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THE IMPACT OF BOOT CAMPS AND TRADITIONAL INSTITUTIONS ON JUVENILE RESIDENTS: PERCEPTIONS, ADJUSTMENT, AND CHANGE

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ARMSTRONG, & ANGELA R. GOVER**

Experiences of 2,668 juveniles in 26 boot camps were compared to 1,848 juveniles in 22 traditional facilities. There were no reported differences between juveniles' anxiety and depression in the two types of facilities during their first month of confinement. Overall, juveniles in boot camps perceived their environment to be more positive (i.e., therapeutic), less hostile (i.e., dangerous), and as providing less freedom (conversely more structure) than juveniles in traditional facilities. Relative to others in the same facility, youth who viewed their facility negatively experienced more stress (i.e., anxiety, depression). Scales measuring changes over time found that youth in boot camps became less antisocial and less depressed than youth in traditional facilities. However, analyses suggest that it was not the facility type but positive perceptions of the environment that determined these changes. Furthermore, youth with histories of abuse reported higher levels of stress and exhibited less improvement overall, faring better in traditional facilities.

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Despite their continuing popularity, correctional boot camps for juveniles remain controversial. The debate involves questions about the impact of the camps on the adjustment and behavior of juveniles while they are in residence and after they are released. According to advocates, the atmosphere of the camps is conducive to positive growth and change (Clark and Aziz 1996; MacKenzie and Hebert 1996). In contrast, critics argue that many of the components of the camps are in direct opposition to the type of relationships and supportive conditions that are needed for quality therapeutic programming (Andrews, Zinger et al. 1990; Gendreau, Little, and Groggin 1996; Morash and Rucker 1990; Sechrest 1989). Research on the recidivism of releasees from correctional boot camps has not been particularly helpful in settling the controversy over the camps. Neither adult nor juvenile boot camps appear to be effective in reducing recidivism. In general, no differences are found in re-cidivism when boot camp releasees are compared to comparison samples who served other sentences or who had been confined in another type of juvenile facility (MacKenzie 1997; MacKenzie et al. 1995).

This research examines the experiences of 2,668 juveniles confined in 26 boot camps and compares these experiences to those of 1,848 juveniles residing in 22 traditional facilities. We examine whether juveniles in the boot camps experience more anxiety and depression in comparison to those in traditional facilities and whether these experiences are related to perceptions of the environment. In addition, we compare the changes juveniles make during residency in the facilities. Specifically, we were interested in changes in stress (anxiety, depression) and impulsivity, social bonds, and antisocial attitudes. The latter characteristics have been found to be associated with criminal activity and are, therefore, reasonable targets for intermediate change during the time juveniles reside in the facilities. We also measured juveniles' perceptions of the environment to examine whether they perceived the environments of the two types of facilities differently and, if so, whether these perceptions were related to the type of changes they made while in the facilities.

Critics of boot camps propose that some juveniles will experience more difficulties than others in the boot camps due to the confrontational nature of the

interactions between the juveniles and the staff (Morash and Rucker 1990). In particular, boot camps are proposed to be particularly stressful for girls and for juveniles who have experienced a past history of family violence. To examine this proposal, we compared whether there were differences in the impact of the boot camps on those who had experienced family violence.

For a subset of respondents, data were collected at two points in time, enabling us to examine change in anxiety and depression as well as social bonds, impulsivity, and social attitudes during the time juveniles were in the two different types of facilities. These characteristics are theoretically associated with criminal behavior. Increased social bonds and positive social attitudes and, conversely, decreased impulsivity are anticipated to be associated with reductions in later criminal activity. Thus, facilities that have an impact on these characteristics of juveniles may be successful in reducing recidivism.

We begin by reviewing the research literature to establish the importance of understanding the environments of facilities and the effects of different environments on the residents. Following this, we review the literature on juveniles' adjustment in facilities, the changes juveniles are hypothesized to make during their time in residential facilities, and the association of these changes with future criminal activities.

The Perceived Environment

The impact of the prison environment on inmates' adjustment and behavior both while they are in the facility and when they are released has been well established in the research literature (Ajdukovic 1990; Goffman 1961; Johnson and Toch 1982; Moos 1968; Wright 1985, 1991; Wright and Goodstein 1989; Zamble and Porporino 1988). Facilities possess unique characteristics that "impinge upon and shape individual behavior" (Wright and Goodstein 1989:266). Few people who have visited correctional boot camps doubt that the environments of these facilities are radically different from the environment of traditional facilities (Lutze 1998; MacKenzie and Hebert 1996; MacKenzie and Parent 1992; Styve, MacKenzie, Gover, and Mitchell 2000). Juveniles in these facilities are awakened

early each day to follow a rigorous daily schedule of physical training, drill and ceremony, and school. They are required to follow the orders of the correctional staff. Orders are often presented in a confrontational manner, modeled after basic training in the military. Summary punishments such as push-ups are frequently used to sanction misbehavior. In comparison to traditional juvenile facilities, boot camps appear to be more physically and emotionally demanding for the residents. In fact, research on adult boot camps suggests that inmates in the boot camps will voluntarily drop out even if this means they will have to serve a longer term in the prison than they would if they completed the boot camp (MacKenzie and Souryal 1995).

