

# NEDS

NATIONAL EVALUATION DATA SERVICES

**THE IMPACT OF PRIOR PHYSICAL AND SEXUAL  
VICTIMIZATION ON SUBSTANCE ABUSE  
TREATMENT OUTCOMES**

**February 2001**

Battelle Centers for  
Public Health Research  
and Evaluation



NATIONAL EVALUATION DATA SERVICES

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TREATMENT OUTCOMES**

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# TABLE OF CONTENTS

## FOREWORD

## ACKNOWLEDGMENTS

## EXECUTIVE SUMMARY ..... i

## I. INTRODUCTION ..... 1

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

#### 1.1 Relationship Between Substance Abuse and Victimization ..... 2

#### 1.2 Gender Differences ..... 2

#### 1.3 Specialized Treatment Needs ..... 3

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

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

## II. METHODS ..... 6

### 1. SAMPLE FOR ANALYSIS ..... 6

### 2. ANALYTIC METHODS ..... 6

#### 2.1 Description of the Variables ..... 8

#### 2.2 Analysis of Variables Across Treatment Modalities ..... 10

#### 2.3 Analytic Procedures ..... 10

### 3. LIMITATIONS OF THE ANALYSIS ..... 12

#### 3.1 Measurement Issues Associated with Secondary Data Sources ..... 12

#### 3.2 Selection Bias ..... 12

#### 3.3 Chance Effects ..... 13

## III. RESULTS ..... 14

### 1. PREVALENCE OF PHYSICAL AND SEXUAL VICTIMIZATION ..... 14

### 2. INFLUENCE OF VICTIMIZATION ON TREATMENT OUTCOMES ..... 17

#### 2.1 Findings from the Regression Analyses ..... 17

#### 2.2 Effect Sizes ..... 20

**IV. SUMMARY AND RECOMMENDATIONS ..... 23**

1. SUMMARY ..... 23

2. IMPLICATIONS FOR RESEARCH, POLICY, AND PRACTICE ..... 24

    2.1 Implications for Further Research ..... 24

    2.2 Implications for Substance Abuse Treatment Policy ..... 25

    2.3 Implications for Substance Abuse Treatment Practice ..... 26

**REFERENCES ..... 27**

**APPENDIX A: NTIES STUDY**

**APPENDIX B: DEFINITION OF VARIABLES**

**APPENDIX C: RESULTS OF REGRESSION ANALYSIS**

## 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 prevalence of physical and sexual abuse experienced by treatment clients and the association of prior victimization and substance abuse treatment outcomes. Our analyses of the National Treatment Improvement Evaluation Study (NTIES) data indicated that there is a very high prevalence of prior physical and/or sexual abuse and that these abuse histories can be detrimental to the substance abuse treatment outcomes.

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

Sharon Bishop  
Project Director  
National Evaluation Data Services

## **ACKNOWLEDGMENTS**

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Caliber Associates is the prime contractor for NEDS in partnership with Battelle, The Lewin Group, and the National Opinion Research Center (NORC). Many individuals within the Caliber/NEDS team contributed significantly to this report. Mary Odell Butler, Ph.D., Battelle, contributed to the revision of the earlier draft report and Irene Rich, Ph.D., Caliber, provided editorial support. Thanks also go to Caliber's Project Services for editing and formatting.

**EXECUTIVE SUMMARY**

## EXECUTIVE SUMMARY

Many victims of physical and/or sexual abuse often are substance abusers and the ability of substance abuse treatment to effectively address both the problems of substance dependency and the underlying residue of victimization needs explicit exploration. The analyses reported in this technical report provides a first step in understanding the relationships among victimization and substance abuse and the influence of prior physical and/or sexual abuse on substance abuse treatment outcomes.

This report is the second in a series of three technical reports on violence and substance abuse treatment that were based on additional analyses of NTIES. The first report, *The Effectiveness of Substance Abuse Treatment in Reducing Violent Behavior*, focused on the perpetrators of violence. The third report, entitled *Physically and Sexually Abused Women in Substance Abuse Treatment: Treatment Services and Outcomes*, focuses on characteristics, services, and treatment outcomes for women over 18 who reported sexual and/or physical abuse prior to entering treatment.

### I. INTRODUCTION

This technical report presents a secondary analysis of the National Treatment Improvement Evaluation Study (NTIES) data to assess the effects of pre-treatment physical and sexual violence on substance abuse treatment outcomes. The relationship between treatment outcomes and past physical and sexual abuse are analyzed for males and females in five treatment modalities: methadone, non-methadone outpatient treatment, short-term residential treatment, long-term residential treatment, and treatment facilities located in correctional institutions.

### II. METHODS

The NTIES survey was a national evaluation of the impact of substance abuse treatment on a total of 5,388 clients purposively sampled from CSAT-funded substance abuse treatment services. The cohort for this analysis consisted of 4,411 individuals for whom pre-treatment and post-treatment information was available including type and frequency of violent behavior. To assess the history of abuse, the type and reported frequency of victimization due to physical and sexual abuse were tabulated by gender across the entire analysis group. Reported physical and/or sexual victimization within treatment modality was tabulated for males and females.

To address the influence of prior victimization on treatment outcomes, a separate mixed-model regression equation was developed for each of six outcome variables (post-treatment severity scores) within cells defined by gender and modality. The outcome measures included six severity scales: one each for drug use, alcohol use, medical status, psychiatric status, employment status, and criminal behaviors. The models controlled for pre-treatment severity on the same outcome measures and previous status as a perpetrator of violence.

### **3. RESULTS**

Victimization by physical and/or sexual violence was a frequent event in the life histories of persons entering substance abuse treatment that was part of NTIES. Lifetime physical and/or sexual abuse was reported three-fourths (73%) of the respondents in the NTIES outcome sample. Physical abuse was the most prevalent; the majority of individuals reporting sexual abuse had also experienced physical abuse. Seven in 10 individuals reported physical abuse and almost one in five (17%) reported sexual abuse. Over four-fifths of those reporting sexual abuse reported both types of violence (14% of total sample). Women were much more likely to report being victims of sexual abuse than were men (42% versus 6%).

Of the 60 estimated mixed-model regression equations, the impact of prior victimization on treatment outcomes was significant in 17 scenarios. All of these estimated effects were in the expected direction, namely, victimization was associated with poorer outcomes (higher severity scores) at follow-up. Criminal outcomes were the ones most affected by prior victimization, with a significant effect on this outcome appearing in four of five treatment modalities and across both genders. There is a pronounced effect of sexual victimization on both alcohol and drug use outcomes for women in long-term treatment. Physical violence appeared to affect drug use outcomes for women in methadone clinics and for men in outpatient settings.

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

The present analysis indicates that clients who were victims of physical and/or sexual violence may have less success in substance abuse treatment than clients who were not victimized, controlling for pre-treatment problem severity and whether the client also was a violence perpetrator. Though the sizes of the observed effects were modest, the findings suggest that prior victimization reduces the chances of successful treatment outcomes.

Research is needed on the role of the effects of victimization, such as Post-traumatic Stress Disorder (PTSD), as a mediator between prior victimization and successful treatment

outcomes. Because the NTIES data set did not contain clinical diagnoses, the examination of PTSD and other victim-related traumas as a factor in reducing treatment success was not possible. Also, there is a need for prospective studies to systematically test the effectiveness of substance abuse treatment enhancements with different types of violence victims.

The present analysis provides research support for policy makers and treatment providers to identify and test specialized service components for abused clients, so that these clients can overcome the effects of prior abuse and achieve sustained recoveries. Because victimization appears to be widespread among substance abuse treatment clients, policies to develop and guide treatment services need to take account of this vital mental health need.

