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_____ Research Report _____

**The Offender Substance Abuse Pre-Release
Program: Analysis of Intermediate and
Post-Release Outcomes**

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_____ **Research Report** _____

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Program: Analysis of Intermediate and
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**The Offender Substance Abuse Pre-Release Program:
Analysis of Intermediate and Post-Release Outcomes**

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EXECUTIVE SUMMARY

Almost 70% of all federal offenders present with substance abuse problems of sufficient severity to warrant formal treatment intervention. Indeed, it can be argued that there is no other need area that affects a larger proportion of our offender population than alcohol or drug abuse. However, not all offenders require the same type or intensity of programming. An examination of the distribution of substance abuse problems reveals that close to 30% of offenders have low severity problems, approximately 17% exhibit intermediate severity problems, 13% have substantial problems, and 10% experience severe substance abuse problems.

In recent years, the Correctional Service of Canada has developed an integrated model for the provision of substance abuse programming which focuses on the development and implementation of a range of interventions that are designed to be matched with the severity of offenders' alcohol and drug problems. The Offender Substance Abuse Pre-Release (*OSAP*) program is a multi-faceted, cognitive-behavioural substance abuse intervention program that was developed specifically to address the substance abuse needs of offenders with intermediate-to-substantial problems. Although not specifically developed for offenders with severe drug and alcohol problems, they are currently accepted into the *OSAP* program given the absence of high intensity treatment options. As a result, between 30% and 40% of the federal offender population would probably be appropriate for participation in this program.

The present study was undertaken to evaluate the effectiveness of the *OSAP* program in improving offenders' post-release success and in changing their problematic substance abuse behavior. We examined both intermediate and post-release outcomes for 317 offenders who completed the program between January 1990 and August 1992. In essence, this report is an evaluation of the pilot *OSAP* program that has now been implemented on a national scale and is available for offenders in virtually all *CSC* institutions.

An examination of substance abuse characteristics revealed that 16.6% of the offenders were identified as having low level substance abuse problems, 20.5% had moderate problems, 39.6% substantial problems, and 20.1% of the offender sample were evaluated as having severe

substance abuse problems. Interestingly, 3.2% of the offenders in the sample were not assessed as having either an alcohol or drug problem. Taken together, these findings indicate that approximately 80% of the participants presented with alcohol problems, drug problems, or combined alcohol and drug problems of sufficient severity to warrant participation in OSAPP.

Intermediate program performance was measured by administering a battery of measures to offenders immediately before and after participating in the program. The battery consisted of a number of measures that focused on alcohol and drug knowledge as well as a variety of skills that are key ingredients in the formula for offenders to abstain from or control future substance use. Our results demonstrated that after completing the program, offenders: (1) increased their knowledge of the consequences of alcohol and drug use, (2) enhanced their understanding about how people might be affected by using alcohol or drugs, (3) better understood how to decline offers made by others to use alcohol and drugs in an assertive and socially appropriate manner, (4) enhanced their ability to communicate to others their wish to stop or control their use, and (5) increased their understanding about the impact of alcohol and drug use on employment. In short, these results suggest that the program was successful in increasing offenders' knowledge about the effects and consequences of alcohol and drug use as well as in the development of skills that are essential in abstaining or controlling future alcohol and drug use.

Offenders' post-release performance was examined by following them for an average period of almost 15 months (range = 1.6 months to 34.6 months) after their release from incarceration. During the follow-up period, a total of 31.4% of the offenders who completed the program and who were released, were re-admitted back into federal custody. 19.9% (57 offenders) were re-admitted for a technical violation and 13.6% (39 offenders) were re-admitted for a new conviction. Additional analyses revealed that, even after participating in the program, offender characteristics such as the severity of their substance abuse problems, criminal risk and need levels, and type of offense that were evident before the program continued to have an impact on offenders' post-program behavior (i.e., re-admission rate). For example, while only 14% of the low risk offenders were returned to custody, 39.4% of the high risk offenders were re-admitted.

Similarly, the re-admission rate for offenders who presented high needs was significantly higher (41.1%) compared to the low and medium need offenders (17.2%).

Although these intermediate and post-release results provided important information, the findings apply to the sample as a whole and reveal little about the individual performance of offenders who participated in the *OSAP* program. Clearly, it is likely that some offenders perform better while participating in interventions and benefit more from correctional programming than others. In an effort to link program performance and post-release outcome, the pre/post measures were analyzed in relation to re-admission rates. A series of analyses resulted in the development of a 5-level "performance index" consisting of the following four measures that were derived from the pre- and post-program battery: (1) *Consequences of Drug Use*, (2) *Consequences of Alcohol Use*, (3) *How Much Do they Matter?* and, (4) *Using Alcohol Responsibly*.

Offenders who performed at above average levels had significantly lower re-admission rates for new offences as well as the overall rate of re-admission that consisted of technical violations and new offences. Indeed, the overall re-admission rate for those who scored 2 or more on the performance index was only 11%, compared to offenders who yielded a score of 0 (re-admission rate = 28%) and offenders who had scores of -2 or less (re-admission rate = 46%). Similar patterns of results were found for offenders with serious substance abuse problems (i.e., high need offenders with intermediate-to-severe problems), high risk offenders, and high risk offenders with serious substance abuse problems.

National Parole Board files were reviewed for those offenders who were returned to federal custody. Almost all (93.3%) had been given a special condition to abstain from any form of intoxicants. Not surprisingly, a significantly higher proportion of offenders with serious substance abuse problems used alcohol and drugs on release relative to offenders with low level problems (77.5% vs. 44.4% respectively). A higher percentage of offenders with serious problems were required by the *NPB* to participate in additional substance abuse treatment in the community compared to offenders with less serious problems (74.3% vs. 63.6% respectively).

In conclusion, the results of this study add to a growing body of literature which supports the effectiveness of cognitive-behavioural programs in the treatment of offenders with substance abuse problems. Examination of the intermediate and post-release outcomes suggest that the *OSAP* program is an effective intervention for developing the skills and cognitive abilities that are of critical importance in assisting offenders: 1) to reduce the likelihood of become re-involved in alcohol and drugs; and 2) to reduce the likelihood of being re-admitted back into custody for either a technical violation or for new criminal offences. From our perspective, the most important finding in this study was that *OSAP* program performance was predictive of offenders' re-admission. These results highlight the fact that just because an offender with substance abuse problems completes a substance abuse program, it cannot be automatically assumed that he or she will perform well once released. Actual improvement in the program must be evident to expect a meaningful decrease in recidivism. Future research must replicate and refine the relationship between offender performance during treatment, re-admission rate, and subsequent problematic substance abuse behavior.

INTRODUCTION

It is well known that substance abuse represents a major problem for offenders. Indeed, the aggregate results of a computerized substance abuse assessment system that is administered to all offenders entering the Canadian federal correctional system (the Computerized Lifestyle Assessment Instrument or *CLAI*; see Robinson, Fabiano, Porporino, Millson, & Graves, 1992) indicate that 67% or almost 7 out of 10 offenders are in need of substance abuse intervention (Robinson, Porporino & Millson, 1991; Weekes, Fabiano, Porporino, Robinson, & Millson, 1993). Further, the distribution of substance abuse problems (i.e., alcohol, drug, and combined alcohol and drug problems) reveals that close to 30% of offenders have low severity problems, approximately 17% exhibit intermediate severity problems, 13% have substantial problems, and the remaining 10% experience severe substance abuse problems. Similar proportions have been reported in other studies of Canadian and American federal offenders (e.g., Lightfoot & Hodgins, 1988; U.S. Bureau of Justice Statistics, 1983a; 1983b).

The prevalence of substance abuse problems found when examining offender populations is not surprising given the number of studies that have documented a relationship between the use of alcohol and other drugs and criminal behavior (Anglin & Speckart, 1988; Ball, Shaffer & Nurco, 1983; Collins, 1986; Collins & Schlenger, 1988; Goldstein, 1989). Once again, the results from the *CLAI* showed that approximately 55% were under the influence of alcohol, drugs, or both alcohol and drugs while committing the crime(s) on their current sentence (Weekes, et al., 1993).

Offender Substance Abuse Pre-Release (OSAP) Program. The extent of substance abuse problems among offenders as well as the strong linkage between substance abuse and criminal behavior prompted the Correctional Service of Canada (*CSC*) to develop a model for the provision of substance abuse intervention programming (see Fabiano, 1993). Integral to this approach is the development and implementation of a range of interventions that are designed to be matched with the severity of offenders' substance abuse problems. The *OSAP* program is a multi-faceted substance abuse intervention program that was developed specifically to address the

substance abuse needs of offenders with intermediate to substantial problems (Lightfoot & Hodgins, 1993). Although not specifically developed for offenders with severe drug and alcohol problems, they are currently accepted into the program given the absence of high intensity treatment options. The program emphasizes the use of a variety of behavioural and cognitive-behavioural modalities and consists of treatment modules which focus on alcohol and drug education, self-management, problem-solving skills, cognitive and behavioural skills training, social skills, jobs skills refresher training, leisure and lifestyle planning, and pre-release planning. The *OSAP* program involves 26, 3-hour group sessions and 3 individual sessions conducted by a program facilitator. A more detailed description of the program contents, selection criteria, and assessment procedures are available elsewhere (Lightfoot, 1993).

Social Learning Orientation of the OSAP Program. The theoretical underpinnings of the *OSAP* program represents a fundamental shift away from traditional approaches typically offered to offenders. Specifically, by emphasizing the social learning orientation (see Bandura, 1986) toward the development and maintenance of substance abuse problems, the program's theoretical basis is in contrast to the more traditional "disease" model programs which conceptualize alcohol and other drug problems as primarily physiologically-based, progressive, and incurable. A survey of intervention programs offered to offenders by *CSC* revealed that the majority of programs continue to embrace the disease model (Gendreau & Goggin, 1991), despite the lack of evidence of effectiveness.

On the contrary, the efficacy of programs developed around the principles of social learning theory and that incorporate behavioural approaches to intervention has received considerable support from a growing body of research (Brochu & Forget, 1990; Fogg, 1992; Husband & Platt, 1993; Lightfoot & Hodgins, 1993). For example, Fogg (1992) highlighted the importance of including cognitive-behavioural training in the development of a drug offender intervention program by the Colorado Department of Justice. Lightfoot and Hodgins (1993) outlined intervention strategies for substance-abusing offenders and purported that cognitive- and behaviorally-based training that emphasized the development of specific skills were essential

components in the delivery of effective interventions. Brochu and Forget (1990) surveyed the literature on substance abuse interventions for offenders and concluded that cognitive-behavioural programs should be established within correctional institutions to help substance abusing offenders. Finally, Husband and Platt (1993) reviewed the efficacy of cognitive-based substance abuse programming in correctional settings and determined that interventions that emphasized cognitive factors in their intervention strategy yielded more positive outcomes.

Taken together, review of relevant research literature supports the effectiveness of intervention programs that are developed out of the social learning model and that emphasize cognitive and behavioural factors in the development of appropriate skills to either control or abstain from using alcohol and other drugs.

