

# NEDS

NATIONAL EVALUATION DATA SERVICES

## **THE EFFECTIVENESS OF SUBSTANCE ABUSE TREATMENT IN REDUCING VIOLENT BEHAVIOR**

**February 2001**

Battelle Centers for  
Public Health Research  
and Evaluation

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## **THE EFFECTIVENESS OF SUBSTANCE ABUSE TREATMENT IN REDUCING VIOLENT BEHAVIOR**

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**CSAT**  
Center for Substance  
Abuse Treatment  
SAMHSA

# TABLE OF CONTENTS

Page

## FOREWORD

## ACKNOWLEDGMENTS

## EXECUTIVE SUMMARY ..... i

## I. INTRODUCTION ..... 1

### 1. OVERVIEW OF RELEVANT RESEARCH ..... 1

#### 1.1 Substance Use and Violent Behavior ..... 1

#### 1.2 Gender Factors ..... 2

#### 1.3 Substance Abuse Treatment and Violent Behaviors ..... 2

#### 1.4 Implications of the Literature for the Present Analysis ..... 3

### 2. PURPOSE AND PARAMETERS OF THE PRESENT ANALYSIS ..... 4

### 3. ORGANIZATION OF THE REPORT ..... 5

## II. METHODS ..... 6

### 1. ANALYSIS SAMPLES ..... 6

#### 1.1 Total NTIES Cohort ..... 6

#### 1.2 NTIES Variables Related to Violent Behaviors ..... 7

#### 1.3 Summary of Analysis Sample Descriptions ..... 8

### 2. ANALYTIC METHODS ..... 8

#### 2.1 Outcome Measures ..... 8

#### 2.2 Analysis Procedures ..... 9

### 3. LIMITATIONS OF THE ANALYSIS ..... 10

#### 3.1 Truncated Follow-up Period ..... 10

#### 3.2 Motivation to Change as a Confounder ..... 10

#### 3.3 Regression Toward the Mean ..... 11

## III. RESULTS ..... 13

### 1. ANALYTIC RESULTS FOR THE TOTAL NTIES COHORT ..... 13

#### 1.1 Perpetrator and Victim Classification ..... 13

#### 1.2 Outcome Analysis (Full Cohort) ..... 14

## TABLE OF CONTENTS (CONT.)

	<u>Page</u>
2. SIMILARITIES AND DIFFERENCES IN VIOLENCE BY MODALITY . . . .	16
3. OUTCOME ANALYSIS FOR VIOLENT ACTS BEFORE TREATMENT . . .	16
3.1 All Perpetrators . . . . .	16
3.2 Breakout by Gender . . . . .	18
3.3 Breakout by Treatment Modality . . . . .	19
<b>IV. SUMMARY AND RECOMMENDATIONS . . . . .</b>	<b>21</b>
1. SUMMARY . . . . .	21
1.1 History of Violent Behaviors Among Substance Abuse Treatment Clients . . . . .	21
1.2 Impact of Substance Abuse Treatment on Violent Behaviors . . . . .	22
1.3 Effects on Gender, Modality, and Perpetrator/Victim Status . . . . .	22
2. IMPLICATIONS FOR RESEARCH, POLICY AND PRACTICE . . . . .	23
2.1 Implications for Further Research . . . . .	23
2.2 Implications for Substance Abuse Treatment Policy . . . . .	24
2.3 Implications for Substance Abuse Treatment Practice . . . . .	24
<b>REFERENCES . . . . .</b>	<b>26</b>
<b>APPENDIX: DESCRIPTION OF THE NATIONAL TREATMENT IMPROVEMENT EVALUATION STUDY AND CENTER FOR SUBSTANCE ABUSE TREATMENT DEMONSTRATIONS (1990-1992)</b>	

## FOREWORD

The Center for Substance Abuse Treatment (CSAT) works to improve the lives of those affected by alcohol and other substance abuse, and, through treatment, to reduce the ill effects of substance abuse on individuals, families, communities, and society at large. Thus, one important mission of CSAT is to expand the knowledge about the availability of effective substance abuse treatment and recovery services. To aid in accomplishing this mission, CSAT has invested and continues to invest significant resources in the development and acquisition of high quality data about substance abuse treatment services, clients, and outcomes.

In support of these efforts, the CSAT Program Evaluation Branch (PEB) established the National Evaluation Data Services (NEDS) contract to provide a wide array of data management and scientific support services across various programmatic and evaluation activities and to mine existing data whose potential has not been fully explored. Essentially, NEDS is a pioneering effort for CSAT in that the Center previously had no mechanism established to pull together databases for broad analytic purposes or to house databases produced under a wide array of activities. One of the specific objectives of the NEDS contract is to provide CSAT with a flexible analytic capability to use existing data to address policy-relevant questions about substance abuse treatment. This report has been produced in pursuit of that objective.

This report addresses the important policy issue of the association between substance abuse and violent behavior and the manner in which effective substance abuse treatment can reduce the likelihood of interpersonal violence. Our analyses of the National Treatment Improvement Evaluation Study (NTIES) data indicated that treatment can be highly effective in reducing specific violent acts among persons with a history of committing violence (i.e., perpetrators) and that these improvements are consistent across client subgroups such as gender, modalities of treatment, and past status as a victim of violence.

This report is one of three companion reports that were developed to examine the impact of sexual and physical abuse, either as victim, perpetrator, or both, on substance abuse treatment outcomes. The two companion reports are: *Impact of Prior Physical and Sexual Victimization on Substance Abuse Treatment Outcomes* (Orwin, Maranda, & Brady, 2001) and *Sexually and Physically Abused Women in Substance Abuse Treatment: Treatment Services and Outcomes* (Karageorge & Wisdom, 2001).

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**EXECUTIVE SUMMARY**

# EXECUTIVE SUMMARY

Substance abuse is believed to be highly associated with violent behaviors, both in terms of perpetrators and victims of violence. The association is clearly evident in the juvenile and criminal justice system populations where violent acts are committed as a result of the effects of using substances, as well as to support substance addictions. While juvenile and criminal justice statistics document the ever increasing problems of substance abuse-related violence, little is known about the non-incarcerated populations who use alcohol and other drugs and also commit violent acts. The purpose of this technical report is twofold. First, the report provides a clearer description of the prevalence of violent behaviors among substance abusers. Second, the value of substance abuse treatment in helping to reduce violent behaviors is explored.

## 1. INTRODUCTION

This report presents a secondary analysis of the National Improvement Evaluation Study (NTIES) data and examines the distribution of violent behaviors across the NTIES analysis cohort. The analysis also examines the extent to which treatment appears to reduce violence for each measured behavior. These reductions are analyzed by gender, treatment modality—methadone treatment, non-methadone outpatient treatment, long-term residential treatment, short-term residential treatment and facilities located in correctional institutions—and whether the client was a victim of violence in addition to being a perpetrator. The analysis addressed the following questions.

- What proportion of NTIES clients have a history of violent behavior? What proportion have a history of victimization? How does this vary by gender and modality?
- Is participation in substance abuse treatment associated with reduced violent behavior? How do effects vary by a) gender, b) treatment modality, and c) whether the client was a victim of violence in addition to being a perpetrator?

The methods used for the analysis are described below.

## 2. METHODS

This analysis used NTIES data from the 4,411 clients with baseline and follow-up interviews. Treatment modalities were methadone maintenance, non-methadone outpatient, short-term residential, long-term residential and correctional. Outcome measures consisted of difference scores in self-reported violent behavior derived from the baseline and follow-up interviews. The four types of violent behaviors assessed were: 1) robbery (used a weapon or physical force against someone to steal money or property from them); 2) attacked or threatened someone with a weapon; 3) “beat up” someone; and 4) severely hurt someone in other ways.

The analysis cohort was divided into four mutually exclusive victim status categories based on their reported victimization and violent behaviors:

- Those who had committed, but had not been the victims of, serious violent acts
- Those who had been the victims of, but had not committed, serious violence acts
- Those who had committed and been the victims of serious violent acts
- Those who had neither committed nor been the victim of serious violent acts.

Two analyses were conducted: analysis of all 4,411 clients in the full analysis cohort and analysis of the subset of clients who committed violent acts in the year before treatment. Each set of analyses examined all four outcome variables by gender, modality, and victim status.

### **3. RESULTS**

The analyses of client histories of violent behavior and victimization revealed that:

- Most clients in the analysis cohort (65%) reported committing at least one violent act during their lifetime before their NTIES treatment episode, and still more (74%) reported being victimized.
- Most perpetrators were also victims. A minority, about 1 of 10 clients, were exclusively perpetrators (i.e., not victims as well).
- More men than women reported committing violence before treatment (71% and 50%, respectively), but the proportions of men and women reporting victimization were virtually the same (74% and 73%, respectively). About twice as many women were exclusively victims (31% to 15%).
- More men than women reported being perpetrators across all five modalities, regardless of victim status (perpetrators who were and were not also victims).
- Women in methadone treatment reported committing the fewest violent acts before this treatment episode (31%), while women in long-term residential treatment made the most such reports (57%). There was notably less variation across modality among men, where only six percentage points separated the lowest (methadone, 69%) and highest (long-term residential, 75%).
- Clients in correctional SDUs were no more or less likely to report prior violence or victimization than clients in other modalities.