The results of the present analysis strongly suggest that men and women have different needs for mental health services to assist in the management of victimization-related disorders. Sexual abuse predominated among female substance abuse treatment clients while males reported mostly physical abuse. Women-only treatment, or women-only treatment components within a larger mixed-gender treatment service, may provide the best opportunity for successful treatment of trauma due to sexual abuse. These results suggest that special attention is needed to assist sexually abused women in long-term residential treatment so as to improve treatment outcomes. Gender-specific services also may improve the treatment of sexual abuse related-trauma among males. The low prevalence of sexual abuse histories reported by males in the NTIES sample may partially reflect reporting bias among males who were sexually abused. It is likely that all male treatment would benefit from a more accurate measure of the prevalence of male sexual abuse and specific services that address the traumas resulting from sexual and/or physical abuse.

## **I. INTRODUCTION**

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This report is the second in a series of three technical reports on violence and substance abuse treatment that were based on additional analyses of NTIES. The first report, *The Effectiveness of Substance Abuse Treatment in Reducing Violent Behavior*, focused on the perpetrators of violence. This report addresses the impact of violence on the outcomes of substance abuse treatment for men and women of all ages. The third report, entitled *Physically and Sexually Abused Women in Substance Abuse Treatment: Treatment Services and Outcomes*, focuses on characteristics, services, and treatment outcomes for women over 18 who reported sexual and/or physical abuse prior to entering treatment.

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

A relationship between physical and sexual violence and substance abuse treatment outcomes is supported by a substantial literature (Murphy, Stevens, McGrath, Wexler, & Reardon, 1998; Norris & Cubbins, 1992; Stevens & Arbiter, 1995). The following paragraphs present a summary of the literature, including the relationship between substance abuse and victimization, gender differences, and specialized treatment needs.

## **1.1 Relationship Between Substance Abuse and Victimization**

There is a high prevalence of violence among substance abusers, and a reciprocal relationship between substance abuse and violence has been recognized (Hein & Hein, 1998). While high rates of physical assault and sexual abuse among substance abusers are confirmed by numerous studies (Dansky, Byrne, & Brady, 1999; Murphy et al., 1998; Stevens & Arbiter, 1995; Caliber Associates and Battelle, 1998), it also has been shown that exposure to physical or sexual assault is a risk factor that can lead to substance abuse (Dansky et al., 1999). Other studies have demonstrated that the abuse of certain substances, such as alcohol, contributes to aggressive behavior (Muehlberger, 1956), and that violent crimes often involve drinking by the assailant, victim or both (Pernanen, 1991).

The linkage between physical and sexual violence and substance abuse implies that treatment of trauma from victimization may be required for successful substance abuse treatment outcomes to be achieved. Teets (1997) reports that assessing and addressing past sexual assault trauma for recovering women is an important task for treatment programs if treatment is to be successful. Similarly, Wallace (1993) stresses the importance of substance abuse treatment for clients from a culture of violence in which they experience considerable personal trauma. From a clinical standpoint, the resolution of that trauma remains essential for relapse prevention.

## **1.2 Gender Differences**

Both the kind and frequency of abuse experienced and the response of individuals to that abuse have been demonstrated to differ by gender. Women are sexually victimized more often than are men (Breslau, Chilcoat, Kessler, Peterson, and Lucia, 1999). Substance-abusing men and women both experience high rates of physical assault, yet women are more than twice as likely to be physically assaulted by an intimate partner (Dansky et al., 1999). Women are more likely to have suffered abuse as children. Up to 70 percent of drug-abusing women in the United States reported childhood histories of physical and sexual abuse (National Institute on Drug Abuse, 1999; Hodgins, el-Guebaly, & Addington, 1997; Howard & Beckwith, 1996). In part, this may be because more female substance abusers grew up in families with a history of alcohol or drug use (Marsh & Miller, 1985; National Institute on Drug Abuse, 1999).

The greater frequency of sexual violence directed at women should not be taken to imply that sexual assault is confined to women. Men also are sexually assaulted, particularly in prison (Breslau et al., 1999). A study of the general population of the Detroit metropolitan statistical area found that men had a higher lifetime prevalence of exposure to assaultive violence than did

the women who were studied (Breslau et al., 1999). These results have been confirmed by numerous other studies (Breslau, Davis, Andreski, Peterson, & Schultz, 1991; Breslau et al., 1997; Stein, Walker, Hazen, & Forde, 1997; Murphy et al., 1998).

Female gender has been shown to affect both the response to physical and sexual abuse and mental health status upon entering substance abuse treatment. Levels of self-esteem and self-image are lower among female substance abusers than among their male counterparts (National Institute on Drug Abuse, 1999; Blane, 1968; Beckman, 1975; Beckman, 1978; Fidell, 1981; Gossop, 1976; Rosenbaum, 1981; Davis, 1997; Orwin & Goldman, 1995). Female substance abusers experience greater depression and greater anxiety (National Institute on Drug Abuse, 1999; Davis, 1997). These problems are often attributed to the high rates of physical assault and sexual abuse experienced by female substance abusers and the fact that women process victimization differently than do men (Davis, 1997). Bassuk, Melnick, and Browne (1998) noted that: "Women survivors of physical and sexual assault often suffer anxiety, panic disorder, major depression, substance abuse, somatization, and eating disorders as well as combinations of these conditions."

### **1.3 Specialized Treatment Needs**

Trauma resulting from physical and sexual victimization may place those in substance abuse treatment at risk of developing disorders such as antisocial personality disorder (ASPD) or post-traumatic stress disorder (PTSD) (Breslau et al., 1999; Moss & Tarter, 1993; Duncan et al., 1996; Brown & Anderson, 1991; Herman & Harvey, 1997). Once again, this is a special problem for women. Many studies have shown that a higher prevalence of PTSD is found among women with histories of physical and sexual abuse than among men with similar experiences (Breslau et al., 1991; Kessler, Sonnega, Bromet, Hughes, Nelson, and Breslau, 1999; Norris, 1992). Breslau et al. (1999) found that, regardless of the type of traumatic event experienced, the prevalence of PTSD was higher among women than among men. A study conducted with cocaine users in treatment found that, even in the case where men and women had experienced equally high rates of physical assault, women experienced higher rates of post-traumatic stress disorder (Dansky et al., 1999).

The evidence of an association between substance abuse and a history of physical and/or sexual violence has implications for the needs of those who enter treatment. Those who have been assaulted are likely to suffer psychological trauma from the assaults and may require specialized treatment that addresses the PTSD and other manifestations of violence in addition to the treatment received for addiction. One focus of the present analysis is to ascertain whether the

linkage between the negative effects of prior victimization and current substance abuse are successfully addressed by the substance abuse treatment modalities included in the NTIES database.

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

The present analysis was conducted to examine the impact of prior physical and/or sexual victimization on substance abuse treatment outcomes by analyzing the relationships between pre-treatment physical and sexual violence, both separately and jointly, on treatment outcomes. The analysis was designed to address the following questions:

- What proportion of NTIES clients have a history of physical and sexual victimization and how does this vary by gender and modality?
- Does a history of physical and/or sexual victimization negatively influence the outcomes of substance abuse treatment?
- How do the effects of physical and/or sexual victimization vary by gender and treatment modality?

The analyses presented in this report investigated the relationships between pre-treatment physical and sexual abuse and treatment outcomes in 4,411 individuals for whom both pre-treatment and post-treatment data are available in the NTIES database.

NTIES was conducted by the National Opinion Research Center (NORC) for the Center for Substance Abuse Treatment (CSAT) to evaluate the effectiveness of comprehensive treatment services provided by CSAT-sponsored demonstration projects. The NTIES project collected longitudinal data from purposive samples of substance abuse treatment clients drawn from the service delivery units (SDUs).<sup>1</sup> Data on substance use, criminal behaviors, employment status, income, housing, risk behaviors, and other psychosocial measures were collected at intake (pre-treatment), during treatment, and at post-treatment follow-up. Data are available for a total of 4,411 NTIES clients. (For more details on NTIES, see Appendix A.)

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<sup>1</sup> An SDU is defined by CSAT as a single site providing a single level of care (NORC, 1997). The classification of level of care is based on three parameters: (1) facility type (e.g., hospital); (2) intensity of care (e.g., 24-hour); and (3) type of service (e.g., residential) (Caliber Associates, 1999).