Perceptions of inmates in the different types of facilities would be expected to reflect the differences in environments. Continuing controversy exists about the appropriateness of the camps for managing and treating juvenile delinquents. Advocates of the boot camps argue that the focus on strict control and military structure provides a safer environment conducive to positive change (Steinhart 1993; Zachariah 1996). From their perspective, the intense physical activity and healthy atmosphere of the camps provides an advantageous backdrop for treatment and education (Clark and Aziz 1996; Cowles and Castellano 1996). Critics disagree with this perspective (Morash and Rucker 1990) and claim that the confrontational nature of the camps is diametrically opposed to the constructive, interpersonally supportive environment necessary for positive change to occur (Andrews, Zinger et al. 1990). According to critics, juveniles in the boot camps, when compared to youth in traditional facilities, will perceive their facilities as less caring and less therapeutic and, in general, will be less prepared for reentry into the community. Furthermore, juveniles may be worried about their safety while they are in a boot camp facility. Given the hypothesized negative environmental characteristics, youth in boot camps would be expected to experience much more stress than youth in traditional facilities.

Morash and Rucker (1990) are particularly concerned that the boot camps will have a detrimental impact on girls and on both girls and boys who have experienced abuse. The confrontational nature of the interactions between staff

and inmates is expected to be particularly problematic for these youth. For those who have a history of abuse and for girls who have dependency issues, these interactions will be reminiscent of the difficulties they faced in an abusive relationships; as a result, the environment will be particularly stressful and countertherapeutic for them.

The environments of the facilities would also be expected to have an impact on the types of changes inmates make during their time in the different facilities. For example, research demonstrates that treatment programs with particular characteristics are effective in changing antisocial attitudes. An environment that emphasizes therapeutic programming instead of physical activity would be expected to have a greater impact on such attitudes (Andrews and Bonta 1998; Goodstein and Wright 1989).

In summary, we propose that juveniles in the boot camps and the traditional facilities will perceive the environment of their institutions differently and that the characteristics of the environments will have an impact on the level of stress experienced by the residents and on the changes they make in social bonds, antisocial attitudes, and impulsivity.

Stress

One concern regarding the boot camps is whether the environment creates dysfunctional stress for the participants. Some levels of stress may actually be beneficial. For example, critical life events may create stress, and this stress may result in changing the trajectories of the lives of those involved in criminal activities (Sampson and Laub 1993). Instead of continuing in the previous path (e.g., criminal), youth may change and make a commitment to family, school, or employment. The stress created by the critical life event in such cases has a functional and beneficial impact. In contrast, some stress is so severe that an individual's level of functioning is compromised. In such cases, the stress is considered dysfunctional.

The adjustment of inmates to the environments of correctional facilities has been the topic of numerous research studies (e.g., Goodstein and Wright 1989). A

concern has been that institutions such as prisons create a total environment that may severely limit inmates' development and create dysfunctional stress, particularly in youth (Goffman 1961; Johnson and Toch 1982; Moos 1968; Wright 1991). Critics of boot camps fear that the demanding nature of the boot camp environment will be beyond the coping ability of youth and, as a result, will be detrimental to them.

In contrast, advocates argue that it is a healthy environment that creates the type of stress that will lead youth to reevaluate their lives and make changes. Some level of stress may be effective in bringing about change. For example, Zamble and Porporino (1988) found that adult inmates experienced stress when they first entered prison. This was also the time inmates were most willing to enter programs designed to help them make changes in their lives. Zamble and Porporino propose that the stress associated with entry to prison might be instrumental in getting inmates to reevaluate their lives and take steps toward positive change. This proposal is similar to the type of critical life event Sampson and Laub (1993) consider conducive to bringing about changes in life trajectories. That is, entering a new situation like a residential facility may be the type of life event that leads to changes in the trajectory of the lives of some juveniles. As a result of this event, juveniles may become more prosocial and begin to build ties and bonds with conventional social institutions.

Frequently, boot camp staff refer to the early period in boot camps as a period when they "break down" youth before they begin the "build-up period." The question is whether the breakdown period creates functional or dysfunctional stress. That is, do the youth in the boot camp experience the type of anxiety that will result in a reevaluation of their lives and a decision to make changes, or is the stress so severe that they become depressed, anxious, and unable to adequately function in the new environment? Critics would suggest that the stress in boot camps is so severe as to be dysfunctional; advocates of the camps argue that it creates the type of stress that leads to positive changes.

