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A QUASI-EXPERIMENTAL EVALUATION OF A SHOCK INCARCERATION AND AFTERCARE PROGRAM FOR JUVENILE OFFENDERS

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Research conducted to date has not shown juvenile shock incarceration (boot camp) programs to favorably affect recidivism. The authors extend the literature by comparing the recidivism of juveniles who completed a shock incarceration program that included a systematic aftercare phase with recidivism among a matched control group of juveniles released from more traditional residential placements. Findings were mixed as regards recidivism at 4-, 8-, and 12-month follow-ups. There were no differences in reconvictions at 8- or 12-month follow-ups and no differences in reoffense seriousness across time frames. However, a significantly lower proportion of the boot camp group recidivated during the initial 4-month aftercare phase, and at 12 months, a lower proportion had been recommitted to residential placements. Older juveniles had significantly higher recidivism scores than did younger ones. The findings demonstrate the importance of combining shock incarceration with quality aftercare.

Keywords: *shock incarceration; boot camps; aftercare; juvenile offenders; recidivism*

Shock incarceration programs, or boot camps, have generated both appeal and controversies that are by now well known across the fields of corrections and juvenile justice. Stinchcomb and Terry (2001) state that for some people, the appeal of boot camps “stems from the intuitive belief that military discipline promotes law-abiding behavior. For . . . others, it is the result of desperation fueled by a deficit of more worthwhile alternatives” (p. 221). Despite the appeal of these programs, controversies have arisen over such inter-related issues as their appropriateness for particular groups of offenders (e.g., juveniles and women), program conditions and practices, and, perhaps above all, effectiveness in achieving objectives (MacKenzie & Armstrong, 2004).

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Although the use of quasi-militaristic programming with incarcerated populations dates to at least the reformatory movement of the latter 19th Century, the contemporary era of adult boot camps dates to the early to mid-1980s. Programs for juveniles proliferated about a decade later amid more encompassing efforts to crack down on juvenile crime and promote accountability; a good deal of the impetus came from the Office of Juvenile Justice and Delinquency Prevention (Howell, 2003). Whether designed for adults or juveniles, however, these programs are meant to control three interrelated phenomena, as identified by Reid-MacNevin (1997): (a) institutional crowding, (b) correctional costs, and (c) offender recidivism. The purpose of this article is to examine the latter. Specifically, we compare the recidivism of juveniles who completed a shock incarceration program that included a systematic aftercare phase to the recidivism of juveniles receiving more traditional residential placements.

Previous Research

The majority of research on correctional boot camps has focused on adults. Indeed, this literature is quite voluminous (e.g., Burns & Vito, 1995; Ethridge & Sorensen, 1997; Jones & Ross, 1997; Kempinen & Kurlychek, 2003; Lutze, 2001; MacKenzie, Brame, McDowall, & Souryal, 1995; MacKenzie & Souryal, 1995; Miller & Grossi, 1998; Stinchcomb & Terry, 2001), addressing heterogeneous programs, employing diverse research methods, and producing some inconsistent findings. On balance, though, the studies show that when compared to incarceration in more traditional facilities, shock incarceration is often associated with more positive attitudes and with similar proxies for institutional adjustment and personal improvement, such as educational gains. However, such positive effects can be short lived and diminish quickly on return to the community. In terms of recidivism control, boot camp programs generally do not seem to be an improvement over alternative types of incarceration or sanctions; one possible exception to this is when the boot camp incorporates therapeutic interventions, especially interventions that have been effective in other settings and are appropriately matched with offenders' risks and criminogenic needs.

There is no reason to suppose that research on adult shock incarceration programs is generalizable to juvenile offenders. Juveniles are at earlier stages of physical and psychosocial development (cf. Correia, 1997). There are obvious philosophical, legal, and operational differences between juvenile justice and adult criminal justice. Juvenile programs need to be examined in their own right. In fact, much concern has been aired that shock incarceration programs may be physically or mentally harmful, thus exacerbating the likelihood of future problems among young offenders (Gover, MacKenzie, & Armstrong, 2000; Lutze & Brody, 1999; Lutze & Murphy, 1999; Morash & Rucker, 1990).

