

DOES CORRECTIONAL PROGRAM QUALITY REALLY MATTER? THE IMPACT OF ADHERING TO THE PRINCIPLES OF EFFECTIVE INTERVENTION*

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Research Summary:

This study analyzed data on 3,237 offenders placed in 1 of 38 community-based residential programs as part of their parole or other post-release control. Offenders terminated from these programs were matched to, and compared with, a group of offenders (N = 3,237) under parole or other post-release control who were not placed in residential programming. Data on program characteristics and treatment integrity were obtained through staff surveys and interviews with program directors. This information on program characteristics was then related to the treatment effects associated with each program.

Policy Implications:

Significant and substantial relationships between program characteristics and program effectiveness were noted. This research provides information that is relevant to the development of correctional programs, and it can be used by funding agencies when awarding contracts for services.

KEYWORDS: Correctional Program Integrity, Correctional Program Assessment Inventory (CPAI), Treatment Effects, Halfway Houses

A report released recently by the U.S. Department of Justice indicated that the correctional population reached a new high in this country with almost 6.9 million offenders under correctional control at the end of 2003

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(Glaze, 2004). Although this figure only represented a 2% increase from the previous year, it capped a 50% increase in the correctional population since 1990. The prison population experienced the greatest increase during this time period (76%), but probation and parole populations grew as well (44% and 37%, respectively) (U.S. Department of Justice, 2001).

This growth in offender populations under community supervision, coupled with reductions in resources available for community-based correctional agencies, causes concern. Research on recidivism in probation samples indicates recidivism rates as high as 65% (Petersilia, 1985). Although other studies indicate much lower recidivism rates (e.g., McGaha et al., 1987; Vito, 1986), a national sample from 1986 indicates that 62% of the sample had a disciplinary hearing for a violation of probation or were rearrested for another felony during a three-year follow-up. Additionally, 46% had been sentenced to prison or jail or had absconded from supervision within that time period (United States Department of Justice, 1992).

Other statistics pertaining to probation and parole populations indicate that a substantial number of offenders continue to exhibit criminal behaviors while under community supervision. To illustrate, the number of offenders entering state prison systems on violations during community supervision rose from 18,000 to 142,000 between 1975 and 1991. By 1991, probation and parole violators constituted 45% of the prison population. Most community supervision violators (77%) in prison were sentenced to prison for a new felony conviction (Cohen, 1995).

In 1991, probation and parole violators in prison equated to roughly 318,000 prisoners. These 318,000 offenders committed 13,200 new murders, 12,900 new rapes, 19,200 new assaults, and 39,500 new robberies while under community supervision. Furthermore, although felony probationers and parolees are not permitted to carry firearms, 21% of the community supervision violators in prison for committing a new offense reported possessing a firearm while under post-release control, and most were armed when committing the new offense (Cohen, 1995). Additional data indicate many other transgressions committed by offenders under community supervision, such as substance abuse, absconsion, failure to pay fines, and failure to meet other conditions of supervision (Bonzcar, 1997; Cohen, 1995; U.S. Department of Justice, 1992). These data certainly question the ability of community supervision to effect meaningful behavioral change in a direction favorable to public safety.

What can be done to enhance the effectiveness of community-based services in order to rehabilitate offenders? Research on intensive supervision programs and other supervision enhancements based on custody, control, and/or deterrence has failed to show promise in reducing the recidivism of offenders supervised in the community (Cullen et al., 1996; Petersilia and

Turner, 1993). One promising method of reducing the recidivism of offenders under community supervision is to provide “clinically relevant” correctional interventions (Andrews et al., 1990b). A popular method for delivering these services is through the use of community residential facilities (e.g., halfway houses). There is, however, considerable variation in the structure and effectiveness of these facilities (see Latessa and Travis, 1992).

Previous research helps to explain this variation in correctional program effectiveness. Cullen (2002) describes “the Canadians’ theory of rehabilitation,” including predictions about which correctional programs should be effective in reducing recidivism and which programs are likely to fail. A group of Canadian researchers have developed the basis for this theory, which in turn provides specifications for a successful correctional program [see also the important contributions of Quay (1979) and Palmer (1991, 1994, 1995)]. More specifically, correctional programs and interventions should focus on higher risk offenders; deliver cognitive-behavioral or behavioral interventions that focus on relevant criminogenic needs; attend to the qualifications, skills, and values of staff; and evaluate what they do (Andrews et al., 1990a; Andrews et al., 1990b; Cullen, 2002; Gendreau, 1996). Adherence to the parameters of the theory can be measured with the Correctional Program Assessment Inventory (CPAI)¹ (see Gendreau and Andrews, 1996). However, there is little empirical research on the relationship between the scores yielded by the CPAI and program effectiveness [and the research that has been conducted to date includes Gray (1997), Holsinger (1999), Lowenkamp (2004), and Nesovic (2003)]. The current research investigates the relationship between the CPAI and program outcome using program integrity and offender data from 38 halfway house (HWH) programs in Ohio.