Purpose of the Present Study. This study was undertaken to evaluate the effectiveness of the *OSAP* program in reducing recidivism and in changing problematic substance abuse behavior. This report represents the last evaluation of *OSAPP* prior to its' national implementation. We examined a sample of offenders who participated in the *OSAP* program offered at a minimum security federal institution (Bath Institution) located in the Ontario Region. Specifically, we analyzed (1) the severity of program participants' substance abuse problems, (2) pre- to post-program changes on a battery of assessment measures, (3) post-program/post-release outcomes for offenders who completed the program, (4) the relationship between outcome and severity of substance abuse problem, criminal risk and need levels, type of release, offense type, pre- to post-program performance, and post-release substance use for offenders admitted back into the criminal justice system.

METHOD

Program Participants

Three hundred and twenty-four adult offenders (315 males, 9 females) ranging in age from 18 to 66 years ($M = 33.5$ years; $SD = 9.28$ years) participated in the *OSAP* program offered at Bath Institution between January, 1990 and August, 1992. Bath Institution is operated and maintained by the *CSC* and, at the time of the study, was a minimum security institution that

housed offenders who were assessed as posing a minimal risk for escape and risk to the general public. The small number of female offenders who participated in the program precluded gender comparisons. The sample consisted of 317 offenders who completed the program and 7 offenders who did not complete the program because they either quit or were asked to leave due to disruptive behavior or non-compliance. The average sentence length was 40.5 months (3.4 years; $SD = 22.8$ months). 2.5% of the sample were serving life sentences. Almost 82% were serving their first federal term of incarceration (i.e., sentence of 2 years or more). Just over 37% of the sample were convicted of violent crimes, 28.4% for non-violent offences, and 34.1% for drug- or alcohol-related crimes.

MEASURES

Alcohol and Drug Measures

The severity of offenders' alcohol and drug problems were assessed before the program began using three screening instruments that were originally developed and standardized on non-offender clinical and non-clinical populations. Considerable recent evidence has amassed regarding the validity and appropriateness of these measures when used with offenders, in general, as well as offenders from different cultural and linguistic backgrounds (Hodgins & Lightfoot, 1988; Robinson, et al., 1992; Robinson, Porporino, & Millson, 1991; Vanderburg, Weekes, & Millson, 1994; Weekes, Vanderburg, & Millson, 1995). Moreover, these instruments are routinely used by the *CSC* and are an integral component of the *CLAI*.

Alcohol Dependence Scale. The *ADS* (Skinner & Allen, 1982) is a 25-item scale which assesses the severity of alcohol dependence experienced by an individual. Emphasis is placed on the identification of physiological symptoms associated with alcohol use. *ADS* scores are divided into five levels of severity: no substantive alcohol problem (score of 0), low level problem (1-13), moderate problem (13-21), substantial problem (22-30), and severe alcohol problem (31-47).

Michigan Alcohol Screening Test. The *MAST* (Cannell & Favazza, 1978) is a 10-item instrument that measures a variety of problems associated with drinking. *MAST* scores are

divided into five levels: no substantive alcohol problem (score of 0), low level problem (1-2), moderate problem (3-5), substantial problem (6-8), or severe alcohol problem (9-10).

Drug Abuse Screening Test. The *DAST* (Skinner, 1982) is a 20-item measure which assesses the severity of problems related to an individual's drug use. *DAST* scores are divided into five drug abuse categories; no substantive drug problem (score of 0), low level problem (1-5), moderate problem (6-10), substantial problem (11-15), and severe drug problem (16-20).

Reliability of the Alcohol and Drug Measures. Initially, the alcohol and drug screening measures were examined in terms of the consistency of responses on the items that are combined to calculate the total score. The indices of reliability (Cronbach's Alpha) for the *ADS*, *MAST*, and *DAST* were .92, .48 and .81, respectively indicating excellent internal consistency for the *ADS* and *DAST* and a relatively low level of consistency for the *MAST*.

Pre- and Post-Program Measures

A battery of eight measures was administered to offenders before and after the program (adapted from Gunn, Orenstein, Iverson, & Mullen, 1983). Four measures focused specifically on alcohol use. The *Consequences of Alcohol Use Scale* consists of 20 True and False statements about the negative effects of alcohol. The *Drinking and Assertiveness Scale* presents respondents with 15 descriptions of people who feel uncomfortable because others are drinking or offering them alcohol. Offenders were asked to choose the correct option from among four alternatives which describes an appropriate assertiveness response to the situation portrayed in a vignette. The *Communicating About Drinking Questionnaire* consists of 15 descriptions of people who want to control or stop their drinking. Respondents choose the correct message about drinking that they would want to communicate to other individuals. For each question, there were four possible options from which to choose. The *Using Alcohol Responsibly* measure contains 15 vignettes in which the offender was to choose the most appropriate behavioural response in order to use alcohol in a responsible manner. There were four different response options for each question.

One measure focused solely on drug use. The *Consequences of Drug Use Scale* is a knowledge instrument that contains 30 true and false statements about the negative consequences of drug use.

The remaining three measures included questions on both alcohol and drug use. The *How Much do they Matter?* questionnaire includes 20 statements about how people might be affected by using alcohol or drugs. Offenders were asked to indicate the extent to which they agreed or disagreed with each of the statements using 5-point scales. The *Decision-Making Scale* presents respondents with 15 vignettes depicting people who are attempting to make decisions in a health-related context. Respondents choose from among four response options. The final scale was the *Employment Questionnaire* consisting of 47 statements about substance use, employment, and relapse situations. Respondents are asked to indicate their level of agreement or disagreement with the statements on 5-point Likert-type scales.

Reliability of the Pre- and Post-Program Measures. As with the alcohol and drug measures, the reliability of the measures that comprised the pre- and post-program questionnaire battery were examined. The first column of Table 1 shows the Cronbach's Alpha coefficients for each of the original pre-program measures. Inspection of Table 1 reveals that 4 of the measures have coefficients below the minimum acceptable level of .60.

Each scale was examined to identify items that reduced the overall coefficient value. Using an iterative procedure, items were dropped from the scale until the scale's coefficient value was maximized. The process was undertaken in order to enhance the consistency of offenders' responses to scale items. As shown in the second column of Table 1, all but two of the modified scales (i.e., *Drinking and Assertiveness* and *Using Alcohol Responsibly*) yielded higher coefficient values as a result of this procedure.

Table 1

Reliability Coefficients for the Pre- and Post-Program Measures

| Pre- and Post-Program Measure | Reliability Coefficients | |
|-------------------------------|--------------------------|----------------|
| | Original Scale | Modified Scale |
| Consequences of Alcohol Use | .41 | .54 |
| Consequences of Drug Use | .39 | .49 |
| How Much Do They Matter? | .30 | .62 |
| Communicating About Drinking | .65 | .66 |
| Drinking and Assertiveness | .64 | .64 |
| Using Alcohol Responsibly | .76 | .76 |
| Decision-Making | .18 | .48 |
| Employment Questionnaire | .67 | .74 |

Criminal Activity

Information on offenders' post-release behavior was provided by the Offender Information System (*OIS*) of the Research and Statistics Branch, Correctional Service of Canada. The *OIS* database provides extensive quantitative information on releases, revocations, reconvictions, and offense types.

Substance Use Among Readmitted Offenders

National Parole Board (*NPB*) files were reviewed for specific information regarding post-release substance use as well as other pertinent information (e.g., additional community-based substance abuse programming) for program participants during the follow-up period. File reviews were conducted for program participants who were released following the completion of the program and were subsequently readmitted back into custody. A copy of the file review form is available from the second author.

RESULTS

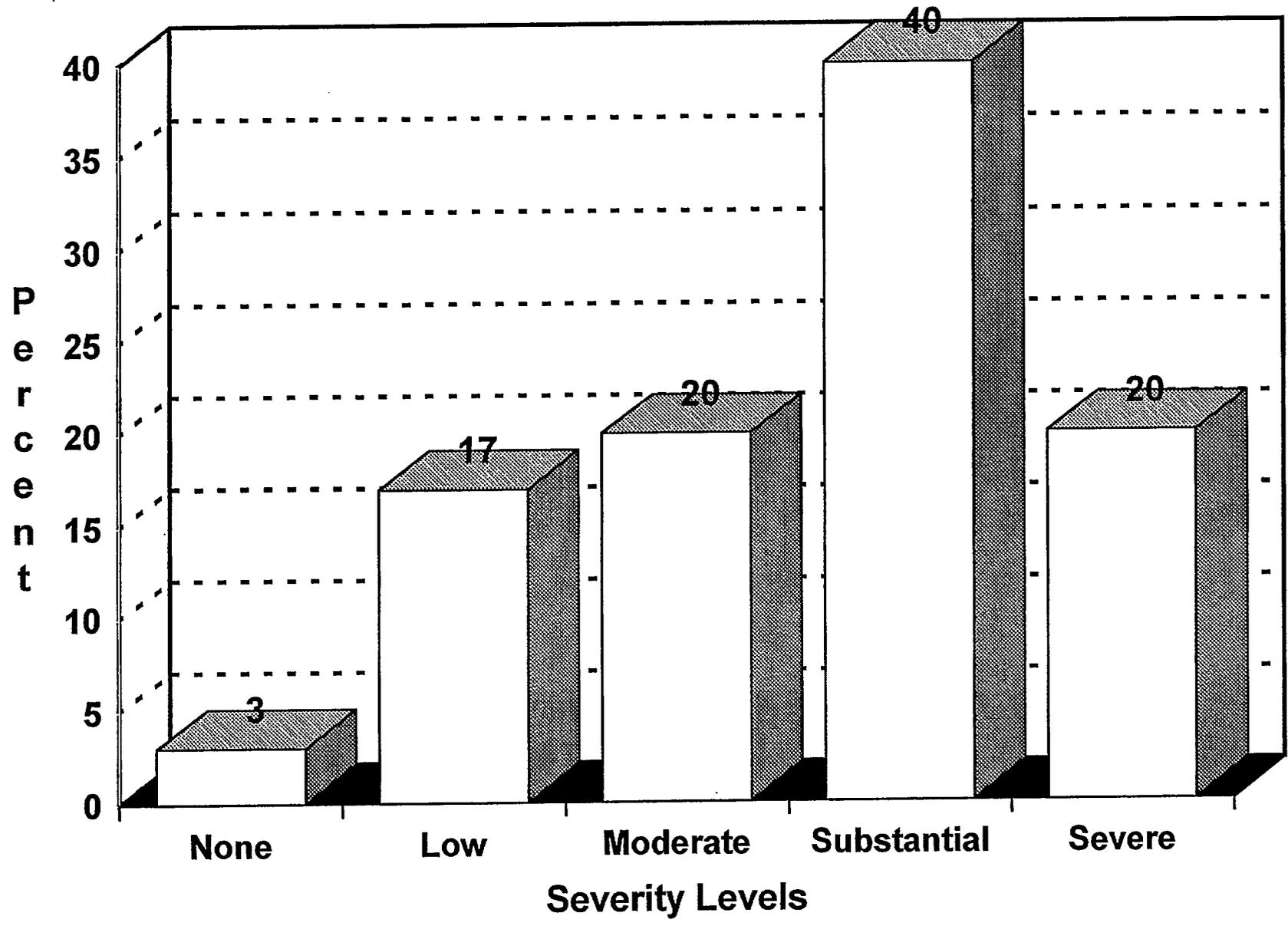
Severity of Substance Abuse Problems

Assessment information regarding the severity of offenders' substance abuse problems were available for 283 (90.7%) of the 317 offenders who completed the *OSAP* program. Examination of the distribution of alcohol severity scores generated by the *ADS* revealed that 6% of offenders in the sample reported no alcohol problem, 50% reported low level problems, 25.3% reported moderate problems, 14% had substantial problems, and 4.7% had severe alcohol problems. Offenders' responses to the *MAST* generated the following distribution: 15.3% no alcohol problem, 20.1% were categorized as low, 23.0% moderate, 32.5% substantial, and 9.1% were in the severe category. Finally, the *DAST* yielded the following distribution of drug severity scores: 3.4% no drug problem, 16.8% low level problems, 19.7% moderate problems, 37.5% substantial problems, and 22.6% severe drug problems.

