group was somewhat younger than the control group (average age of 32.78 versus 35.20) with a smaller standard deviation (10.96 versus 12.54). There were slightly more Caucasians in the experimental group (53% versus 48.3%), while the percentage of Black Americans was nearly equal for both groups. Each group had two other minority inmates. The control group had more individuals with at least a GED (55.2%). While the experimental group had a smaller percentage of individuals having a GED (42.2%), there were, however, more highly educated persons in the experimental group, with several of them having some college work or a college degree. With regard to marital status, the experimental group had more single individuals (57.8%) than the control group (51.7%), a much lower percentage of married inmates (7.8% versus 20.7%), a higher percentage of currently divorced individuals (28.1% versus 17.2%) and a lower percentage of separated individuals (4.7% versus 10.3%).

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### Table 2

**MAST and DAST Results by Group**

<table>
<thead>
<tr>
<th>Score</th>
<th>Experimental Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td><strong>MAST</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-3 (Nonalcoholic)</td>
<td>1</td>
<td>1.6</td>
</tr>
<tr>
<td>4 (Suggestive of alcoholism)</td>
<td>1</td>
<td>1.6</td>
</tr>
<tr>
<td>5+ (Definite Alcoholism)</td>
<td>62</td>
<td>96.8</td>
</tr>
<tr>
<td><strong>DAST</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0-5 (Low level of problems related to drug abuse)</td>
<td>15</td>
<td>23.4</td>
</tr>
<tr>
<td>6-10 (Moderate level of problems related to drug abuse)</td>
<td>8</td>
<td>12.5</td>
</tr>
<tr>
<td>11-15 (Substantial level of problems related to drug abuse)</td>
<td>18</td>
<td>28.1</td>
</tr>
<tr>
<td>16-28 (Severe level of problems related to drug abuse)</td>
<td>23</td>
<td>35.9</td>
</tr>
</tbody>
</table>

Table 2 shows the distribution of scores for both the MAST and DAST for both groups. It can be seen that whether an individual was participating in the New Avenues Substance Abuse Treatment Program or not was virtually irrelevant with regard to problem usage of alcohol and/or drugs. In fact, the control group appears to have...
proportionately more severe substance abuse than those in treatment. In short, alcohol and drugs are heavily prevalent in the inmate population at the Davidson County Correctional Work Center, whether the inmates were in treatment or not.

Testing the Hypotheses

Null Hypothesis 1: *There is no difference between the pretest and posttest Beck Depression Inventory--II (BDI-II) scores of the experimental group.*

A paired samples t-test was performed comparing the difference between pretest and posttest scores on the BDI-II for the experimental group. Table 3 shows that there was a significant change at the $p < 0.01$ level between the pretest and posttest levels of depression as measured by the BDI-II for the experimental group. The paired samples t-test results indicate that there was a significant decrease in the level of depression between the pre-BDI-II scores and the post-BDI-II scores for the experimental group ($t_{63} = 3.553, p = 0.001$). Therefore, Null Hypothesis 1 was rejected.

Null Hypothesis 2: *There is no difference between the pretest and posttest Beck Depression Inventory--II (BDI-II) scores of the control group.*

A paired samples t-test was performed comparing the difference between the pretest scores on the BDI-II for the control group. The t-test shows that there was a significant difference in the pretest-posttest BDI-II scores for the control group ($t_{28} = 2.58, p < 0.05$). Table 4 illustrates the change wherein the mean depression score decreased from 20.79 to 16.69, a difference in score for the control group of 4.10. Therefore, Null Hypothesis 2 was rejected.
Table 3

*Dependent t-Test Results for Depression (Experimental Group)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>18.12</td>
<td>11.10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posttest</td>
<td>14.66</td>
<td>9.47</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest-Posttest</td>
<td>3.47</td>
<td>7.81</td>
<td>3.55</td>
<td>63</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Null Hypothesis 3: *There is no difference between the pretest and posttest Beck Anxiety Inventory (BAI) scores of the experimental group.*

A paired samples *t*-test was performed comparing the difference between the pretest and posttest anxiety scores on the BAI for the experimental group. Table 5 illustrates the point that there was no significant difference in the pretest and posttest BAI scores of the experimental group. Although the mean difference in scores decreased by 1.43 from a mean of 11.20 to a mean of 9.76, it was not a significant decrease (*t*$_{63}$ = 1.47, *p* = .146) and could have happened by chance. Therefore, Null Hypothesis 3 was retained.
Table 4

Dependent t-Test Results for Depression (Control Group)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>20.79</td>
<td>10.46</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posttest</td>
<td>16.69</td>
<td>9.57</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest-Posttest</td>
<td>4.10</td>
<td>8.56</td>
<td>2.58</td>
<td>28</td>
<td>.015</td>
</tr>
</tbody>
</table>

Table 5

Dependent t-Test Results for Anxiety (Experimental Group)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>11.20</td>
<td>11.41</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posttest</td>
<td>9.76</td>
<td>8.27</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest-Posttest</td>
<td>1.43</td>
<td>7.84</td>
<td>1.472</td>
<td>63</td>
<td>.146</td>
</tr>
</tbody>
</table>

Null Hypothesis 4: There is no difference between the pretest and posttest Beck Anxiety Inventory (BAI) scores of the control group.

A paired samples t-test was performed comparing the difference between pretest and posttest scores on the BAI for the control group. Table 6 illustrates that there was a significant difference between the pretest and posttest scores on the BAI for the control group at the $p < 0.05$ level ($t_{28} = 2.35$, $p < 0.05$) level. There was a significant decrease in
the anxiety scores of the control group as evidenced by the fact that the mean differences decreased by 5.37 from 18.10 to 12.72 between testings. Therefore, Null Hypothesis 4 was rejected.

Null Hypothesis 5: There is no difference between the pretest and posttest Rotter Internal versus External Control of Reinforcement Scale (I-E Scale) scores of the experimental group.

A paired samples t-test was performed comparing the difference between pretest and posttest scores on the I-E Scale for the experimental group. Table 7 indicates that there was no significant difference at the $p < 0.05$ level between the pretest and posttest I-E Scale scores for the experimental group. There was a slight but not significant decrease in the I-E Scale scores between pretesting and posttesting ($t_{63} = 1.93$, $p = 0.052$).