The findings of this research are important for several reasons. First, the offender samples used in this research comprise parolees. Given the current focus on the importance of offender re-entry, this research is timely and relevant to current issues in corrections. Second, this research focuses on identifying the characteristics of effective correctional programs. Once these characteristics have been identified, a blueprint of effective correctional programs can be developed and refined, providing invaluable information to existing correctional programs or agencies that are in the process of developing and implementing interventions. Third, this research provides information that is important to policy makers and funding sources when making funding decisions regarding correctional programs.

1. The most recent version of the CPAI is the CPAI-2000 (Gendreau and Andrews, 2001)

Fourth, it allows for a partial test of “the Canadians’ theory of rehabilitation” mentioned above and discussed in greater detail below.

METHODOLOGY²

The main research question is: “Does a relationship exist between program integrity and program effectiveness?” Previous research indicates that certain types of interventions are more effective than others in reducing recidivism (Gendreau, 1996). However, fewer studies have provided strong evidence of the empirical link between program integrity and program effectiveness. This study will provide empirical analyses of the relationship between dimensions of program integrity as measured by the CPAI and program effectiveness.

To answer this research question, data on program integrity and program effectiveness were collected for each of the 38 programs included in the analyses. To develop data on program integrity, individuals trained in the application of the CPAI conducted site visits to each program. Many of the program characteristics included on the CPAI³ were scored for each program based on interviews with the program director and a review of relevant program materials. Additional data on program integrity was gathered from surveys completed by all staff at each program. It is important to emphasize that the CPAI was not scored using the standard assessment protocol, nor were data collected to score the entire instrument for all programs. Specifically, some items on the CPAI were not scored as site visits were relatively brief and did not involve an examination of multiple sources of data (e.g., structured interviews with staff and offenders, observation of group treatment sessions, and so on). In addition, the scoring of the CPAI was based on information collected in 2002. A concern arises in that the programs may have changed from fiscal year 1999 when the treatment group received the services. To address this issue, interviews with the program directors were based on their recollections of program operations in 1999. Furthermore, program materials relevant to the CPAI assessment were also limited to that time period. This research should not be considered a validation of the CPAI; rather the instrument was used to structure data collection and analysis of variables related to program integrity.

A comparison of the recidivism rates of the treatment and comparison groups for each program served as the measure of program effectiveness. The recidivism data were based on incarceration rates collected during a

2. For more detailed information on the methodology, see Lowenkamp and Latessa (2002) and Lowenkamp (2004).

3. Due to the limited nature of the interviews with staff and program directors, the total number of items to be scored on the CPAI was reduced from 77 to 62.

two-year follow-up period and were collected from the database maintained by the Ohio Department of Rehabilitation and Correction.

SAMPLE

The sample of programs included all Community Corrections Act funded programs in the State of Ohio that provided residential services to state parolees through a halfway house program (HWH). To be included in the sample, the program had to be in operation during fiscal year 1999 (July 1, 1998 to June 30, 1999). These parameters yielded a total of 34 service providers operating 38 distinct offender programs.

To calculate program effectiveness, data were collected on individual offenders who participated in these programs and were related to a comparison group of similar offenders. Specifically, the treatment group consisted of all offenders who were served by the aforementioned programs with a release date during fiscal year 1999, and who were referred to and entered a HWH operated by the State Parole Board. The offenders sampled ($N = 3,237$) were spread across the 38 distinct programs with an average of 139 offenders per program. The range was 12 to 329, with over 75% of the programs having served 50 or more offenders in fiscal year 1999. Approximately 65% of the sample was classified as successful terminations, with the number of successful terminations from each program ranging from 6 to 272.

The parolees/post-release control releases in the treatment group were matched to parolees/post-release control releases who were under parole supervision, but who were not placed in a HWH. The comparison cases ($N = 3,237$) were drawn from a larger sampling frame ($N = 6,781$) and were matched with the treatment cases on county of conviction, sex, and risk level as determined by a modified version of the Salient Factor Score (Hoffman, 1994).⁴ When multiple cases were available, the first eligible

4. To match cases from the treatment and comparison group and determine whether programs provided greater services to high-risk or low-risk offenders, a measure of risk needed to be developed. To create a risk scale, a modified version of the Salient Factor Score (SFS) was developed. This scale is based on the original items and weights used in the SFS, with some slight modifications. Modifications included replacing the item measuring commitment-free periods with an item that taps employment status, replacing the item measuring current CJ status with an item that measures community supervision violations, and modifying the substance abuse item (which previously focused only on opiates) to include any drug addiction. The only other change was the use of arrests rather than convictions. Although slight adjustments were made, overall the two scales are fairly similar and still range in value from 0 to 10. Only the measure of employment changed substantively. The use of employment status at arrest is supported by reviewing the risk factors measured on other known risk assessment instruments (e.g., The Wisconsin Risk Scale, The Statistical Index of Recidivism, and the Level of Service Inventory). Previous research on risk factors also provides support

case was selected for inclusion in the comparison group.