A five level composite index of substance abuse severity was constructed to classify offenders according to the highest level of "substance abuse problem" (i.e., alcohol, drugs, or combined alcohol and drugs) for each individual on any of the three screening measures. As displayed in Figure 1, 16.6% of offenders were identified as having low level substance abuse problems, 20.5% had moderate problems, 39.6% substantial problems, and 20.1% of the offender sample were evaluated as having severe substance abuse problems. Interestingly, 3.2% of the offenders in the sample were not assessed as having either an alcohol or drug problem.

Taken together, these findings indicate that approximately 80% of the participants presented with alcohol problems, drug problems, or combined alcohol and drug problems of sufficient severity to warrant participation in OSAPP. The remaining 20% of the participants were probably accepted into the program (i.e., those offenders who were grouped into the "no problem" and "low level problem" categories) on the basis of additional information obtained from other sources (e.g., case file information, interviews, etc.) that identified them as appropriate program candidates.

Figure 1
Substance Abuse Severity Levels



Analysis of Offender Performance During the Program

We examined offender performance during the *OSAP* program in terms of the improvement they demonstrated, as a group, on the battery of measures that were administered immediately before (i.e., pre-program) and after (i.e., post-program) participating in the program. We discovered that some of the participants in the program had neglected to complete some or all of the instruments contained in the pre/post batteries. We also discovered that some offenders did not complete the alcohol and drug screening instruments (i.e., *ADS*, *MAST*, and *DAST*). Accordingly, it was necessary to examine the possibility that the offenders who completed all of the questionnaires contained in the battery were biased or different in some significant way from those who did not, thereby influencing the representativeness of the data.

Offender Non-Responses on the Pre- and Post-Program Batteries. Following standard practice, participants were given the opportunity to voluntarily refuse to complete the pre- and post-program battery of measures. Although there were no negative consequences for the offenders who refused to complete the measures, there may be serious implications in the interpretation of the results derived from data generated only from those offenders who completed all the instruments.

A common method used to control for the non-response of offenders is to perform comparisons on a number of key factors that may affect program performance and post-release outcome. If no differences are found, it can be inferred that even if the offenders had completed the pre- and post-program measures, the results would have been the same. Alternatively, if systematic differences do emerge, the next step would be to examine whether these differences played a role in the pre/post responses for the sample as a whole.

A number of comparisons were conducted between the 246 offenders (78% of the sample) who completed the pre/post measures and the 71 offenders (22% of the sample) who did not complete the measures. The comparisons that revealed significant differences were limited to two factors. First, offenders who failed to complete the measures had a lower percentage of violent offences (25.4%) and a higher percentage of non-violent offences (38.0%) compared with those

offenders who completed the measures (41.1% and 25.6%, respectively). Second, 90% of the offenders who did not complete the measures had moderate to severe substance abuse problems compared with 77.6% of the offenders who completed the measures. The two groups did not differ on any of the remaining comparisons (see Table 2).

Table 2

Comparison of Offenders Who Completed the Pre/Post Measures With Those Who Did Not Complete the Pre/Post Measures

| | Complete Data (<i>n</i> = 246) | Incomplete Data (<i>n</i> = 71) | Significance Level |
|--|------------------------------------|-------------------------------------|-----------------------|
| <u>Demographic Information</u> | | | |
| Average Age (in years) | 33.6 | 33.4 | <i>ns</i> |
| Previous Terms (%) | 18.3 | 19.7 | <i>ns</i> |
| Sentence Length (in years) | 3.4 | 3.2 | <i>ns</i> |
| Life Sentence (%) | 2.4 | 2.8 | <i>ns</i> |
| <u>Offense Type</u> | | | <i>p</i> < .05 |
| Violent (%) | 41.1 | 25.4 | |
| Non-Violent (%) | 25.6 | 38.0 | |
| Drug/Alcohol (%) | 33.3 | 36.6 | |
| <u>Substance Abuse Severity Levels</u> | | | <i>p</i> < .05 |
| None - Low (%) | 22.4 | 10.0 | |
| Moderate - Severe (%) | 77.6 | 90.0 | |

Note: *ns* = non-significant

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Table 2 cont'd.

| | Complete Data (<i>n</i> = 246) | Incomplete Data (<i>n</i> = 71) | Significance Level |
|---------------------------------------|------------------------------------|-------------------------------------|-----------------------|
| <u>Release Information</u> | | | |
| Released After Completing Program (%) | 90.2 | 91.6 | <i>ns</i> |
| <u>Type of Release</u> | | | |
| Day Parole (%) | 72.1 | 72.3 | |
| Full Parole (%) | 7.7 | 7.7 | |
| Mandatory Supervision (%) | 20.3 | 20.0 | |
| Time to Release (Months) | 7.1 | 7.2 | <i>ns</i> |
| Follow-up Period (Months) | 14.6 | 15.5 | <i>ns</i> |
| <u>Risk Level at Time of Release</u> | | | |
| Low (%) | 40.0 | 31.4 | |
| High (%) | 60.0 | 68.6 | |
| <u>Readmission Rates</u> | | | |
| Technical Violation (%) | 17.6 | 27.7 | <i>ns</i> |
| New Offense (%) | 14.4 | 10.7 | <i>ns</i> |
| Any Readmission (%) | 30.2 | 35.4 | <i>ns</i> |

Note: *ns* = non-significant

To examine if these differences had an impact on offenders' responses to the pre-program and post-program measures, a number of analyses were conducted on the pre-program scores and on "change" scores, representing the difference in scores between offenders' pre-program responses and their post-program responses to the battery of measures. The results showed that the pre-program scores and the change scores did not differ as a result of either substance abuse severity level or offense type.

These findings suggest that offenders who differ on these two factors provide similar responses on the pre/post measures. Accordingly, it can be concluded with reasonable certainty that even if the offenders who did not complete the measures had provided these data, the resulting scores would be the same. As a result, the analyses that were conducted on complete pre/post data (described below) are unlikely to contain any systematic biases.

Pre- to Post-Program Change. Table 3 summarizes the findings regarding changes in participants' pre-program to post-program performance in the program content areas targeted by the battery of measures. The results displayed in Table 3 reveal that offenders demonstrated statistically significant improvement on each of the measures in the battery with the exception of the *Decision-Making Scale*. Although the magnitude of the changes were relatively small, close examination of the average pre/post scores indicated that, after completing the program, offenders: (1) increased their knowledge of the consequences of alcohol and drug use, (2) enhanced their understanding about how people might be affected by using alcohol or drugs, (3) better understood how to decline offers made by others to use alcohol and drugs in an assertive and socially appropriate manner, (4) enhanced their ability to communicate to others their wish to stop or control their use, and (5) increased their understanding about the impact of alcohol and drug use on employment. In short, these results suggest that the program was successful in increasing offenders' knowledge about the effects and consequences of alcohol and drug use as well as in the development of a number of skills that are essential in abstaining or controlling future alcohol and drug use.

Table 3

Pre- to Post-Program Changes on the Battery of Measures

| Measures | Pre-Program | Post-Program | Significance Level |
|------------------------------|-----------------------------|----------------|--------------------|
| Consequences of Alcohol Use | 4.93 (<i>SD</i> = 1.51) | 5.73 (1.76) | $p < .001$ |
| Consequences of Drug Use | 8.24 (1.46) | 8.56 (1.55) | $p < .01$ |
| How Much Do They Matter? | 4.35 (0.47) | 4.43 (0.43) | $p < .01$ |
| Communicating About Drinking | 6.88 (2.43) | 7.33 (2.63) | $p < .01$ |
| Drinking and Assertiveness | 7.93 (2.19) | 8.57 (2.52) | $p < .001$ |
| Using Alcohol Responsibly | 7.28 (2.26) | 8.36 (2.37) | $p < .001$ |
| Decision-Making | 2.55 (1.13) | 2.48 (1.16) | <i>ns</i> |
| Employment Questionnaire | 4.03 (0.35) | 4.13 (0.38) | $p < .001$ |