### 3. ORGANIZATION OF THE REPORT

This chapter, *Chapter I: Introduction*, provided an overview of prior relevant research and identified 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**

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The purpose of this chapter is to describe the methodology used to analyze the relationship between previous physical and/or sexual abuse among substance abuse treatment clients and the treatment outcomes for these clients. The chapter is divided into three sections. The first section describes the analytic sample. The second section provides a description of the variables and the analysis methods. The chapter concludes with a description of the study limitations.

### **1. SAMPLE FOR ANALYSIS**

To prepare the NTIES sample for the analyses, the original NTIES sample of 5,388 clients was limited 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 who had the following characteristics:

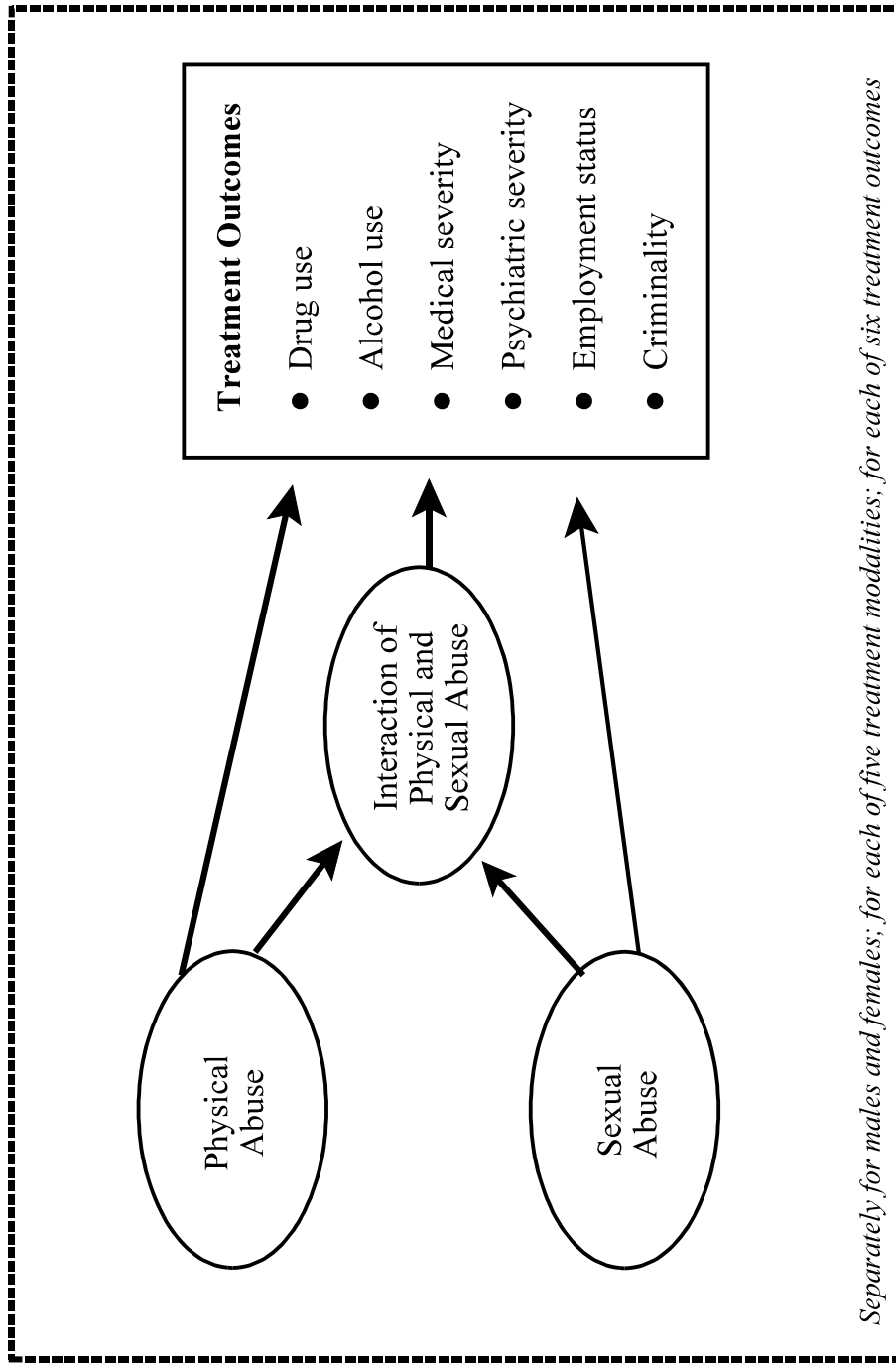
- Gender—69 percent male, 31 percent female
- Age—median 32 years; mean 32.1 years; range 13 to 70 years
- Ethnicity—56 percent African American, 15 percent Hispanic, 26 percent white, 4 percent other.

Once this analytic database was created, the NTIES database was reviewed so as to identify the variables for use in the analysis. The variables and the analytic processes used in the present analysis are described in the following paragraphs.

### **2. ANALYTIC METHODS**

This section describes the variables, including the independent variables, the outcome variables, and the control variables for which analyses were completed. This section also describes the analysis methods used. The conceptual framework for the analytic approach is graphically depicted in Exhibit II-1, following this page.

**EXHIBIT II-1**  
**CONCEPTUAL FRAMEWORK FOR ANALYSES OF VICTIMIZATION AND  
 SUBSTANCE ABUSE TREATMENT OUTCOMES**



*Separately for males and females; for each of five treatment modalities; for each of six treatment outcomes*

## **2.1 Description of the Variables**

Three kinds of variables were used in these analyses: independent variables (physical and sexual abuse), outcome variables (severity indices), and control variables (pre-treatment severity scores and victimization status). The variables are described below and fully defined in Appendix B.

### **Independent Variables**

The exposure of individuals to previous physical and/or sexual victimization was determined in the NTIES baseline (pre-treatment or intake) interview by two separate questions about the number of lifetime assaults for physical and sexual abuse. The specific questions posed by the NTIES interview included:

- “Altogether, how many times have you ever been attacked with a weapon or seriously beaten?”
- “In your lifetime, how many times altogether has anyone ever made you have any type of sex when you didn’t want to by using force or by threatening to harm you or someone close to you? This might have happened to you either as a child or as an adult.”

The NTIES interviewers did not record the specific number of events per individual but instead recorded responses in seven categories:

- Never
- Once
- Two to five times
- Six to 10 times
- Eleven to 20 times
- Twenty-one to 100 times
- More than 100 times.

For purposes of this analysis, these two variables were coded with values from “0” for “never” to “6” for more than 100 instances of victimization.

### **Outcome Variables or Measures**

The outcome variables or measures used in the present analysis were the six severity scales created and employed in the original NTIES analysis. These included one each in six problem areas or “domains”: drug use, alcohol use, medical status, psychiatric status, employment status, and criminal behaviors.

The Addiction Severity Index (ASI) developed by McLellan et al. (1992) was used as a model to create the severity scales. Items were selected in each domain to reflect both behavior and subjective assessments by the respondent. Severity scales were constructed for baseline and follow-up in each of the six domains. In constructing the scales, item responses were transformed so higher values indicated greater severity. Categorical values were assigned to the midpoints of ranges and values were retrieved for items legitimately skipped according to the logic of the NTIES questionnaire skip instructions. The severity score in each domain is the simple mean of these transformed items (which varies from 0 to 1) multiplied by 100. As with the ASI, the NTIES analysts believed the severity scales—made up of multiple, interrelated items—to be more reliable indicators of problems related to each domain than any single item in the domain as well as an efficient way of summarizing results across items (National Opinion Research Center, 1997).