Therefore, Null Hypothesis 5 was retained.
Table 7

**Dependent t-Test Results for the I-E Scale (Experimental Group)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>9.14</td>
<td>3.52</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posttest</td>
<td>8.42</td>
<td>2.99</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest-Posttest</td>
<td>.71</td>
<td>2.90</td>
<td>1.93</td>
<td>63</td>
<td>.052</td>
</tr>
</tbody>
</table>

Null Hypothesis 6: There is no difference between the pretest and posttest Rotter Internal versus External Control of Reinforcement Scale (I-E Scale) scores of the control group.

A paired samples $t$-test was performed comparing the difference between pretest and posttest scores on the I-E Scale for the control group. Table 8 illustrates that there was no significant difference the $p < 0.05$ level between the pretest and posttest scores on the I-E Scale of the control group ($t_{28} = -.460, p = .649$). There was a slight increase in the scores on the I-E Scale, but this could have occurred strictly by chance. There was virtually little change in the locus of control on the part of the control group. In other words, they remained as internally focused at posttesting as they were at pretesting. Therefore, Null Hypothesis 6 was retained.
Table 8

*Dependent t-Test Results for I-E Scale (Control Group)*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pretest</td>
<td>8.69</td>
<td>2.74</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Posttest</td>
<td>8.93</td>
<td>3.30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretest-Posttest</td>
<td>-.2414</td>
<td>2.82</td>
<td>-.460</td>
<td>28</td>
<td>.649</td>
</tr>
</tbody>
</table>

Null Hypothesis 7: *There is no difference in the posttest BDI-II scores between the experimental group and the control group.*

In order to accept or reject this null hypothesis, it was first necessary to compare the pretests of the experimental group and the control group in order to see if they were somewhat equivalent. Table 9 illustrates that the pretest depression scores of the experimental group and control group were similar. The experimental group had a pretest BDI-II mean of 18.12 with a standard deviation of 11.10, whereas the control group had a pretest BDI-II mean of 20.79 and a standard deviation of 10.46. Levene’s test for Equality of Variances indicated that the population variances for the two groups were similar ($F_{91} = .273$, $p = .603$). Table 9 also illustrates that while the control group was somewhat more depressed at pretest (20.79) than the experimental group (18.12), this was not statistically significant at the $p \leq 0.05$ level ($t_{91} = -1.092$, $p = 0.278$).
Table 9

*Independent Samples t-Test Results Comparing Experimental Group and Control Group on Pretest Depression Scores.*

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>64</td>
<td>18.12</td>
<td>11.10</td>
<td>-1.092</td>
<td>91</td>
<td>.278</td>
</tr>
<tr>
<td>Control</td>
<td>29</td>
<td>20.79</td>
<td>10.46</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 10 shows means and standard deviations for the pretest BDI-II (Mean = 18.12 and Standard Deviation = 11.10) and posttest BDI-II (Mean = 14.65 and Standard Deviation = 9.46) for the experimental group, and for the pretest BDI-II (Mean = 20.79 and Standard Deviation = 10.46) and posttest BDI-II (Mean = 16.68 and Standard Deviation = 9.56) for the control group. In addition, the table shows that the adjusted posttest mean for both groups on the BDI-II are similar (experimental group = 15.16 and control group = 15.58).

Although the data show a decrease in the level of depression on the part of participants in both the experimental and control groups, analysis of covariance did not show a significant difference when comparing the adjusted posttest means for the entire groups. The ANCOVA results in Table 11 show that there were no significant group differences ($F_{1,90} = .072, p = .789$). There was no significant difference in the level of depression for those completing the New Avenues Substance Abuse Treatment Program over those who just served their time. Thus, Hypothesis 7 was retained.
Table 10

Means and Standard Deviations for BDI-II Pretest and Posttest Scores for Experimental Group and Control Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest Mean</th>
<th>Pretest SD</th>
<th>Posttest Mean</th>
<th>Posttest SD</th>
<th>Adjusted Posttest Mean</th>
<th>Adjusted Posttest SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>18.12</td>
<td>11.10</td>
<td>14.65</td>
<td>9.46</td>
<td>15.16</td>
<td>.86</td>
</tr>
<tr>
<td>Control</td>
<td>20.79</td>
<td>10.46</td>
<td>16.68</td>
<td>9.56</td>
<td>15.58</td>
<td>1.23</td>
</tr>
</tbody>
</table>

Table 11

Analysis of Covariance Using the BDI-II as the Dependent Variable

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Squares</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>4073.439</td>
<td>2</td>
<td>2036.719</td>
<td>43.440</td>
<td>.000</td>
</tr>
<tr>
<td>Intercept</td>
<td>315.097</td>
<td>1</td>
<td>315.097</td>
<td>6.721</td>
<td>.011</td>
</tr>
<tr>
<td>Pre-BDI</td>
<td>3990.922</td>
<td>1</td>
<td>3990.922</td>
<td>85.120</td>
<td>.000</td>
</tr>
<tr>
<td>GROUP</td>
<td>3.386</td>
<td>1</td>
<td>3.386</td>
<td>.072</td>
<td>.789</td>
</tr>
<tr>
<td>Error</td>
<td>4219.723</td>
<td>90</td>
<td>46.886</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>30036.000</td>
<td>93</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>8293.161</td>
<td>92</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a R Squared = .491 (Adjusted R Squared = .480).

Null Hypothesis 8: There is no difference in the posttest BAI scores between the
experimental group and the control group.

In order to test this null hypothesis, it was first necessary to compare the pretests of the experimental group and the control group on the BAI in order to see if they illustrated homogeneity of variance. Table 12 illustrates that the pretest scores of the experimental group and the control group were not significantly different ($t_{38.72} = -1.911$, $p = 0.063$). The control group scored higher in anxiety (Mean Score = 18.10) than did the experimental group (Mean Score = 11.20).