Although some boot camp research has focused on juveniles, much of this work has examined attitudes, perceptions, values, institutional adjustment, educational gains, and facility characteristics, as opposed to recidivistic behavior (Bourque et al., 1996; Gover, MacKenzie, & Styve, 2000; MacKenzie, Wilson, Armstrong, & Gover, 2001; Steele, 1997; Styve, MacKenzie, Gover, & Mitchell, 2000). For instance, Styve et al. (2000) found that in comparison to juveniles in traditional facilities, those in boot camps perceived the environment as more controlled and structured, safer, and more conducive to transition to the community. Similarly, Steele (1997) reported that boot camp participation was associated with improved self-esteem and expectations for self-efficacy at avoiding future problems.

Yet one would be hard pressed to argue that recidivism control is not ultimately a major goal of nearly all shock incarceration programs and indeed a goal of most correctional

programs generally (see Minor, 1999). A concern with recidivism is often implicit in studies that focus on other outcomes, such as attitudes, and obviously crowding in other facilities and financial costs are more likely to be contained by shock incarceration programs when these programs are associated with lower recidivism. Furthermore, some studies that have measured recidivism have failed to use experimental or quasi-experimental designs capable of increasing the confidence with which cause-effect conclusions can be drawn. This article employs a quasi-experimental, matched-groups design to study recidivism.

Previous Recidivism Research on Juvenile Boot Camps

Peters, Thomas, and Zamberlan (1997) conducted one of the earliest recidivism evaluations of juvenile boot camps. Studying demonstration programs located in Alabama, Colorado, and Ohio, Peters et al. reported that the reconviction rates of boot camp participants were higher than, or comparable to, those found among members of control groups. In addition, boot camp participants displayed shorter times to failure. However, in Ohio, the researchers reported some evidence that reoffending dropped sharply among those youths who were exposed to an enhanced aftercare component that was implemented around the middle of the project.

Similar findings have been reported by the Florida Department of Juvenile Justice (1997) and the California Department of the Youth Authority (1997). The Florida study found that almost two thirds of boot camp graduates were rearrested within a year of graduation and that nearly half were reconvicted, results comparable to those for a matched comparison group. In California, boot camp graduates experienced more arrests (especially for technical violations) than did controls, and offense severity was comparable for the groups. Extending on this earlier experimental study, Bottcher and Ezell (2005) concluded that the program in California "neither reduced crime nor placed the public at any greater risk of crime" (p. 328).

More recently, investigators have studied boot camp programs located in school settings (Trulson & Triplett, 1999; Trulson, Triplett, & Snell, 2001). Although the researchers reported favorable attitudinal findings from parents, teachers, and program participants, recidivism findings were not encouraging. More than half of boot camp participants were rearrested, compared with 36% of a control group of juveniles assigned to intensive supervision probation. At the adult level, Jones and Ross (1997) also found that boot camp participants had higher recidivism rates than did offenders placed on probation. Thus, although the recidivism associated with juvenile shock incarceration programs has been understudied relative to that associated with adult programs, the evidence that has emerged is less than encouraging.

Aftercare Research

The pessimism about recidivism control that pervades the empirical research on both adult and juvenile boot camps is not as applicable to the literature on juvenile aftercare (sometimes called reintegration or reentry) programs. Although aftercare research is not abundant, on the whole the data show a more mixed pattern of results (see Wiebush, Wagner, McNulty, Wang, & Le, 2005), with some investigators reporting that aftercare programming can have rather impressive effects on recidivism (Howell, 2003; Josi & Sechrest, 1999; Lipsey, 1999; Spencer & Jones-Walker, 2004). Programming stressing a punitive or pure surveillance orientation is unlikely to be as effective as that which incorporates developmentally

appropriate interventions and services meant to help youth overcome problems and address needs that have contributed to delinquent behavior (Altschuler, 1998; Altschuler & Brash, 2004; Howell, 2003).