The analysis of the association between participation in substance abuse treatment and post-treatment violent behavior revealed that:

- Among clients who reported violent behavior during the year before treatment, the great majority (87% to 93%, depending on the type of behavior) reported decreases in the frequency of these behaviors after treatment
- Among clients who did not report violent behavior during the year before treatment, very few (2% to 6%, depending on the type of behavior) reported any incidents of those behaviors at follow-up
- In all, almost a third (32%) reported committing at least one of the four violence behaviors at least once in the 12 months before this treatment episode, while only 12% did so for the follow-up period.

Taken together, the data show large reductions in violence among those clients actively violent during the pre-treatment period, with virtually no increase in violence among clients not actively violent during that same period. The results strongly suggest that substance abuse treatment is effective in reducing violent behavior.

The analysis of variation in effects by gender, treatment modality, and victim status revealed that:

- For the full analysis cohort, significant decreases in reported violent behavior were observed in all but two of the 36 modality-by-gender categories, with five or more individuals who reported the behavior during the pre-treatment period.
- The observed decreases in violent behaviors from pre-treatment to post-treatment period were consistent in direction and similar in magnitude across both genders, all treatment modalities and victim status. Modality differences were generally small, and no modality showed consistently greater reductions across all four behaviors.

The results strongly suggest that substance abuse treatment is effective in reducing violent behavior among substance abusers. Four alternative explanations to these findings were explored, and where possible, assessed empirically: truncated follow-up period, motivation to change as a confounder, regression toward the mean, and several measurement issues. We found no evidence to suggest that any of these factors singly or in combination offered a plausible alternative to treatment as the principal cause of the observed reduction in violent behavior.

#### **4. IMPLICATIONS FOR FURTHER RESEARCH, POLICY AND PRACTICE**

The following paragraphs summarize the implications of the analyses of violent behaviors and the impact of substance abuse treatment for further research, policy, and practice.

#### **4.1 Implications for Further Research**

This analysis was limited in its capacity to explore the relationship between violence and substance abuse treatment by its secondary nature. For further research, we would recommend a prospective study that 1) uses a rigorous, comparative design, 2) asks more detailed questions about type, frequency, severity, and drug-relatedness of violent behavior, and 3) includes questions about sexual violence and emotional violence. In addition to addressing the gap discussed above, it would also allow the disentangling of the different influences on violent behavior, e.g., pharmacological aspects of drug use, drug using lifestyle and individual predisposing influences. Such a study could also investigate the characteristics that distinguish the clients who reduced their violent behavior from those who did not.

#### **4.2 Implications for Policy**

The finding of this analysis that treatment may reduce violent crimes among substance abusers—including armed robbery and assault—has implications for the use of treatment as a crime-reduction tool. Those individuals who are incarcerated for acts of violence and clearly have a substance abuse problem should be given priority for substance abuse treatment while incarcerated. Decision makers in criminal justice diversion and other court programs need to be made aware of the effectiveness of treatment programs in reducing violence so that, when appropriate, they can use substance abuse treatment in conjunction with sanctions or as an alternative to criminal penalties or sanctions. For the perpetrators of domestic violence this analysis suggests that substance abuse treatment may be an effective treatment for this problem. Further research is needed to confirm this.

#### **4.3 Implications for Practice**

Many of the NTIES SDUs include anger management, conflict resolution and other techniques that would tend to reduce violent behavior. While this analysis did not address the relationship of particular treatment components or services to violence outcomes, the apparent success of treatment in reducing violence suggests that augmentations that target violent behavior may be cost-effective investments by treatment practitioners.

## **I. INTRODUCTION**

# I. INTRODUCTION

Substance abuse is believed to be highly associated with violent behaviors, both in terms of perpetrators and victims of violence. The association is clearly evident in the juvenile and criminal justice system populations, where violent acts are committed as a result of the effects of using substances, as well as to support substance addictions. While juvenile and criminal justice statistics document the ever increasing problems of substance abuse-related violence, little is known about the non-incarcerated populations who use alcohol and other drugs and also commit violent acts. The purpose of this technical report is twofold. First, the report provides a clearer description of the prevalence of violent behaviors among substance abusers. Second, the value of substance abuse treatment in helping to reduce violent behaviors is explored.

This report is the first in a series of three. The current report focuses on substance abuse treatment outcomes for perpetrators of violence. The second report, *The Impact of Prior Physical and Sexual Victimization on Substance Abuse Treatment Outcomes* focuses on substance abuse treatment outcomes for victims of violence. The third report, *Sexually and Physically Abused Women in Substance Abuse Treatment: Treatment Services and Outcomes* also looks at substance abuse treatment outcomes for victims of violence but focuses on women over the age of 18.

The purpose of this chapter is to provide the contextual and organizational context for the technical report. The following paragraphs provide a brief review of prior relevant research, the purpose and parameters of the present analysis, and the organization of this report.

## 1. OVERVIEW OF RELEVANT RESEARCH

Prior research demonstrates that there is a relationship between violent behaviors and substance abuse and, to some extent, the causal factors. Researchers also have explored the prevalence of gender-related violent behaviors. In addition, the effects of substance abuse treatment on violent acts have been cursorily examined. The following paragraphs summarize these findings.

### 1.1 Substance Use and Violent Behavior

The use of alcohol and other drugs has long been associated with acts of violence. The direct impact of substance use in the commission of crimes is most clearly seen with alcohol, a precursor to crimes of negligence (e.g., drunk driving) and violence (e.g., domestic violence) (Anglin and Perrochet, 1998). For example, a study by Permnanen (1991) in Canada found that 42 percent of violent crimes involved drinking by the assailant, victim or both.

This is not to say that drugs other than alcohol are not linked to violence. Among illicit drugs, amphetamines, phencyclidine (PCP), and cocaine have been linked to violence, while marijuana and the opiates have little or no documented association with violent behavior (Moss and Tarter, 1992). In a study of cocaine users, it was found that four criminal behaviors were more common after cocaine use initiation, including “threatening with a weapon” (Anglin and Perrochet, 1998).

Goldstein (1985) suggested that violent behavior is due to the interplay of pharmacological effects, economic pressures produced by the compulsive use of drugs, and lifestyle factors. Moss and Tarter (1992) argued: “Although a substantial number of violent individuals abuse psychoactive drugs, psychoactive substance use in itself does not appear to produce violent criminals.” They suggested that violent behavior is the result of the interaction among pharmacological effects, individual characteristics and socioeconomic context. It follows that the relationship between substance abuse and violence is not one-way. In the words of one observer: “Violence can be a risk factor for substance abuse; substance abuse can be a risk factor for violence” (Hein and Hein, 1998).

## **1.2 Gender Factors**

Both men and women commit acts of violence. While the currently available data show that a preponderance of violent acts are committed by males, there is a dearth of reliable data on women as perpetrators of violent acts. Hein and Hein (1998) argue that most data are based on arrest rates and incarceration numbers that provide imprecise estimates of the prevalence of violence by female perpetrators. Nonetheless, the criminal justice statistics show a general increase in acts of violence committed by women. For example, the number of offenses against family and children committed by women increased by 196 percent between 1982 and 1991 for women compared to 63 percent for men. According to the FBI, 14 percent of homicide offenders are women. Most studies of public sector substance abuse treatment that include women and also collect data on violence show a history of committing violent acts among women. For example, in a study of residential treatment conducted by Murphy et al. (1998), 31 percent of the women had directed violence against strangers.

## **1.3 Substance Abuse Treatment and Violent Behaviors**

A significant number of individuals who enter treatment for substance abuse have a history of violence, yet relatively little is known about the effect of treatment on specific violent behaviors. A number of studies have demonstrated that substance abuse treatment is effective in reducing the criminal behavior of those who use narcotics (Anglin and Perrochet, 1998), but

interest in crime committed by narcotic users has tended to focus on property crime and not crimes of violence. There has been only limited research on treatment and violent crime for users of cocaine, who tend to be more violent than narcotic users, as noted above.

Several violent crimes have received some attention by researchers. In an analysis of the Treatment Outcomes Performance Pilot Studies (TOPPS) data, Harwood et al. (1998) found a reduction in the number of self-reported robberies committed post-treatment, as well as a reduction in the number of self-reported assaults. Also, the association between alcohol abuse and domestic violence has led to some research on the effects of treatment in reducing domestic violence. O'Farrell et al. (1999) found a decrease in domestic violence two years after treatment in a study of 88 male alcoholics who attended a behavioral marital therapy alcoholism treatment program. They also found that post-treatment violence was associated with frequency of post-treatment alcohol use, and that levels of violence for those who did not drink after treatment were no greater than those of a matched non-alcoholic control group.