Note: *ns* = non-significant

Offender Performance While on Release

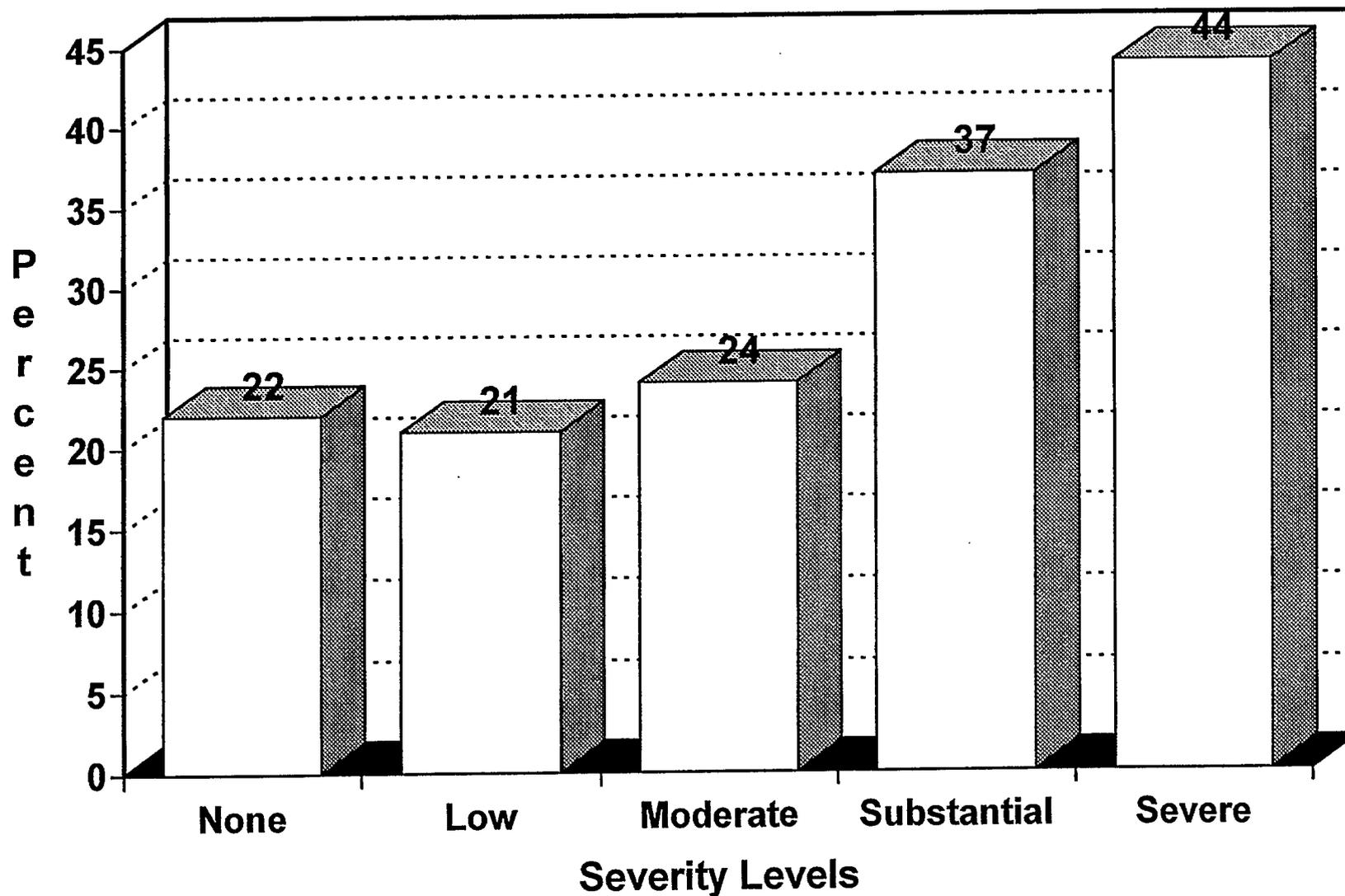
Just over 90% (287/317) of the offenders who completed the program were subsequently released from custody. 72.1% were released on day parole, 7.7% were released on full parole, and the remaining 20.2% were released at their statutory release date (formerly referred to as mandatory supervision). Offenders were followed over an average period of 14.9 months ($SD = 7.9$).

During the follow-up period, a total of 31.4% (90/287) of the offenders who were released were re-admitted back into custody. Re-admissions were coded as either a re-admission for a violation of the conditions of release (i.e., technical violation) or a re-admission following a new conviction. 19.9% were re-admitted for a technical violation, 13.6% were re-admitted with a new conviction, and 2.1% were re-admitted with both a technical violation and a conviction for a new offense. Unless otherwise stated, the analyses described below refer to the overall re-admission rate.

Severity of Substance Abuse Problems. Substance abuse severity ratings (i.e., alcohol, drug or combined alcohol and drug problems) were available for 259 of the 287 (90.2%) offenders who completed the program and were released. The distribution of severity ratings was as follows: 3.4% no substance abuse problem, 16.2% low level problem, 19.7% moderate level problem, 40.5% substantial problem, and 20.1% with a severe substance abuse problem. Figure 2 shows that the rate of re-admission increased dramatically according to the severity of offenders' substance abuse problem. For instance, offenders who had substance abuse problems ranging in severity from no problem to moderate level problems were re-admitted at rates of between 21% and 23.5%. By contrast, 37.1% and 44.2% of offenders who had substantial and severe problems were re-admitted back into custody. These differences were statistically significant ($\phi = 0.19, p < .05$).

Criminal Risk and Need Level. The assessment of risk and need levels was determined at the time of offenders' release back into the community using the Community Risk/Needs Assessment Scale (Motiuk & Porporino, 1989). A measure of risk and need was available for 251

Figure 2
Readmission Rate by
Substance Abuse Severity Levels



(87.5%) of the 287 released offenders. 38.2% of offenders who were released were rated as being low risk while the remaining 61.8% were determined to be high risk for re-involvement in criminality. Almost 49% were rated as being low to medium need while 51.4% of offenders presented a high level of needs.

Re-admission rate differed significantly according to risk level ($\phi = 0.28, p < .0001$). While only 14% of the low risk offenders were returned to custody, 39.4% of the high risk offenders were re-admitted. Similarly, the re-admission rate for offenders who presented high needs was significantly higher (41.1%) compared to the low and medium need offenders (17.2%) ($\phi = 0.26, p < .0001$).

Release Type. Offenders who were released on either day parole or full parole were grouped into a single category labeled "conditional release." Re-admission rate for the conditional release group was then compared to those offenders who were released on statutory release. Results showed that offenders who were released on conditional release had a lower re-admission rate (28.8%) compared to those released on statutory release (41.4%). It is important to note that although we perceive the difference in re-admission rate for the two groups of release types to be substantively meaningful, the difference failed to reach statistically significant levels ($p = .07$).

Offense Type. Offenders who were released were classified as having been convicted of violent offences (34.1%), non-violent offences (30.0%), or alcohol and drug (35.9%) offences. Re-admission rate differed significantly according to offense type ($\phi = 0.21, p < .0001$). The re-admission rate for offenders who were incarcerated for a violent offense was 35.7%. 41.9% for those who committed a non-violent crime were re-admitted. Interestingly, we found that only 18.5% of offenders who had been incarcerated for an alcohol or drug-related offense were re-admitted into custody following release.

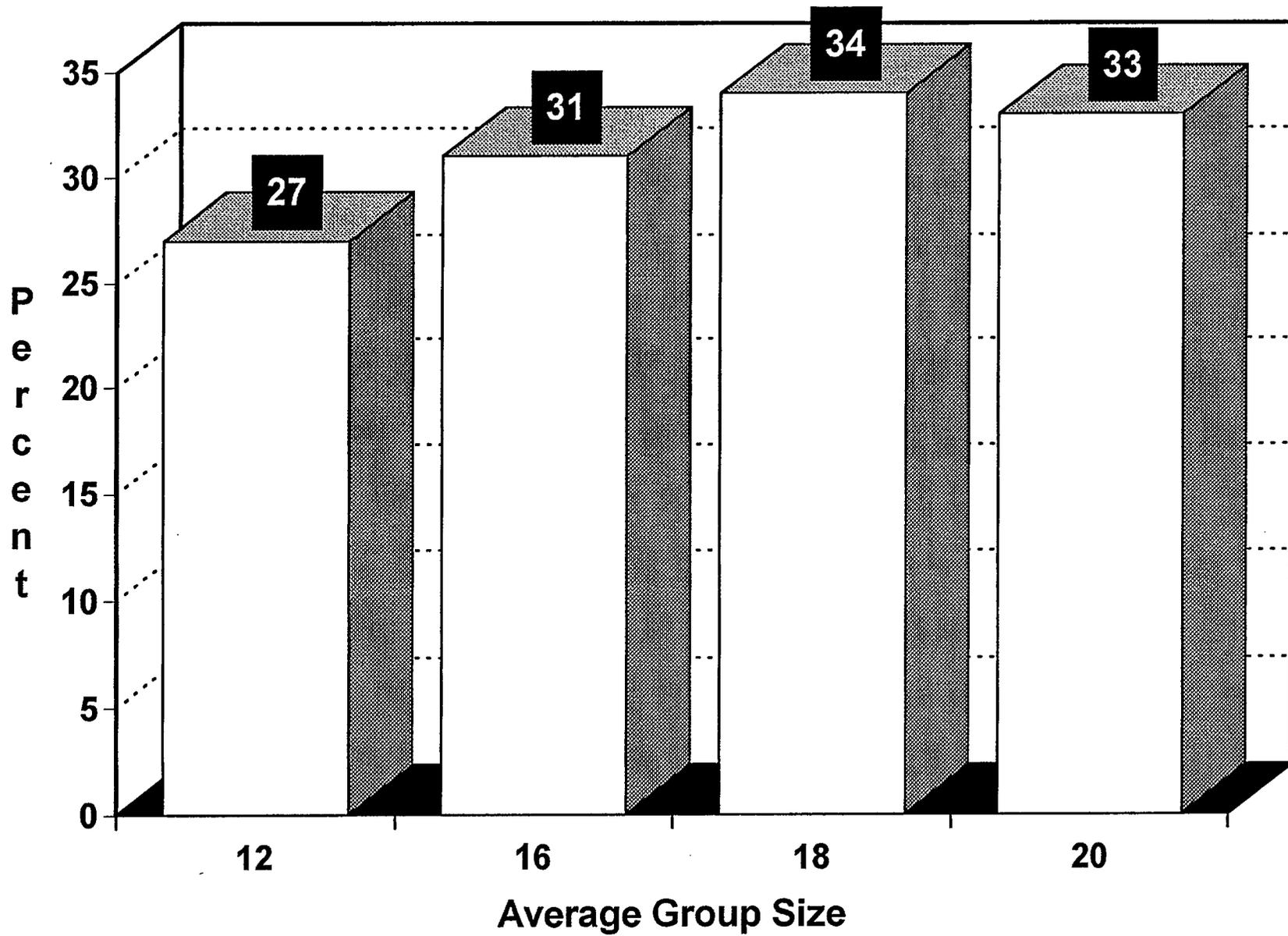
Group Size. One of the most common questions encountered in the course of delivering institutional programming to offenders concerns the optimal group size and its potential impact on participants' performance. Frequently, there are competing viewpoints regarding the appropriate

size for group-oriented programming. For instance, institutional administrators and case management officers who are faced with large numbers of offenders who need intervention programming stress the need for large sized groups of between 15 and 20 participants. On the other hand, experts in group-oriented psychotherapy strongly recommend limiting the size of groups to between 8 and 10 participants in order to maximize treatment gains (see Yalom, 1985). As a result, program facilitators who are trained by *CSC* are instructed to limit the size of their groups to 10 offenders.

We were able to locate only one study to support the contention that smaller groups result in superior treatment outcomes (see McCaughrin & Price, 1992). However, we were able to capitalize on the fact that data was available in the present study to examine the potential impact of group size on post-release outcome. In the present study, the *OSAP* program was administered to 20 consecutive groups of offenders with groups ranging in size from 9 to 20 offenders. Four categories of group size were created: (1) average group size of 12 (range = 9 to 14); (2) average group size of 16 (range = 15 to 17); (3) average group size of 18 (no combining of other group sizes); and (4) average group size of 20 (range = 19 to 20). We then examined the re-admission rates for each of the four groupings. Figure 3 reveals that offenders' rate of re-admission back into custody increased according to the average size of the group. Indeed, average group sizes of between 18 and 20 offenders evidenced re-admission rates of 34% and 33%, respectively, compared to a smaller average group size of 12 (re-admission rate of 27%). Although these differences were not statistically significant ($p = .79$), the results revealed a trend indicating that re-admission rate increased in relation to increasing group size. The findings suggest that an effort to increase the number of participants in a group will impact negatively on post-release success. We are hopeful that the results from the national implementation of the *OSAP* program will provide confirmatory evidence regarding the impact of group size on program performance and offenders' behavior following release.