TABLE 1. DESCRIPTIVE STATISTICS
FOR ALL HALFWAY HOUSES
BY GROUP MEMBERSHIP

Variable	Treatment Group	Comparison Group
Age*	Mean (<i>N</i>) 34 years (3,237)	Mean (<i>N</i>) 37 years (3,237)
Race	% (<i>N</i>)	% (<i>N</i>)
Black	62 (2,017)	61 (1,959)
White	38 (1,220)	39 (1,278)
Sex	% (<i>N</i>)	% (<i>N</i>)
Male	91 (2,959)	91 (2,959)
Female	9 (278)	9 (278)
Prior Arrest (Yes)*	% (<i>N</i>) 93 (3,022)	% (<i>N</i>) 87 (2,822)
Prior Incarcerations (Yes)*	% (<i>N</i>) 50 (1,618)	% (<i>N</i>) 40 (1,299)

*Difference is significant at $p < 0.05$.

The descriptive statistics on demographic characteristics for the treatment and comparison groups are reported in Table 1. Data reported in this table indicate that the comparison group was significantly older than the treatment group (37 versus 34 years old). The two groups were equivalent in terms of racial composition. Although the two groups differed in terms of the specific criminal history measures, most participants had been in contact with the criminal justice system before their inclusion in this study.

RECIDIVISM

The measures of recidivism used in this research included a return to an Ohio Correctional Facility for any reason (technical violation or new arrest). In addition, the data were analyzed for incarceration as a result of a technical violation versus a new arrest separately. The decision to use these measures over others was based on the reliability of incarceration data. Although incarceration is a conservative measure of future criminal behavior, the data on prison intakes are complete and easy to query.

The actual measure of effectiveness is the logged odds ratio, which is a good measure to use when dealing with two groups of offenders (treatment versus comparison) and two distinct outcomes (success versus

for the use of a measure of employment when assessing risk and predicting recidivism (Gendreau et al., 1996).

failure).⁵

PROGRAM INTEGRITY DATA

Program integrity was measured using an abbreviated version of the CPAI, measures developed from responses on the staff surveys, and data available from the CCIS database maintained by the State of Ohio Department of Rehabilitation and Correction. The areas covered with these measures, and those specifically found on the CPAI, include program implementation, client pre-service assessment, program characteristics, staff characteristics, evaluation, and an "other" category containing miscellaneous items.

Program implementation measures the qualifications of the program director, his/her involvement in the program, community support for the program, planning and research, as well as funding. Client pre-service assessments are concerned with the appropriateness of the clients received by the program and assessment practices related to risk, need, and responsiveness. The program characteristics section measures the type of treatment, treatment targets, duration and dosage of treatment, matching of offenders and staff to programming, use of rewards and sanctions, the presence of aftercare, and whether the program varies the intensity and duration of services by risk. The staff section of the CPAI measures the education and experience of staff, evaluation and supervision of staff, staff attitudes toward treatment, staff training, and the ability of staff to have input into the program. The evaluation section measures how well a program evaluates itself through the use of quality assurance mechanisms and outcome evaluations. The final section of the CPAI includes miscellaneous items pertaining to the program such as disruptive changes in the program, funding, or community support, ethical guidelines, and the comprehensiveness of client files.

ANALYSIS

To determine whether a relationship exists between program integrity and program effectiveness, several separate analyses were conducted. First, all items on the CPAI were tallied to generate a total score for each program. To calculate an overall score, the total number of points received across the six sections were totaled and then divided by the total number of points possible across the entire instrument. Second, each section on the CPAI was tallied to provide a score for each section. To calculate scores for each section on the CPAI, the total points received in each section were divided by the total number of points possible in each section. The

5. For more information on the logged odds ratio, see Lipsey and Wilson (2001).

CPAI scores were then correlated with treatment effects to determine the relationship between program integrity and treatment effectiveness. The use of 95% confidence intervals (*CI*s), as recommended in the 2001 APA Publication Manual (American Psychological Association, 2001), was emphasized in the interpretation of results. For a discussion of the different ways the *CI* can be interpreted, see Cumming and Finch (2005). It should be noted that the *CI* can be interpreted as a significance test; that is, a *CI* that contains 0 is not statistically significant. It should also be emphasized, however, that because a *CI* includes 0 does not mean that there is no effect; it is extremely rare for 0 to be the point estimate (Hunter and Schmidt, 2004). The primary utility of the *CI* rests on the interpretation of its width. As the width of the *CI* increases, the precision of the estimate of μ decreases (i.e., the estimate is associated with more uncertainty) (Hunter and Schmidt, 2004).

RESULTS

This section reviews the results of this research. The findings are presented in three parts: The first contains information on the treatment effects of the 38 programs in this study, the second provides the information relevant to the relationship between the CPAI and program effectiveness, and the third investigates how these programs can be grouped by their CPAI scores and whether these groupings have practical value. The implications of these findings are then summarized and discussed.

TREATMENT EFFECT SIZES

The first set of analyses focused on calculating the treatment effect sizes and weights for each program. Recall that the measure of effectiveness is calculated using the formula for the logged odds ratio, whereas the weight was the inverse of the estimate variance. A logged odds ratio equal to zero indicates no difference in recidivism rates between the treatment and the comparison groups. A negative logged odds ratio indicates that the comparison group had a lower recidivism rate relative to the treatment group. Finally, a positive logged odds ratio indicates a program where the treatment group outperformed the comparison group (i.e., recidivated at a lower rate than the comparison group). A logged odds ratio was calculated using all program participants and their respective comparison cases and then calculated using only those offenders who were successfully terminated and their respective comparison cases (i.e., cases were yoked).