#### **1.4 Implications of the Literature for the Present Analysis**

Perpetrators of violence who enroll in substance abuse treatment are a heterogeneous population. Separate analyses of subgroups are thus warranted. Although both men and women drug abusers commit violent acts, they differ in the frequency and types of acts they commit. For example, women kill strangers at one-twentieth the rate men do, but women kill partners at about half the rate of men (Hein and Hein, 1998). In the NTIES data, men were more likely than women to be perpetrators in all five treatment modalities. Men were more likely than women to report committing violent acts at least once in their lifetime for all types of acts. Yet, for some types of acts, the differences were relatively modest. About 50 percent more men than women reported having attacked or threatened someone with a weapon or beating someone up, but almost three times more men reported robbing someone. If both genders need money to support their drug habits, this finding regarding robbery may reflect a greater ability and willingness by women to use other means to obtain drugs (e.g., exchanging sex for money or drugs).

Analyzing clients by treatment modality is also warranted. Different settings may serve different populations and the varying approaches to substance abuse treatment can have different effects on violent behavior after treatment. For example, clients in correctional facilities for violent offenses may have more entrenched tendencies toward physically violent behaviors. Also, to be in methadone treatment, one must be an abuser of an opioid, a group reportedly less prone to violence than alcohol or cocaine abusers.

Similarly, perpetrators who are also victims may represent a different population from those who are perpetrators but are not victims. Perpetrator-victims include individuals who suffered chronic abuse as children, as well as potentially traumatic events (rapes, shootings, etc.) as adults. Recent literature (e.g., Bassuk et al., 1998) suggests that consequences of traumatic victimization—notably post-traumatic stress syndrome disorder (PTSD) and other trauma-related disorders—may reduce the effectiveness of substance abuse treatment.

## **2. PURPOSE AND PARAMETERS OF THE PRESENT ANALYSIS**

The present analysis was conducted to examine the impact of substance abuse treatment on the reduction of violent behaviors using the National Treatment Improvement Evaluation Study (NTIES) database to analyze pre-treatment and post-treatment violent behavior. The analysis addresses the following questions:

- What proportion of NTIES clients have a history of violent behavior? What proportion have a history of victimization? How does this vary by gender and modality?
- Is participation in substance abuse treatment associated with reduced violent behavior? Do treatment effects vary by gender, treatment modality, and whether the client was a victim of violence in addition to being a perpetrator?

The analysis examines the distribution of violent behaviors across the NTIES analysis cohort and the extent to which treatment appears to reduce violence for each measured behavior. These reductions are analyzed by gender, treatment modality—methadone treatment, non-methadone outpatient treatment, long-term residential treatment, short-term residential treatment and facilities located in correctional institutions—and whether the client was a victim of violence in addition to being a perpetrator.

The NTIES project was a national evaluation of the impact of substance abuse treatment on a total of 5,388 clients purposively sampled from public substance abuse treatment programs (Service Delivery Units or SDUs) that were funded by the Center for Substance Abuse Treatment (CSAT). The NTIES project collected longitudinal data between FY 1992 and FY 1995. The analysis cohort consisted of 4,411 individuals for whom both pre-treatment and post-treatment information was available, including items on type and frequency of violent behavior (National Opinion Research Center, 1997). (For more details on NTIES, see Appendix.)

### **3. ORGANIZATION OF THE REPORT**

This chapter, *Chapter I: Introduction*, provides an overview of prior relevant research and identifies the analytic questions. *Chapter II: Methods* presents the analytic approach taken, a description of the variables, and the statistics used. *Chapter III: Results* presents the findings for each of the analytic questions. A summary and recommendations for future research, policy, and practice are presented in *Chapter IV: Summary and Recommendations*.

## **II. METHODS**

## II. METHODS

The purpose of this chapter is to describe the methodology used to analyze the prevalence of violence among the NTIES sample and to analyze the relationship of substance abuse treatment to the reduction of violent behaviors. The chapter is divided into three sections. The first section presents a description of the samples used in the analysis. The second section provides a description of the analysis methods used, including the outcome measures and the statistical techniques. The chapter concludes with a description of the study limitations.

### 1. ANALYSIS SAMPLES

To prepare the NTIES sample for the analyses, several analytic processes were applied to the original NTIES sample of 5,388 clients. Based on the availability of data indicating types of violent behavior and whether an individual was a violence perpetrator, a violence victim, or both, two separate analytic databases were created:

- The total NTIES cohort
- The outcomes analysis database comprised of violence perpetrators only.

The processes, the rationale, and the resulting analytic databases are described below.

#### 1.1 Total NTIES Cohort

The first step was to develop the analytic database from the total NTIES sample (5,388 clients) by limiting the database to the clients for whom pre-treatment, treatment exit, and post-treatment data were available. This resulted in an analysis cohort of 4,411 clients. Information necessary for the analysis of violent behaviors was missing for 15 individuals; therefore, the total analysis cohort was 4,396 individuals who had the following characteristics:

- Gender: 69 percent male, 31 percent female
- Age: median 32 years; mean 32.1 years; range 13 to 70 years
- Ethnicity: 56 percent African-American, 15 percent Hispanic, 26 percent white, 4 percent other.

Once this analytic database was created, hereafter labeled the “total NTIES cohort,” other criteria were applied to further prepare the NTIES data for the current analyses.

## **1.2 NTIES Variables Related to Violent Behaviors**

The next step was to identify the NTIES variables that would be used to analyze the total NTIES cohort in terms of violence histories and to develop the outcomes database. One NTIES question provided the majority of violent behavior indicators; the responses to this question formed the foundation for the total NTIES cohort analyses and the outcome analyses. The question asked respondents if they had perpetrated any of the following violent acts 12 months before treatment entry and during the 12-month period preceding the follow-up interview. The response categories and the number of respondents per response category included:

- Robbery (used a weapon or physical force against someone to steal money or property from them): N=258
- Attacked or threatened someone with a weapon: N=582
- “Beat up” someone: N=1,186
- Severely hurt someone in some other way: N=532.

Two other questions regarding violent behavior were asked in the NTIES baseline interview:

- Ever forced someone to have sex or do any kind of sex act against their will?
- Ever killed someone, other than by accident?

These two questions asked about the individual’s behaviors throughout his or her lifetime, but not during the 12 months before treatment entry. Consequently, these items could not be used to create the outcomes analysis database for the pre-/post-treatment comparison. The items were used, however, to classify an individual as a “perpetrator” of violence for the categorization of the overall NTIES cohort, as described in the next chapter.

A third set of NTIES questions included:

- Ever been attacked with a weapon such as a knife or gun?
- Ever been hit or beaten so seriously that you were badly bruised, had to see a doctor or had to stay in bed for one day or more?
- Ever been made to have vaginal, oral or anal sex when you did not want to by using force, or threatening to harm you or someone close to you?

Responses to these items were used to identify and to classify the total NTIES cohort and comprised the sample of perpetrators, victims, and both perpetrators and victims of violence.

### **1.3 Summary of Analysis Sample Descriptions**

In summary, the original total NTIES sample of 5,388 clients was reduced to include only those clients who had treatment intake, treatment exit, and treatment follow-up data and the resulting database included 4,411 clients. Information related to the analysis of violence was missing for 15 clients; therefore, the total NTIES cohort included 4,396 clients. This database is titled throughout the report as the “total NTIES cohort” and was analyzed to determine violence histories and violence status (e.g., perpetrators, victims, or both). A second analytic database was developed and was limited to those clients who reported committing violent behaviors during the 12 months preceding treatment entry. This analytic database was used for the outcome analysis, since the impact of treatment interventions could be estimated based on the changes in violent behaviors, post-treatment.

## **2. ANALYTIC METHODS**

The analytic methods use for the analyses of violent behaviors among the NTIES clients are described below.

### **2.1 Outcome Measures**

Outcome measures were based on the difference scores derived from the baseline interview and the post-treatment follow-up interview. Four types of violent acts quantified physically violent behavior over the prior 12 months at both pre-treatment and post-treatment, and these items were used as the outcome measures. These four outcome measures were:

- Robbery (used a weapon or physical force against someone to steal money or property)
- Attacked or threatened someone with a weapon
- “Beat-up” someone
- Severely hurt someone in some other way.

The post-treatment follow-up period was intended to be 12 months, but the actual median was approximately 11 months. The range for the follow-up period for clients in the outcome analysis cohort was 5 to 16 months.

## **2.2 Analysis Procedures**

Clients were classified as “perpetrator only,” “victim only,” “both perpetrator and victim,” and “neither perpetrator nor victim.” Clients were classified as “perpetrator” if they reported during the baseline interview that they had committed any of the six violent acts discussed above. Clients were classified as “victim” if they reported at the baseline interview that at least one of the three following events had occurred during their lifetime:

- Ever attacked with a weapon such as a knife or gun
- Ever hit or beaten so seriously that the victim was badly bruised, had to see a doctor or had to stay in bed for one day or more
- Ever made to have vaginal, oral or anal sex when the victim did not want to by using force, or threatening to harm the victim or someone close to the victim.