Limitations Regarding the Interpretation of the Re-admission Data. The findings discussed in the above sections indicated that significant differences in re-admission rate occurred

Figure 3
Readmission Rate by Average Group Size



according to the severity of offenders' substance abuse problem, level of criminal risk and need, and offense type. These results suggest that certain offender characteristics, independent of program participation, played a role in post-release outcome. Unfortunately, we can draw only limited conclusions regarding the impact of these characteristics in relation to offenders' participation in the program due to the fact that the study did not incorporate a control group (i.e., a group of offenders with similar characteristics who did not participate in substance abuse programming) in the research design. For instance, empirical data regarding the re-admission rate for a control group would have enabled us to make direct comparisons with the re-admission rates of program participants. Any differences in re-admission rates between the treatment and control groups could then be attributed to participation in the *OSAP* program. Nevertheless, we feel that important information was obtained by examining the impact of critical variables such as severity of substance abuse problem, level of risk and need, and offense type on re-admission rate for those offenders who completed the program.

Relationship Between Program Performance and Post-Release Success

Clearly, it is likely that some offenders perform better while participating in interventions and benefit more from correctional programming than others. Pre- to post-program improvement is an important vehicle for identifying offenders for whom programming has been beneficial. However, it is even more important to demonstrate that an offender's performance during treatment is indicative of his or her future behavior after the program is completed and he or she is released from custody.

We conducted a series of analyses that attempted to demonstrate a direct relationship between offenders' performance in the program as measured by improvement on the pre/post measures and their performance while on release (i.e., during the follow-up period). In order to do so, we examined each of the eight instruments that comprised the pre- and post-program battery, separately, in an effort to identify those instruments that were predictive of improved performance from pre- to post-program. However, since we were interested in ultimately linking pre- to post-program performance with offenders' performance while on release, it was necessary

that we examine program performance in a different and more sophisticated manner than simply looking at pre- to post-program change. In the following paragraphs, we detail the methodology and rationale we used to examine this relationship.

To begin with, we proceeded by transforming offenders' raw scores to standardized "z-scores." Due to the fact that each of the measures differed in terms of the total number of items and the content area that was targeted, it was necessary to standardize each of the measures using a common metric. This procedure does not alter the offenders' scores in any way, but rather, this technique makes the scores generated by the different tests comparable.

Next, we created three-level performance indices for each measure based on the distribution or continuum of standardized change scores. For instance, offenders who performed poorly on a particular measure would have change scores with low values at the bottom of the distribution. In contrast, offenders who performed well would have change scores in the top of the distribution. As a result, each of the standardized change scores for each measure were empirically grouped in the same manner so that scores in the bottom 30% of each distribution represented *below average performance*, scores in the middle 40% of each distribution represented *average performance*, and scores that fell in the upper 30% of each distribution represented *above average performance*.

We then examined the relationship between program performance and post-release outcome by comparing the rate of re-admission across the three levels of performance (i.e., below average, average, and above average) for each of the eight measures. Table 4 displays the results of these analyses. The *Consequences of Drug Use* measure was the only instrument where increasing improvement across the three-level performance index was associated with a significant reduction in re-admission rate. However, four other measures evidenced promising trends. Although not statistically significant, there were substantively meaningful trends for the *Consequences of Alcohol Use*, the *How Much Do they Matter?*, the *Communicating About Drinking*, and the *Using Alcohol Responsibly* measures. Indeed, lower readmission rates were

observed for offenders who performed average or above average on the measures from the pre- to post-program administration periods.

Table 4

Relationship Between Performance on the Pre/Post Measures and Re-admission Rate

| Measures | Below Average Performance (%) | Average Performance (%) | Above Average Performance (%) | Sig. |
|------------------------------|-------------------------------|-------------------------|-------------------------------|-----------|
| Consequences of Alcohol Use | 30.5 | 33.3 | 26.5 | <i>ns</i> |
| Consequences of Drug Use | 38.9 | 30.3 | 17.8 | $p < .05$ |
| How Much Do They Matter? | 31.1 | 31.7 | 27.6 | <i>ns</i> |
| Communicating About Drinking | 32.9 | 29.7 | 29.1 | <i>ns</i> |
| Drinking and Assertiveness | 28.6 | 31.8 | 30.2 | <i>ns</i> |
| Using Alcohol Responsibly | 39.1 | 29.1 | 23.1 | <i>ns</i> |
| Decision-Making | 26.8 | 25.9 | 38.8 | <i>ns</i> |
| Employment Questionnaire | 29.4 | 27.2 | 38.3 | <i>ns</i> |

Note: *ns* = non-significant

Although only one pre/post measure demonstrated a significant reduction in re-admission rate, it was hypothesized that a combination of the measures might be a more robust indicator of overall program performance. Moreover, it was also expected that a combination of the measures would yield a stronger relationship to post-release outcome.

For each of the five measures, a score of -1 was given for below average performance, a score of 0 was given for average performance, and a score of 1 was given for above average performance. The measures were then summed to generate a net performance score for each offender. For example, if an offender performed above average on 2 measures (score of 2), average on 2 other measures (score of 0), and below average on the 5th measure (score of -1), his or her net performance score would be 1 (i.e., $2+0-1=1$). The distribution of net performance scores were then compared to the overall re-admission rate to examine the strength and significance of the relationship.

Next, we used an iterative procedure in order to maximize the strength of the relationship between the performance score and re-admission rate. In other words, each measure was systematically added or removed to unearth the strongest relationship between performance and re-admission. This procedure produced a final performance index that consisted of the following four measures: (1) *Consequences of Drug Use*, (2) *Consequences of Alcohol Use*, (3) *How Much Do they Matter?* and, (4) *Using Alcohol Responsibly*. The *Communicating About Drinking* scale was dropped by the procedure due to the fact that its inclusion reduced the strength of the relationship between the performance index and re-admission rate.

This procedure was conducted on the original measures and again on the measures after item deletion to maximize their coefficient values (see pp. 9 and 10). It was expected that the latter set of measures would yield the strongest relationship to outcome due to the enhanced consistency of responses to scale items. However, the original performance index that retained the original items yielded a stronger relationship with re-admission rate. Upon close examination, it appeared that the items that were responsible for reducing the coefficient values of each

measure also played a crucial role in differentiating performance on the instruments from pre- to post-program.

Scores for the final performance index could range between -4 (i.e., performed below average on all four measures) and 4 (i.e., performed above average on all four measures). Figure 4 shows that 3.5% (8/226) of the sample received a score of -3, 11.1% (25/226) received a score of -2, 23% (52/226) received a score of -1, 28.8% (65/226) received a score of 0, 21.7% (49/226) received a score of 1, 9.3% (21/226) received a score of 2, and 2.7% (6/226) received a score of 3. None of the offenders scored above average or below average on all four measures (i.e., scores of either 4 or -4). Moreover, given the small number of offenders who received scores of 3 or -3, these cases were pooled with the groups of offenders who received scores of 2 and -2, respectively, thereby creating a 5-level performance index with scores ranging between -2 to 2.

We then attempted to predict re-admission rate on the basis of offenders' scores on the 5-level index. As displayed in Figures 5 and 6, offenders' performance on the index was unrelated to the re-admission rate for technical violations ($p = .49$), but did predict re-admission rates for new offences ($p < .05$) as well as the overall rate of re-admission (technical violations and new offences; $p < .05$). Indeed, the overall re-admission rate for those who scored 2 or more on the performance index was only 11% (3/27), compared to offenders who yielded a score of 0 (re-admission rate = 28%, 18/65 offenders) and offenders who had scores of -2 or less (re-admission rate = 46%, 15/33).

"Survival" Analysis of Offenders Following Release From Custody. We examined the post-release "survival" rates for offenders according to their scores on the performance index. Survival analysis is a sophisticated statistical technique that, in the present context, tracked offenders' following release and patterned their rate of success over the course of the follow-up period. Figure 7 shows a noticeably higher survival rate for offenders who performed well in the program (i.e., scores of 2 or more on the performance index). For the remaining groups, discernible differences did not emerge during the initial 7-8 months following release. However,

Figure 4
Distribution of Performance Index Scores

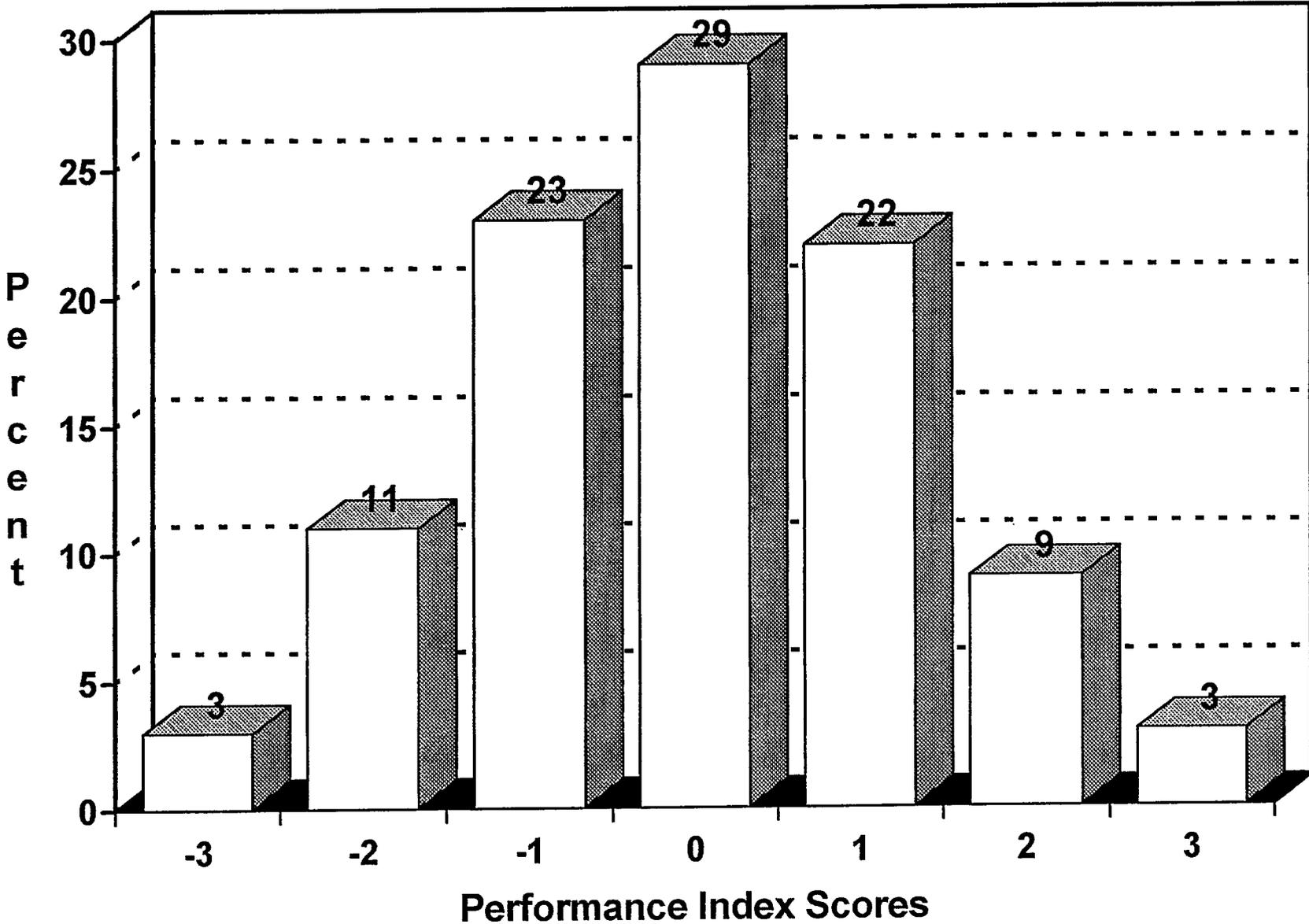
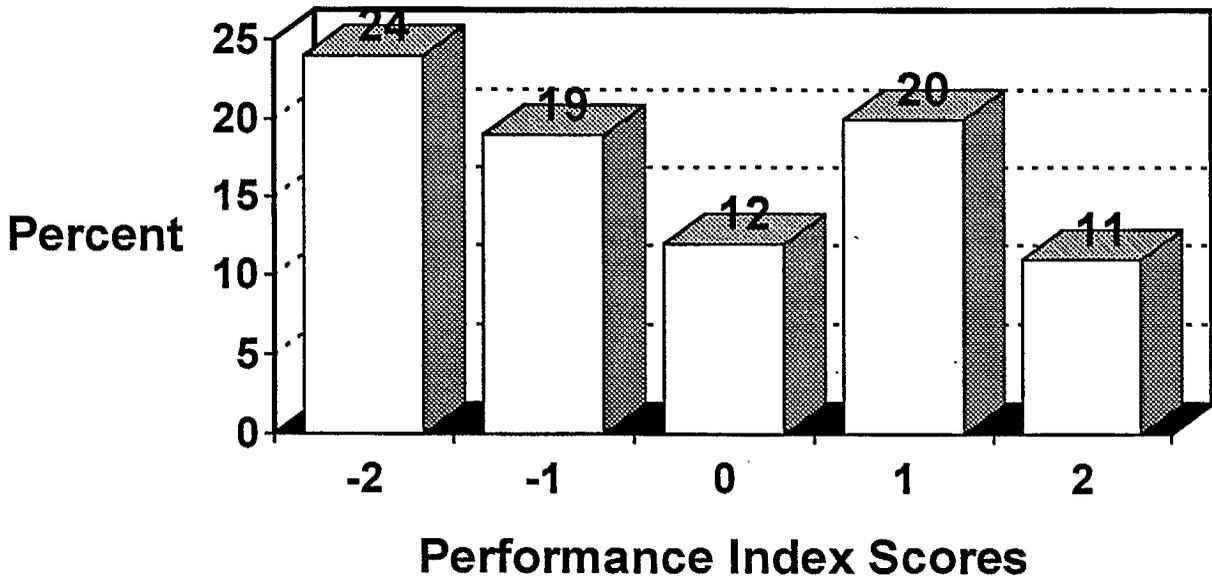