For example, Josi and Sechrest (1999) evaluated a California-based aftercare program designed to build life skills and help juveniles overcome barriers to successful reentry through better decisions. During a limited follow-up period of 3 months, program participants were significantly less likely than were members of a control group to experience rearrest. In general, positive effects were sustained after the 90-day intervention ceased, up to a year. An earlier experimental study by Fagan (1990) demonstrated that across four urban sites, 2-year recidivism was significantly lower among serious juvenile offenders who received intensively implemented services than among equivalent groups of juveniles who received no services. Evaluation of a Philadelphia program also yielded some positive findings (Sontheimer & Goodstein, 1993). But the findings of other studies have been less positive (Altschuler, Armstrong, & MacKenzie, 1999; Wiebush et al., 2005). Three of the evaluation studies reviewed by Altschuler et al. (1999) did not demonstrate significant findings favoring intensive aftercare over control conditions. Likewise, Wiebush et al.'s (2005) evaluation of the Intensive Aftercare Program (IAP) in three states found very few significant differences between IAP youth and youth in control groups on multiple measures of recidivism.

Based on the evidence, juvenile boot camps seem less likely to positively affect recidivism when these programs are not accompanied by quality aftercare (Tyler, Darville, & Stalnaker, 2001). As described above, the study by Peters et al. (1997) uncovered little evidence that juvenile boot camps positively affected recidivism, except for the finding in Ohio that the introduction of an enhanced aftercare component was associated with a decline in new offenses. Even boot camp programs that incorporate interventions to address criminogenic needs may show higher postrelease recidivism if no effort is made to address those and similar needs in the community. Peters et al. point to the importance of achieving continuity between the residential and aftercare phases of boot camp programs. Furthermore, even programs followed by quality aftercare may be at risk of having higher recidivism rates if aftercare intervention is too short term and characterized by dissipating effects. The present study extends on past work to examine recidivism among juveniles completing a shock incarceration program with a systematic aftercare component.

Program Overview

The Kentucky Department of Juvenile Justice (DJJ) established the Cadet Leadership Education Program (CLEP) in 1999 as the only boot camp program in the state for juvenile offenders. Integral to the stated mission of the program is the reduction of further delinquency following program completion. Program goals include promoting discipline through physical conditioning and teamwork, instilling responsibility and prosocial values, and increasing educational functioning.

CLEP is a 40-bed facility for males aged 14 to 18 years who have been committed to DJJ by the juvenile court for residential placement. Juveniles are identified as possible placements for CLEP by staff working at the state's centralized assessment center. The main factors assessment center staff consider in screening for CLEP placements include lack of history of (a) substance abuse, (b) mental health problems, and (c) sexual offending. The state has other programs designed for juveniles with these characteristics. In addition, juveniles are

screened to evaluate their mental and physical suitability for CLEP. Youth displaying the following characteristics are not considered good candidates: (a) history of runaway or being absent without leave from residential placement, (b) history of physical or emotional abuse that many culminate in serious outbursts of anger and negative reactions to a boot camp environment, and (c) physical conditions that may preclude participation, such as asthma or heart problems. Although Kentucky has a separate, highly secure facility for youth with the most serious backgrounds of and potential for violence, an absence of past violent behavior is not among the criteria for placement in CLEP.

On being identified by assessment staff as possible candidates for CLEP, juveniles are interviewed at the assessment center by CLEP staff. CLEP officials describe the program and its expectations and seek to identify those youth who officials believe could derive genuine benefits from CLEP. These officials make the final decision irrespective of whether a given youth desires placement in the program.

The residential stay is 4 months in duration. Typical of adult and juvenile shock incarceration programs, CLEP consists of a quasi-military regime emphasizing physical exercise and work. It also emphasizes both academic and vocational education, Junior ROTC instruction, and community service. In addition, group and individual counseling is provided to help prepare youth for success in the community. Counseling services target criminogenic needs and behaviors in an effort to (a) change attitudes, orientations, values favorable to law violations and association with anticriminal role models; (b) reduce problems associated with alcohol and drug use; (c) reduce anger and hostility toward the self and others; (d) increase self-control, self-management, and problem-solving skills; (e) encourage constructive use of leisure time; (f) improve skills in interpersonal conflict resolution; and (g) promote more positive attitudes toward education and improved school performance.