If institutional programs are going to have an impact on the future criminal activities and adjustment of youth, the programs must change the youth in some way. These intermediate changes can be thought to be signals of the impacts the facilities will have on the future criminal activities of the youth. This research examines adjustment and short-term change in boot camp facilities and compares these to the changes juveniles in traditional facilities make. Three correlates of criminal activity are social bonds, impulsivity, and antisocial attitudes. These characteristics are theoretically and empirically associated with criminal activity and other antisocial behavior. We begin by reviewing evidence that these characteristics are associated with criminal behavior and that changes in the characteristics are associated with changes in criminal activity.

Increasing social bonds.

Evidence exists that increases in social bonds are associated with declines in criminal activity. According to Sampson and Laub (1993), informal social controls form a structure of interpersonal bonds linking individuals to social institutions such as work, family, and school. These ties or bonds are important in that they create obligations and restraints that impose significant costs for translating criminal propensities into action. Although Sampson and Laub acknowledge that there is continuity in individual antisocial behavior, they argue, unlike the continuity theorists (e.g., Gottfredson and Hirschi 1990), that such continuity does not preclude large changes in individuals' offending patterns. In a reanalysis of the Glueck and Glueck (1950) data, Sampson and Laub found support for the proposal that childhood antisocial behavior and deviance can be modified over the life course by adult social bonds. Job stability and marital attachment were significant predictors of adult crime even when childhood delinquency and crime in young adulthood were statistically controlled.

Further evidence that criminal propensity can be modified comes from research by Horney, Osgood, and Marshall (1995) that examined the self-reported criminal activities of offenders. They found that life circumstances indicative of changes in social bonds and commitment to conformity influenced

offending behavior even over relatively short time periods.

Similar to the findings from research with adults, increased social bonds have been found to be associated with declines in the criminal activities of juveniles (Jang 1999; Simons et al. 1998). For example, Simons et al. (1998) found that stronger ties to family and school and decreased affiliation with deviant peers lowered the probability that youth who had behavior problems during childhood would graduate to delinquency during adolescence.

In summary, the research on social bonds demonstrates that increased social bonds are associated with decreased criminal activity. The research does not demonstrate how or why bonds change. Sampson and Laub (1993) propose that bonds may change as a function of critical life events that lead individuals to reevaluate their lives and begin to make positive changes.

Theoretically, such a critical life event could occur for juveniles who enter a residential facility. If the experience of being in the facility or the programs provided in the facility increases the attitudes of commitment to conformity or ties the juveniles have to social institutions like family, work, and school, then theoretically the future criminal activities of these youth may decrease. The major characteristics of boot camps do not suggest that these programs will incorporate elements that would increase ties or commitments to conventional activities outside the facility. Restrictions on visitation may limit contact with the outside, and the environment of the camps is very different from the environment of work or school outside the camps. The traditional facilities may be much more likely to strengthen these ties or attitudes. Theoretically, a critical life event such as entering an institution could initiate changes in ties or attitudes. If either type of facility did have an impact on attitudes or ties, we would anticipate that this would be a hopeful sign that such changes would be associated with a reduction in future criminal activities for the participants.

Impulsivity and control.

The connection between impulsivity and criminal activities is well established. According to Gottfredson and Hirschi's (1990) *A General Theory of*

Crime, antisocial acts are committed by people with low self-control. Impulsivity is one of the major characteristics of such individuals. Theorists interested in individual differences in temperament and personality have also emphasized the need to consider differences in impulsivity. For example, in her psychosocial control theory, Mak (1990, 1991) emphasizes the importance for understanding criminal activity and delinquency of individual differences in thinking through consequences, a preference for immediate gratification, poor planning, and a lack of patience. These impulsive characteristics are similar to the temperament and personality characteristics Glueck and Glueck (1950) linked to persistent and serious delinquent behavior.

Numerous key criminological studies have shown that impulsivity is a strong correlate of delinquent and criminal behavior (Caspi et al. 1994; Farrington 1998; Glueck and Glueck 1950; Loeber et al. 1998; White et al. 1994). In comparison to nondelinquents, delinquents show markedly higher levels of impulsivity. These results held despite differences in whether impulsivity was measured by self-reports, teachers, independent raters, staff psychologists, or parents. Stronger impulsivity was related to increases in official measures of offending and delinquency, self-reported criminal activities, and childhood behavior problems as reported by teachers, mothers, and peers. The association between impulsivity and crime is stronger than those of intelligence or socioeconomic status (White et al. 1994).