### **Control Variables**

Pre-treatment severity scores and whether or not the client was a perpetrator of violence comprised the control variables and were entered into the regression models as the “controls.” To control for the influence of pre-treatment severity on post-treatment outcomes, pre-treatment severity scores were included in each analysis with a matching post-treatment outcome. For example, the analysis of the effects of victimization on a drug use outcome was controlled by factoring the pre-treatment drug use severity within the regression models.

Perpetrator status, whether the client had been a perpetrator of violence regardless of his or her own victimization, was used to control for the effects of a greater or lesser history of violence within the client’s lifestyle. The analytic design initially included age as a third control variable to control for the tendency of clients to report more lifetime incidents simply by virtue of having lived longer. The examination of the correlation between the victimization scales and age

showed virtually no relationship, however, rendering the use of “age” as a third control variable unnecessary.

## 2.2 Analysis of Variables Across Treatment Modalities

The original NTIES design sampled Service Delivery Units (SDUs), defined as a single site offering a single treatment modality or service, in such a way that the distribution of treatment modalities would approximate the proportion of various types of SDUs within the total population. As in previous re-analyses of the NTIES data, the present analysis examined the five treatment modalities separately to identify relationships among the three independent variables and the outcome measures. This approach was taken because approaches to treatment in different settings were expected to lead to different client outcomes. The present analysis identified, across modalities, differences in demographics, in the pre-treatment type and problem severity of clients served, in the services, and in the intensity of treatment provided. These findings are consistent with previous NTIES re-analyses findings. In addition, the present analysis hypothesized that SDUs would differ in the treatment of clients suffering with PTSD and other manifestations of trauma across modalities and within SDUs.

## 2.3 Analytic Procedures

Based on the analytic design, the analysis questions were addressed, as follows.

- **Question 1:** What proportion of NTIES clients have a history of physical and/or sexual victimization and how does this vary by gender and modality?

To assess the number of clients with a history of abuse, cross-tabulations were conducted using the type and reported frequency of victimization due to physical and/or sexual abuse by gender across the entire analysis group. Reports of physical and/or sexual victimization broken out by treatment modality also were tabulated.

- **Question 2:** Does a history of physical and/or sexual victimization negatively influence the outcomes of substance abuse treatment?
- **Question 3:** How do the effects of physical and/or sexual victimization vary by gender and treatment modality?

To address Question 2 and Question 3, a mixed-model regression was developed for each of the six outcome variables (post-treatment severity scores) in 10 gender-modality groups (males and females in each of the five treatment modalities). The regression model was built in such a way that the size of the effect of physical and sexual victimization on treatment outcomes could be estimated by comparing the independent variable and control variable variances to the variances of the effect of controls, alone.<sup>2</sup> The intercept term (constant) and the two controls (pre-treatment severity on the relevant outcome and perpetrator status) were entered into the equation first, followed by a term for each of the two victimization variables and a third term representing their interaction.<sup>3</sup>

By including the control variables first, the variance in outcomes that was shared by the control and independent variables was “credited” to the control variables. This offered some protection against mistakenly attributing to physical and sexual victimization the effects on treatment outcome of unknown pre-treatment differences among clients. This assumes that pre-treatment differences were adequately captured by the control variables as they were measured in NTIES. High correlations found between pre-treatment and post-treatment severity scores suggests that the pre-treatment scores were reasonable proxies for pre-treatment differences in client characteristics likely to be related to treatment outcomes.<sup>4</sup>

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<sup>2</sup> By forcing entry of the controls, first we were able to estimate an effect size from the differences in variance accounted for between the two models ( $R^2$  controls + independent variables -  $R^2$  controls), that is, an effect size that controlled for the influence of the controls. A multi-level mixed-model regression procedure (SAS PROC MIXED) was used to adjust for clustering within SDUs by modeling SDU as a random effect. This has the effect of adding an additional error term, which correctly adjusts for the underestimation of standard errors because observations are correlated within SDUs.

<sup>3</sup> The possible values for the physical and sexual variables ranged from zero for “never” to 6 for “over 100 times.” The interaction term is the linear product of the two independent variables. Consequently, it can range in value from 0 to 36. No specific interaction effects were predicted; rather, the terms were included to saturate the linear models and maximize the outcome variance that could be accounted for by the independent variables.

<sup>4</sup> The Pearson correlations for pre-treatment and post-treatment severity scores are presented in Appendix C, Exhibit C-1.

### **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 prevalence of victimization and the relationship of victimization and substance abuse treatment outcomes is no different. This section briefly describes the most important potential analytic limitations.

#### **3.1 Measurement Issues Associated with Secondary Data Sources**

While NTIES provides a useful basis for conducting these analyses, the work presented here is subject to the limitations commonly found in analyses based on secondary data sources. The NTIES data were not collected for the purposes of this analysis. Therefore, the analyses that are possible using this data set are constrained by the variables that were part of the original NTIES survey and by the procedures used to collect the data. For example:

- NTIES measures lifetime rather than recent pre-treatment events, so that it is not possible to distinguish childhood from adult abuse
- The severity of victimization events was not considered, but only the number of such events.

The NTIES survey question regarding sexual assault was limited to forced sex. Other forms of sexual abuse were not included. Moreover, because of clinical concerns with re-awakening trauma, interviewers were instructed not to probe on this question.

The NTIES baseline interview was not meant to be a clinical diagnostic instrument. For this reason, it is not possible to distinguish clients who entered treatment with PTSD from clients who did not. This means that a potentially critical mediator of responsiveness to treatment is unavailable to the analysis. Questions about victimization may require a special interview that accounts for the sensitive nature of these issues.

#### **3.2 Selection Bias**

Some of the findings may in fact represent unmeasured selection bias. By including the baseline severity scores and perpetrator status first, outcome variance common to the covariates and independent variables of interest was “credited” to client-level factors. This offered some measure of protection against the misinterpretation of selection bias as effects of victimization,

but only to the extent that pre-treatment differences between clients is captured by the covariates as measured. As noted earlier, we typically found high correlations between baseline and follow-up severity scores, which suggests that the baseline scores were reasonable, albeit imperfect, proxies for pre-treatment differences. Unmeasured covariates, as well as measurement error in those that were measured, could still cause biases of unknown direction and magnitude.

### **3.3 Chance Effects**

This analysis was based upon the analyses of six outcomes in five treatment modalities for two genders. In each of the 60 modality/gender/outcome cells, two main effects and one interaction were tested for significance (180 tests). It therefore should be expected that a portion of the significant results presented here could be due to chance alone. The finding that all significant main effects found by the present analyses were in the hypothesized direction (higher victimization leading to poorer treatment outcomes) mitigates this concern. The likelihood of such a pattern arising by chance is exceedingly small.

### **III. RESULTS**

### **III. RESULTS**

The purpose of this chapter is to present the detailed findings from the secondary analysis of the prevalence among NTIES clients of physical and sexual victimization and the relationships among victimization and substance abuse treatment outcomes. The findings are organized according to the key analytic questions, and include two sections:

- Prevalence of physical and sexual victimization among NTIES clients
- Influence of victimization on substance abuse treatment outcomes.

As discussed in the sections below, there was a significant proportion of males and females who had experienced lifetime abuse among the NTIES clients. Differences occurred in the types of abuse; for example, many more females than males had been sexually abused. And, consistent with the hypotheses that guided these analyses, prior victimization was negatively associated with substance abuse treatment outcomes.

#### **1. PREVALENCE OF PHYSICAL AND SEXUAL VICTIMIZATION**

The prevalence of physical and sexual abuse by gender and reported frequency is presented in Exhibit III-1. As indicated, the prevalence of physical and sexual abuse differed markedly by gender, both in the presence or absence of physical and sexual victimization and in the frequencies with which such victimization was reported.

- The majority of clients in the full analysis cohort reported some kind of victimization at least once in their lifetime. Almost three-fourths (71%) reported being victims of physical violence, while approximately one-fifth (17%) reported sexual abuse.
- More men reported victimization due to physical assault than did women (73% compared to 66%) while far more women reported sexual victimization than did men (42% compared to 6%).
- Men were more likely to report being physically assaulted than were women, but high frequencies of physical violence were more likely to be reported by women. One in 10 women reported being physically assaulted 21 or more times, compared to 4 percent of men.