Table 13 shows means and standard deviations for the pretest BAI (Mean = 11.20 and Standard Deviation = 11.40) and posttest BAI (Mean = 9.76 and Standard Deviation = 8.26) for the experimental group and the pretest BAI (Mean = 18.10 and Standard Deviation = 17.86) and posttest BAI (Mean = 12.72 and Standard Deviation = 14.44) for the control group. Table 13 shows that the experimental group was less anxious than the control group, according to BAI scores, both at pretesting (11.20 versus 18.10) and posttesting (9.76 versus 12.72). However, the adjusted posttest means for both the
experimental and control group were similar (experimental group = 10.97 and control group = 10.07) suggesting that there was no significant difference between the two groups at posttesting.

Analysis of covariance showed no significance when comparing the adjusted posttest means for both groups for the BAI while using the pretest means as the covariate. Table 14 illustrates that although each group as a whole improved with regard to decreased levels of anxiety, there was no significant difference between the experimental group versus the control group ($F_{1,90} = .291, p = .591$). Therefore, Hypothesis 8 was retained. There was no difference between the two groups with regard to anxiety. The New Avenues Substance Abuse Treatment Program did not make a significant impact on the anxiety level of those participating in the program as opposed to those who did not.

Null Hypothesis 9: *There is no difference in the posttest I-E Scale scores between the experimental group and the control group.*
In order to test this null hypothesis, it was first necessary to run an Independent Samples t-test to compare the I-E Scale pretests of the experimental group and the control group to see if they were somewhat equivalent. The experimental group had a pretest I-E Scale mean of 9.14 with a standard deviation of 3.51 (see Table 15), whereas the control group had a pretest I-E Scale mean of 8.68 and a standard deviation of 2.74.

Table 14

*Analysis of Covariance Using the BAI Posttest as the Dependent Variable*

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>5542.41</td>
<td>2</td>
<td>2771.20</td>
<td>52.20</td>
<td>.000</td>
</tr>
<tr>
<td>Intercept</td>
<td>369.51</td>
<td>1</td>
<td>369.51</td>
<td>6.69</td>
<td>.010</td>
</tr>
<tr>
<td>Pre-BAI</td>
<td>5367.73</td>
<td>1</td>
<td>5367.73</td>
<td>101.11</td>
<td>.000</td>
</tr>
<tr>
<td>GROUP</td>
<td>15.44</td>
<td>1</td>
<td>15.44</td>
<td>.291</td>
<td>.591</td>
</tr>
<tr>
<td>Error</td>
<td>4777.54</td>
<td>90</td>
<td>53.084</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>20944.00</td>
<td>93</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>10319.95</td>
<td>92</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*R Squared = .537 (Adjusted R Squared = .527).*

Levene's Test for Homogeneity of Variance suggests that the two populations have unequal variances ($F_{91} = 3.95, p = 0.05$). The *t*-test for equality of means indicates that...
there was not a significant difference between the two groups on the I-E Scale pretest ($t_{68.48} = .671, p = 0.505$).

Table 16 illustrates the means and standard deviations for the pretest I-E Scale (Mean = 9.14 and Standard Deviation = 3.51) and posttest I-E Scale (Mean = 8.42 and Standard Deviation = 2.99) for the experimental group and the pretest I-E Scale (Mean = 8.68 and Standard Deviation = 2.74) and posttest (Mean = 8.93 and Standard Deviation = 3.30) for the control group. There does not appear to

Table 15

*Independent Samples t-Test Results Comparing Experimental Group and Control Group on Pretest I-E Scale Scores*

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>t</th>
<th>df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>64</td>
<td>9.14</td>
<td>3.51</td>
<td>3.98</td>
<td>68.48</td>
<td>.505</td>
</tr>
<tr>
<td>Control</td>
<td>29</td>
<td>8.68</td>
<td>2.74</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 16

*Means and Standard Deviations for I-E Scale Pretest and Posttest Scores for Experimental Group and Control Group*

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Pretest Mean</th>
<th>SD</th>
<th>Posttest Mean</th>
<th>SD</th>
<th>Adjusted Posttest Mean</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>64</td>
<td>9.14</td>
<td>3.51</td>
<td>8.42</td>
<td>2.99</td>
<td>8.34</td>
<td>.31</td>
</tr>
<tr>
<td>Control</td>
<td>29</td>
<td>8.68</td>
<td>2.74</td>
<td>8.93</td>
<td>3.30</td>
<td>9.10</td>
<td>.46</td>
</tr>
</tbody>
</table>
be a great difference in the pretest means (9.14 versus 8.68), posttest means (8.42 versus 8.93) or adjusted posttest means for the two groups (8.34 versus 9.10).

Although the data showed limited improvement on the part of participants in both the experimental group and control group with regard to becoming more internal in their locus of control, analysis of covariance did not show significance when comparing the adjusted posttest means for the experimental group and control group ($F_{1.90} = 1.846, p = .178$). When allowing pretests scores to be the covariant and allowing the posttest scores to be the dependent variable, there was not a significant difference in the internal/external locus of control for those individuals completing the New Avenues Substance Abuse

Table 17

**Analysis of Covariance Using the I-E Posttest as the Dependent Variable**

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>313.624</td>
<td>2</td>
<td>156.812</td>
<td>25.156</td>
<td>.000</td>
</tr>
<tr>
<td>Intercept</td>
<td>147.503</td>
<td>1</td>
<td>147.503</td>
<td>23.663</td>
<td>.000</td>
</tr>
<tr>
<td>Pre-IE</td>
<td>308.450</td>
<td>1</td>
<td>308.450</td>
<td>49.482</td>
<td>.000</td>
</tr>
<tr>
<td>GROUP</td>
<td>11.507</td>
<td>1</td>
<td>11.507</td>
<td>1.846</td>
<td>.178</td>
</tr>
<tr>
<td>Error</td>
<td>531.021</td>
<td>90</td>
<td>6.234</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>7722.000</td>
<td>93</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>874.645</td>
<td>92</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*R Squared = .359 (Adjusted R. Squared = .344).*
Treatment Program. Table 17 illustrates that there was no significant difference at the $p < 0.05$ level for the group completing the program versus those who just served their time at the jail. Therefore, Hypothesis 9 was retained. There was no difference in the amount of change in the posttest I-E Scale scores between the experimental group and the control group.