Juveniles enter CLEP in platoons of approximately 10 persons. In turn, each platoon is assigned three staff members—two group workers and a counselor. The counselor (but not the group workers) continues to work with the youth in his or her platoon during the intensive aftercare phase. The aftercare phase is also 4 months in duration and begins on graduation from the residential phase.

Aftercare programming focuses on (a) preparing youth for, and providing them with, progressively increased responsibilities and freedom; (b) teaching youth to become involved and interact successfully with the community; (c) working with targeted community support systems, such as the family and school, to establish constructive interaction patterns and promote successful adjustment; (d) developing new supports and resources where these are identified as lacking; and (e) continually monitoring the interaction between the youth and the surrounding community to ensure that the chances of prosocial adjustment are maximized. During the aftercare phase, there are mandatory weekly sessions between the counselor and the youth in the home setting. Counselors frequently spend additional time with youth by taking them on outings in the community.

Method

Study Design and Participants

A quasi-experimental, matched-groups design was employed in this research to compare the recidivism of CLEP graduates with that of juveniles receiving other residential placements administered by the Kentucky DJJ. The CLEP group ($n = 68$) consisted of

the first 7 platoons to graduate from the program. That is, the group consisted of the entire population graduating between the inception of the program and the graduation of the 7th platoon. (Two cases were excluded from this group because of failure to graduate from the program.) Each platoon consisted of 9 to 11 youth, and, generally, 4 platoons were in the program simultaneously.

The control group ($n = 68$) was not exposed to a correctional boot camp. Instead, control group members had been released during a comparable time frame from either group homes ($n = 11$) or youth development centers (YDCs; $n = 57$) administered by DJJ. In Kentucky, the security level of juvenile facilities is classified as 1 (*least secure*) to 5 (*most secure*). The more traditional type juvenile institutions or training schools are called YDCs. YDC facilities are all small in size; the state has no large training schools. For the 57 control youth in this study, the median stay in YDCs was 168 days, compared with a median stay of 116 days for CLEP youth. Like CLEP, the YDCs from which the control group was drawn are medium security facilities. Group home facilities are also small in size and are one level less secure than the YDCs just mentioned. The median group home stay for the 11 members of the control group was 235 days. Typical of boot camp programs, then, the stays in CLEP were generally shorter than stays in the other placements.

Members of the control group received varying levels of aftercare depending on the circumstances surrounding their cases and the discretion of their aftercare workers. These aftercare services were not structured around the focal points of CLEP aftercare, as described above. As such, these services did not represent a systematic extension of a program of residential intervention. In addition, aftercare in the control group generally involved higher staff caseloads. More detailed information about aftercare services received by individuals in the control group was only available in hardcopy community service worker case files located at dozens of local DJJ offices throughout the state. Unfortunately, it was not feasible to visit each of these offices and collect individual-level data on control group aftercare.

CLEP and control youth were matched individually (vs. aggregately) based on age, race, prior offenses, and release date. Gender was a constant because CLEP is a male facility. The control group was drawn from a pool of 275 cases supplied by DJJ and was selected to parallel the CLEP group as closely as possible on the matching variables. Because of the individual matching procedure, it was possible to match only 57 control group youth who had been released from YDCs with CLEP counterparts. Hence, 11 matches were made using juveniles who had been released from group home settings as control group members.¹