Figure 5

**Readmission for a Technical Violation by
Performance Index Scores**



**Readmission for a New Offence by
Performance Index Scores**

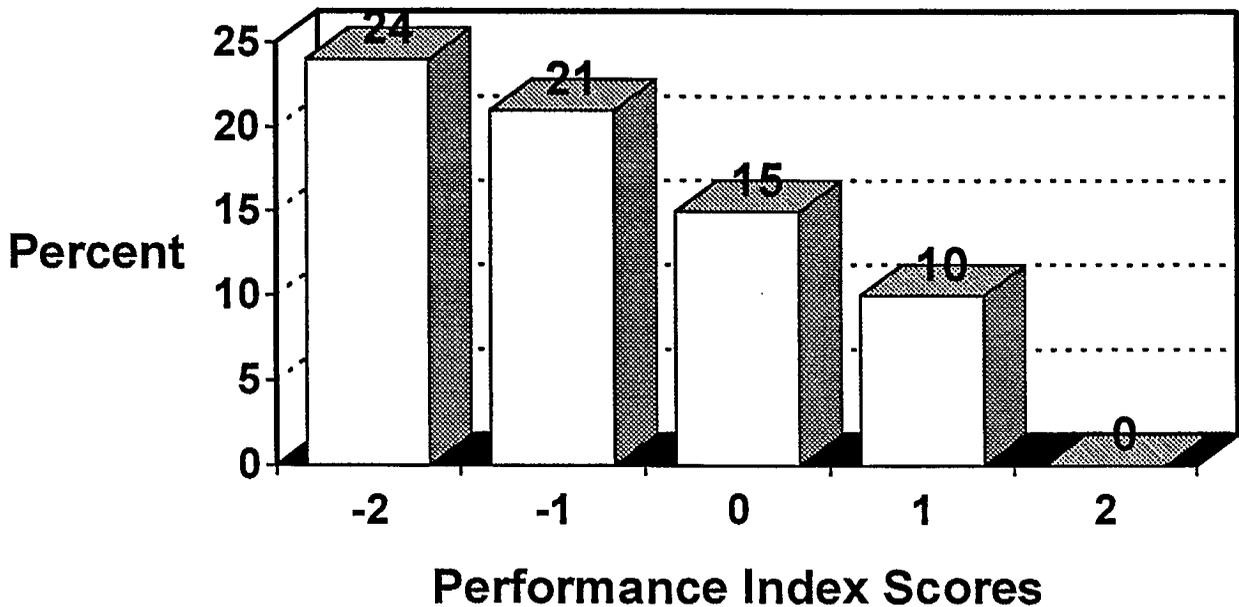
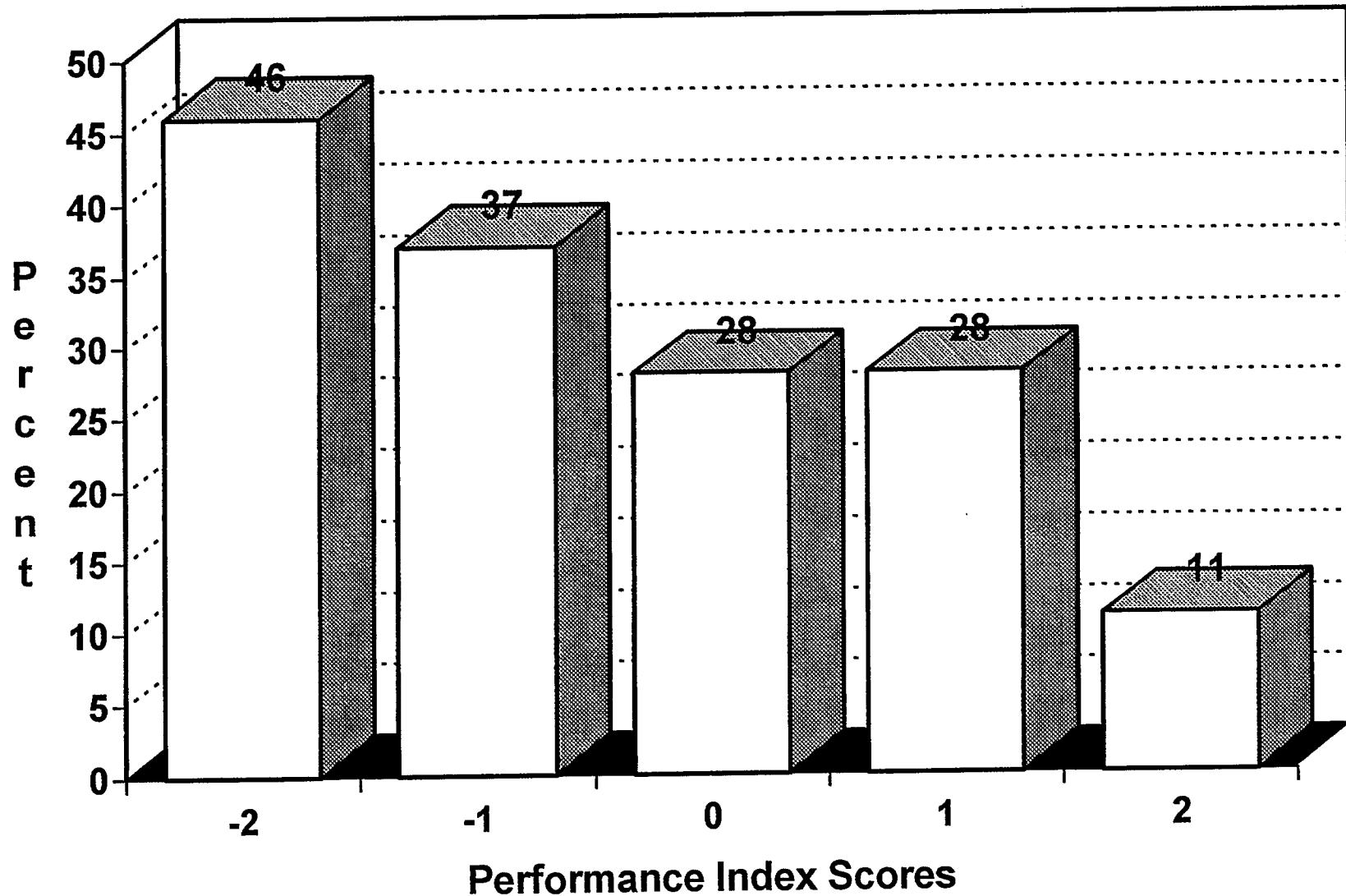


Figure 6
Readmission Rate by
Performance Index Scores



after about 8 months on release, offenders who performed the poorest on the performance index had the poorest survival rate (i.e., they had the highest re-admission rate compared with the performance of the other groups; see Figure 7). These differences were statistically significant ($p < .05$).

Re-admission Rates for High Risk Offenders With Serious Substance Abuse Problems.

Unfortunately, the limited sample size precluded an examination of potential interactions between severity of substance abuse problem, criminal risk, and program performance. However, we were able to conduct additional analyses on three sub-groups of offenders who: (1) exhibited intermediate-to-severe levels of substance abuse (i.e., offenders who had serious substance abuse problems), (2) were high risk for recidivism, and (3) had both a serious problem and were high risk. Figures 8 and 9 display these results.

Offenders who exhibited serious substance abuse problems and who demonstrated below average performance in the Program had a higher re-admission rate (54.2%; 13/24) compared to those who showed average (37.8%; 17/45) and above average performance (15.0%; 3/20). High risk offenders who demonstrated below average improvement were re-admitted at a higher rate (52.6%; 10/19) than offenders who exhibited average (43.8%; 14/32) or above average improvement (11.8%; 2/17). Although we believe that these differences are substantively meaningful, the difference did not attain statistical significant ($ps = .09 - .11$).

Finally, we analyzed a sample of 90 offenders who had both serious substance abuse problems and who had also been assessed as being high risk for recidivism. We found that those offenders who exhibited below average performance had a re-admission rate of 64.3% (9/14), compared to re-admission rates of 52% (13/25) for those who showed average performance and 18.2% (2/11) for those who demonstrated above average performance.