The total NTIES cohort was divided into four mutually exclusive groups based on their reported violent behaviors and victimization:

- Those who had committed serious violent acts, but had not been the victims of serious violence
- Those who had been the victims of serious violence, but had not committed serious violent acts
- Those who had committed serious violent acts and had been the victims of serious violence
- Those who had neither committed serious violent acts nor been the victims of serious violence.

For the outcome analysis, the data were further broken out by gender and modalities to create 10 cells for each of the four outcome measures (40 cells in all). Within each cell, the Wilcoxon signed rank test for matched pairs was used to test the hypothesis that clients reduced their level of violence between baseline and follow-up, as assessed by difference scores on the four qualifying acts. This is an appropriate test to use when the measures are ordinal and the dependent variable is a within-subject change score (pre-test/post-test). Because it considers the ordered magnitude of the change in addition to the direction, it uses more information and has greater statistical power than other non-parametric tests that simply examine the direction of change.

The primary outcome analyses were limited to those clients who reported committing violent acts in the 12 months before treatment. This approach enabled an analysis of those clients with a history of violent behavior in the pre-treatment period for whom a reduction in

violence post-treatment was possible. For this group, distributions of change scores were examined and plotted, and Chi-square tests were used to test for differences in percent reductions across gender, modality, and victim status.

### **3. LIMITATIONS OF THE ANALYSIS**

In any effort that re-analyzes data obtained from a previous evaluation, there are always design or data collection issues that potentially limit the results. The re-analyses of the NTIES data to determine the relationship of violent behaviors and substance abuse treatment outcomes is no different. This section briefly describes the most important potential analytic limitations.

#### **3.1 Truncated Follow-up Period**

Because the actual median follow-up period was only 11 months, with many clients interviewed substantially sooner, some of the observed reduction in frequency of violence may be an artifact of a shorter reference period. That is, clients who commit violent offenses at a constant rate will, all else being equal, commit fewer over a 10- to 11-month period than a 12-month period. To investigate the possibility that this artifact biased the results, we examined the correlation between actual follow-up interval and change score for each of the four behaviors. The absence of correlation would suggest no effect of follow-up interval, while a significant negative correlation would suggest that the suspected bias exists.

After applying NORC's adjustment for some methadone maintenance and other clients whose original follow-up interval was computed as 0 (see NORC, 1997), the correlation were: -0.002 for robbery, -0.007 for weapons incidents, -0.045 for beatings, and 0.015 for committing other kinds of injury. Of these, only the coefficient for beatings was statistically significant, despite a sample size large enough to detect very small effects. This analysis suggests there may have been a very small upward bias on the percentage of clients showing reductions in number of times they beat someone up, but no evidence of bias for the other three items. The evidence thus does not support the argument that a slightly longer follow-up period would have generated different results.

#### **3.2 Motivation to Change as a Confounder**

Clients can be motivated to change, and in fact do change, independent of treatment. Because NTIES clients were not randomly assigned to treatment vs. non-treatment conditions, we cannot rule out motivation to change or other self-selection factors as "confounders" that compete with treatment in explaining the reduction in violence. This problem is common to all

secondary analyses of data collected from naturalistic treatment settings without comparison groups.

There is a growing body of controlled treatment research that has begun to rule out motivation alone as a plausible alternative explanation to the effectiveness of treatment (McLellan, 1998). For example, studies with motivated wait-list controls have shown that clients receiving treatment achieve better outcomes, with no reason to suspect differences in initial motivation. Svikis et al. (1997) studied unmotivated pregnant cocaine addicts and found improved outcomes for treated mothers and infants when compared to equally unmotivated, untreated controls. Finally, common sense argues that the size of the effect must be taken into account when considering motivation or any alternative explanation. It is plausible that some of the reduction in violence shown here was due to motivation, but the overwhelming proportion of violent clients showing reductions (87% to 93%, depending on the specific behavior) make it less likely that all or even most of the change was due to factors other than treatment.

### **3.3 Regression Toward the Mean**

Another possibility is that the change reflects a short-term “correction” such as might result if the reported levels of violence at pre-test were unusually high for those clients reporting violence, a problem referred to by statisticians as regression toward the mean. In treatment research, regression toward the mean has both a statistical and a clinical component. Statistically, it refers to the tendency for individuals who score at the extreme ends of a distribution on fallible measures such as self-report to exhibit less extreme observations upon subsequent assessments.

Statistical regression to the mean is not likely to have affected our results for several reasons. First, because of the asymmetric nature of our data, extreme scores would be those that reported a large number of incidents of the violent act in question. As stated earlier, however, we re-coded the data from six to five categories by collapsing the two highest categories into one. This would reduce the influence of measurement error on the highest scores. Second, clients’ responses to the questions regarding number of violent acts were recorded as grouped (interval) responses rather than as a specific number of violent acts, and the greater the number of violent acts, the larger the interval, e.g., 2 to 5 compared to 6 to 20. Rather than taking the mid-points of the grouped responses, we treated the group data as ordinal data. The net effect of this procedure is to further attenuate extreme scores. Finally, the most common response for the pre-treatment period for each type of violence is none. Few of the clients who were nonviolent during the 12 months pre-treatment reported violence at follow-up. These clients could only have had an increase in violent behavior for that category and not a decrease, yet few did. Given the

considerations discussed above, regression toward the mean does not appear to be a plausible alternative explanation to treatment effectiveness.

For self-report bias to be masquerading as treatment effects in the present study, we would have to hypothesize over-reporting at pre-test only, under-reporting at follow-up only, or some combination of the two. There are ways this could happen (e.g., some clients desire to “look good” at follow-up and be viewed as a treatment success by the researchers) and it may have inflated the measured violence reductions to a degree. Still, there is no obvious motivation for widespread lying at follow-up since nothing tangible is at stake. Finally, the decline in self-reported violence post-treatment corresponds to large decrease in self-reported substance abuse post-treatment. It therefore seems unlikely that the degree of inflation or deflation (if either exists at all) would substantially bias the overall findings.

### **III. RESULTS**

### **III. RESULTS**

The literature suggests that both perpetrators and victims of violence are highly likely to be substance abusers and that substance abuse treatment may mitigate the violent behaviors. The results of the analysis of the NTIES data with respect to violent behaviors and the relationship of substance abuse treatment to reducing violent behaviors are presented in this chapter. The chapter begins with the results of the analysis of the entire NTIES analysis cohort. The second section reports the similarities and differences of violent perpetrators and victims by substance abuse treatment modality. The chapter concludes with a detailed analysis of the substance abuse treatment outcomes related to violent behaviors by focusing only on those substance abuse treatment clients who had perpetrated violent behaviors 12 months before treatment entry.

#### **1. ANALYTIC RESULTS FOR THE TOTAL NTIES COHORT**

To determine the prevalence of violent behaviors among substance abusers, the total NTIES cohort was analyzed in terms of perpetrators and victims. The NTIES cohort was further analyzed in terms of the types of violent behaviors by four client categories: “perpetrator only,” “victim only,” “perpetrator/victim,” and “neither perpetrator nor victim.”

##### **1.1 Perpetrator and Victim Classification**

Based on the analysis of the total NTIES cohort, the majority of clients (65%) reported committing at least one physically violent act during their lifetime, and a greater majority (74%) reported being victimized. Most perpetrators were also victims and vice versa; only about 1 in 10 clients were perpetrators only. Approximately 35 percent of the full analysis cohort did not report committing any act of violence during their lifetime before this treatment episode. About 20 percent reported that they were a victim, but not a perpetrator of physical violence and 15 percent reported that they were neither victims nor perpetrators of violence.

The perpetrator/victim categories are presented by gender in Exhibit III-1. As shown, a greater proportion of men committed acts of violence before treatment than did women (71% and 50%, respectively), but the proportions of men and women reporting victimization were similar (74% and 73%, respectively). A much larger percentage of women reported that they were victims only (31% of women compared to 15% of men).

<b>EXHIBIT III-1 CLIENT PERPETRATOR/VICTIM GROUP BY GENDER—FULL COHORT</b>						
<b>Client Group</b>	<b>Men</b>		<b>Women</b>		<b>Total</b>	
	<b>(N)</b>	<b>(%)</b>	<b>(N)</b>	<b>(%)</b>	<b>(N)</b>	<b>(%)</b>
Perpetrator only	391	13	112	8	503	11
Victim only	445	15	423	31	868	20
Both perpetrator and victim	1,789	59	572	42	2,361	54
Not perpetrator nor victim	401	13	263	19	664	15
All clients	3,026	100	1,370	100	4,396	100

\*Missing relevant information, n=15.

The analysis demonstrates the high prevalence of lifetime violent behaviors that are perpetrated by and that victimize the majority of NTIES clients. The following paragraphs, in contrast, demonstrate that the incidence of violence perpetuated during the 12 months preceding treatment entry is relatively low.