**Summary**

The purpose of this study was to determine if the New Avenues Substance Abuse Treatment Program affected the depression, anxiety, and locus of control among a group of inmates graduating from the program. Of the 9 null hypotheses, there were three which showed a statistically significant difference between pretesting and posttesting. Both the experimental group consisting of those graduating from the New Avenues Substance Abuse Treatment Program from April to September 2000, and the control group showed a significant difference between pretesting and posttesting on the Beck Depression Inventory--II. Members of the control group who remained in the Correctional Work Center but had no substance abuse treatment showed a significant difference between pretesting and posttesting on the Beck Anxiety Inventory.

Table 18 illustrates the results of the statistical analysis for the experimental group and control group on pretests and posttests.

Null Hypothesis 1: There is no difference between the pretest and posttest Beck Depression Inventory II (BDI-II) scores of the experimental group.

This null hypothesis was rejected. The experimental group experienced a
significant reduction in level of depression between pretesting (mean pretest score = 18.12) and posttesting (mean posttest score = 14.66).

Null Hypothesis 2: There is no difference between the pretest and posttest Beck Depression Inventory - II (BDI-II) scores of the control group. This null hypothesis was rejected. The control group experienced a significant reduction in level of depression between pretesting (mean pretest score = 20.79) and posttesting (mean posttest score =

Table 18

Results of Statistical Analysis for Experimental Group and Control Group on Pretests and Posttests

<table>
<thead>
<tr>
<th>Group</th>
<th>Variable</th>
<th>Pretest Means</th>
<th>SD</th>
<th>Posttest Means</th>
<th>SD</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>Depression</td>
<td>18.12</td>
<td>14.66</td>
<td>.001**&lt;br&gt;Control Depression</td>
<td>20.79</td>
<td>16.69</td>
</tr>
<tr>
<td>Experimental</td>
<td>Anxiety</td>
<td>11.20</td>
<td>9.76</td>
<td>NS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>I-E Scale</td>
<td>9.14</td>
<td>8.42</td>
<td>NS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental vs Control</td>
<td>Depression</td>
<td>15.16*</td>
<td>15.58*</td>
<td>NS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental vs Control</td>
<td>Anxiety</td>
<td>10.97*</td>
<td>10.07*</td>
<td>NS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental vs Control</td>
<td>I-E Scale</td>
<td>8.34*</td>
<td>9.10*</td>
<td>NS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*adjusted posttest means.
**denotes significance.
Null Hypothesis 3: There is no difference between the pretest and posttest Beck Anxiety Inventory (BAI) scores of the experimental group.

This null hypothesis was retained. Although there was a decrease in the BAI score from a mean of 11.20 to 9.76, it was not statistically significant.

Null Hypothesis 4: There is no difference between the pretest and posttest Beck Anxiety Inventory (BAI) scores of the control group.

This hypothesis was rejected. The mean anxiety scores of the control group decreased from a pretest mean of 18.10 to a posttest mean of 12.72 which was statistically significant.

Null Hypothesis 5: There is no difference between the pretest and posttest Rotter Internal versus External Control of Reinforcement Scale (I-E Scale) scores of the experimental group.

This hypothesis was retained. There was a slight difference from external to internal locus of control for the experimental group, but it was not statistically significant.

Null Hypothesis 6: There is no difference between the pretest and posttest Rotter Internal versus External Control of Reinforcement Scale (I-E Scale) scores of the control group.

This null hypothesis was retained. The control group actually became more externally focused, but not significantly so.

Null Hypothesis 7: There is no difference in the amount of change in the posttest BDI-II scores between the experimental group and the control group.
This null hypothesis was retained. Although both groups had significant improvement in level of depression, the adjusted posttest means did not favor one group over the other in significance of that change.

Null Hypothesis 8: There is no difference in the posttest BAI scores between the experimental group and the control group.

This null hypothesis was retained. There is no difference in the experimental group and the control group with regard to posttest anxiety scores.

Null Hypothesis 9: There is no difference in the posttest I-E Scale scores between the experimental group and the control group.

This null hypothesis was retained. One group did not change significantly differently than the other with regard to locus of control.

In conclusion, Null Hypotheses 1, 2, and 4 were rejected while Null Hypotheses 3, 5, 6, 7, 8, and 9 were retained. It appears that participation in the New Avenues Substance Abuse Treatment Program did not make a difference on the participant's level of depression, level of anxiety or locus of control over that which would have been experienced by being in the Davidson County Correctional Work Center for the same period of time.
CHAPTER FIVE

DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

Introduction

This investigation involving depression, anxiety, and locus of control was undertaken at the Davidson County, Tennessee, Correctional Work Center. Those involved in the experimental group graduated from the New Avenues Substance Abuse Treatment Program, a 45-day intensive inpatient alcohol and drug treatment program housed at the Correctional Work Center. Sixty-four men in the experimental group graduated from the program and were involved in both the pretesting and posttesting phase of the study. The control group consisted of inmates also housed at the Correctional Work Center but not involved in the treatment program. Although nearly 100 individuals were involved in the pretesting for the control group, only 29 of these were still housed at the Correctional Work Center at the time of their designated posttesting.

In New Avenues, a treatment group consisted of 12 men. Treatment groups began approximately every 2 weeks. Pretesting occurred for both the experimental and control groups on a staggered basis on the Thursday or Friday prior to the initial meeting of the treatment group. Posttesting for both groups were on the 43rd or 44th day of treatment
for the experimental group (i.e., just prior to graduation).