Controversy exists regarding whether an individual's impulsivity can be changed during the life course. Gottfredson and Hirschi (1990) assert that "people who lack self-control will tend to be impulsive" (p. 90) and that variation in self-control is a latent trait that provides the primary explanation for individual differences in involvement in antisocial behavior throughout the life course (Hirschi and Gottfredson 1994). In contrast, others believe that individuals can change during their life course. For example, the life-course perspective views life-course trajectories as a sequence of events and transitions that either accentuate or redirect behavioral tendencies (Elder 1992; Simons et al. 1998). From this perspective, characteristics such as antisocial behavior and impulsivity are

associated with criminal activity, but a trajectory may change as a result of life circumstances or critical life events. In their study, Simons et al. (1998) found evidence that the correlation between childhood and adolescent deviant behavior reflects a developmental process as proposed by those with a life-course perspective rather than the latent antisocial trait proposed by Gottfredson and Hirschi.

A critical life event that may change a juvenile's life trajectory is institutionalization in a juvenile facility. Impulsivity is a particular target for change in boot camps. The rigorous structure in the camps and the strict requirements for military bearing are designed, in part, to get youth to think before they act. We anticipate that this is one characteristic of juveniles that would change as a result of the boot camp experience. The traditional facilities are not expected to impact a youth's impulsivity.

Antisocial attitudes.

According to correctional theorists, treatment programs that are effective in reducing recidivism have certain clearly defined characteristics (Andrews, Bonta, and Hoge 1990; Andrews and Kiessling 1980; Gendreau and Ross 1979, 1987; Glaser 1974; Palmer 1974). These authors argue that "appropriate" treatment delivers services to higher risk cases, uses styles and modes of treatment that are capable of influencing criminogenic "needs," and is matched to the learning styles of offenders. Criminogenic needs are defined as those that are dynamic or changeable as opposed to static (not changeable) and directly related to the criminal behavior of the offender. Meta-analyses examining the effectiveness of treatment programs have supported the proposed importance of these appropriate treatment characteristics (Andrews, Zinger et al. 1990; Lipsey 1992). Procriminal or antisocial attitudes have consistently shown significant associations with criminal behavior for adults (Andrews and Bonta 1998, 1985; Bonta 1990) and youthful offenders (Shields and Ball 1990; Shields and Whitehall 1994). The evidence showing the association between procriminal or antisocial attitudes and criminal behavior makes these prime criminogenic needs and, therefore, targets for change in correctional treatment.

Summary

In summary, there is strong empirical evidence that social bonds, antisocial attitudes, and impulsivity are associated with criminal activity. Recent research supports the proposal that these characteristics do change during the life course. The question is how this change can be initiated. Life-course theorists propose that critical life events may bring about change in adolescence or adulthood. One such critical life event, at least for some adolescents, may be incarceration in a juvenile correctional facility. Differences in the environments and programming in correctional boot camps and traditional facilities lead us to predict that the impacts of these facilities on the youth who spend time there will be different. Given the environment and programming in the boot camps, we anticipate that the camps may reduce the impulsivity of the youth who reside there. On the other hand, we anticipate that the traditional facilities may be more apt to change the social bonds and antisocial attitudes of the youth who reside there. For correctional facilities to have an impact on the future offending behavior of youth, these are the changes we would hope to observe during residency in a juvenile facility.

METHOD

Site Identification

In April of 1997, all juvenile boot camps in operation in the United States, excluding Hawaii and Alaska, were identified for inclusion in this study. At that time, 50 privately and publicly funded secure residential boot camps were identified. All facilities were contacted and asked to participate, and 27 agreed. The 23 programs that did not participate did so for various reasons, including parental consent issues, staffing and resource limitations, and impending program closure. Thus, the 27 boot camps agreeing to participate in this project represented 54 percent (27 out of 50) of the residential juvenile boot camps operating in 1997 and unfortunately cannot be considered a random sample of the population of facilities.¹

For each boot camp agreeing to participate, a comparison facility was sought to allow the contrast of youth's experiences in a boot camp with youth's experiences in traditional juvenile correctional facilities. Comparison facilities were selected by

identifying those secure residential facilities in which the juveniles would have been confined if the boot camp programs were not in operation. This method of selection ensured that the residents at the comparison facilities were as similar as possible to the boot camp residents. With this definition of a comparison facility in mind, the facility administrator at each boot camp or an individual from within the state's juvenile justice department recommended the most appropriate comparison facility. Comparison facilities were then contacted and asked to join the research project. **All** comparison facilities identified agreed to participate in the research project. Although there were 26 boot camp facilities included in the study, there were only 22 comparison facilities. There were two reasons for this discrepancy. First, 2 boot camps did not have a viable comparison facility within the state. Second, in two states, the same non-boot camp facility was identified as the most appropriate comparison for two different boot camps. In these instances, one facility served as the comparison for each of the 2 boot camps.