## **1.2 Outcome Analysis (Full Cohort)**

During the 12 months before treatment, based on the clients' responses to the intake question, a minority of clients reported committing specific violent acts. For example, 6 percent of the analysis cohort reported committing at least one robbery. The proportion of clients reporting commission of other specific violent acts included: 13 percent reported that they "attacked or threatened someone with a weapon"; 27 percent reported that they "beat someone-up"; and 12 percent reported that they "severely hurt someone in another way." Given that the majority of the clients did not report violent behaviors 12 months before treatment entry, no reduction in violent behaviors is expected for these clients.

Changes in violent behavior from pre-treatment to one year post-treatment, organized by perpetrator and perpetrator/victim categories, for four types of violence, are presented in Exhibit III-2. These analyses suggest that there are significant differences between reported violent activity in terms of robbery, attacking or threatening someone with a weapon, beating someone, or severely hurting someone in some other way, pre- and post-treatment.

The results of this analysis demonstrate that, overall, violent behaviors decreased following substance abuse treatment. The largest proportion of decreased violent behavior occurred among the NTIES clients who reported "beating up" someone, with similar reductions reported by NTIES clients who reported "attacking or threatening someone with a weapon." The

other two categories of violent behavior, robbery and “severely hurting someone on purpose in any other way,” also showed a decline, although the proportions are more modest.

<b>EXHIBIT III-2 CHANGE IN VIOLENT ACTS BY CLIENT STATUS PRE- AND POST-TREATMENT FULL NTIES COHORT</b>								
<b>CLIENT STATUS</b>	<b>No Pre- or Post-Activity</b>		<b>Increased Activity Post-treatment</b>		<b>Decreased Activity Post-treatment</b>		<b>Equal Activity Pre- and Post-treatment</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
<b>Robbery</b>								
Perpetrator only (n=501)	465	93	7	1	28	6	1	<.5
Victim only (n=867)	863	99.5	4	<.5	0	0	0	0
Perpetrator and victim (n=2,353)	2,075	88	61	3	208	9	9	<.5
Neither perpetrator/victim (n=663)	659	99	4	1	0	0	0	0
<b>Attacked or threatened someone with a weapon</b>								
Perpetrator only (n=498)	425	85	17	3	54	11	2	<.5
Victim only (n=867)	844	97	23	3	0	0	0	0
Perpetrator and victim (n=2,353)	1,751	74	95	4	473	20	34	1
Neither perpetrator/victim (n=663)	659	99	4	1	0	0	0	0
<b>“Beat up” someone</b>								
Perpetrator only (n=499)	288	57	29	6	169	34	13	3
Victim only (n=867)	836	96	31	4	0	0	0	0
Perpetrator and victim (n=2,354)	1,252	53	148	6	864	37	90	4
Neither perpetrator/victim (n=663)	644	97	19	3	0	0	0	0
<b>Severely hurt someone on purpose in any other way</b>								
Perpetrator only (n=500)	441	88	8	2	46	9	5	1
Victim only (n=867)	856	99	11	1	0	0	0	0
Perpetrator and victim (n=2,351)	1,827	78	52	2	451	19	21	1
Neither perpetrator/victim (n=663)	655	99	8	1	0	0	0	0

\*Missing relevant information, n=27.

In addition, this analysis demonstrates that clients who reported no violent behavior at baseline also reported no such behavior at follow-up. Within categories of violent behaviors, the percent of respondents reporting no violent behavior at intake who did report such incidents at follow-up ranged from about 2 percent for robbery to 6 percent for “beat someone up.” The

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proportion of clients reporting *none* of the four behaviors at baseline reporting one or more incidents of *any* of the four behaviors at follow-up was less than 7 percent. Overall, almost a third (32%) of the clients reported committing at least one of the four offenses in the 12 months before this treatment episode, while only 12 percent did so for the follow-up period.

## **2. SIMILARITIES AND DIFFERENCES IN VIOLENCE BY MODALITY**

Pre-treatment and post-treatment violent behaviors were analyzed by gender within five substance abuse treatment modalities, including outpatient methadone, non-methadone outpatient, short-term residential, long-term residential, and correctional. The Wilcoxon signed rank test was used to statistically test the pre-/post-differences for each modality by gender by type of violence. The results of the test for significant differences between pre- and post-treatment violent acts is shown by treatment modality and gender in Exhibit III-3. Using the Wilcoxon test, all but two of the entries in this exhibit had statistically significant differences between pre- and post-test values for the four categories of violence considered, and all mean changes were positive. This indicates that the reductions in reports of violence post-treatment for 34 of the cells in Exhibit III-3 were not due to chance. The tests that did not show statistically significant improvements were for women in long-term residential treatment on number of robberies committed, and for women in methadone treatment for the number of times they “severely hurt someone in another way.” Both cells had relatively few individuals committing the violent behaviors during the pre-treatment period; hence, there was relatively little opportunity for change to occur after treatment.

## **3. OUTCOME ANALYSIS FOR VIOLENT ACTS BEFORE TREATMENT**

A notable feature of the preceding analyses is the large proportion of clients who reported no incidents of violent behavior during the 12 months before treatment or the 12 months before the follow-up interview. Such a large number of zero responses diminishes the impact of the changes in the much smaller proportion of individuals who reported violent activity. To look more closely at changes in violence in the smaller group of respondents, the outcome analysis was restricted to clients who reported at least one incident of violent behavior at baseline, thereby demonstrating the pattern of violent acts pre- and post-treatment among clients who had shown violent behavior and had an opportunity to change this behavior after substance abuse treatment.

### **3.1 All Perpetrators**

The distribution of the three categories of change scores (no change, increased activity, decreased activity) for each of the four behaviors is shown in Exhibit III-4. A large number of

**EXHIBIT III-3**  
**CHANGE IN NUMBER OF COMMITTED VIOLENT ACTS PRE-TREATMENT AND POST-TREATMENT BY**  
**TREATMENT MODALITY AND GENDER**

Modality	Gender	N	Type of Violence											
			Robbery		Attacked or Threatened with a Weapon		Beat Up Someone		Severely Hurt Someone in Any Other Way					
			Non-zero N	Mean d	Non-zero N	Mean d	Non-zero N	Mean d	Non-zero N	Mean d				
			omitted		omitted		omitted		omitted					
Outpatient Methadone	female	136	omitted		omitted		32	0.088*	15	0.096 <sup>ns</sup>				
	male	285	30	0.105**	50	0.133**	115	0.247**	53	0.137**				
Non-methadone Outpatient	female	442	35	0.084**	111	0.185**	166	0.278**	96	0.172**				
	male	1,115	137	0.063**	258	0.136**	544	0.288**	264	0.167**				
Short-term Residential	female	276	omitted		59	0.100**	110	0.788**	64	0.126**				
	male	593	81	0.106**	165	0.211**	362	0.402**	164	0.231**				
Long-term Residential	female	424	25	0.035 <sup>ns</sup>	133	0.201**	202	0.357**	85	0.170**				
	male	413	125	0.266**	194	0.392**	339	0.675**	163	0.337**				
Correctional	female	92	omitted		25	0.239**	49	0.413**	16	0.482**				
	male	617	94	0.089**	185	0.187**	376	0.326**	153	0.145**				

Non-zero N=Number of individuals with non-zero pre-/post-treatment differences.

\*=p≤.05

\*\*=p≤.01

clients who had committed each behavior in the 12 months before treatment reported a reduction in the behavior over the 12-month post-treatment period. Percent reductions ranged from 87 percent for “beat someone up” to 93 percent for “severely hurt someone on purpose in any other way.” By contrast, the percentage of clients who showed more violent behavior after treatment than they did before ranged from 2 to 5 percent, depending on the type of violent behavior. The percentage reporting no change ranged from 4 to 9 percent.