The Problem

According to the literature cited, many drug and alcohol users come into contact with law enforcement, and, consequently, the judicial system. A high rate of drug use has been found among incarcerated offenders. According to the Bureau of Justice Statistics (1992), "drug use among those being incarcerated has risen substantially and is nearly seven times greater than it is among the general population" (p. 5). In a front page article in *The Tennessean*, Ellen Dahnke in 1998 stated that 70 to 80% of the individuals coming into contact with the criminal justice system had a substance abuse problem. In addition, it has been found that many of those individuals experiencing psychiatric disorders self-medicate with alcohol and drugs and find themselves in the criminal justice system as a result (Busto et al., 1996; Group for the Advancement of Psychiatry Committee on Alcoholism and the Addictions, 1991). In reporting the findings of the Epidemiologic Catchment Area, Regier et al. (1990) found that the national comorbidity rate of mental disorders with alcohol disorders at 37% and with drug disorders at 53%. The comorbidity rate for both alcohol and drug disorders in combination with mental disorders was 47.3%. A study by Charney et al. in 1998 found that lifetime comorbidity rates were 60% for mood disorders and 49.1% for anxiety disorders (p. 125).

The Purpose

In surmising that anxiety, depression, and locus of control could be intricately intertwined in the substance abuse of those incarcerated for drug and alcohol-involved
offenses, it would seem that an effective substance abuse treatment program would result not only in the hoped-for abstinence from substances, but also a decrease in levels of depression and anxiety as well as some movement in an individual's locus of control. The purpose of the study, therefore, was to investigate whether the New Avenues Substance Abuse Treatment Program did, indeed, have a positive effect on the participants' level of depression, level of anxiety, and locus of control over those who did not participate in treatment.

**Methodology**

A quasi-experimental design using the non-equivalent pretest-posttest control group design was utilized due to the inability of the researcher to randomly assign participants to each group. The experimental group consisted of 64 inmates who completed the New Avenues Substance Abuse Treatment Program over a 5-month time span in the year 2000. The control group consisted of 29 inmates who remained incarcerated at the Correctional Work Center for sufficient time to allow them to be pretested and posttested on the same schedule as the experimental group. Both the experimental group and the control group were pretested using the Michigan Alcohol Screening Test and the Drug Abuse Screening Test to see if the groups were equitable with regard to their substance abuse. Included in the pretesting for both groups were the Beck Depression Inventory-II, the Beck Anxiety Inventory, and the Rotter Internal versus External Control of Reinforcement Scale. Following the pretesting, the experimental group participated in the 45-day treatment program while the members of the control
Discussion of Findings

Null Hypothesis 1: There is no difference between the pretest and posttest Beck Depression Inventory-II [BDI-II] scores of the experimental group. It was found that there was a significant difference at the $p < 0.05$ level between the pretest and posttest scores of the experimental group with regard to depression. This null hypothesis was rejected.

Null Hypothesis 2: There is no difference between the pretest and posttest Beck Depression Inventory-II [BDI-II] scores of the control group. It was found that there was a significant difference at the $p < 0.05$ level between the pretest and posttest scores. Therefore, this null hypothesis was rejected.

The significant improvement in level of depression experienced by the experimental group could be attributed to treatment interventions such as the grief lectures or the weekly spirituality interventions presented by the chaplain/counselor, or by the utilization of Rational Emotive Therapy or Reality Therapy which help to dispute irrational beliefs. However, because both the experimental group and control group experienced significant improvement in their posttest BDI-II scores, we cannot attribute decreased depression entirely to treatment interventions. One possible explanation for the fact that both groups experienced a significant decrease in depression might be that an group had no treatment. At the 43rd or 44th day in the treatment cycle, both the experimental and control group members were posttested using the BDI-II, the BAI, and the I-E Scale.
inmate may experience a level of depression upon first coming to jail which improved as he neared the end of his treatment/sentence. The actual intake process can be very humiliating and dehumanizing. Living dormitory-style with 49 other individuals with no privacy, having to share 4 telephones, being told when to eat, when to shower, what to wear could be depressing. Loss of freedom for both groups could be a factor in depression. Both groups may be seeing the end of incarceration as a very positive thing for them. Once again they would have the freedom to do what they want when they want. Most inmates appear to have had some shame and, therefore, depression may be involved in incarceration. Getting closer to the end of treatment/incarceration would mean that they could get past having to acknowledge that they had done something wrong and had been incarcerated. Much depression in jail appeared to involve leaving the family on the outside trying to fend for themselves. Whether the inmate has gotten treatment or not, he will be able to return to his role of providing for his family. He will be able to fulfill his role as man of the house.

Null Hypothesis 3: There is no difference between the pretest and post-test Beck Anxiety Inventory [BAI] scores of the experimental group. It was found that there was no significant difference in the pretest and posttest scores of the experimental group. This null hypothesis was retained.

Null Hypothesis 4: There is no difference between the pretest and posttest Beck Anxiety Inventory [BAI] scores of the control group. It was found that there was a significant difference between the pretest and post-test scores on the BAI for the control group at the $p < 0.05$ level. Hypothesis 4 was rejected. There was a significant decrease
in the anxiety scores of the control group.

Table 18 illustrates that the control group started out more anxious than the experimental group. As a group the control group decreased in anxiety from the moderate anxiety range to mild anxiety range. The statistically significant difference on the part of the control group between pretesting and posttesting could be attributed to the fact that because they started in the moderate range and had further to go, statistical significance was easier to achieve. The experimental group started out in the mild anxiety range and remained there. Because they were in the mild range to begin with, it would be more difficult to show statistical significance with regard to any change they experienced. The fact that the control group were initially more anxious than the experimental group could be attributed to the fact that they were housed in the general population. The experimental group, which exhibited less anxiety both pretest and posttest may have been less anxious because they knew they were in treatment; their sentence might be shortened if they completed treatment; they were in a highly structured treatment environment; and/or they were in a safer environment than the general population. This could have had a calming effect. The decrease in anxiety scores for the experimental group could also be due to treatment interventions such as the relaxation and meditation techniques which were taught or learning coping skills to use in place of abusing substances. Decreases in anxiety in both groups could be attributed to the 45 days between pretesting and post-testing. Inmates could have become more accustomed to the structure during that time. They were 45 days closer to release. Or, they may have seen being in jail as safer than previously thought.
Null Hypothesis 5: There is no difference between the pretest and posttest Rotter Internal versus External Control of Reinforcement Scale (I-E Scale) scores of the experimental group. It was found that there was no significant difference between the pretest and posttest Rotter Internal versus External Control of Reinforcement Scale (I-E Scale) scores of the experimental group. This null hypothesis was retained. The pretest scores on this instrument were completely unexpected. An inmate is generally thought of as being very externally oriented, blaming others or blaming circumstances for being in jail. Substance abusers are generally thought of in the same vein as well. These inmates were already internally oriented and to become more internally oriented enough to show a significant difference would have been difficult. Although there was a slight movement toward being more internally focused, it was not significant. Because the program involved working on breaking down denial, learning to take responsibility, learning to make responsible choices, and challenging negative self-talk, it was thought that there would be more movement on the part of the experimental group. However, making a permanent cognitive change and putting it into action may take longer than the 45 days allotted for treatment.