<b>EXHIBIT III-1</b>						
<b>PERCENT OF NTIES RESPONDENTS REPORTING PHYSICAL AND SEXUAL ABUSE BY GENDER AND REPORTED FREQUENCY</b>						
<b>Response Categories</b>	<b>Both Genders</b>		<b>Men</b>		<b>Women</b>	
	<b>Physical (N=4,405) %</b>	<b>Sexual (N=4,379) %</b>	<b>Physical (N=3,034) %</b>	<b>Sexual (N=3,021) %</b>	<b>Physical (N=1,371) %</b>	<b>Sexual (N=1,358) %</b>
Never	29	83	27	94	34	58
Once	15	5	16	2	14	10
2-5 times	34	7	38	2	26	18
6-10 times	10	2	10	< 0.5	9	5
11-20 times	6	2	5	< 0.5	7	5
21-100 times	4	1	3	< 0.5	7	3
Over 100 times	2	< 0.5	1	< 0.5	3	1

N=4,411. Missing: 6 cases for physical abuse, 32 cases for sexual abuse

The proportion of male and female respondents reporting physical abuse only, sexual abuse only, both physical and sexual abuse and no reported abuse for each of the five treatment modalities is presented in Exhibit III-2. As demonstrated:

- There was no treatment modality for which a majority of males or females reported no past physical and/or sexual abuse.
- Physical assault was the most prevalent kind of victimization for men across all modalities. The proportion of men who were physically assaulted ranged from 67 percent for men in outpatient and short-term residential settings to 72 percent for those in methadone SDUs. The proportion of men who reported experiencing sexual abuse alone never exceeded 1 percent, with another 4 to 8 percent reporting sexual abuse in addition to physical abuse.
- For women, the most common pattern of victimization was both physical and sexual abuse in all modalities, except for methadone programs in which physical abuse is the most common (40% compared to 6% for sexual abuse and 11% for both physical and sexual abuse). Women in methadone programs had the highest percentage reporting no history of abuse for all gender-modality groups (43%).
- Sexually abused persons of both genders were almost always physically abused as well. Regardless of modality, sexual abuse without some history of physical abuse was almost unknown in men and was much rarer than a history of both kinds of abuse in women.

<b>EXHIBIT III-2</b>								
<b>PERCENT OF NTIES RESPONDENTS REPORTING PHYSICAL AND SEXUAL ABUSE BY GENDER AND MODALITY</b>								
<b>Modality</b>	<b>Males (M)</b>				<b>Females (F)</b>			
	<b>Physical N (%)</b>	<b>Sexual N (%)</b>	<b>Both N (%)</b>	<b>Neither N (%)</b>	<b>Physical N (%)</b>	<b>Sexual N (%)</b>	<b>Both N (%)</b>	<b>Neither N (%)</b>
Methadone N=286 M N=136 F	206 (72)	1 (<0.5)	11 (4)	68 (24)	54 (40)	8 (6)	15 (11)	59 (43)
Outpatient— non-methadone N=1,116 M N=437 F	746 (67)	9 (1)	46 (4)	315 (28)	129 (27)	29 (7)	159 (36)	120 (30)
Short-term residential N=596 M N=277 F	401 (67)	3 (1)	47 (8)	145 (24)	83 (30)	14 (5)	99 (36)	81 (29)
Long-term residential N=411 M N=421 F	283 (69)	4 (1)	24 (6)	100 (24)	112 (27)	38 (9)	177 (42)	94 (22)
Correctional N=615 M N=92 F	420 (68)	5 (1)	23 (4)	167 (27)	32 (35)	2 (2)	37 (40)	21 (23)

Number and percent of non-missing cases for individuals reporting at least one incident of physical or sexual abuse prior to treatment. Each case is entered only once in this table. Respondents reporting both physical and sexual abuse were entered only in the column for both. Cases with missing data on abuse variables were not entered into the denominator for the percentages.

Missing: out-patient non-methadone—5 males, 8 females; long-term residential—6 males, 3 females; correctional—2 males.

As demonstrated, there was considerable overall variation on the physical abuse and sexual abuse variables. Combining the two types of abuse, the most abused group among males was in short-term residential (8%) with similar proportions (4%) of males in methadone, outpatient, and correctional-based modalities. The smallest proportion of females who were both physically and sexually abused was in methadone (11%) and the largest proportion was in long-term residential treatment (42%), at least as reported by the clients.

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## 2. INFLUENCE OF VICTIMIZATION ON TREATMENT OUTCOMES

This section provides the findings from regression analyses designed to measure the relationships among prior victimization and substance abuse treatment outcomes. The discussion is presented in two sub-sections: findings from the regression analyses, and effect sizes. The data used to support the description of the results of the analyses are presented, in detail, in Appendix C, Exhibit C-1—*Correlation coefficients of pre-treatment and post-treatment severity scores for six outcome variables*, and Exhibit C-2—*Unstandardized regression coefficients for physical and sexual victimization and their interaction by treatment modality and gender*.

### 2.1 Findings from the Regression Analyses

As described earlier (*Chapter II: Methods*), mixed model regression equations were developed for the six post-treatment severity domains, including:

- Alcohol use
- Drug use
- Criminality
- Employment status
- Medical status
- Psychiatric status.

The 10 gender-modality groups (males and females in 5 treatment modalities) were included in the equations. One or more independent variables had statistically significant regression coefficients in 22 of these 60 equations (10 gender-modality groups times 6 post-treatment severity domains).

The main effects of physical victimization on substance abuse treatment outcomes included:

- Criminal severity was higher for men in all modalities except methadone maintenance and higher for women in short-term residential treatment
- Drug use severity was higher for women in methadone SDUs

- Drug use severity and medical severity were higher for men in non-methadone outpatient SDUs
- Psychiatric severity was higher for women in methadone and long-term residential facilities
- Employment status was lower for men who received substance abuse treatment within correctional settings.

Prior sexual victimization was significant in the following areas:

- Alcohol use, drug use, and criminal behaviors were higher for women in long-term residential facilities
- Medical severity was higher for women in methadone clinics, and psychiatric severity was higher for women in short-term and long-term residential treatment.

There were no significant effects of sexual victimizations for men.

The effect of having experienced both kinds of victimization (the interaction term) was significant in the following areas:

- Severity of alcohol use was higher for men in short-term residential treatment and for women in long-term residential treatment
- Employment status was lower for women in long-term residential treatment
- Psychiatric severity was higher for women in short-term residential treatment and for men in non-methadone outpatient treatment.

In summary, for women, higher numbers of both physical and sexual abuse were significantly associated with poorer outcomes on one or more severity scores in the methadone, short-term and long-term residential modalities. For men, higher numbers of physical abuse were significantly associated with poorer outcomes on one or more severity scores in the outpatient, short-term residential, long-term residential, and correctional modalities. Higher numbers of sexual assaults were not significantly associated with poorer outcomes on any severity score in any modality for men.

The reported rate of sexual victimization among men (6%) seemed particularly low. Men may be more reluctant than women to acknowledge that they had sex against their will. Even if

the reported prevalence in men is accurate, the extreme skew of the distribution undermines the power of the analysis to detect effects. Both factors contribute to the finding that in men, higher numbers of sexual assaults were not significantly associated with poorer outcomes on any severity score in any modality. The reported prevalence among women (42%), while more realistic, is still probably low, given other estimates from the literature (Dansky et al., 1999; Murphy et al., 1998; Stevens & Arbiter, 1995; Caliber Associates and Battelle, 1998).

When the data were examined by outcome variables, criminal activity showed the highest number of significant main effects (6) followed by psychiatric severity (4), drugs (3), and medical severity (2). Alcohol and employment outcomes appeared to be less influenced by prior victimization, accounting for just one significant main effect each.