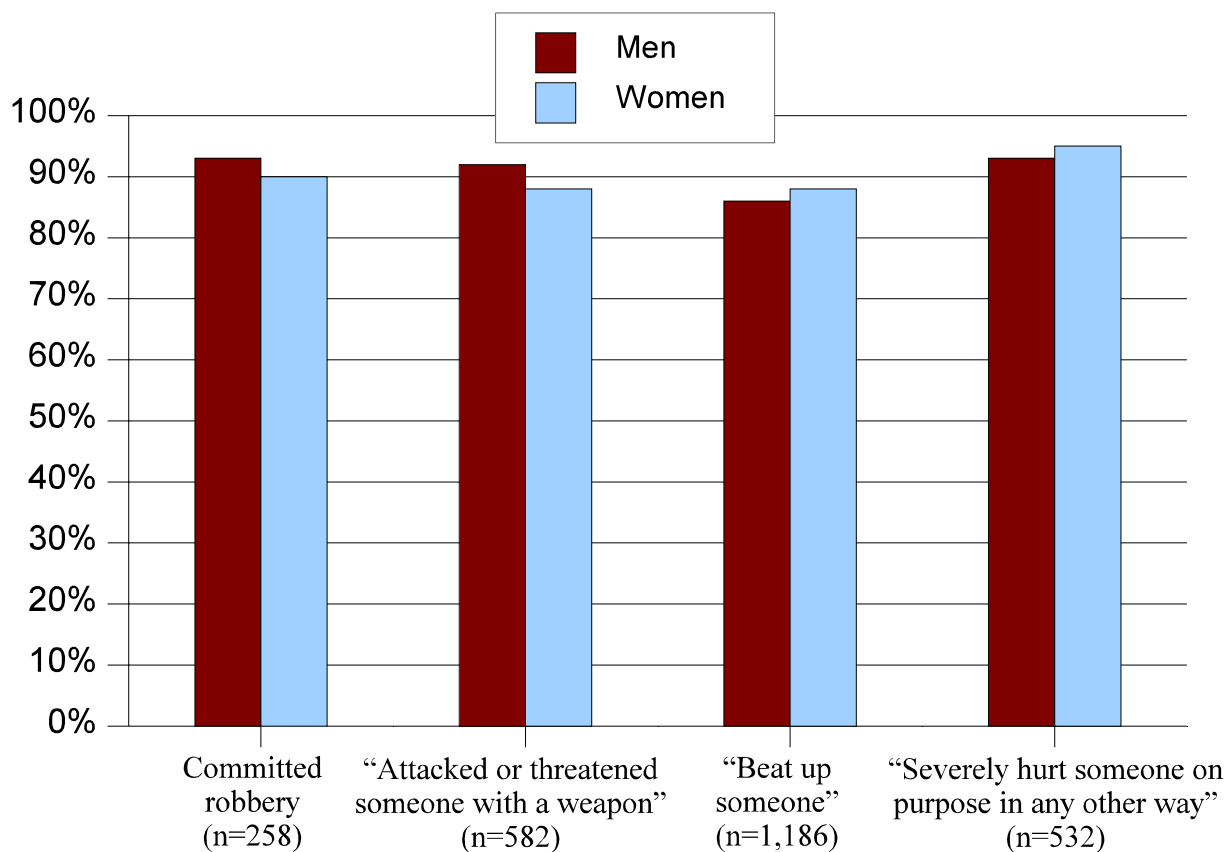
<b>EXHIBIT III-4</b>			
<b>DISTRIBUTION OF CHANGE SCORES FOR FOUR TYPES OF VIOLENT ACTS</b>			
<b>PRE-/POST-CHANGE IN REPORTED VIOLENT ACTS BY CLIENTS COMMITTING THIS ACT</b>			
<b>DURING THE 12 MONTHS BEFORE TREATMENT</b>			
<b>Violent Acts</b>	<b>No Change<sup>1</sup></b>	<b>Increased Activity</b>	<b>Decreased Activity</b>
Robbery (N=258)	4%	5%	91%
Attacked or threatened someone with a weapon (N=582)	6%	3%	91%
“Beat up” someone (N=1,186)	9%	4%	87%
Severely hurt someone on purpose in any other way (N=532)	5%	2%	93%

<sup>1</sup> Because frequencies were grouped at the time of the interview, “no change” means that the individual did not change category rather than no change in the number of violent incidents. For example, a client who reduced the frequency of a behavior from 20 times to 6 times would still register a “no change” outcome because he or she would still be assigned to the same category.

### **3.2 Breakout by Gender**

Exhibit III-5 shows the percentage of clients reporting reductions in violent behaviors broken out by gender. There were almost no differences except for a slightly larger number of women reporting that they “severely hurt someone on purpose in any other way.” For this category, 98 percent of women reported reductions compared to 92 percent of men. None of the differences were statistically significant despite adequate power to detect any clinically significant effects.

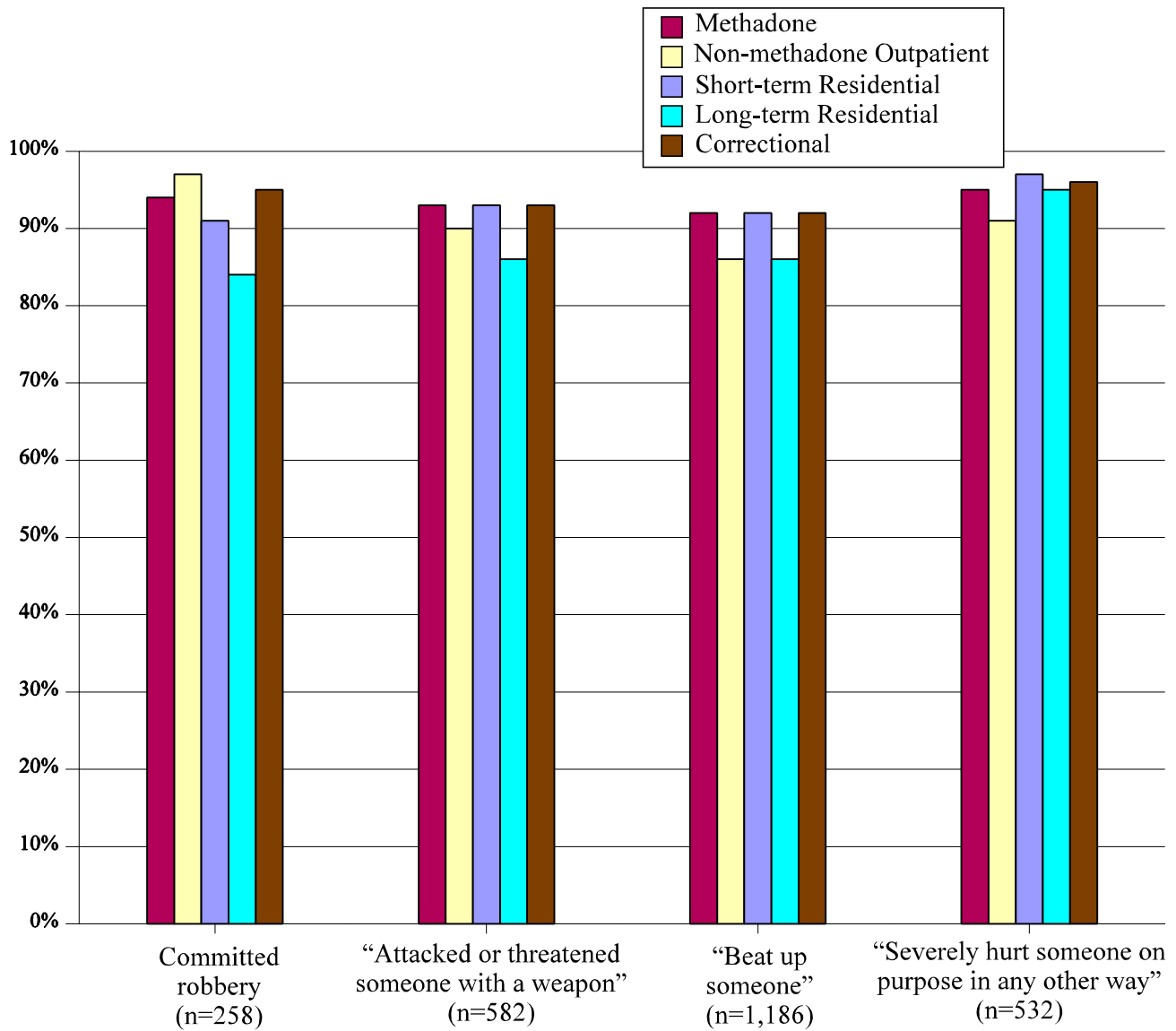
**EXHIBIT III-5**  
**PERCENT OF CLIENTS REPORTING REDUCED VIOLENT ACTIVITY AT POST-TEST**  
**BY TYPE OF ACT AND GENDER**



### 3.3 Breakout by Treatment Modality

The percentage of clients reporting reductions by treatment modality are presented in Exhibit III-6. There were very high percent reductions for all types of violence in all five modalities. Differences among modalities were generally small, and no single modality showed consistently greater reductions across all four behaviors when compared to the others. Long-term residential treatment clients reported the smallest percent reductions for two behaviors (robberies and number of times that they attacked or threatened someone with a weapon) and were tied with non-methadone outpatient clients on another (beatings). The largest differences occurred between the outpatient and long-term residential modalities on number of robberies (97% versus 83%, respectively). Chi-square tests of association found significant differences for beatings only ( $p < .05$ ). This primarily reflects the larger N for that item.

**EXHIBIT III-6**  
**PERCENT OF CLIENTS REPORTING REDUCED VIOLENT ACTIVITY AT POST-TEST**  
**BY TYPE OF ACT AND TREATMENT**



## **IV. SUMMARY AND RECOMMENDATIONS**

## IV. SUMMARY AND RECOMMENDATIONS

In this final chapter, the main findings from the analyses are summarized and the implications of these findings for future substance abuse treatment research, policy, and practice are discussed. The summary of findings affirms the original hypotheses and, in most cases, the predicted patterns of result are confirmed. The subsequent discussion of the analytic implications for research, policy and practice provides guidance for future efforts.

### 1. SUMMARY

The following paragraphs summarize the analytic findings and are organized by the initial analytic hypotheses and questions.