When reviewing the effect sizes calculated with all program participants (both successful and unsuccessful terminations included in the analysis), the smallest effect is -1.54 , and the largest effect size is 2.15 . A total of 28 of the 38 programs are associated with effect sizes equal to or less than 0,

which means that for 73% of the programs, the comparison group recidivated at lower rates (or equal rates in the case of 0) than the treatment group. The mean effect size is -0.43 with a 95% confidence interval that ranges from -0.53 to -0.32 (see Table 2). A logged odds ratio of -0.43 would roughly equate to a recidivism rate for the treatment group that is 10 percentage points higher than the comparison group.

Effect sizes calculated with successful terminations only provided a range of -1.17 to 4.48 with an average of 0.15 and a 95% confidence interval from 0.01 to 0.29 (see Table 2). With these data, only 39% (15 out of 38) of the programs were associated with treatment effects that favored the comparison group. A mean logged odds ratio of 0.15 approximates a recidivism rate for the treatment group that is four percentage points lower than that of the comparison group.

TABLE 2. DESCRIPTIVE STATISTICS FOR
EFFECT SIZES AND WEIGHTS

Item	<i>N</i>	Effect Size	95% <i>CI</i>	Weight	Weight Standard Deviation
All Program Participants	38	-0.43	-0.53 to -0.32	9.18	8.40
Successful Program Participants	38	0.15	0.01 to 0.29	5.42	5.88

Comparing these two measures, it is obvious that, when considering all program participants, most programs are not associated with very positive results. This conclusion is evident from the mean treatment effect calculated (-0.43) and the percentage of programs that had no effect or that were associated with an increase in recidivism rates in relation to the comparison group. When the treatment effect size is calculated using only successful terminations, the data yield a somewhat different trend. Using this measure, on average, the programs are associated with a reduction in recidivism; in other words, most program participants performed better than their matched counterparts.

The finding that treatment effects are linked to the termination status of offenders in the sample could be attributable to the relationship between unsuccessful discharge from the program and reincarceration. That is, those offenders who were unsuccessfully discharged from the program likely had technical violations filed against them. This filing, in turn, led to revocation of community supervision and incarceration in a state facility after termination. This explanation helps to explain the higher rates of incarceration among unsuccessful terminations and the greater treatment effects noted when only successful terminations are used to calculate the effects of the programs on recidivism. Alternatively, this finding could be

attributable to the increased dosage of treatment received by the successful terminations in comparison with the unsuccessful terminations (see Bourgon and Armstrong, 2005).

The goal of this research was to determine whether there was any relationship between measures of program integrity and treatment effectiveness. Of particular interest is whether the measures of program integrity can be used to identify those programs that are effective in reducing recidivism from those that are not. The practical implications associated with this question are obvious. The next section discusses the observed relationships between program integrity and treatment effects using both successful and unsuccessful terminations combined, as well as the successful terminations alone.

PROGRAM INTEGRITY AND OUTCOME

The next set of analyses involved tabulating and calculating the scores on the CPAI and calculating the correlations between the CPAI and treatment effectiveness. The CPAI is divided into six sections. The data for all sections, including the total score and the correlations with treatment effectiveness, are reported in Tables 3 and 4. Table 3 reports the results for on all participants (successful and unsuccessful terminations combined), whereas Table 4 reports the results for the successful terminations only.

TABLE 3. CORRELATIONS AMONG CPAI COMPONENT SCORES, TOTAL SCORES, AND TREATMENT EFFECT FOR ALL PROGRAM PARTICIPANTS (SUCCESSFUL AND UNSUCCESSFUL TERMINATIONS COMBINED)

	Mean	New Offense		Technical Violation		Return to Prison ^a	
		<i>r</i>	<i>CI</i>	<i>r</i>	<i>CI</i>	<i>r</i>	<i>CI</i>
Program Implementation	53.22	0.33*	0.01 to 0.58	0.58*	0.32 to 0.76	0.55*	0.28 to 0.74
Pre-Service Client Assessment	39.71	0.36*	0.05 to 0.61	0.38*	0.07 to 0.62	0.39*	0.08 to 0.63
Program Characteristics	43.11	0.20	-0.13 to 0.48	0.20	-0.13 to 0.48	0.22	-0.11 to 0.50
Staff Characteristics	43.29	-0.16	-0.45 to 0.17	0.01	-0.31 to 0.33	-0.12	-0.42 to 0.21
Evaluation	47.80	0.45*	0.15 to 0.67	0.24	-0.09 to 0.52	0.32	0.00 to 0.58
Other Characteristics	71.05	-0.06	-0.37 to 0.27	-0.05	-0.36 to 0.27	-0.05	-0.36 to 0.27
Total Score	45.51	0.35*	0.03 to 0.60	0.44*	0.14 to 0.67	0.42*	0.12 to 0.66

*Significant at $p < 0.05$.

^aReturn to prison combines incarceration for both new offenses and technical violations.