It was possible to achieve identical matches on the prior offense variable (i.e., prior felony matched to prior felony and prior misdemeanor matched to prior misdemeanor) for only 24 of the 68 matched pairs. That is, for 24 pairs both youth had identical numbers of prior misdemeanor convictions and identical numbers of prior felony convictions. For the other matches, we tried to ensure that members of the CLEP group had more pronounced prior records so as to produce a greater probability of recidivism in the CLEP group and thus render the test of CLEP more conservative. However, this was not always feasible. For 31 matches, CLEP youth had more prior misdemeanors, but for 5 matches, control youth had more such convictions. The average discrepancy in number of convictions across these 31 pairs was 2 (i.e., CLEP youth averaged 2 more misdemeanors), whereas the average discrepancy across the 5 pairs was 1.8. Likewise, in 21 matches, CLEP youth had more prior felony convictions (average discrepancy = 1.71 convictions), whereas in 5 matches, control youth had more felonies (average discrepancy = 1.4 convictions). There were no

pairs in which a member of the control group had both more misdemeanor and more felony convictions, but there were 11 pairs wherein CLEP youth had more of both than did the control counterparts (average discrepancy = 3.1 convictions).

Data Collection and Variables

The data for this study were collected from case files at DJJ's central office. Recidivism data were provided by the Kentucky Administrative Office of the Courts and by the Kentucky Department of Corrections. The latter source of data was necessary to track recidivism among individuals who turned the legal age of adulthood (i.e., 18 in Kentucky) during the follow-up time frame of 12 months of release from a facility. Recidivism was operationalized as adjudications or convictions for new offenses occurring during follow-up periods of 4, 8, and 12 months after release. Code violations that were traffic related (e.g., speeding, parking tickets, etc.) were not included as new offenses.

The independent variable of interest in this study was type of facility from which youths were released (i.e., CLEP vs. other). As already mentioned, data were collected on age, race, prior offenses, and release date. In addition, data were obtained on the instant offenses for which youth had been adjudicated and sentenced to the custody of DJJ. In an attempt to estimate both the seriousness and volume of illegal behavior, the following weights were applied to prior offenses, instant offenses, and recidivism offenses. In deriving scores for these three categories of offenses, scores were assigned to each charge for which a given youth had been adjudicated:² status offense (scored 0), code violation (excluding traffic violations; 1), probation or aftercare violation (2), Class B misdemeanor (3), Class A misdemeanor (4), Class D felony (5), Class C felony (6), Class B felony (7), Class A felony (8).

Results

CLEP and Control Group Characteristics

The mean age of CLEP graduates was 16.9 years ($SD = 0.84$), compared with a mean of 17.0 years for the control group ($SD = 0.92$). Both groups consisted of 77.9% Whites and 22.1% African Americans.

Just more than 55% of the CLEP graduates and just more than 58% of the control group had prior misdemeanor convictions. Similarly, about 27% of both groups had previous felony convictions; 17.7% of the CLEP group and 14.3% of the control group had past convictions for status, code, and/or probation violations. Application of the weights described above resulted in a mean prior offense score of 19.09 for the CLEP group ($SD = 11.37$) and a mean of 13.57 for the control group ($SD = 9.76$). The mean difference was statistically significant, $t(134) = 3.035$, $p = .003$. A similar comparison of instant offense scores revealed the mean of 9.24 ($SD = 4.55$) for the CLEP group to be significantly greater than the mean of 6.76 ($SD = 3.44$) for the control group, $t(124) = 3.573$, $p = .001$.

Recidivism

Chi-square tests were computed to study the association between group membership and recidivism at 4-, 8-, and 12-month intervals. The proportions are summarized in Table 1

TABLE 1
Proportion of Groups Recidivating at Various Time Intervals by Offense Category

Group or Offense Category	% Convicted Within 4 Months		% Convicted Within 8 Months		% Convicted Within 12 Months	
	Yes	No	Yes	No	Yes	No
Control group						
Any offense or violation	23.5	76.5	35.3	64.7	48.5	51.5
Status	1.5	98.5	1.5	98.5	1.5	98.5
Code violations	8.8	91.2	10.3	89.7	11.8	88.2
Probation violation	0.0	100.0	0.0	100.0	1.5	98.5
Misdemeanor	19.1	80.9	33.8	66.2	42.6	57.4
Felony	1.5	98.5	4.4	95.6	10.3	89.7
Cadet Leadership Education Program group						
Any offense or violation	10.3	89.7	22.1	77.9	39.7	60.3
Status	0.0	100.0	0.0	100.0	1.5	98.5
Code	0.0	100.0	4.4	95.6	8.8	91.2
Probation violations	0.0	100.0	0.0	100.0	0.0	100.0
Misdemeanor	7.4	92.6	17.6	82.4	32.4	67.6
Felony	7.4	92.6	7.4	92.6	11.8	88.2