#### 1.1 History of Violent Behaviors Among Substance Abuse Treatment Clients

The first analysis question was: What proportion of NTIES clients have a history of violent behavior? What proportion have a history of victimization? How does this vary by gender? A summary of the findings for this question include:

- Most clients in the analysis cohort (65%) reported committing at least one violent act during their lifetime before their NTIES treatment episode, and still more (74%) reported being victimized.
- Most perpetrators of violence were also victims. A minority, about 1 of 10 clients, were exclusively perpetrators (i.e., not victims as well).
- More men than women reported committing violence before treatment (71% and 50%, respectively), but the proportions of men and women reporting victimization were virtually the same (74% and 73%, respectively). About twice as many women, however, were exclusively victims (31% to 15%).
- More men than women reported being perpetrators across all five modalities, and this relationship held regardless of victim status (perpetrators who were and were not also victims).
- Women in methadone treatment were the group with the fewest individuals reporting committing a violent act before this treatment episode (31%), while women in long-term residential treatment were the group with the most such reports (57%). There was notably less variation across modality among men, where only six percentage points separated the lowest (methadone, 69%) and highest (long-term residential treatment, 75%).

Clients in correctional SDUs were no more or less likely to report prior violence or victimization than clients in other modalities.

## **1.2 Impact of Substance Abuse Treatment on Violent Behaviors**

The second analytic question was: Is participation in substance abuse treatment associated with reduced violent behavior? A summary of the findings relating to this question are summarized below:

- Among clients who reported violent behavior during the year before treatment, the great majority (up to 93%, depending on the type of behavior) reported decreases in the frequency of these behaviors after treatment.
- Among clients who did not report violent behavior during the year before treatment, very few (up to 6%, depending on the type of behavior) reported any incidents of those behaviors at follow-up. Moreover, the percentage of clients reporting none of the four violent behaviors (robbery, attack/threaten with a weapon, “beat someone up,” and severely harm someone in other ways) at baseline who reported one or more incidents of any of the four behaviors at follow-up was less than 7 percent.
- In all, almost a third (32%) of the clients reported committing at least one of the four violence behaviors at least once in the 12 months before this treatment episode, while only 12 percent did so for the follow-up period.

Taken together, the data show large reductions in violence among those clients actively violent during the pre-treatment period, with virtually no increase in violence among clients not actively violent during that same period. The results strongly suggest that substance abuse treatment is effective in reducing violent behavior.

## **1.3 Effects of Gender, Modality, and Perpetrator/Victim Status**

The third analytic question was: How do effects vary by gender, treatment modality, and whether the client was a victim of violence in addition to being a perpetrator? A summary of the findings related to this question include the following.

For the full analysis cohort, significant decreases in reported violent behavior were observed in all but 2 of the 36 modality-by-gender categories with five or more individuals who reported the behavior during the pre-treatment period. The observed decreases in violent behaviors from the pre-treatment to post-treatment period were consistent in direction and similar in magnitude across both genders, all treatment modalities and victim status. Modality differences were generally small, and no modality showed consistently greater reductions across all four behaviors.

## **2. IMPLICATIONS FOR RESEARCH, POLICY AND PRACTICE**

The present analyses suggest that the number of incidents of violence decreases significantly from before to after substance abuse treatment for both men and women and in all treatment modalities. The decreases are most dramatic for acts involving actual or threatened physical violence toward another person, although smaller decreases are seen for robbery, an act involving violation of property. In this section, we discuss the implications of this analysis for further research, policy and practice.

### **2.1 Implications for Further Research**

Because this was a secondary analysis, it was limited by the variables defined in the original study design. All violence by the clients, whether drug-related or not, was included in each violence category. Only specific violent acts were measured at pre-treatment. One category combined threatening behavior with more serious assaultive behavior. Furthermore, pre-treatment measures were limited to one very broad reference period (prior 12 months), which likely lumped clients who were actively violent at the time of admission with those who had not behaved violently for some months. Moreover, as noted previously, an uncontrolled observational study puts the burden upon the researcher to rule out alternative explanations to treatment.

In addition, we were not able to look at how treatment impacted on subsequent violence—not only what services effect violence reduction, but what changes in the client life result in a reduction in violent behavior. The impact of substance abuse treatment on violence reduction probably involves three interrelated changes in the client: abstinence (or at least a reduction in use) of psychoactive substances, less involvement in the drug subculture and the adoption of a more productive and ethical lifestyle. The first two changes refer to the impact substance abuse treatment has on the use of alcohol and other drugs. The third stems from treatment programs that treat the whole client, not just the client's substance abuse problem.

The present analysis did not explore the relationship of substance use and violence outcomes. Although NTIES asked detailed questions about substance use, it did not identify a primary drug of abuse. Instead, it asked the respondent what drug or drug combination made them come into treatment at that time. Although NTIES did not clearly identify the primary drug of abuse, it can be used to examine aspects of drug usage patterns and post-treatment violence reduction.

The proportion of the observed reduction in violence that can be accounted by these factors needs to be examined to better understand the process of violence reduction. For further research, we would recommend:

- A prospective study that uses a rigorous, comparative design; asks more detailed questions about type, frequency, severity, and drug-relatedness of violent behavior; and includes questions about sexual and emotional violence. In addition to addressing the gap discussed above, it would also allow researchers to distinguish the various influences on violent behavior, such as pharmacological aspects of drug use, drug-using lifestyle and individual predisposing influences.
- Further inquiry into what distinguishes those who reduced their violent behavior from those who continued at the same rate or higher. For example, how much of the distinction is predicted by pre-treatment individual characteristics, characteristics of the treatment experience (e.g., services received, length of stay and treatment completion status), post-treatment substance use, etc.? This question could be investigated to varying degrees within the NTIES data, other existing data sets, in a prospective study.

## **2.2 Implications for Substance Abuse Treatment Policy**

It is well documented that crime constitutes a major, if not the major, cost to society of untreated drug abuse (Harwood et al., 1998; Koenig et al., 1999). Although the results of the present analysis are suggestive and need further confirmation, the finding that treatment may dramatically reduce violent crimes among substance abusers—including armed robbery and assault—has implications for the use of treatment as a crime-reduction tool. Many substance abusers are not physically violent—the results of our analysis support this. This suggests that those individuals who are incarcerated for acts of violence and clearly have a substance abuse problem should be given priority for substance abuse treatment while incarcerated.

## **2.3 Implications for Substance Abuse Treatment Practice**

Decision makers in all substance abuse treatment practice areas and in criminal justice diversion and other court programs need to be made aware of the effectiveness of treatment programs in reducing violence. Where appropriate, substance abuse treatment can be used alone, in conjunction with sanctions, or as an alternative to criminal penalties or sanctions. A history of violent offenses should not be used as automatic exclusionary criterion for diversion programs. Concern for public safety should not be ignored, but the effectiveness of substance abuse treatment in reducing violence suggests that it is a tool that should be used as often as possible without compromising public safety.

For the perpetrators of domestic violence, this analysis suggests that substance abuse treatment may be an effective treatment for this problem. As stated previously, other research (O'Farrell et al., 1999) found that a 2-year decrease in domestic violence post-treatment in a study of 88 male alcoholics was associated with decreased frequency of post-treatment drinking and reduced incidence of domestic violence.

Many of the NTIES SDUs include anger management, conflict resolution and other techniques that would tend to reduce violent behavior. While this analysis did not address the relationship of particular treatment components or services to violence outcomes, the apparent success of treatment in reducing violence suggests that augmentations that target violent behavior may be cost-effective investments by treatment practitioners. For clients with a history of violence, these services may perform a vital function in the treatment program.

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**APPENDIX:**  
**DESCRIPTION OF THE NATIONAL TREATMENT IMPROVEMENT  
EVALUATION STUDY AND CENTER FOR SUBSTANCE ABUSE  
TREATMENT DEMONSTRATIONS (1990-1992)**

**APPENDIX:**  
**DESCRIPTION OF THE NATIONAL TREATMENT IMPROVEMENT  
EVALUATION STUDY AND CENTER FOR SUBSTANCE ABUSE  
TREATMENT DEMONSTRATIONS (1990-1992)**

The National Treatment Improvement Evaluation Study (NTIES) was a national evaluation of the effectiveness of substance abuse treatment services delivered in comprehensive treatment demonstration programs supported by the Center for Substance Abuse Treatment (CSAT). The NTIES project collected longitudinal data between FY 1992 and FY 1995 on a purposive sample of clients in treatment programs receiving demonstration grant funding from CSAT. Client-level data were obtained at treatment intake, at treatment exit, and 12 months after treatment exit. Service delivery unit (SDU) administrative and clinician (SDU staff) data were obtained at two time points one year apart.

**1. THE NTIES DESIGN**

The NTIES study design had two levels—an administrative or services component and a clinical treatment outcomes component.

**1.1 The Administrative/Services Component**

This study component was designed to assess how CSAT demonstration funds were used, what improvements in services were implemented at the program level, and what kind and how many programs and clients were affected by the demonstration awards. Four data collection instruments were used to gather administrative/services data: the NTIES Baseline Administration Report (NBAR), the NTIES Continuing Administrative Report (NCAR), the NTIES Exit Log, and the NTIES Clinician Form (NCF).