Participants

A full census of all juveniles at each facility on two occasions was sought. A total of 4,516 juveniles were surveyed: 2,668 from the boot camp facilities and 1,848 from the traditional facilities. The overall response rate for this survey was high and represented 85 percent of the juvenile population at the surveyed facilities. A common reason for nonparticipation was a juvenile's overriding need to be somewhere else at time of survey administration, such as a court hearing or medical visit outside of the facility. A small number of youths started the surveys but chose to not complete it. A total of 2,473 were surveyed at the Time 1 administration and 2,030 at the Time 2 administration. The first administration of the survey was designed to include juveniles shortly after their entry into the boot camp program. The second administration of the survey was designed to include juveniles just prior to release from the boot camp. The time interval between the two survey administrations in the comparison facilities was matched to the time interval between administrations for the corresponding boot camp. The interval between Time 1 and Time 2 administrations ranged from three months to eight months with a median of four months. The Time 2 administration included 530

juveniles, 264 in boot camps and 266 in traditional facilities, who also were surveyed at Time 1. This subsample of the data is the major focus of this article.

Juvenile Survey

The survey questionnaire for the youths included 266 questions. Thirteen questions were open ended (primarily demographic items) with the remaining questions based either on a four- or five-point Likert-type response scale or a yes-no dichotomous response format. Overall, there was a high completion rate of more than 85 percent of the population. Surveys were administered to groups of 15 to 20 youths in classroom-type settings in accordance with prevailing ethical principles. A videotaped presentation of the survey was shown on a large television providing instructions and the survey questions to ensure uniform administration and provide assistance to juveniles with reading difficulties.²

Administrator Interview and Institutional Records

A structured interview was conducted with the facility administrators to obtain information about the facilities where the juveniles resided. Some items in the interview survey required information from institutional records (e.g., hours of treatment per week) that was obtained by the administrator after the completion of the interview. Researchers placed follow-up telephone calls within two weeks of the site visit to obtain outstanding information.

The interview included 264 items and provided information on a variety of factors including the size of the facility (the average number of juveniles who usually reside in the facility), how selective the facility could be about who enters the facility (selectivity index), the seriousness of the delinquency history of the juveniles who were admitted to the facility (seriousness index), the number of hours the juveniles participated in treatment in a one-week period, the contact juveniles had with the outside (contact with outside index), the staff-to-juvenile inmate ratio, the juveniles' average length of stay, and whether someone at the facility collected or obtained information on the juveniles who were released-including rearrest for delinquent or criminal activities, return to school, residence with family, and

reinstitutionalization.³

Measures

INDIVIDUAL-LEVEL MEASURES

Five individual-level composite measures were the primary focus of the analyses below: depression, anxiety, commitment to conventional behavior (social bonds), dysfunctional impulsivity, and antisocial attitudes. Additional individual-level variables included in this study were age, gender, ethnicity, the number of self-reported nonviolent arrests, the number of self-reported violent arrests, an indicator of history of family violence and child abuse, indicators of alcohol and drug abuse, peer criminality, criminal history, perceptions of the environment, and amount of time the youth had been in the facility at the time of the survey. The construction of these measures is discussed below. Items, factor scores, and means for scales are shown in the appendix.

Depression.

Five Likert-type items were taken from the Jesness Inventory (Jesness 1962) to measure depression. These items were intended to measure state characteristics of depressed mood rather than trait characteristics of depression. The five items were summed and averaged. As such, the range for the depression index was from one to five, with a mean of three. The internal consistency of these items was high ($\alpha = .77$). High scores on this scale measured more depression. This scale was thought to indicate severe and, as previously described potentially, dysfunctional stress.

Anxiety.

Six dichotomous (yes-no) items assessing state anxiety were combined to create the anxiety measure. The internal consistency was adequate ($\alpha = .71$). These six items were drawn from Spielberger, Gorsuch, and Lushene (1970). The goal of these items was to examine differences in the stress and anxiety levels of the youths. High scores on this scale indicated increased anxiety. In comparison to the depression scale, this scale was designed to reflect low to moderate stress.

Dysfunctional impulsivity.

Four dichotomous (yes-no) questions comprised the dysfunctional impulsivity scale. The items of this scale focused on the cognitive aspects of impulsivity (i.e., thinking before acting or speaking). The internal consistency of this scale was adequate ($\alpha = .66$). High scores on this scale reflected high impulsivity.

Social attitudes.

The social attitude scale was a composite of 35 true-false items from the Antisocial Subscale of the Jesness Inventory (Jesness 1962).⁴ This scale measures attitudes of the juveniles toward conventional aspects of society such as authority figures. The internal consistency of this scale was adequate ($\alpha = .65$). Previous research with this scale has demonstrated that it measures short-term change in confined youthful offenders, and this change is associated with recidivism.