TABLE 4. CORRELATIONS AMONG CPAI COMPONENT SCORES, TOTAL SCORES, AND TREATMENT EFFECT FOR SUCCESSFUL TERMINATIONS ONLY

	Mean	New Offense		Technical Violation		Return to Prison ^a	
		<i>r</i>	<i>CI</i>	<i>r</i>	<i>CI</i>	<i>r</i>	<i>CI</i>
Program Implementation	53.22	0.31	-0.01 to 0.57	0.34*	0.02 to 0.60	0.45*	0.15 to 0.68
Pre-Service Client Assessment	39.71	0.31	-0.01 to 0.57	0.32	0.00 to 0.58	0.30	-0.02 to 0.57
Program Characteristics	43.11	0.03	-0.29 to 0.34	0.07	-0.26 to 0.38	0.10	-0.23 to 0.41
Staff Characteristics	43.29	0.01	-0.31 to 0.33	-0.02	-0.34 to 0.30	-0.05	-0.36 to 0.27
Evaluation	47.80	0.24	-0.09 to 0.52	0.21	-0.12 to 0.49	0.25	-0.08 to 0.53
Other Characteristics	71.05	0.15	-0.18 to 0.45	0.07	-0.26 to 0.38	0.13	-0.20 to 0.43
Total Score	45.51	0.26	-0.06 to 0.54	0.27	-0.06 to 0.54	0.33*	0.01 to 0.59

*Significant at $p < 0.05$.

^aReturn to prison combines incarceration for both new offenses and technical violations.

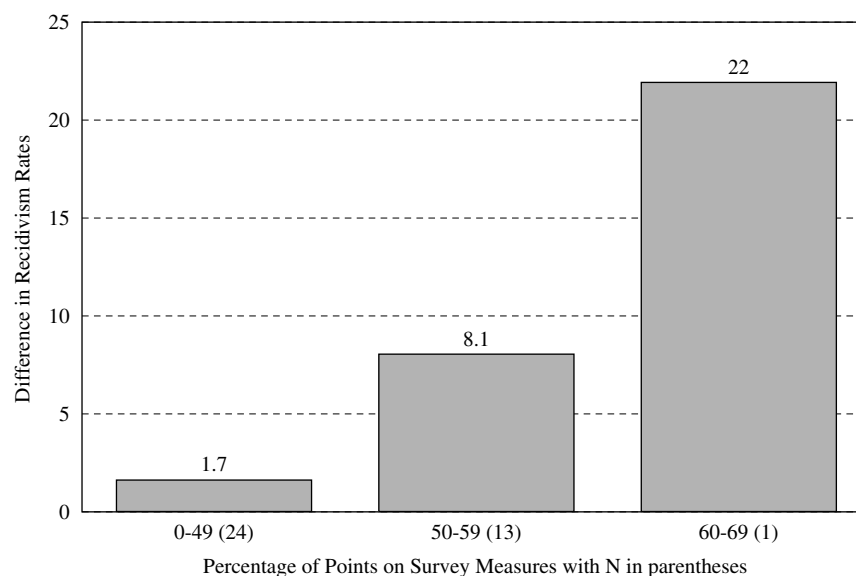
First, three subcomponents of the CPAI are correlated with at least one outcome measure. The scores in the program implementation area and pre-service client assessment are correlated with all three outcome measures, whereas evaluation is only correlated with incarceration for a new offense. Despite the fact that only three sections are significantly correlated with the outcome measures, the overall score (i.e., total score) is significantly correlated with all three outcome measures. The associated *CI*s did not include 0, but they were relatively wide. It should also be noted that, for later discussion, the average total score for the programs included in this study was 45.51%.

In summary, the total CPAI score significantly correlates with all three outcome measures (*r* values of 0.35, 0.44, and 0.42). Examination of the subscales indicates that several of the components are not significantly correlated to the outcome measures. In addition, several items are inversely correlated with the outcome measures.⁶

The pattern of results is somewhat different when the relationships are examined for successful terminations only. The total CPAI score does not

6. Reducing the CPAI score to include only those items that are positively and significantly correlated with the outcome measures increases the strength of the relationship as would be expected (i.e., *r* values of 0.60 and 0.47). For a more detailed description, see Lowenkamp (2003).

FIGURE 1. DIFFERENCE IN RECIDIVISM RATES
BETWEEN TREATMENT AND COMPARISON
GROUPS BASED ON THE CPAI
MEASURE TOTAL SCORE



significantly correlate with new offenses or technical violations but is associated with return to prison. Only one subcomponent, program implementation, is correlated with at least one outcome measure. It should be noted, however, that the confidence intervals are wide and all overlap with one another.

CATEGORY OF PROGRAMS BASED ON TOTAL PROGRAM QUALITY SCORES

The final analyses in this research focus on determining whether the cutoff scores developed for the CPAI provide meaningful groupings of programs based on their associated reductions in recidivism. To this end, categories based on the recommended cutoff scores were used in this research. As per the assessment protocol for the CPAI, programs that scored 0% to 49% of the points are associated with the “unsatisfactory” category, a score of 50% to 59% falls into the “satisfactory but needs improvement” category, a score of 60% to 69% is categorized as “satisfactory”, whereas a score of 70% or higher leads to placement in the “very satisfactory” group. The next step was to calculate a weighted average treatment effect for each group (based on the treatment effects of successful terminations

only). Once the average effect for each group was calculated, the logged odds ratio was converted back into a percentage point change in recidivism rates. The results of this analysis are displayed in Figure 1.