The unit of analysis for the administrative component was the SDU, defined by CSAT as a single site offering a single level of care. The classification of *level of care* is based on three parameters: (1) facility type (e.g., hospital, etc.); (2) intensity of care (e.g., 24-hour, etc.); and (3) type of service (e.g., outpatient, etc.). An SDU could be a stand-alone treatment provider or it could be one component of a multitiered treatment organization. For example, a large county mental health agency may be the *organization* within which the SDU is located. The organization may have multiple substance abuse treatment components, such as a county hospital and a county (ambulatory) mental health center. The county hospital may have multiple SDUs, such as an inpatient detoxification service, an outpatient counseling service, and a hospital satellite center providing transitional care. In summary, the SDU provided NTIES evaluators with a stable, uniform level of comparison for examining service delivery issues.

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A range of key clinician-specific data elements (within the administrative component) were assessed using the NCF. The NCF items were an important adjunct to the facility (SDU)-level instruments; these items assessed clinician training, experience, client exposure, and service provision, and were completed by all counseling and clinical (medical and therapeutic) staff at the individual SDUs.

## 1.2 Clinical Treatment Outcomes Component

The unit of analysis for the clinical treatment outcomes component was individual client data. NTIES measured the clinical outcomes of treatment primarily through a “before/after” or “pre- to post-treatment” design. This method compares behaviors or other individual characteristics in the same participants, measured in similar ways, before and after an intervention.

Information about clients’ lives for the *before* period was obtained from the NTIES Research Intake Questionnaire (NRIQ), which was administered sometime during the clients’ first three weeks of treatment. The specific areas assessed included:

- Drug and alcohol use
- Employment
- Criminal justice involvement and criminal behaviors
- Living arrangements
- Mental and physical health.

Information about clients’ lives for the *after* period were obtained from the NTIES Post-discharge Assessment Questionnaire (NPAQ), with the same areas assessed at roughly 12 months post-treatment. Other client data sources included a treatment discharge interview (NTIES Treatment Experience Questionnaire, NTEQ), abstracted client records, urine drug screens collected at the time of the follow-up interview, and arrest reports from State databases.

## 1.3 The Outcome Analysis Sample

Between August 1993 and October 1994, research staff successfully enrolled 6,593 clients at 71 SDUs to participate in three waves of an in-person, computer-assisted data collection protocol. These SDUs were chosen from the universe of treatment units receiving demonstration grant funding from CSAT. Some of the selected facilities were wholly supported by CSAT awards, while others received only indirect support or none.

Clients were interviewed at admission to treatment, when they left treatment, and at 12 months after the end of treatment. Less than 10 percent of the recruited clients refused or avoided participation, and more than 83 percent of the recruited individuals (5,388 clients) completed a follow-up interview. Additional sample exclusions included:

- Missing or undetermined treatment exit date
- Inappropriate length of follow-up interval (less than 5 or more than 16 months)
- Clients incarcerated for most or all of the follow-up period.

The additional sample exclusions resulted in a final outcome analysis sample of 4,411 individuals.

## **2. TREATMENT DEMONSTRATION PROGRAMS**

CSAT initiated three major demonstration programs and made 157 multiyear treatment enhancement awards across 47 States and several territories from 1990 through 1992. One objective common to all demonstrations was CSAT's emphasis on the provision of "comprehensive treatment" services to targeted client populations. The recipients of these awards focused special attention on the substance abuse treatment service needs of minority and special populations located primarily within large metropolitan areas. The demonstration programs are briefly described below.

### **2.1 Target Cities**

Under this demonstration, nine metropolitan areas were selected to receive awards, half of which were included in the NTIES purposive sample. The following treatment improvement activities were explicitly provided for in the awards:

- Establishment of a Central Intake Unit (CIU) with automated client tracking and referral systems in place
- Provision of comprehensive services, including vocational, educational, biological, psychological, informational, and lifestyle components
- Improved interagency coordination (e.g., mental health, criminal justice, and human service agencies)
- Services for special populations—adolescents, pregnant and postpartum women, racial and ethnic minorities, and public housing residents.

## **2.2 Critical Populations**

Under this demonstration program, awardees were required to implement “model enhancements” to existing treatment services for one or more of the following critical populations: racial and ethnic minorities, residents of public housing, and/or adolescents. Special emphasis was given to services provided to the homeless, the dually diagnosed, or persons living in rural areas. A total of 130 grants were awarded, covering services such as vocational support/counseling, housing assistance, integrated mental health and/or medical services, coordinated social services, culturally directed services, and others.

## **2.3 Incarcerated and Non-incarcerated Criminal Justice Populations**

Under this demonstration program, funds were directed toward improving the standard of comprehensive treatment services for criminally involved clients in correctional and other settings. Some program emphasis was placed on ethnic and/or racial minorities. Nine correctional setting demonstrations were funded: five in prisons, three in local jails, and one across a network of juvenile detention facilities. All projects included a screening component to identify substance-abusing inmates, a variety of targeted treatment interventions (e.g., therapeutic communities, intensive day treatment programs), and a substantial aftercare component.

A total of 10 non-incarcerated projects were funded. Five programs targeted interventions at clients in diversionary programs, three focused services on probationers or parolees, and two targeted both populations. Almost all of the funded demonstration projects included the following components:

- Basic eligibility determination, followed by systematic screening and assessment
- Referral to treatment
- Graduated sanctions and incentives while in treatment
- Intensive supervision in treatment
- Community-based aftercare with supervision and service coordination.

In total, 19 criminal justice projects were funded as part of the CSAT 1990-1992 demonstrations, and, as indicated in the next section, these projects were purposively over-sampled in order to obtain a more robust evaluation of this program.

### 3. DESCRIPTION OF SDUs AND CLIENTS BY TREATMENT MODALITY AND PROGRAM TYPE

The 71 SDUs contributing clients to the outcome analysis sample are characterized by modality and (demonstration) program type in Exhibit A-1 below. Among the 698 SDUs in the NTIES universe: 52 percent (n=365) were Target Cities programs, 39 percent (n=274) were Critical Populations programs, and 9 percent (n=59) were Criminal Justice programs.

In terms of the SDUs sampled for the NTIES outcome analysis, 44 percent were Target Cities programs, 38 percent were Critical Populations programs, and 23 percent were Criminal Justice programs. Criminal Justice SDUs were purposely over-sampled as part of the NTIES evaluation design (CSAT, 1997). Nearly half of the sampled SDUs were non-methadone outpatient programs, and about one-quarter were long-term residential programs.

As shown in Exhibit A-2, 59 percent of all NTIES clients were sampled from Target Cities SDUs. Slightly more than 21 percent of all NTIES clients were sampled from Critical Populations SDUs, and 20 percent were sampled from Criminal Justice SDUs. Outpatient (non-methadone) SDUs treated more than one-third (35%) of the clients in the outcomes analysis sample, and almost 80 percent of these were sampled from Target Cities programs.

<b>EXHIBIT A-1</b>						
<b>SDUs IN THE OUTCOME ANALYSIS SAMPLE</b>						
<b>Program Title Number of SDUs (percent of NTIES Universe)*</b>	<b>NTIES Sample</b>	<b>Methadone</b>	<b>Outpatient</b>	<b>Long-term Residential</b>	<b>Short-term Residential</b>	<b>Correctional</b>
Target Cities n=365 (52%)	31 (44%)	6	15	6	4	0
Critical Populations n=274 (39%)	27 (38%)	1	13	10	3	0
Criminal Justice n=59 (9%)	13 (23%)	0	5	0	0	8
Totals N=698 (100%)	71 (100%)	7	33	16	7	8

\* The original NTIES universe of SDUs included a program type called *Specialized Services*. Because clients for the outcome analysis sample were not drawn from these SDUs (n=94), they are excluded from the exhibit.

<b>EXHIBIT A-2</b>					
<b>DISTRIBUTION OF CLIENTS IN THE OUTCOMES ANALYSIS SAMPLE</b>					
<b>Program Title Number of Clients (percent of Analysis Sample)</b>	<b>Methodone</b>	<b>Outpatient</b>	<b>Long-term Residential</b>	<b>Short-term Residential</b>	<b>Correctional</b>
Target Cities n=2,600 (59%)	377 (89%)	1,214 (78%)	504 (60%)	505 (58%)	0
Critical Populations n=931 (21%)	45 (11%)	220 (14%)	298 (35%)	368 (42%)	0
Criminal Justice n=880 (20%)	0	132 (8%)	39 (5%)	0	709 (100%)
Totals N=4,411 (100%)	422	1,566	841	873	709

Readers who are interested in more detailed information about the NTIES project are invited to visit the NEDS Web site at <http://neds.calib.com>. The NEDS Web site provides the full-length version of the NTIES Final Report (1997), as well as copies of all data collection instruments employed in NTIES.

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