Null Hypothesis 6: There is no difference between the pretest and posttest Rotter Internal versus External Control of Reinforcement Scale (I-E Scale) scores of the control group. It was found that there was no significant difference between the pretest and posttest I-E Scale scores of the control group. Null Hypothesis 6 was retained. Again, the fact that the control group scored so decisively in the internal direction on the pretest was unexpected. Because the group was already internally focused, it would have been
difficult to make any significant change.

Null Hypothesis 7: There is no difference in the posttest BDI-II scores between the experimental group and the control group. It was found that there was no difference between the experimental group and the control group at the time of posttesting. Null Hypothesis 7 was retained. Although both groups showed a decrease in level of depression, there was not a significant difference between the changes experienced by the two groups when comparing the adjusted posttest means for the entire groups. For the reasons given when discussing Hypothesis 1 and Hypothesis 2, it would appear that the same forces were at work with both groups including becoming accustomed to jail life and being 45 days closer to release. It did not appear that the treatment group received any additional benefit with regard to depression that they would not have experienced just by being incarcerated. This could be because there may not have been sufficient time and focus on depression during the treatment. Cognitive restructuring would involve a longer period of time than that afforded by the 45-day treatment program. Also, by being in the jail setting, there were limits placed on behavioral interventions such as being able to reward a person for participation in pleasurable activities. There were not many pleasurable activities in jail and no way to reward someone because all inmates in treatment were treated alike. To give a reward for something would have been seen as special treatment.

Null Hypothesis 8: There is no difference in the posttest BAI scores between the experimental group and the control group. It was found that there was no significant difference in the adjusted posttest means on the BAI between the experimental group and
null hypothesis. Null Hypothesis 8 was retained. Table 13 illustrates that the adjusted posttest means on the BAI for both the experimental group and the control group were similar. Both groups experienced similar degrees of change. Although the control group showed a significant difference in anxiety level between pretesting and posttesting, their adjusted posttest mean was not significantly different from that of the experimental group. Remembering that the experimental group started out in the mild range and remained in the mild range, it was unlikely that any treatment intervention would have resulted in a significant difference. The change toward being somewhat less anxious, could, however, have been the result of the relaxation, meditation, and coping skills learned while in treatment. The control group initially scored significantly higher in anxiety than the experimental group. Because the adjusted posttest means for the experimental group and the control group were not significantly different, it could be that the same factors entered into the decrease in anxiety on the part of both groups. For example, becoming more accustomed to jail life and feeling safer may have reduced anxiety for members of both groups. Knowing that they were 45 days closer to being released may also have resulted in a decrease in anxiety. It did not appear that the treatment group received any additional benefit with regard to anxiety that they would not have experienced just by being incarcerated.

Null Hypothesis 9: There is no difference in the posttest I-E Scale scores between the experimental group and the control group. It was found that there was no significant difference in the changes experienced by members of both groups. Null Hypothesis 9 was retained. Again, it was unexpected that members of both groups would
be so internally focused. Neither group could have made much of a change in the expected direction of being more internally focused.

**Implications**

Implications of the study include the possibility that other factors besides depression, anxiety, and locus of control may be at work with the substance abusing population. In addition, although it was thought that the substance abuse program would have a significant impact on those participating in it with regard to anxiety, depression, and locus of control, reducing anxiety and depression were not the main focus of the treatment program. If there had been additional benefit with regard to anxiety and depression, that would be a bonus. With regard to internal locus of control, although there were interventions designed to break denial and take responsibility for behavior, it could be that, because the experimental group was already internally focused, to become more internally focused may not have been possible in the time frame studied. It is also possible that people who are incarcerated do not respond to these instruments in the same manner as those on whom the instruments were normed. Their criminal lifestyle may affect both their patterns of thinking and their patterns of feeling.

**Recommendations**

A recommendation for further study would be to conduct a longitudinal study consisting of posttesting at 6 months and 1 year following completion of the New Avenues Substance Abuse Treatment program to see if there were any changes in the anxiety, depression, and locus of control with regard to individuals in both the
experimental group and control group. In addition, recidivism for those remaining in Davidson County could be part of the follow-up. An additional area of study would be to conduct the same study using one experimental group participating in an in-jail substance abuse treatment program, one experimental group participating in an inpatient substance abuse treatment program, one experimental group participating in an outpatient substance abuse treatment program, one control group made up of individuals who are incarcerated but not participating in a treatment program, and one control group made up of individuals who are not incarcerated and who are not participating in a treatment program.

Recommendations for practice include that practitioners continue to be aware that there may be underlying biopsychosocial reasons for people in treatment to self-medicate with substances. Including in a substance abuse program components to specifically intervene with depression, anxiety, and locus of control could be beneficial to those participating in the program.

**Conclusions**

In conclusion, it can be said that both the experimental group and the control group experienced a significant decrease in depression. Since neither group experienced a significant difference from the other, it could not be determined whether the decrease for the experimental group was due to participation in the New Avenues Substance Abuse Treatment Program or due to the same forces at work with the control group. The individuals participating in the program experienced a decrease in anxiety but not a
significant decrease, while the control group experienced a significant decrease. However, once again, the groups at posttesting showed no significant difference. Since the treatment group started out in the mild range, it would be difficult to show that the program had a significant impact on anxiety. With regard to locus of control, members of both the experimental group and the control group scored in the direction of being internally oriented on both the pretest and posttest. There was no significant difference between the groups at posttesting. No significant difference was seen between the experimental group and the control group in depression, anxiety, or locus of control when posttest scores were adjusted so the groups could be compared on an equal basis.
APPENDIX A

INSTRUMENTATION
MICHIGAN ALCOHOL SCREENING TEST (MAST)

M. I. Selzer

Please circle yes or no.