Commitment to conventional behavior.

A measure of commitment to conventional behavior was constructed from 17 Likert-type items assessing the importance of education, work, and spending time with family. The internal consistency for this scale was low ($\alpha = .56$). High scores on this scale indicate commitment to conventional behaviors or bonds. Originally, three separate scales had been developed to indicate commitments to family, school, and work; however, factor analyses (eigenvalues, scree plot) indicated that the items formed one scale.

History of family violence.

An index of the degree of physical and sexual abuse and neglect within the family of origin was constructed from nine Likert-type items. All but two of the items dealt with physical abuse directed either at the youth or at other family members. This scale had good reliability ($\alpha = .85$).

Alcohol and drug abuse scales.

Scales indicating alcohol and drug abuse were created from 10 dichotomous (yes-no) items. These items dealt with lifetime substance use. For purposes of the present study, a composite alcohol and drug abuse scale was constructed from these items and showed good reliability ($\alpha = .77$). High scores indicated higher levels of substance abuse.

Peer criminality.

Peer criminality was measured using four five-point items asking the youth if their closest groups of friends prior to arrest were in trouble with the law, incarcerated, involved with gangs, and users of drugs and alcohol. The internal reliability coefficient for this measure was adequate ($\alpha = .71$).

Criminal history.

An index of criminal history was constructed as a composite of age at first arrest and the natural log of the number of previous commitments, number of prior nonviolent offenses, and number of prior violent offenses. The internal consistency of this scale was adequate ($\alpha = .69$).

Perception of facility environment.

The youth were asked a series of 129 Likert-type questions (with five response choices from *strongly agree* to *strongly disagree*) designed to measure their perception of the facility environment. These items were rationally constructed to represent 13 major dimensions of the juvenile facility: control, resident danger, danger from staff, environmental danger, activity, care, risks to residents, quality of life, structure, justice, freedom, programs, and emphasis on the individual. Scales were scored so that higher scores reflected higher perceptions in the direction of the name of the scale (e.g., more control, more danger, more activity). These facets have been previously identified in the literature as important elements of juvenile residential facilities (MacKenzie, Styve, and Gover 1998). At the individual level (e.g., $n = 2,473$ individuals at Time 1), these 13

measures were correlated, with the absolute value of the correlations ranging from .05 to .63.

FACILITY-LEVEL MEASURES

At the facility level (e.g., $n = 48$ facilities), the 13 facility-level measures were, on average, highly correlated, with a mean absolute correlation of .55 and a range from .05 to .90. Because of these high correlations and the limited degrees of freedom for facility-level analyses ($df = 48$), we performed an exploratory factor analysis with the 129 items that made up the 13 measures. Examination of the eigenvalues suggested either a one- or three-factor solution, and both solutions produced interpretable results. The three-factor solution produced factors we judged to measure the following aspects: (1) the therapeutic warmth of the environment (e.g., "A counselor is available for me to talk to if I need one"), (2) the general level of hostility (e.g., "Residents have to defend themselves against other residents in this institution"), and (3) the degree of freedom and choice available to the youths (e.g., "Residents choose the type of work they do here").

In comparison to the three-factor solution, the single-factor solution appears to represent how positively, in general, youth perceive the environment (staff care, staff are fair, learning useful skills, program is helpful, help in staying focused on future goals, etc.). When the individual-level factor scores for the three-factor solution are aggregated up to the facility, the degree of facility-level hostility is negatively correlated with the facility-level therapeutic warmth ($r = -.88$). Thus, although these factors appear distinct based on the youths' perceptions, facilities that tend to be high on therapeutic warmth are, not surprisingly, low in perceived hostility and dangerousness.

The goal of this study was to assess the impact of the facility environment on the changes juveniles made while in the facilities using the five indicator variables (depression, anxiety, dysfunctional impulsivity, social attitudes, commitment to conventional behavior) discussed above, not the impact of an individual's perception of the environment on his change while residing in the facility. Thus, we averaged the perception of the environment measures across individuals to create

a facility-level rating on each of the three dimensions using the three-factor solution for the environmental measures.