Offender Characteristics and Performance Index Scores. The results presented thus far have consistently demonstrated that offenders who performed above average, as indicated by positive scores on the performance index, have lower rates of re-admission back into custody. We were interested in determining whether this group of offenders possess other unique

Figure 7 Survival Rates

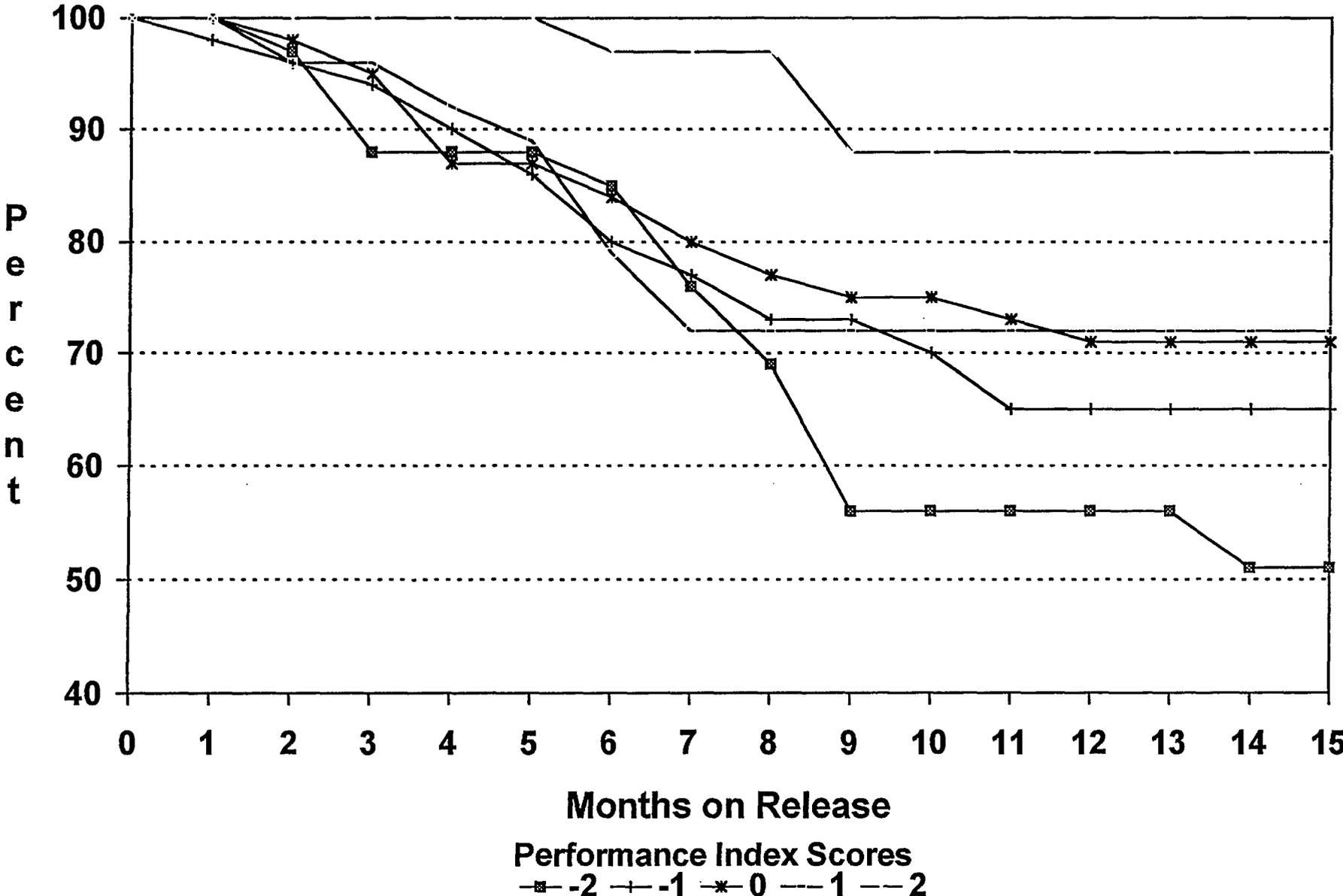
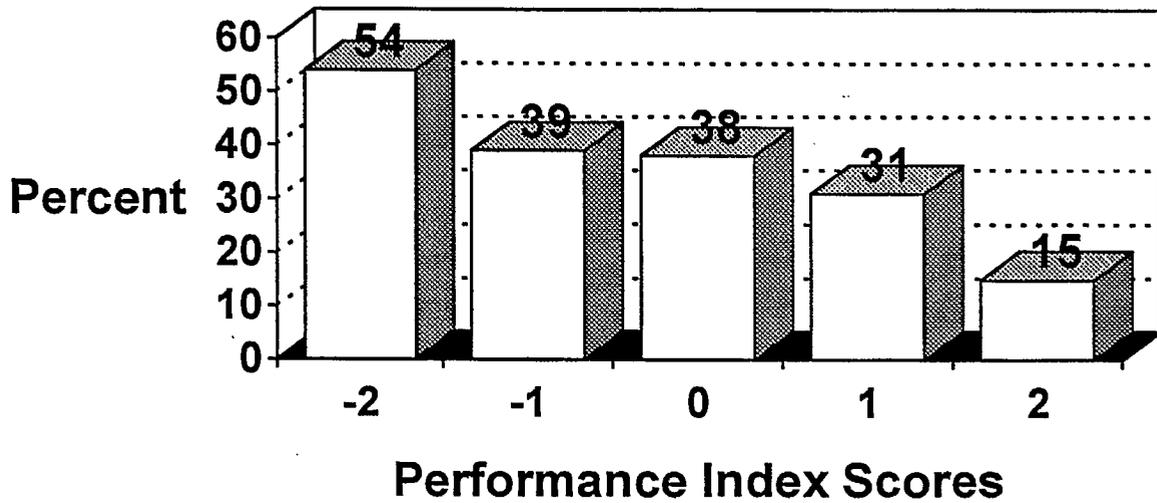


Figure 8

Readmission Rate by Performance Index Scores

-Moderate to Severe Offenders -



Readmission Rate by Performance Index Scores

-High Risk Offenders -

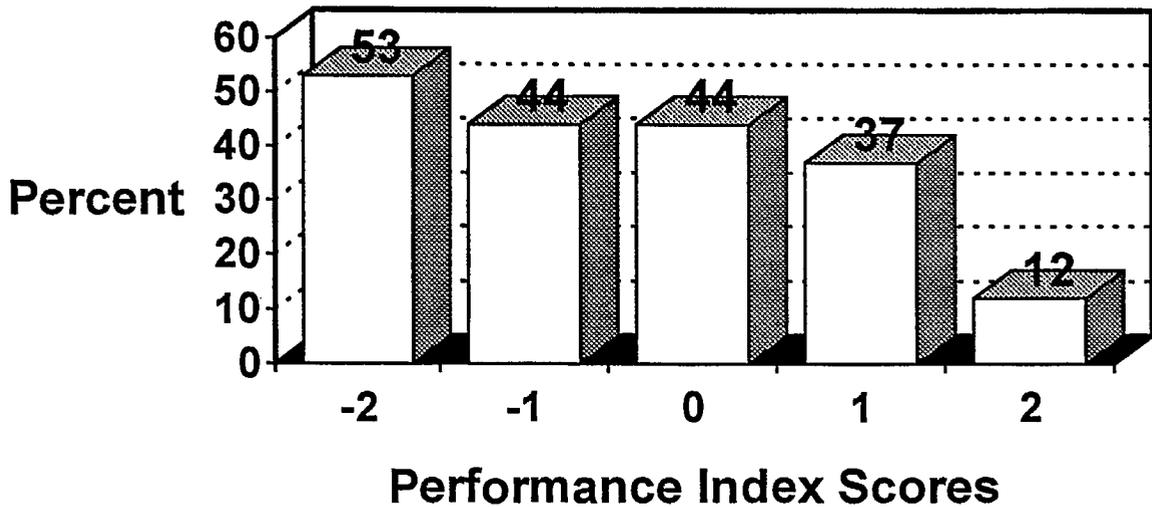
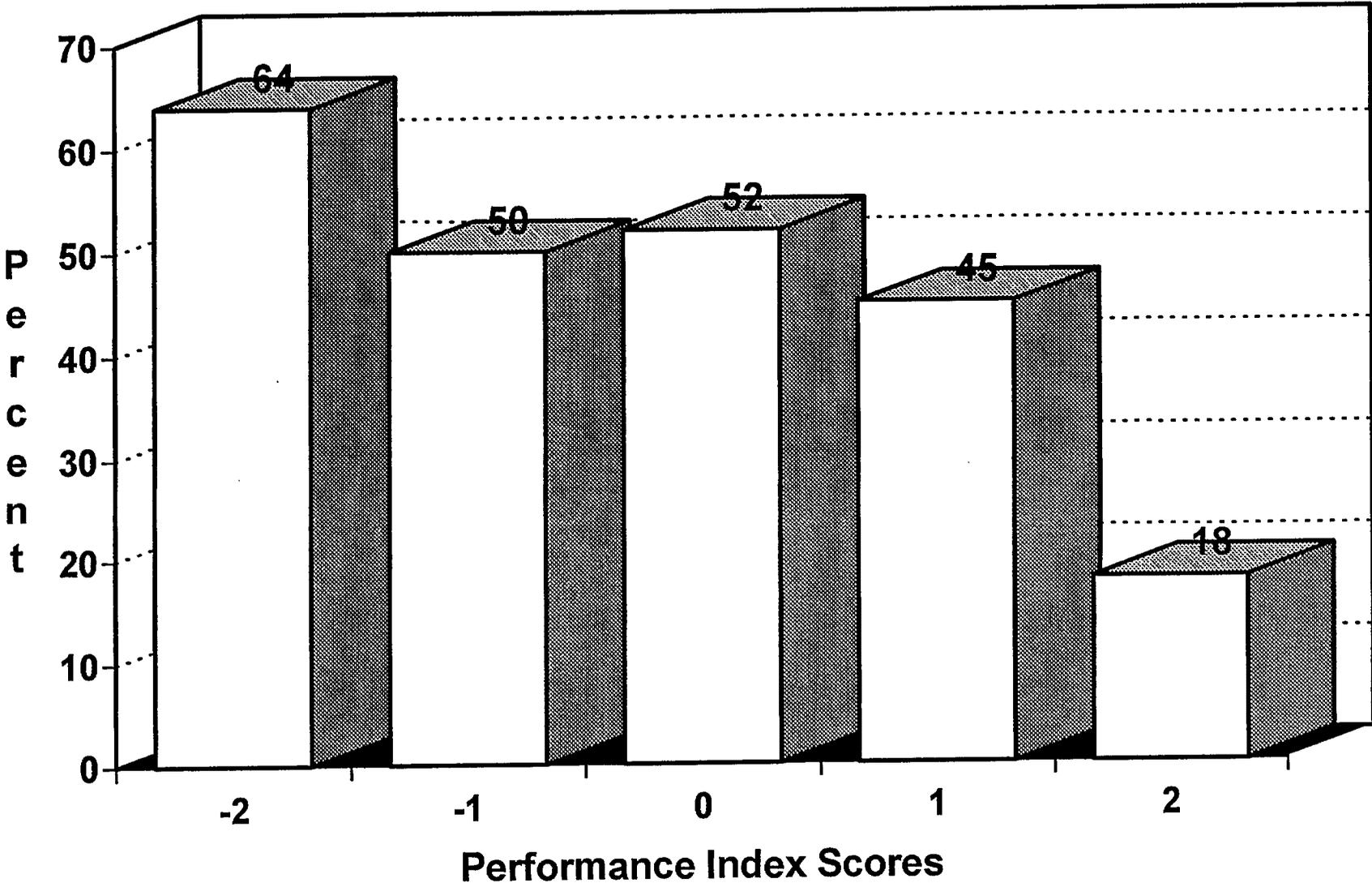


Figure 9
Readmission Rate by
Performance Index Scores
-Moderate to Severe, High Risk Offenders -



characteristics which were found to impact on post-release success. For instance, if all offenders who performed above average were found to be low risk for recidivism at the time of their release, it would be unclear what was responsible for the lower re-admission rates; performance on the pre/post measures or being assessed as low risk for recidivism.