Figure 1 indicates that the majority (24 out of 38, or 68%) of the programs fell into the “unsatisfactory” category. Although this finding represents a large proportion of the programs, it is consistent with other research on the CPAI, which indicates that most programs fail to attain scores above 50%. Recall from earlier that the average score on the assessment for the programs included in this research is approximately 45.51%. Approximately 35% of the programs fell into the “satisfactory but needs improvement” category, and only one program was rated “satisfactory.” What is interesting to note is that the percentage point reductions in returns to prison increase from one category to the next. Although the “unsatisfactory” group of programs averaged a 1.7% reduction in returns to prison, the “satisfactory but needs improvement” group averaged an 8.1% reduction in returns to prison. Finally, the one program that scored over 60% demonstrated a 22% reduction in returns to prison. Assuming a base recidivism rate of 50% for the comparison group, the relative reductions in returns to prison are 4%, 16%, and 44%, respectively.

SUMMARY AND DISCUSSION

Over the past 25 years, there has been a focus on identifying which correctional interventions effectively reduce recidivism. This research has converged to identify cognitive-behavioral and behavioral programs as the most effective interventions with most offenders. This research, however, often indicated considerable heterogeneity in the effectiveness of correctional programs that were based on cognitive-behavioral or behavioral therapies (for instance, see Lipsey et al., 2001; Pearson et al., 2002; Wilson et al., 2000). That is, when pooling all the studies on correctional interventions where a cognitive-behavioral or behavioral program was studied, some programs were very effective, some were moderately effective, and some had no effect or iatrogenic effects. It has been argued that some of this heterogeneity can be explained by program integrity (Cullen, 2002; Gendreau, 1996; Palmer, 1995; Quay, 1977). Given the problems associated with criminal behavior and the rehabilitation of offenders in this country, it is imperative to understand the link among program implementation, program integrity, and program effectiveness. As such, this research set out to answer the question: “Is there a relationship between program integrity and program effectiveness?”

The analyses of the treatment effects calculated indicated that overall not much effect was demonstrated by the 38 programs included in the analyses (mean logged odds ratio of 0.15, indicating a 4% reduction in

returns to prison). This effect was observed when calculating treatment effects using data on successful program terminations only. When using data from all program participants, a 10% increase in returns to prison is noted for the programs collectively.

With both outcome measures, considerable differences are noted in the ability of the HWH programs to reduce recidivism. The purpose of this research was to determine whether the HWH programs could be categorized based on measures of program integrity. In other words, the question of interest is as follows: "Are the measures of program integrity able to explain some of the differences observed in the effectiveness of the programs?"

The CPAI-based measures of program integrity significantly correlated with the outcome measure using all program participants and using successful terminations only in several instances. Consistently, significant correlations were observed for program implementation, pre-service client assessment, evaluation, and total scores. The correlations for the total scores, depending on the outcome measure, ranged from 0.26 to 0.42. These correlations equate to *r*-squared values of 0.07 and 0.18, respectively, meaning the total score for program integrity explains between 7% and 18% of the variation in treatment effects depending on how the items in the CPAI are configured and the outcome measures used. The information provided by the analyses leads to the conclusion that program integrity is in fact related to program effectiveness in some fashion.

Overall this research indicated that there is a fairly strong correlation between program integrity (as measured by the CPAI) and reductions in recidivism. More specifically, the analyses conducted here indicate that program implementation, offender assessment, and evaluation are all important in determining the effectiveness of a correctional program. Although several items are not related to program effectiveness or are related but in an unexpected direction, there is some consistency in the positive relationships that do exist. There also seems to be some consistency in the identification of matching as an important factor to consider in programming given the significant correlations between pre-service client assessment and outcome. Monitoring offenders' whereabouts and peer interactions have also been identified as important, as is varying the services by risk level, providing aftercare, and the provision of criminogenic services. These factors are all implicated by the theory of rehabilitation discussed earlier. Specifically, the core principles of risk, need, and responsivity would predict that the identified factors are important in developing correctional programming that is effective in reducing recidivism rates.

LIMITATIONS OF CURRENT RESEARCH

This research has provided a considerable amount of information on the relationship between program integrity and program effectiveness. Although this research contributes to the literature on this topic, the current study has several limitations. First, the sample size is small and limited to only 38 programs in total. The sample is further limited to adult offenders and is dominated by programs that serve populations of either exclusively male offenders or a majority of male offenders. In addition, all programs in the sample were located in the State of Ohio and only provided services to offenders released from a state prison facility. Given these considerations, the finding of the research may not be applicable to other offender populations.