Other facility-level measures, obtained from administrator interviews and institutional records, used in the analyses below included an index of the seriousness of the criminal histories of the youths admitted to the facilities, the admission selectivity of the facility, and the facility size. The index of seriousness was constructed as a composite score of dichotomous questions (yes-no) that determine whether the facility accepts specific categories of juvenile delinquents (e.g., juveniles with a history of violence or juveniles convicted of arson). The index of selectivity was constructed as a composite of dichotomous questions (yes-no) that demonstrate the stringency of admissions of the juveniles (did facility personnel interview juveniles prior to entry; did juveniles have to pass physical, mental, and medical examinations to enter?). The index demonstrates the extent of input by the individual facilities in choosing the juveniles that are admitted into their facilities. High scores on the seriousness and the selectivity indices indicated, respectively, that the facility accepted juveniles with more serious criminal histories and that facility personnel could be more selective about which juveniles were permitted to enter the facility. These variables provide a mechanism for examining the variability across and within the boot camps and traditional facilities.

RESULTS

Juvenile Characteristics

Comparisons of the boot camps and traditional facilities on the individual characteristics of the juveniles for the total sample and the pretest-posttest sample are shown in Tables 1 through 3. The demographic characteristics between these two facility types were comparable. The boot camps tended to have a higher percentage of girls, although boys dominated both facility types. The traditional facilities had a population that was more criminally involved, on average, than the boot camps, with a substantially higher mean number of prior nonviolent and violent arrests. Furthermore, at the time of the survey, the typical youth in the traditional facility had resided in the facility roughly twice as long as the typical boot camp

youth. This reflects the generally longer lengths of stay in these facilities relative to the boot camps and the method of determining when to conduct the surveys at each facility.

The two samples were highly similar on the psychosocial indices. A statistically significant but small difference was observed in the history of family violence, with higher levels of previous violence reported by the youths in the traditional facilities. A small difference was also observed on the commitment to conventional behavior index, with higher levels reported by the youth in the boot camps. Although the traditional facilities were selected because they were facilities to which the boot camp youths would have been sent in the absence of the boot camp, the general impression from these data is that the traditional facilities also serve youth who are more seriously delinquent, on average, than the youth admitted to the boot camps. It appears that whereas all of the boot camp youth may have been appropriate for the comparison facility, not all of the youth at the comparison facility may have been appropriate for the boot camp facilities.

Juveniles' Perception of the Facility Environment

The juveniles' perception of the environment differed between the two facility types (Table 4). Surprisingly, the boot camps were perceived, on average, as more therapeutic and less hostile than the traditional facilities. Consistent with expectation, the youths perceived the boot camps as more restrictive of personal freedom and choice than the traditional facilities. These findings are consistent with the qualitative observations made within the facilities by the research staff. Within the typical juvenile boot camp, the increased structure does not appear to be associated with an increase in hostility or perceived danger from staff (an element of this factor). The greater selectivity of the boot camps in admissions criteria (see below) may also contribute to a safer overall environment if the more troubled and potentially violent youth are not allowed admission. These differences remained after statistically adjusting for measured characteristics of the youth, that is, the characteristics presented in Tables 1 through 3. Thus, the evidence suggests that the observed differences represent actual differences in the environments and not just differential

perceptions of comparable environments. We cannot determine from this data, however, whether the differences are produced by the structural, organizational, programmatic, and staffing aspects of a facility or by the juveniles themselves. That is, a facility with a higher proportion of violent offenders may genuinely be more dangerous, despite staffing and organization aspects. It is likely that both the characteristics of a program and the juveniles served contribute to the environmental conditions.

**TABLE 1: Demographics
by Facility Type**

<i>Variable by Facility Type</i>	<i>Full Sample</i>		<i>Pre/Post Sample</i>	
	<i>Percentage</i>	<i>N</i>	<i>Percentage</i>	<i>n</i>
Gender (percentage male)				
Boot camps	92	2,390	93	264
Traditional facilities	96	1,578	98	265
Race (percentage Caucasian)				
Boot camps	33	2,382	43	264
Traditional facilities	31	1,566	35	266
Race (percentage African American)				
Boot camps	36	2,382	30	264
Traditional facilities	33	1,566	24	266
Race (percentage Hispanic)				
Boot camps	19	2,382	16	264
Traditional facilities	20	1,566	17	266
Race (percentage other)				
Boot camps	12	2,382	11	264
Traditional facilities	16	1,566	24	266

NOTE: None of the above boot camps by traditional facility differences were statistically significant under a population averaged (facility) logistic regression model.

Facility Characteristics

On average, the boot camps were smaller and more selective about the entrants than the traditional facilities (see Table 5). Traditional facilities permitted juveniles with more serious criminal histories to enter the program and were generally less selective about whom they admitted. The typical length of stay in the traditional facilities was nearly double that of the boot camps. Only 46 percent of the boot camps and 32 percent of the traditional facilities had any follow-up information on the releasees, including whether the youth were returned to the same facility sometime after being released (Gover, MacKenzie and Styve 2000).