The gender-modality group that appeared to be most affected by prior sexual victimization across the largest number of outcomes was women in long-term residential treatment. These women showed significant main effects of sexual abuse in four of the six outcomes, including alcohol use, drug use, criminal severity, and psychiatric severity. The gender-modality group whose treatment outcomes appeared most broadly affected by previous physical victimization was men in non-methadone outpatient treatment. These clients showed significant main effects of prior physical assault in three outcome domains, including drug use, criminal severity, and psychiatric severity. There were no significant main effects of sexual or physical victimization in men in methadone treatment or women in non-methadone outpatient or correctional SDUs.

The literature suggests that for women, childhood sexual abuse is more damaging psychologically than adult abuse in a number of ways. With regard to incest in particular, Schatzow and Herman (1989) describe how keeping the abuse secret “compounds the trauma of sexual abuse itself by isolating the victim from others, so that her perceptions can not be validated.” Women who suffered childhood sexual abuse have more difficulty forming long-term trusting relationships that are key to achieving and sustaining recovery in many substance abuse treatment models. In addition, the severity of victimization events was not considered by the NTIES data collection instruments. This makes it impossible to examine any potential “dose response” relationship between sexual abuse and adverse outcomes since such an analysis must take into account the severity of incidents as well as their frequency (Bassuk et al., 1998).

The interaction terms on the alcohol use outcome for men in short-term residential treatment and on the psychiatric severity outcome for men in outpatient SDUs indicate that the combination of physical and sexual victimization was particularly detrimental to treatment

outcomes for these groups. Women in the long-term residential modality also showed significant interaction terms for alcohol use and employment outcomes; however, the impact was in the positive direction. The fact that these factors appear to act in opposite directions on these two outcomes is difficult to interpret on the basis of these analyses alone. The findings do suggest, however, that the relationship between alcohol use and employment for victimized women with a severe enough problem to require long-term treatment may be a direction for further research.

The NTIES design incorporated only one follow-up of clients at 12 months post-treatment exit. It is possible that a longer follow-up interval would have revealed larger and/or broader effects of victimization on outcomes over time. This would happen if, for example, clients with and without a history of victimization both improved in the short term but the improvements deteriorated faster among those with a history of abuse. Such an observation would be consistent with the literature suggesting that victims who are traumatized by abuse and who achieve immediate treatment goals—abstinence from substances—may be less able to sustain their recovery if their mental health needs relative to the victimization-related trauma were not met in treatment (Wallace, 1993).

## **2.2 Effect Sizes**

To estimate the size of the effects of physical and/or sexual victimization on treatment outcomes, the partial  $R^2$  values for each regression were calculated and the results are presented in Exhibit III-3. The partial  $R^2$  shows the proportion of the variance in the treatment outcome variable that is related to differences in physical and sexual victimization and their interaction, as indexed by independent variables in the regression equation. Effect size is not sensitive to differences in statistical power in different regression equations. Since differences in power across these regressions resulted from variation in the number of SDUs in the five modalities, in the number of clients per SDU, and in the distributions of treatment outcomes, the effect size estimates are critical to these analyses.

There is no clear precedent for deciding on a clinically meaningful effect size in most substance abuse treatment research. Generally, this is left up to the judgement of clinicians. In the absence of generally accepted values, the benchmarks developed by Cohen (1988) for

**EXHIBIT III-3**  
**PARTIAL R<sup>2</sup> FOR PHYSICAL AND SEXUAL ABUSE AND THEIR INTERACTION CONTROLLING FOR PRE-TREATMENT SEVERITY AND PERPETRATOR STATUS**

Treatment Modality	Gender	Post-test Severity Score							
		Alcohol	Drugs	Criminal	Employment	Medical	Psychiatric		
Methadone	Female	.033 S	.049 S	.000	.035 S	.045 S	.059 S		
	Male	.005	.012	.004	.005	.005	.019		
Outpatient non-methadone	Female	.005	.004	.002	.005	.005	.005		
	Male	.005	.012	.008	.004	.005	.007		
Short-term residential	Female	.003	.005	.027 S	.010	.005	.021 S		
	Male	.007	.007	.014	.003	.014	.045 S		
Long-term residential	Female	.032 S	.028 S	.013	.022 S	.017	.017		
	Male	.008	.001	.024	.007	.007	.002		
Correctional	Female	.117 M	.123 M	.026 S	.016	.052 S	.016		
	Male	.001	.009	.026 S	.015	.005	.000		

Partial R<sup>2</sup> represents the outcome variance for each severity score that is accounted for by reported physical abuse, reported sexual abuse, and the interaction between the two controlling for pre-treatment severity score on the corresponding outcome and perpetrator status. Effect sizes are annotated as “S” (small) and “M” (medium). There are no large effect sizes.

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interpreting effect magnitudes are often adopted. For the partial  $R^2$  values presented in Exhibit III-3, the benchmarks include: 0.02 = “small,” 0.12 = “medium,” and 0.26 = “large.” The following description of the results reflect the use of these benchmarks.

When effect sizes were examined in addition to significance tests, as represented by variance accounted for (partial  $R^2$ ), women in correctional SDUs showed “medium” effects (0.12) for alcohol severity and drug severity, with a third outcome (medical severity) registering about halfway between small and medium (0.05). No main effects or interactions were statistically significant for women in correctional SDUs, but the partial  $R^2$  for the three variables *combined* (two main effects plus interaction) was significant at  $p < 0.001$  on the alcohol and drug outcomes, consistent with the large effect sizes.<sup>5</sup> The size and direction of the regression coefficients, plus the magnitude and statistical significance of the partial  $R^2$ , strongly suggest that prior sexual and physical victimization may have substantially interfered with treatment success for women in correctional SDUs, though it is not possible statistically to isolate their separate effects.

The only other groups showing partial  $R^2$  of 0.05 (rounded) or higher were female methadone clients (drugs, medical, and psychiatric outcomes) and male short-term residential clients (psychiatric outcome only). Effect sizes in all other cells (53 of 60) were either in the “small” range, or effectively zero.

In summary, when the present analysis was extended to include effect sizes, the results provide an indication that clients who were victims of physical and/or sexual violence have less favorable substance abuse treatment outcomes than clients who were not, controlling for pre-treatment problem severity and whether the client was also a violent perpetrator. This, in turn, suggests that for selected clients, prior victimization “interferes” with the treatment process and reduces the odds of a successful outcome. For many clients in most modalities, however, the observed effects were very small. This suggests that many of the clients improved *regardless* of their prior victimization.

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<sup>5</sup> The failure of the individual coefficients to reach statistical significance was in part due to the small  $N$  for this group (only 92 cases were complete enough to enter the mixed-model regression analysis), but mainly due to the high correlation between physical and sexual victimization, which inflates error terms and suppresses statistical significance of individual model terms (“multicollinearity”).

## **IV. SUMMARY AND RECOMMENDATIONS**

## IV. SUMMARY AND RECOMMENDATIONS

In this final chapter of the report, 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

Victimization by physical and/or sexual violence is a common part of the life histories of persons entering substance abuse treatment in the SDUs that were part of NTIES. Physical and/or sexual abuse in some time in their life was reported by three-fourths of the respondents in the NTIES outcome sample. Physical abuse was the most prevalent, and it would appear that the large majority of individuals who report sexual abuse also have been subjected to physical violence. Physical abuse rates varied relatively little across the five treatment modalities for men. There was more variability in physical abuse rates among women. For sexual abuse, there was greater variation across modality.

The data are consistent with the view that a history of physical and/or sexual victimization has a negative impact on treatment outcomes in some settings. The mixed-model regression models yielded numerous main effects, all of them in the expected direction. That is, victimization was associated with poorer outcomes (higher severity scores) at follow-up. Criminal outcomes seemed to be the ones most affected by prior victimization, with a significant effect on this outcome appearing in four of five treatment modalities and across both genders. Victimization had few strong effects on the alcohol use and the drug use outcomes that are directly targeted by substance abuse treatment. There was, however, a pronounced effect of sexual victimization on both of the substance abuse outcomes for women in long-term residential treatment. Also, physical violence appeared to affect drug outcomes in methadone and outpatient settings negatively.