for various offense categories and are then presented graphically in Figure 1 for the any offense or violation category. For the any offense or violation category, it can be seen that a lower proportion of CLEP graduates than members of the control group recidivated at each period. However, only the difference for the 4-month interval was statistically significant. Although 23.5% of the control group had been convicted of some type of new offense at 4 months following release from a facility, the same was true for only 10.3% of the CLEP group, $\chi^2(1) = 4.239, p = .040$. Chi-squares could not be computed for the other offense categories because of low frequencies.

Matched-samples *t* tests were used to compare the recidivism scores of the control and CLEP groups across the three time frames, and the findings are summarized in Table 2. Recall that these scores were calculated based both on the number and seriousness of offenses applying the weights presented above. None of the comparisons presented in Table 2 was statistically significant.³

Four 2-way ANOVAs were performed to examine the 12-month recidivism scores of the CLEP and control groups by the age and race variables and by prior offense and instant offense scores. The 2×2 ANOVAs incorporating group membership by race (White vs. Other), prior offense scores, and instant offense scores, respectively, produced neither significant main nor significant interaction effects.⁴ However, the 2×2 ANOVA based on median divided age groups (i.e., 14.00-17.03 years vs. 17.04-19.00 years) yielded a significant main effect for age, $F(3, 132) = 4.26, p = .04$. Specifically, youth in the older age group had significantly higher recidivism scores ($M = 10.1, SD = 22.48$) than did those in the younger group ($M = 4.1, SD = 6.87$). This analysis yielded no other significant main or interaction effects. Thus, older youth recidivated more, irrespective of group standing.

As a supplement to the data presented above, we examined data on an alternative operationalization of recidivism—return to residential placement in either a juvenile or adult facility. This differs from operationalizing recidivism as new adjudications because a youth

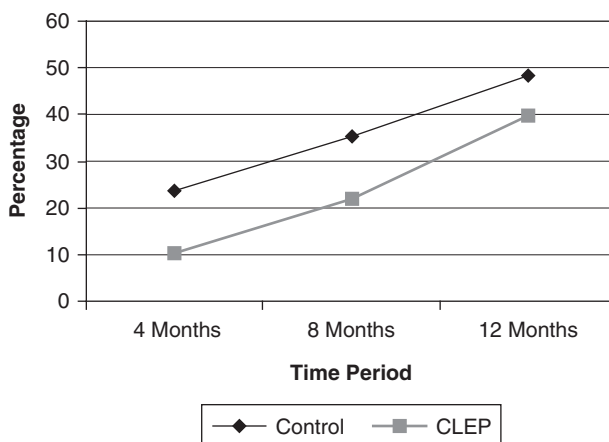


Figure 1. Percentage Recidivism by Group at Time Intervals (Any Offense or Violation)

TABLE 2
Recidivism Scores of Control and Experimental Groups

Variable	M	SD	t	df	p
Recidivism score after 4 months			1.077	67	.285
Control	1.8382	5.1125			
Cadet Leadership Education Program (CLEP)	1.0147	3.3390			
Recidivism score after 8 months			0.243	67	.809
Control	3.7500	7.9088			
CLEP	4.3971	20.1843			
Recidivism score after 12 months			0.410	67	.683
Control	5.3235	9.0693			
CLEP	6.5000	21.4438			

may have been adjudicated for a new offense but not recommitted to a facility or, alternatively, may have been recommitted without having been adjudicated for new offending. Although 33.8% of the control group was recommitted during the entire follow-up period, only 14.7% of the CLEP group was recommitted. The difference in proportions was statistically significant, $\chi^2(1) = 6.76, p = .009$. Further analysis revealed that although comparable proportions of the control (13.2%) and CLEP (10.3%) groups were recommitted to facilities for new criminal charges, a significantly greater proportion of controls (20.6%) than CLEP graduates (4.4%) were recommitted for technical violations, $\chi^2(1) = 9.01, p = .011$.