To address this issue, we compared offenders' scores on the performance index to other factors that were found to impact on re-admission rate; severity of substance abuse problems, criminal risk and need levels, release type and offense type (see pp. 21 and 22). Table 5 shows that no significant differences were found on any of the comparisons. The results suggest that compared to offenders who performed at average or below average levels in OSAPP, those who performed at above average levels had similar characteristics that were predictive of recidivism.

Table 5

Relationship Between Offender Characteristics and Performance Index Scores

| | Performance Index Scores | | | | | Significance Level |
|--|--------------------------|------|------|------|------|--------------------|
| | -2 | -1 | 0 | 1 | 2 | |
| <u>Substance Abuse Severity Levels</u> | | | | | | <i>ns</i> |
| None - Low (%) | 17.2 | 21.7 | 25.0 | 23.4 | 20.0 | |
| Moderate - Severe (%) | 82.8 | 78.3 | 75.0 | 76.6 | 80.0 | |
| <u>Risk Level at Time of Release</u> | | | | | | <i>ns</i> |
| Low (%) | 34.5 | 38.6 | 46.7 | 38.6 | 34.6 | |
| High (%) | 65.5 | 61.4 | 53.3 | 61.4 | 65.4 | |
| <u>Need Level at Time of Release</u> | | | | | | <i>ns</i> |
| Low to Moderate (%) | 37.9 | 61.4 | 53.3 | 43.2 | 50.0 | |
| High (%) | 62.1 | 38.6 | 46.7 | 56.8 | 50.0 | |
| <u>Type of Release</u> | | | | | | <i>ns</i> |
| Day/Full Parole (%) | 75.8 | 80.8 | 80.0 | 81.6 | 74.1 | |
| Mandatory Supervision (%) | 24.2 | 19.2 | 20.0 | 18.4 | 25.9 | |
| <u>Offense Type</u> | | | | | | <i>ns</i> |
| Violent (%) | 48.5 | 23.1 | 32.3 | 51.0 | 37.1 | |
| Non-Violent (%) | 24.2 | 30.8 | 36.9 | 20.4 | 22.2 | |
| Drug/Alcohol (%) | 27.3 | 46.1 | 30.8 | 28.6 | 40.7 | |

Note: *ns* = non-significant

Substance Use Among Readmitted Offenders. *NPB* files were available for all of the 90 offenders who were re-admitted following release. Not surprisingly, we found that 93.3% (84/90) of the offenders who were released had been given a special condition by the Board to abstain from all intoxicants. However, we noted that 3 of the 6 offenders who did not have a condition to abstain were assessed as having serious substance abuse problems. 71.1% (64/90) of the offenders who were re-admitted were also required to participate in some form of treatment for substance abuse while on release.

We examined re-involvement in substance use (i.e., using alcohol or drugs or trafficking in drugs) for those offenders who were restricted by the *NPB* from using any intoxicant. The results showed that the majority of offenders (76.2%; 64/84) who were re-admitted into custody had become re-involved in alcohol or drugs. Specifically, 71.4% (60/84) consumed alcohol or drugs during release while only 4.8% (4/84) were involved in trafficking.

Offenders' substance use while on release was then compared to the severity of their substance abuse problems. Severity ratings were available for all but four of the offenders who were restricted from using any form of intoxicant. This analysis revealed that 77.5% (55/71) of offenders with intermediate-to-severe problems became re-involved with alcohol or drugs. By contrast, 44.4% (4/9) of the offenders with low level problems became re-involved ($p < .05$).

Offenders' participation in substance abuse intervention as a condition of release was examined in relation to substance abuse severity. Severity ratings were not available for 5 offenders. The results showed that a higher proportion of offenders (74.3%, 55/74) with moderate to severe problems were required by the *NPB* to participate in treatment compared to 63.6% (7/11) of offenders with low level problems. However, these differences were non-significant.

Only 37.5% (24/64) of those offenders who were required by the *NPB* to participate in programming actually completed the treatment program. Interestingly, for the 8 offenders who were not required to participate in treatment but chose to do so, 75.0% (6/8) completed a

treatment. These results were not tested for statistical significance given the small size of the latter group.

DISCUSSION

In discussing the above results, it is important for us to point out that the study was not based on a full experimental design that made use of random assignment of offenders to treatment and control conditions. As a result, the findings must be tempered by the fact that change on the pre- to post-program instruments may have been due to test-taking repetition rather than program involvement. However, we feel that this is unlikely due to the linkage we found between pre- to post-program improvement and post-release outcome. A future study of the *OSAP* program that incorporates a true experimental design is currently underway that will fully examine the relationship between pre/post performance and post-release outcome.

A second limitation concerns the sample of 71 offenders who did not complete the pre/post batteries. Although we did not identify any systematic biases in this sample, the fact remains that the pre/post findings and the performance index results are based on 78% of the sample that completed the program. The possibility still remains that different results may have been obtained if the entire sample of 317 offenders had completed all of the measures.

With these cautions in mind, the results of the present study add to a growing body of research which supports the effectiveness of cognitive-behavioural substance abuse treatment for offenders. Examination of the pre- to post-program changes suggested that cognitive-behavioural treatment is an effective intervention for the development of skills and cognitive abilities that are of critical importance in reducing both re-admission into custody as well as alcohol and drug use. Statistically significant differences were uncovered for all but one of the pre/post measures indicating that the offenders demonstrated general improvement on all of the skills and cognitive techniques that were targeted by the battery of measures.

Offender performance while on release was compared to a number of factors which were found to be significantly associated to overall success on release. The results indicated that, even though all offenders had completed the *OSAP* program, factors such as the severity of offenders'

substance abuse problems, risk for recidivism, need level, and incarceration for a non-violent or alcohol- or drug-related crime were all associated with rate of re-admission. These findings suggest that even though the current offender sample completed the program, a number of key individual difference factors independent of offenders' performance in the program were important determinants of the likelihood of offenders' success or failure following their release from custody.

Offenders' program performance (i.e., using the performance index) was derived from four specific measures (the *Consequences of Alcohol Use* scale, the *Consequences of Drug Use* scale, the *How Much Do They Matter?* scale, and the *Using Alcohol Responsibly* scale). Three of these measures specifically targeted knowledge or skills associated with alcohol use whereas only one of the measures focused on knowledge relating to drug use. Interestingly, none of the three instruments which, in combination, measured skills, knowledge or ability about drug and alcohol use were found to distinguish re-admission rate on their own.

The reasons for the resulting distribution of alcohol and drug measures may be due to a number of factors. The program curriculum may have inherently targeted more skills and knowledge associated with alcohol consumption rather than drug use. Second, the skills emphasized by the *OSAP* program regarding alcohol use may be easier for offenders to assimilate into their behavioural repertoire than those posited for drug use. Third, unidimensional scales (i.e., scales that measure alcohol or drug use only) may be better tests for detecting change relating to outcome than those that are multi-dimensional (i.e., scales that measure both drug and alcohol use). Finally, it may be simply a matter that if more measures had focused solely on drug use, similar results as found on the 3 alcohol instruments would have been realized.

The most encouraging finding of this study was that offender performance in the program, as measured by the performance index, predicted post-release success. In short, offenders who were assessed as performing at an above average level had a significantly lower re-admission rate compared to those who performed at average and below average levels. Offenders' "survival" rates in the community was also linked with their performance in the program. Clearly, these results indicate that simply completing an institutional program is an inadequate way of

determining whether or not an offender derived any benefit from the intervention. This study demonstrates that it is possible to construct more sophisticated indices for determining who has benefited from treatment. Substantive improvement must be evident in order to expect a meaningful decrease in re-admission rate.

Success on release that was a function of program performance also differed for certain sub-groups of offenders. Indeed, offenders who were assessed as having serious substance abuse problems (i.e., intermediate-to-severe) who showed above average performance following the program evidenced a lower re-admission rate compared to those who showed average or below average performance. This finding was particularly revealing in light of the fact that the *OSAP* program was developed to address the needs of offenders exhibiting more serious alcohol and drug problems. Moreover, the results underscore the importance of the differential treatment needs of offenders, the importance of matching offender characteristics with specific types of intervention (Andrews, Bonta & Hoge, 1990; Andrews, Zinger, Hoge, Bonta, Gendreau, & Cullen, 1990; Annis, 1990; Gendreau & Goggin, 1991; Lightfoot & Hodgins, 1993) and that more intensive intervention be aimed at higher risk and higher need groups of offenders (Andrews, et al., 1990).

Improvement on the pre/post measures was found to be independent of other factors that were related to recidivism. These findings suggest that program performance holds promise as a new and dynamic method of predicting post-release success. Future research needs to focus on what characteristics are germane to offenders who perform well on the pre/post measures. This line of inquiry may reveal other pertinent factors (e.g., literacy levels, learning disabilities, etc.) that inhibit program performance and, as a result, increase the likelihood of failure on release.

Substance use activity while on release was found to be significantly higher for re-admitted offenders who exhibited more serious problems. This finding confirms previous results (U.S. Bureau of Justice Statistics, 1983; Weekes et al., 1993) which established that increasing levels of substance use is problematic (i.e., resulting in re-admission for this sample) for offenders. In addition, the severity of the substance abuse problems evidenced by those offenders who were re-

admitted into custody varied according to whether they were required to participate in treatment in the community. Although not statistically significant, the results indicated that offenders with more serious alcohol and drug problems were more likely to be required to participate in programming while on release compared to offenders with less severe difficulties.

In closing, this study provides important evidence which indicates that offender performance in a cognitive-behavioural substance abuse program is an important determinant in reducing recidivism. Furthermore, results were presented indicating that key offender characteristics such as severity of substance abuse problem, risk for recidivism, need levels and offense type continue to have an impact on post-release behavior even though offenders had completed treatment. Future research must replicate and refine the relationship between offender performance in a treatment program, re-admission rate and subsequent problematic substance abuse behavior.

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