Differences in these effects among modalities were modest. The gender-modality group for which treatment outcomes appeared most broadly affected by prior sexual victimization was women in long-term residential treatment. These women showed significant main effects of prior sexual abuse in four of the six functional outcome domains (alcohol, drugs, criminal, and psychiatric). The gender-modality group whose treatment outcomes appeared most broadly

impeded by prior physical victimization was men in non-methadone outpatient treatment. These clients showed significant main effects of prior physical abuse in three outcome domains (drugs, criminal, and psychiatric). Physical abuse weakened post-treatment outcomes for men in four of the five treatment modalities (methadone clinics were the exception), showing the strongest effects on post-treatment criminality across these four treatment modalities.

Almost all of the non-negligible effect sizes (partial  $R^2$ s) were found in analyses of treatment outcomes for women. Small effects were observed for women in methadone clinics, long-term residential facilities, and correctional SDUs across a variety of outcome indicators. Only two non-negligible effect sizes were observed in analyses of the men, both for criminal outcomes in short-term residential and correctional facility SDUs.

The pattern of effects observed in methadone clinics differed sharply from the pattern observed elsewhere. In methadone SDUs, significant effects were observed only among women for the impact of physical victimization on drug use and psychiatric severity and an impact of sexual abuse on medical severity. Effect sizes also were strong for women in methadone clinics on all outcomes except criminal outcomes. This suggests that the group of women entering methadone clinics with a history of victimization may be systematically different in some way from women entering other treatment modalities.

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

The present analyses suggest that clients who were victims of physical and/or sexual abuse may have less success in substance abuse treatment than clients who were not victimized, controlling for pre-treatment problem severity and whether the client also was a perpetrator of violence. Though the sizes of the observed effects were modest, the effects suggest that, at least for clients attending the kinds of federally funded substance abuse treatment services that were part of NTIES, prior victimization reduces the chances of successful treatment outcomes. The implications of this analysis for further substance abuse treatment research, policy, and practice are discussed below.

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

Research is needed to explore further the role of post-traumatic stress disorder (PTSD) as a mediator between a history of victimization and successful treatment outcomes. Current literature describes the psychological mechanism through which exposure to violence and abuse may interfere with treatment objectives. The literature suggests that individuals who have been

victimized and who suffer from PTSD or other trauma-related disorders need special treatment in addition to substance abuse treatment to deal with these problems, and that men and women react differently to traumatic events (Bassuk et al., 1998).

Because the NTIES data set did not contain clinical diagnoses, it did not allow the examination of whether clients who developed PTSD after their victimization were less likely to succeed in treatment than clients who were victimized but did not develop PTSD. It was never the intent of the NTIES baseline interview to be a clinical diagnostic instrument. The inability to distinguish clients who developed PTSD from those who did not, however, deprived the analysis of a critical mediator of responsiveness to treatment. The inability to distinguish these subgroups may have obscured the direct effects of PTSD on treatment outcomes.

To build the knowledge needed to improve substance abuse treatment approaches, prospective studies are needed that systematically test the effectiveness of different types of substance abuse treatment enhancement strategies with different types of victimized clients. A literature on intervention strategies for trauma survivors is emerging independently of their use in substance abuse treatment, and many of the more promising approaches would be familiar to substance abuse treatment researchers and providers. These include empowerment models, peer groups, effective limit setting, building self-esteem, addressing trust issues, and forming therapeutic alliances. Rigorous prospective evaluations of these enhancements for substance abusing clients with co-occurring trauma-related disorders would contribute greatly to developing more effective treatment models for this vulnerable subgroup.

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

This analysis shows that victimization is widespread in clients from substance abuse treatment that made up the NTIES sample, affecting almost three-fourths (73%) of all clients of both genders. The analysis also shows that prior victimization can have negative effects on the outcomes of substance abuse treatment. This implies that policies to develop and guide substance abuse treatment services need to take into consideration this vital mental health need. The present analysis provides research support for the movement among policy makers, providers, and clinical researchers to identify and test specialized service components for clients with a history of physical and/or sexual victimization, so these clients can more successfully achieve and sustain positive treatment outcomes and improve their quality of life.

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

The results of this analysis suggest that men and women have different needs for mental health services designed to assist in the management of victimization effects. Sexual abuse predominates among female substance abuse treatment clients, while males report mostly physical abuse. Both exposures to abuse and responses to abuse differ between males and females. Treatment needs for dealing with the trauma differ as well.

The results suggest that special attention should be paid to the needs of women in residential treatment services. In this analysis, women in long-term residential treatment showed many effects of sexual abuse on outcomes. The 1997 NORC analysis of the NTIES sample showed that a high proportion of clients in both kinds of residential treatment reported previous substance abuse treatment. These are possibly recidivists because of the effects of un-managed trauma on the outcomes of previous treatment episodes. Do women who enter residential treatment—especially long-term residential treatment—have more difficult histories of sexual abuse than do others? Do they have a higher prevalence of PTSD? Or, is it the case that women in residential treatment have a poorer prognosis for recovery than do women on other kinds of facilities? Regardless of causality, services for the management of trauma due to sexual abuse would seem to be especially critical in this modality.

Women-only treatment, or at least women-only treatment components within a larger mixed-gender program, may provide the best opportunity for successful treatment of trauma in women. Though treatment models have been evolving to address women's issues for some time (Smith, North, & Eaton, 1993), to date, there have been few scientific examinations of the effectiveness of these models. Continued funding of women-only programming in general, innovations in addressing trauma in particular, and solid evaluations of both, are necessary to ensure that this most vulnerable subgroup is effectively treated. Substance abuse treatment providers could provide a strong and effective voice in making this happen.

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**APPENDIX A:**

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

**APPENDIX A:**  
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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

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satellite center providing transitional care. In summary, the SDU provided NTIES evaluators with a stable, uniform level of comparison for examining service delivery issues.

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>Methodone</b>	<b>Outpatient</b>	<b>Long-term Residential</b>	<b>Short-term Residential</b>	<b>Correctional</b>
<b>Target Cities</b> n=365 (52%)	31 (44%)	6	15	6	4	0
<b>Critical Populations</b> n=274 (39%)	27 (38%)	1	13	10	3	0
<b>Criminal Justice</b> n=59 (9%)	13 (23%)	0	5	0	0	8
<b>Totals</b> 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>
<b>Target Cities</b> n=2,600 (59%)	377 (89%)	1,214 (78%)	504 (60%)	505 (58%)	0
<b>Critical Populations</b> n=931 (21%)	45 (11%)	220 (14%)	298 (35%)	368 (42%)	0
<b>Criminal Justice</b> n=880 (20%)	0	132 (8%)	39 (5%)	0	709 (100%)
<b>Totals</b> 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.