Discussion

The matching procedure used in this study resulted in reasonably close equivalence between the groups on the matching variables. The exception to this is that, compared

to the control group, CLEP graduates had significantly higher prior and instant offense scores. In addition to implying a more conservative test of CLEP, this finding is evidence against a net-widening conceptualization of the shock incarceration program, as that program was evaluated in this research. Whenever a new program such as CLEP is touted as an alternative to more traditional residential placements and is in fact associated with net-widening, the new program would be expected to receive less serious cases than traditional facilities; the program should receive offenders who, were it not for the program's existence, would have been retained in the community, most likely on some form of probation. Although our research was not specifically designed to examine potential net-widening effects of CLEP, it seems most likely that, in the absence of CLEP as a dispositional option, the youths in this study would have received more traditional residential placements.

The recidivism findings of this research are mixed. On the negative side, although lower proportions of the CLEP group were reconvicted at all three follow-up periods, the differences were not significantly different at the 8- and 12-month follow-up periods. Furthermore, between-group recidivism scores, which take the both the volume and seriousness of new charges into account, were not significantly different; in fact, the recidivism scores of CLEP graduates were somewhat higher than were those of the control group at both 8 and 12 months. Older youth had higher recidivism scores regardless of CLEP versus control group standing. These findings are largely consistent with the results of previous recidivism research on juvenile boot camps (Bottcher & Ezell, 2005; California Department of the Youth Authority, 1997; Florida Department of Juvenile Justice, 1997; Peters et al., 1997; Trulson et al., 2001; Trulson & Triplett, 1999).

However, the findings of this research were not entirely negative. A significantly lower proportion of shock incarceration graduates than members of the control group had been reconvicted at 4 months, the same time frame during which the former CLEP residents were exposed to systematic aftercare programming in the community. This mirrors boot camp or aftercare results that Peters et al. (1997) reported from Ohio and is also consistent with previous research on aftercare programs (Fagan, 1990; Josi & Sechrest, 1999; Lipsey, 1999). The finding also supports the emphasis found in the literature on the importance of combining juvenile shock incarceration programs with aftercare components (Bourque, Han, & Hill, 1996; Tyler et al., 2001). Because youth were not randomly assigned to comparison groups, and because the control group did receive varying levels of aftercare services, the design of our study does not allow unambiguous causal inference about the efficacy of aftercare. But our evidence is clearly consistent with the presence of positive CLEP aftercare effects on the likelihood of reconviction.

A related positive finding was that a significantly lower proportion of the CLEP group (14.7%) than the control group (33.8%) was recommitted to residential placements during the year follow-up period. Of those juveniles from both groups who were recommitted, comparable numbers were recommitted for new criminal charges. However, a significantly greater proportion of youth in the control group was placed for technical violations. This latter finding is inconsistent with past findings that juvenile boot camp graduates displayed more technical violations than did control counterparts (California Department of the Youth Authority, 1997).

Because recidivism scores (the best proxy for offense seriousness in this study) did not significantly differ between the groups, one possible interpretation is that officials were simply more reluctant to react to instances of recidivism associated with the novel shock incarceration program by reincarcerating youth, particularly for technical violations. In

any event, there is certainly no evidence in any of our data that the systematic aftercare received by the CLEP group as a whole was associated with increased detection of technical violations. This seems consistent with the fact that CLEP aftercare was more focused around intervention and community adjustment than around surveillance per se. It is possible that much of the aftercare directed toward the control group was more oriented toward simple surveillance, but we have no direct data on this question.