1. Do you feel you are a normal drinker? Yes No

2. Have you ever awakened the morning after some drinking the night before and found that you could not remember a part of the evening before? Yes No

3. Does your wife (or parents) ever worry or complain about your drinking? Yes No

4. Can you stop drinking without a struggle after one or two drinks? Yes No

5. Do you ever feel bad about your drinking? Yes No

6. Do friends or relatives think you are a normal drinker? Yes No

7. Do you ever try to limit your drinking to certain times of the day or to certain places? Yes No

8. Are you always able to stop drinking when you want to? Yes No

9. Have you ever attended a meeting of Alcoholics Anonymous (AA)? Yes No

10. Have you gotten into fights when drinking? Yes No

11. Has drinking ever created problems between you and your wife? Yes No

12. Has your wife (or other family member) ever gone to anyone for help about your drinking? Yes No

13. Have you ever lost friends or girlfriends/boyfriends because of drinking? Yes No

14. Have you ever gotten into trouble at work because of drinking? Yes No

15. Have you ever lost a job because of drinking? Yes No

16. Have you ever neglected your obligations, your family, or your work for two or more days in a row because you were drinking? Yes No

17. Do you ever drink before noon? Yes No

18. Have you ever been told you have liver trouble? Cirrhosis? Yes No

19. Have you ever had delirium tremens (DTs), severe shaking, heard voices or seen things that weren't there after heavy drinking? Yes No

20. Have you ever gone to anyone for help about your drinking? Yes No

21. Have you ever been in a hospital because of drinking? Yes No

22. Have you ever been a patient in a psychiatric hospital or on a psychiatric ward of a general hospital where drinking was a part of the problem? Yes No

23. Have you ever been seen at a psychiatric or mental health clinic, or gone to a doctor, social worker, or clergyman for help with an emotional problem in which drinking had played a part? Yes No

24. Have you ever been arrested, even for a few hours, because of drunk behavior? Yes No

25. Have you ever been arrested for drunk driving after drinking? Yes No
DRUG ABUSE SCREENING TEST (DAST)

H. Skinner

Please circle yes or no.

1. Have you used drugs other than those required for medical reasons? Yes No
2. Have you abused prescription drugs? Yes No
3. Do you abuse more than one drug at a time? Yes No
4. Can you get through the week without using drugs (other than those required for medical reasons)? Yes No
5. Are you always able to stop using drugs when you want to? Yes No
6. Do you abuse drugs on a continuous basis? Yes No
7. Do you try to limit your drug use to certain situations? Yes No
8. Have you had "blackouts" or "flashbacks" as a result of drug use? Yes No
9. Do you ever feel bad about your drug use? Yes No
10. Does your spouse (or parents) ever complain about your involvement with drugs? Yes No
11. Do your friends or relatives know or suspect you abuse drugs? Yes No
12. Has drug abuse ever created problems between you and your spouse? Yes No
13. Has any family member ever sought help for problems related to your drug use? Yes No
14. Have you ever lost friends because of your use of drugs? Yes No
15. Have you ever neglected your family or missed work because of your use of drugs? Yes No
16. Have you ever been in trouble at work because of drug abuse? Yes No
17. Have you ever lost a job because of drug abuse? Yes No
18. Have you gotten into fights when under the influence of drugs? Yes No
19. Have you ever been arrested because of unusual behaviour while under the influence of drugs? Yes No
20. Have you ever been arrested for driving while under the influence of drugs? Yes No
21. Have you ever engaged in illegal activities in order to obtain drugs? Yes No
22. Have you ever been arrested for possession of illegal drugs? Yes No
23. Have you ever experienced withdrawal symptoms as a result of heavy drug intake? Yes No
24. Have you had medical problems as a result of your drug use (e.g., memory loss, hepatitis, convulsions, bleeding, etc.)? Yes No
25. Have you ever gone to anyone for help for a drug problem? Yes No
26. Have you ever been in hospital for medical problems related to your drug use? Yes No
27. Have you ever engaged in illegal activities in order to obtain drugs? Yes No
28. Have you ever been treated as an out-patient for problems related to drug abuse? Yes No
APPENDIX B

LETTERS OF PERMISSION
2/16/00

To whom it may concern:

As the director of Treatment Services for the Davidson County Sheriff’s Office, I am writing concerning Peggy Frick. Please consider this letter as a statement of cooperation and understanding with Andrews University. I have given Ms. Frick permission to conduct statistical dissertation research at the Correctional Work Center. Please feel free to call me at 615-880-3864 ext. 241, if there are any questions.

Sincerely,

[Signature]

Paul J. Mulloy, MA
Director Treatment Services

"People Serving People"
March 16, 2000

Peggy Frick  
9132 Sawyer Brown Road  
Nashville, TN 37221

Dear Ms. Frick:

You have my permission to reproduce and use the I-E Scale for your dissertation research, providing you are supervised by or consult with someone who is trained in the use and interpretation of personality measures.

Very truly yours,

[Signature]

Julian B. Rotter  
Professor of Psychology
APPENDIX C

CONSENT FORM
ANDREWS UNIVERSITY

CONSENT FORM TO PARTICIPATE IN RESEARCH FOR A DOCTORAL DISSERTATION IN PARTIAL FULFILLMENT FOR THE DEGREE, DOCTOR OF PHILOSOPHY, BY PEGGY L. FRICK.

DISSERTATION TOPIC: A STUDY OF ANXIETY, DEPRESSION, AND LOCUS OF CONTROL IN THE JAIL-BASED SUBSTANCE-ABUSE PROGRAM RUN BY THE DAVIDSON COUNTY SHERIFF'S DEPARTMENT, DAVIDSON COUNTY, TENNESSEE.

I am being asked to participate in a research project as part of a dissertation by Peggy Frick. I understand that confidentiality regarding my test scores and demographic information (name, age, date of birth, ethnicity, charges, marital status, and type of sentence) will be maintained with Peggy Frick being the only person having access to this information. All data entry will be by my identifying number.