## **APPENDIX B:**

### **DEFINITION OF VARIABLES**

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**Independent Variables**

Physical Abuse	<p>Response to NTIES question:</p> <p>Altogether, how many times have you ever been attacked with a weapon or seriously beaten?</p> <p>Categorical responses permitted by NTIES: 0, 1, 2-5, 6-10, 11-20, 21-100, grater than 100.</p> <p>Categories coded 0-6.</p>
Sexual Abuse	<p>Response to NTIES question:</p> <p>Has anyone ever made you have vaginal, oral or anal sex when you didn't want to by using force, or by threatening you or someone close to you? This might have happened to you either as a child or as an adult.</p> <p>In your lifetime, how many times altogether has anyone made you have any type of sex when you didn't want to?</p> <p>Categorical responses permitted by NTIES: 0, 1, 2-5, 6-10, 11-20, 21-100, greater than 100.</p> <p>Categories coded 0-6.</p>
Interaction of Physical and Sexual Abuse	<p>Term computed by multiplication of physical and sexual abuse scores.</p> <p>Values range from 0-36.</p>

**Outcome Variables**

Drug Use Severity	<p>Computed from:</p> <p>Drug use and days of use in last 30 days          Number of days of injection drug use in last 30 days          Money spent on drugs in last 30 days          Very much, somewhat, or not at all bothered about drug use          Importance of treatment or counseling for drug use (pre-treatment only)</p>
Alcohol Use Severity	<p>Computed from:</p> <p>Number of drinking days in last 30 days          Number of days drunk in last 30 days          Very much, somewhat, or not at all bothered about alcohol use          Importance of treatment or counseling for alcohol use (pre-treatment only)</p>

<b>APPENDIX B: DEFINITION OF VARIABLES (CONT.)</b>	
Medical Severity	Computed from:  Self-assessed health status (good, fair, poor) Health limitations on work (very much, somewhat, not at all) Specific health problems in last 30 days (post-treatment only) Number of hospital nights since discharge from treatment (post-treatment only) Number of emergency room visits since discharge (post-treatment)
Psychiatric Severity	Computed from:  Mental health stays in last 12 months (pre-treatment)/since discharge (post-treatment) Mental health outpatient visits in last 12 months/since discharge Self-reported incidents of anxiety or depression in last 12 months/since discharge Suicide attempts in last 12 months/since discharge Self-assessed mental health status (pre-treatment) Importance of treatment or counseling for mental health problems (pre-treatment)
Criminal Severity	Computed from:  Number of times when most support came from illegal activities in last 12 months/since discharge Number of incidents of shoplifting activities in last 12 months/since discharge Number of break-ins or thefts activities in last 12 months/since discharge Number of armed robberies activities in last 12 months/since discharge Number of assaults with/without a weapon activities in last 12 months/since discharge
Employment Severity	Computed from:  Income from employment in last 12 months/since discharge Current employment (y/n) Months employed in last 12 months/since discharge Importance of counseling for employment problems (pre-treatment) Importance of counseling for financial problems (pre-treatment)
<b>Control Variables</b>	
Pre-treatment Status on Outcome Measures	Same as outcome variable but assessed within three weeks of the initiation of treatment.
Perpetrator Status	Reported having perpetrated violence on another person, whether or not a victim of violence.
<b>Definitions of Treatment Modalities (Types of Service Delivery Units - SDUs)</b>	
Outpatient Methadone	Outpatient clinics offering with or without other substance abuse and primary mental health services.
Outpatient Nonmethadone	Outpatient substance abuse services without methadone and with or without primary mental health services.
Short-term Residential	Residential treatment facilities with planned stay of less than two months, typically 21-28 days. Includes detoxification facilities.

<b>APPENDIX B: DEFINITION OF VARIABLES (CONT.)</b>	
Long-term Residential	Residential treatment facilities with planned length of stay of two months or more.
Correctional	Primary substance abuse offered in jails or prisons.*

\* Some NTIES treatment units designated as correctional were in county or municipal jails or detention centers rather than in facilities operated by a State Department of Corrections; however, virtually all those treated were serving time under sentence rather than in temporary detention prior to trial. Those who were incarcerated for the whole year after treatment were removed from the outcome analysis sample.

**APPENDIX C:**

**RESULTS OF REGRESSION ANALYSIS**

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<b>EXHIBIT C-1 CORRELATION COEFFICIENTS OF PRE-TREATMENT AND POST-TREATMENT SEVERITY SCORES FOR SIX OUTCOME VARIABLES*</b>							
<b>Post-treatment Severity Score</b>	<b>Pre-treatment Severity Score</b>						
		<b>Alcohol Use</b>	<b>Drug Use</b>	<b>Criminality</b>	<b>Employment</b>	<b>Medical Status</b>	<b>Psychiatric Status</b>
	Alcohol Use	0.335	-0.040	0.035	0.012	0.090	0.079
	Drug Use	-0.061	0.377	0.048	0.109	0.124	0.079
	Criminality	-0.063	0.094	0.093	0.090	-0.011	0.005
	Employment	-0.300	0.201	-0.015	0.400	0.248	0.094
	Medical Status	0.076	0.114	0.009	0.133	0.427	0.203
	Psychiatric Status	0.117	0.125	0.036	0.122	0.233	0.385

\* Pearson r values. N=4,411.

EXHIBIT C-2								
UNSTANDARDIZED REGRESSION COEFFICIENTS FOR PHYSICAL AND SEXUAL VICTIMIZATION AND THEIR INTERACTION BY TREATMENT MODALITY AND GENDER								
Treatment Modality	Gender	Independent Variable	Post-test Severity Score					
			Alcohol	Drugs	Criminal	Employment	Medical	Psychiatric
Outpatient Methadone	Female	Physical	1.03	<b>4.36*</b>	-0.06	2.18	1.35	<b>2.52*</b>
		Sexual	-0.24	1.23	-0.08	5.70	<b>3.44*</b>	-1.14
		Interact	-0.95	-0.78	0.00	-1.57	-1.24	1.06
	Male	Physical	0.35	-1.73	0.22	-1.11	0.05	-0.67
		Sexual	0.66	-8.46	-6.58	24.86	-7.55	-18.50
		Interact	-1.42	6.67	3.00	-10.88	2.89	5.82
Non-methadone Outpatient	Female	Physical	0.87	-0.63	-0.24	0.36	0.03	0.41
		Sexual	-0.14	0.17	-0.20	-1.46	-0.63	-0.50
		Interact	-0.13	0.14	0.04	-0.06	0.17	0.14
	Male	Physical	0.31	<b>0.96*</b>	<b>0.51*</b>	-1.13	<b>0.44*</b>	0.44
		Sexual	0.93	1.46	-0.43	1.10	0.05	-2.02
		Interact	0.60	0.05	-0.01	0.66	0.16	<b>1.23*</b>
Short-term Residential	Female	Physical	-0.85	0.75	<b>0.68*</b>	1.20	0.55	0.44
		Sexual	-0.65	0.17	0.21	2.30	0.57	<b>2.78*</b>
		Interact	0.02	-0.24	-0.18	-0.80	-0.25	<b>-0.89*</b>
	Male	Physical	-0.20	-0.67	<b>0.70*</b>	-0.19	0.59	-0.42
		Sexual	-4.11	0.50	-0.24	5.63	1.13	2.54
		Interact	<b>1.67*</b>	0.48	0.16	-1.12	0.01	0.83

EXHIBIT C-2								
UNSTANDARDIZED REGRESSION COEFFICIENTS FOR PHYSICAL AND SEXUAL VICTIMIZATION AND THEIR INTERACTION BY TREATMENT MODALITY AND GENDER								
Treatment Modality	Gender	Independent Variable	Post-test Severity Score					
			Alcohol	Drugs	Criminal	Employment	Medical	Psychiatric
Long-term Residential	Female	Physical	-0.21	-0.60	0.12	0.24	0.73	<b>1.53*</b>
		Sexual	<b>3.55*</b>	<b>2.64*</b>	<b>1.01*</b>	1.99	0.97	<b>2.50*</b>
		Interact	<b>-0.74*</b>	-0.27	-0.21	<b>-1.22*</b>	-0.20	-0.53
	Male	Physical	1.19	0.19	<b>0.94*</b>	1.29	0.55	0.47
		Sexual	-0.65	0.88	0.35	3.93	-0.72	1.03
		Interact	0.80	-0.03	0.24	0.72	0.12	-0.54
Correctional	Female	Physical	-0.52	-1.79	-0.55	-1.07	-1.06	-1.76
		Sexual	2.06	1.97	0.85	-5.33	-0.87	-0.09
		Interact	0.46	0.85	0.10	1.12	0.67	0.38
	Male	Physical	0.31	0.75	<b>1.08*</b>	<b>2.20*</b>	0.27	0.08
		Sexual	0.21	3.25	-0.01	-2.52	0.86	0.09
		Interact	-0.34	-1.12	-0.24	1.68	-0.11	0.09

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