The second limitation involves the timing of the data collection on program integrity. As mentioned, the offenders were released from the programs during fiscal year 1999, but the program integrity data were collected in 2002. Although attempts were made to gather data on the program as it operated in 1999, this was not always possible due to staff turnover. As a check on the reliability of this process, several programs included in this research project were assessed during or around fiscal year 1999 with the CPAI by independent assessors. The results of the assessments conducted during or around 1999 and during 2002 (but based on recollections of program operations in 1999) were strongly correlated ($r = 0.74$) (see Lowenkamp, 2004).

Third, the CPAI was not scored in the standard format, nor were data collected to score the entire instrument. Due to the brevity of the site visits, some items on the CPAI were not scored. In addition, the scoring of the CPAI was based on information reported by the program director based on his or her recollection of program operations in 1999. The CPAI is typically scored based on interviews with the program director, program staff, and offenders in the program, and it incorporates information from supporting documentation and observation of treatment groups. As such, this research should not be considered a validation of the CPAI. The CPAI was simply used to structure data collection and the scoring of program characteristics.

Finally, the follow-up period was two years. Perhaps using a longer follow-up period would yield different results.

IMPLICATIONS FOR CORRECTIONAL POLICY

Notwithstanding the limitations, this research has important implications for correctional policy. Residential correctional facilities have become increasingly popular as a way to reintegrate offenders returning home from prison, to deliver correctional interventions to offenders under

supervision in the community, to punish offenders, and to reduce prison and/or jail populations. Previous research on the theories underlying many of these correctional interventions indicates that treatments are often not based on sound theories and research, and that the interventions typically fail to embody the principles of effective correctional interventions (Gendreau, 1996). When this occurs, even empirically based programs can have null or iatrogenic effects (Barnosky, 2004).

Although there is research on individual principles of effective correctional interventions, these studies are often limited by the data and information presented by the original researcher. The current research is unique in that the data collected specifically relates to program integrity, and it measures many principles of effective intervention. As a result, it was possible to contribute to the literature by testing these principles more completely. The results of such tests have several implications for both residential correctional interventions and correctional policy.

First, program integrity matters. Although several principles related to effective interventions have been verified through meta-analyses and traditional literature reviews, there is limited research that measures program integrity and its relationship to program effectiveness. This research has demonstrated, albeit with a limited sample, that program integrity is related to program effectiveness. Anecdotally, correctional practitioners question the utility of program assessment. Prior literature has also identified dysfunctional attitudes about evaluation research (Van Voorhis et al., 1995). This research indicates that program integrity can be measured and then used to predict the effectiveness of a correctional program.

Second, the factors measured to assess program integrity are malleable or dynamic. Although it would likely take considerable time and effort for a correctional program to enhance the quality of the program, it is certainly possible. Furthermore, assessing program integrity can facilitate change in correctional programs. After having program integrity assessed, a correctional program can focus on problem areas identified in the assessment and increase its effectiveness. This research also supports the use of the CPAI and the related body of literature on the development of correctional programs.

Finally, this research can help funding agencies determine which programs are likely to have substantial impacts on recidivism, those programs that are likely to have negligible effects, and those that are likely to have iatrogenic effects. Budgetary constraints have historically and continually plagued corrections; this research suggests that policy makers and funding agencies should make decisions regarding the financial support of programs based, at least in part, on program integrity. Similar research has indicated that even sound and empirically supported programs, when poorly implemented or delivered, can cost taxpayers additional money by

leading to increases in the likelihood of recidivism for offenders served by the program.

Research should continue to investigate the link between program integrity and program effectiveness. These efforts will help programs and funding agencies at all levels develop sound correctional options in both community-based and institutional settings. This information should be shared with correctional practitioners, and those practitioners should have support when implementing what is revealed by future research. Such efforts should lead to a pool of quality correctional interventions that can provide long-term and cost-effective public safety by helping offenders make behavioral changes.

REFERENCES

- American Psychological Association
 2001 Publication Manual of the American Psychological Association. 5th ed. Washington, D.C.: Author.
- Andrews, Don A., James Bonta, and Robert D. Hoge
 1990 Classification for effective rehabilitation: Rediscovering psychology. *Criminal Justice and Behavior* 17:19–52.
- Andrews, Don A., Ivan Zinger, Robert D. Hoge, James Bonta, Paul Gendreau, and Francis T. Cullen
 1990 Does correctional treatment work? A clinically relevant and psychologically informed meta-analysis. *Criminology* 8:369–404.
- Barnosky, Robert
 2004 Outcome Evaluation of Washington State's Research-Based Programs for Juvenile Offenders. Olympia, Wash.: Washington State Institute for Public Policy.
- Bonzcar, Thomas P.
 1997 Characteristics of Adults on Probation, 1995. Washington, D.C.: Bureau of Justice Statistics, U.S. Department of Justice.
- Bourgon, Guy and Barbara Armstrong
 2005 Transferring the principles of effective treatment into a "real world" prison setting. *Criminal Justice and Behavior* 32:3–25.
- Cohen, Robyn L.
 1995 Probation and Parole Violators in State Prison, 1991. Washington, D.C.: Bureau of Justice Statistics, U.S. Department of Justice.
- Cullen, Francis T.
 2002 Rehabilitation and treatment programs. In James Q. Wilson and Joan Petersilia (eds.), *Crime and Public Policy*. 2d ed. San Francisco, Calif.: ICS Press.