With respect to limitations, there are two main threats to the internal validity of this study and a threat to statistical conclusion validity. Regarding the latter, the sample size, though not extremely low, may have been insufficient to permit detection of significant differences between recidivism scores in Table 2 because of curtailed statistical power (Cook & Campbell, 1979).

In terms of internal validity, first it is unlikely that the matched-groups design resulted in the degree of equivalence between comparison groups that would have been achieved had random or biased assignment procedures been possible (see Minor, Hartmann, & Davis, 1990). Although we were able to use individual-level matching, an improvement over aggregate matching, we cannot be sure that the groups were matched on all the main variables contributing to group nonequivalence. Hence, there is no guarantee that observed outcomes resulted from the differing residential placements as opposed to extraneous factors. This is a common limitation of quasi-experimental research (Cook & Campbell, 1979).

The second internal validity threat involves what Cook and Campbell (1979) describe as "compensatory equalization of treatments" (p. 54). This threat emerges when a control group receives some or all of the same services provided to the experimental group (i.e., aftercare services in the case of this study) because officials are reluctant or unwilling to provide no services whatsoever to controls. Although we know that some members of the control group received aftercare supervision (depending on case-specific circumstances and caseworker discretion), we also know that this aftercare differed appreciably from that received by CLEP graduates. Our discussions with DJJ staff indicated that, in comparison to standard DJJ aftercare, CLEP aftercare (a) was provided to all CLEP graduates, as opposed to being provided to select cases; (b) involved lower staff caseloads; (c) was systematically structured around the program's goals so as to represent a community-based extension of CLEP; and (d) stressed intervention and community adjustment rather than simple supervision. Given this, it is possible that the 4-month aftercare component of CLEP contributed to the significant difference in recidivism between groups observed at the 4-month follow-up. Additional evidence favoring this conclusion comes from the finding that no similar between-group differences were observed at 8 or 12 months, precisely when CLEP aftercare had ended.

Based on the results of this study in the context of the literature, future research in this area should carefully attend to measuring the recidivism effects of juvenile boot camp placements with and without aftercare components. This should be done using experimental research designs or designs that approximate experiments as closely as is feasible. Likewise, when possible, recidivism should be operationalized in various ways and measured at varying time intervals, and the duration of aftercare should be tracked so that any short-term, positive effects can be detected. To help overcome one of the limitations of this study, an effort should be made to gather systematic data on any aftercare directed toward members of a control group.

If future research can establish that, during the period community-based services are being provided, shock incarceration followed by systematic aftercare is associated with

lower recidivism than is shock incarceration alone, there will be little justification (other than containment of short-term costs) for not including aftercare as a routine aspect of juvenile boot camp placement. Furthermore, if future research shows that positive outcomes are short lived when aftercare is of short duration, there will be little rationale for not extending the duration of aftercare. If other residential placements lacking systematic aftercare are ultimately associated with significantly higher rates of reincarceration, as was true in this study, and/or if boot camp graduates who do not receive systematic aftercare are recommitted at higher rates than are those who do, then aftercare services could save revenue during the long term—even when the aftercare is of considerably longer duration than 4 months. The intervention taking place following residential placement is likely to be as, or more, salient than what takes place during, and long-term resources expended on the latter can become much greater when due consideration is not given to the former.

NOTES

1. Statistical comparisons of the group home and youth development center youth on the outcomes of interest revealed no significant differences, which gave us greater confidence in pooling the data of these groups to increase overall sample size.

2. A reviewer of this article correctly observed a limitation of this weighting system. It may mask some variability in offending because a juvenile with one serious offense could score similar to, or lower than, a juvenile with several less serious offenses.

3. We examined *z* scores and found no outliers. The skews of the Cadet Leadership Education Program (CLEP; .271) and control (.295) groups were very close.

4. In the 2×2 ANOVA on group membership by prior offense score, the interaction term approached, but did not reach, significance ($p = .06$). Among youth with higher prior offense scores, the trend was for members of the CLEP group to have higher recidivism scores than members of the control group. Among those with lower prior offense scores, the trend was for CLEP youth to have lower recidivism scores.

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