I understand that there are limits to confidentiality. If Ms. Frick feels I am a danger to myself or anyone else, she has an ethical responsibility to report that so the issue can be addressed by staff. I also understand that other limits to confidentiality include abuse of a child and court-ordered information.

I understand that participating in this study will in no way affect my charges or my sentence. Participating in the study will not entitle me to any special treatment or privileges. I may elect to drop out of the study at any time.

I understand that I will be asked to complete the Michigan Alcohol Screening Test, the Drug Abuse Screening Test, the Beck Depression Inventory—Second Edition, the Beck Anxiety Inventory, and the Rotter Internal versus External Control of Reinforcement Scale two times approximately six weeks apart. I will also be asked to complete some demographic information for the study.

As a result of this study, comorbid psychiatric illnesses may be better addressed in substance abuse treatment programs. Ms. Frick's dissertation will be published on a very limited basis.

I acknowledge that this consent form has been explained to me to my satisfaction.

PARTICIPANT: ________________________________ DATE: _________

WITNESS: ________________________________ DATE: _________

I will be provided with a signed copy of this consent form. Ms. Frick will keep the original. Ms. Frick and her advisor, Dr. F. A. Kosinski, Jr. can be contacted at Andrews University, School of Education, Bell Hall Room 160, Berrien Springs, Michigan 49104. Ms. Frick can also be contacted through Paul Mulloy, Program Director.
APPENDIX D

THE TWELVE STEPS OF ALCOHOLICS ANONYMOUS
1. WE ADMITTED WE WERE POWERLESS OVER ALCOHOL--THAT OUR LIVES HAD BECOME UNMANAGEABLE.

2. CAME TO BELIEVE THAT A POWER GREATER THAN OURSELVES COULD RESTORE US TO SANITY.

3. MADE A DECISION TO TURN OUR WILL AND OUR LIVES OVER TO THE CARE OF GOD AS WE UNDERSTOOD HIM.

4. MADE A SEARCHING AND FEARLESS MORAL INVENTORY OF OURSELVES.

5. ADMITTED TO GOD, TO OURSELVES AND TO ANOTHER HUMAN BEING THE EXACT NATURE OF OUR WRONGS.

6. WERE ENTIRELY READY TO HAVE GOD REMOVE ALL THESE DEFECTS OF CHARACTER.

7. HUMBLY ASKED HIM TO REMOVE OUR SHORTCOMINGS.

8. MADE A LIST OF ALL PERSONS WE HAD HARMED, AND BECAME WILLING TO MAKE AMENDS TO THEM ALL.

9. MADE DIRECT AMENDS TO SUCH PEOPLE WHEREVER POSSIBLE, EXCEPT WHEN TO DO SO WOULD INJURE THEM OR OTHERS.

10. CONTINUED TO TAKE PERSONAL INVENTORY AND WHEN WE WERE WRONG PROMPTLY ADMITTED IT.

11. SOUGHT THROUGH PRAYER AND MEDITATION TO IMPROVE OUR CONSCIOUS CONTACT WITH GOD AS WE UNDERSTOOD HIM, PRAYING ONLY FOR KNOWLEDGE OF HIS WILL FOR US AND THE POWER TO CARRY THAT OUT.

12. HAVING HAD A SPIRITUAL AWAKENING AS THE RESULT OF THESE STEPS, WE TRIED TO CARRY THIS MESSAGE TO OTHERS, AND TO PRACTICE THESE PRINCIPLES IN ALL OUR AFFAIRS.
APPENDIX E

THE SERENITY PRAYER
SERENITY PRAYER

by
Reinhold Niebuhr

God grant me the Serenity to accept the things I cannot change,
Courage to change the things I can, and the
Wisdom to know the difference.

Living one day at a time;
Enjoying one moment at a time;
Accepting hardship as the pathway to peace.

Taking, as He did, this sinful world
as it is, not as I would have it;

Trusting that He will make all things right if I surrender to His will;

That I may be reasonably happy in this life,
And supremely happy with Him forever in the next.
REFERENCE LIST
REFERENCE LIST


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VITA
PEGGY L. FRICK

Education:

1993-2001  **Ph.D. in Counseling Psychology**  
Andrews University, Berrien Springs, MI  
Dissertation Topic: The Effect a Jail-Based Substance-Abuse Program has on Anxiety, Depression and Locus of Control  
Chairperson: Frederick A. Kosinski, Jr., Ph.D.  
Comprehensive Examinations: Passed, 11/95

1991-93  **M.A. in Community Counseling**  
Andrews University, Berrien Springs, MI

1974-78  **B.S. in Business Management**  
Indiana University, South Bend, IN

EXPERIENCE:

2000-Present  **Davidson County Sheriff's Department, Nashville, Tennessee**  
Orientation and Aftercare Counselor for S.A.V.E. and New Avenues Substance Abuse Treatment Program.

1998-2000  **Centerstone Community Mental Health Centers, Nashville, Tennessee**  
Mobile Crisis Specialist and Hospital Liaison.

1997-1998  **Lois M. DeBerry Special Needs Facility, Tennessee Department of Corrections, Nashville, Tennessee**  
Predoctoral Intern.

1995-1997  **OAKLAWN COMMUNITY MENTAL HEALTH CENTER, INC.**  
Assertive Case Manager in the Community Support Program.

1993-1995  **ANDREWS UNIVERSITY COUNSELING AND PSYCHOLOGICAL SERVICES CENTER, Berrien Springs, MI**  
*Doctoral Practicum*

1993-1994  **ANDREWS UNIVERSITY COUNSELING & TESTING CENTER, Berrien Spring, MI**  
*Doctoral Practicum*

1993  **ANDREWS UNIVERSITY DEPARTMENT OF EDUCATIONAL AND COUNSELING PSYCHOLOGY**  
*Graduate Assistant--Adult Assessment*

1993-94  **ANDREWS UNIVERSITY COUNSELING & TESTING CENTER, Berrien Springs, MI**  
*Counselor Intern*