- Cullen, Francis T., John P. Wright, and Brandon K. Applegate
 1996 Control in the community: The limits of reform? In Alan T. Harland (ed.), *Choosing Correctional Options That Work: Defining the Demand and Evaluating the Supply*. Thousand Oaks, Calif.: Sage.
- Cumming and Finch
 2005 Inference by eye: Confidence intervals, and how to read pictures of data. *American Psychologist* 60:170-180.
- Gendreau, Paul
 1996 The principles of effective interventions with offenders. In Alan T. Harland (ed.), *Choosing Correctional Options That Work: Defining the Demand and Evaluating the Supply*. Thousand Oaks, Calif.: Sage.
- Gendreau, Paul and Don A. Andrews
 1996 *Correctional Program Assessment Inventory (CPAI)*. 6th Edition. Saint John, New Brunswick: University of New Brunswick.
 2001 *The Correctional Program Assessment Inventory—2000*.
- Gendreau, Paul, Tracy Little, and Claire Goggin
 1996 A meta-analysis of the predictors of adult offender recidivism: What works! *Criminology* 34:575–607.
- Glaze, Lauren E.
 2004 *Probation and Parole in the United States, 2003*. Washington, D.C.: U.S. Department of Justice.
- Gray, Glenn Allan
 1997 Does coercion play a significant role in community treatment programs that reduce offender recidivism? The University of New Brunswick: Master's Thesis.
- Hoffman, Peter B.
 1994 Twenty years of operation use of a risk prediction instrument: The United States parole commission's salient factor score. *Journal of Criminal Justice* 22:477–494.
- Holsinger, Alexander M.
 1999 Opening the 'black box': Assessing the relationship between program integrity and recidivism. The University of Cincinnati: Doctoral Dissertation.
- Hunter and Schmidt
 2004 *Methods of Meta-analysis: Correcting Error and Bias in Research Findings*. Thousand Oaks, Calif.: Sage Publications.
- Latessa, Edward J. and Lawrence T. Travis
 1992 Residential Community Correctional Programs. In James Byrne, Arthur Lurigio, and Joan Petersilia (eds.), *Smart Sentencing: The Emergence of Intermediate Sanctions*. Newbury Park, Calif.: Sage.
- Lipsey, Mark W. and David B. Wilson
 2001 *Practical Meta-analysis*. Thousand Oaks, Calif.: Sage.
- Lipsey, Mark W., Gabrielle L. Chapman, and Nana A. Landenberger
 2001 Cognitive-behavioral programs for offenders. *The Annals [of the American Academy of Political and Social Science]* 578:144–157.

- Lowenkamp, Christopher T.
 2004 Correctional program integrity and treatment effectiveness: A multi-site, program-level analysis. The University of Cincinnati: Doctoral Dissertation.
- Lowenkamp, Christopher T. and Edward J. Latessa
 2002 Evaluation of Ohio's community based correctional facilities and halfway house programs. Technical Report. University of Cincinnati.
- McGaha, John, Michale Fitcher, and Peter Hirschburg
 1987 Felony probation: A re-examination of public risk. *American Journal of Criminal Justice* 12:1-9.
- Nesovic, Aleksandra
 2003 Psychometric Evaluation of the Correctional Program Assessment Inventory (CPAI). Carleton University: Doctoral Dissertation.
- Palmer, Ted
 1991 The effectiveness of intervention: Recent trends and current issues. *Crime & Delinquency* 37:330-346.
 1994 A profile of correctional effectiveness and new directions for research. Albany, NY: SUNY Press.
 1995 Programmatic and nonprogrammatic aspects of successful intervention: New directions for research. *Crime & Delinquency* 41:100-131.
- Pearson, Frank S., Douglas S. Lipton, Charles M. Cleland, and Dorline S. Yee
 2002 The effects of behavioral/cognitive behavioral programs on recidivism. *Crime & Delinquency* 48:476-496.
- Petersilia, Joan
 1985 Probation and felony offenders. *Federal Probation* 49:4-9.
- Petersilia, Joan and Susan Turner
 1993 Intensive probation and parole. In Michael Tonry (ed.), *Crime and Justice: A Review of Research*, Vol. 17. Chicago, Ill.: University of Chicago Press.
- Quay, Herbert C.
 1977 The three faces of evaluation. *Criminal Justice and Behavior* 4:341-354.
- U.S. Department of Justice
 1992 Recidivism of Felons on Probation, 1986-89. Washington, D.C.: U.S. Department of Justice.
 2001 National correctional population reaches new high. Press Release. Washington, D.C.: U.S. Department of Justice.
- Van Voorhis, Patricia, Francis T. Cullen, and Brandon K. Applegate
 1995 Evaluating interventions with violent offenders: A guide for practitioners and policy makers. *Federal Probation* 59:17-28.
- Vito, Gennaro
 1986 Felony probation and recidivism: Replication and response. *Federal Probation* 50:17-25.
- Wilson, David B., Leana C. Allen, and Doris Layton MacKenzie
 2000 A Quantitative Review of Structured, Group-Oriented, Cognitive-Behavioral Programs for Offenders. George Mason University: Unpublished Manuscript.

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