TABLE 2: Individual Characteristics by Facility Type and Sample

Variable by Facility Type	Full Sample			Pre/Post Sample ^a		
	M	SD	N	M	SD	n
Age						
Boot camps	16.0	1.2	2,383	15.9	1.2	264
Traditional facilities	16.3	1.3	1,570	16.0	1.5	266
Number of prior nonviolent arrests ^b						
Boot camps	6.6*	8.3	1,407	6.1*	4.7	260
Traditional facilities	9.3	10.0	982	10.5	11.8	261
Number of prior violent arrests ^b						
Boot camps	1.6*	2.7	1,409	1.6	2.0	260
Traditional facilities	2.8	4.5	1,000	2.7	3.9	260
Number of months resided in facility ^b						
Boot camps	2.7*	3.3	2,310	1.6	3.0*	257
Traditional facilities	6.0	7.9	1,500	5.3	7.1	260
Family violence ^b						
Boot camps	1.6*	0.6	2,362	1.5	0.6	262
Traditional facilities	1.7	0.7	1,545	1.7	0.8	264
Alcohol abuse scale						
Boot camps	1.3	0.3	2,370	1.3	0.3	262
Traditional facilities	1.3	0.3	1,556	1.4	0.3	264
Drug abuse scale						
Boot camps	1.4	0.3	2,374	1.4	0.3	262
Traditional facilities	1.5	0.3	1,553	1.5	0.3	264
Peer criminality						
Boot camps	3.3	1.0	2,319	3.3	1.0	260
Traditional facilities	3.4	1.0	1,516	3.4	1.0	262

NOTE: Mean difference tested using a nested analysis of variance, with facilities nested within facility type.

a. Values for the pre/post sample represent the first measurement for the 530 youths who were measured on two occasions.

b. Analysis of variance performed on logged values.

* The difference between groups is statistically significant at $p < .05$.

Initial Levels of Anxiety and Depression

The first hypothesis addressed was whether boot camp youths had higher initial levels of depression and anxiety. Although some individuals are generally more anxious or depressed than other individuals, depression and anxiety are not static, and an individual's level of each will rise and fall depending on life stressors and environmental circumstances. The transition into an institutional setting, whether it is a traditional juvenile delinquency facility or a boot camp, is stressful and may lead to increased depression and anxiety for some youths. The boot camp, with its highly structured militaristic style and reputation, may be a more stressful environment, at least initially, for juveniles.

To examine this issue, we selected all respondents who completed the survey during their first month of residency (Table 6). This resulted in a sample of 774 juveniles from boot camps and 274 juveniles from comparison facilities. The mean levels of both depression and anxiety were highly similar between the boot

camp facilities and the traditional facilities for this sample (3.1 and 3.0, respectively, for depression on a 5-point scale and 1.5 and 1.4, respectively, for anxiety on a 1-point scale). Not surprisingly, a simple test of this difference using a nested analysis of variance (Kirk 1982; StataCorp 1999) showed that the slightly higher values for the boot camp facilities were not statistically significant.

TABLE 3: Psychosocial Measures by Facility Type and Sample

<i>Variable by Facility Type</i>	<i>Full Sample</i>			<i>Pre/Post Sample^a</i>		
	M	SD	N	M	SD	n
Depression						
Boot camps	3.0	1.0	2,355	3.2	1.0	260
Traditional facilities	3.1	1.0	1,529	3.2	1.0	263
Anxiety						
Boot camps	1.4	0.3	2,338	1.5	0.3	257
Traditional facilities	1.4	0.3	1,520	1.4	0.3	261
Dysfunctional impulsivity						
Boot camps	1.6	0.3	2,326	1.7	0.3	261
Traditional facilities	1.6	0.3	1,506	1.6	0.3	260
Antisocial attitudes						
Boot camps	1.5	0.1	2,320	1.5	0.1	261
Traditional facilities	1.5	0.1	1,490	1.5	0.1	259
Commitment to convention behavior						
Boot camps	4.4*	0.7	2,332	4.3	0.7	257
Traditional facilities	4.2	0.9	1,524	4.2	0.9	259

NOTE: Mean difference tested using a nested analysis of variance, with facilities nested within facility type.

a. Values for the pre/post sample represent the first measurement for the 530 adolescents who were measured on two occasions.

* The difference between groups is statistically significant at $p < .05$.

A history of family violence is a risk factor for affective disorders, such as depression and anxiety. It was hypothesized that a history of family violence would be related not only to the initial level of anxiety and depression of the juveniles but also that it would interact with facility type. We presumed that the more aggressive "in-your-face" atmosphere of the boot camps would be more traumatic for juveniles with a history of family violence and would therefore lead to a higher level of anxiety and depression. We tested this hypothesis for both anxiety and depression using a random-effects regression model estimated via maximum likelihood. Two regression analyses were estimated, one for depression and one for anxiety, each regressed on both individual-level and facility-level variables (see Table 7). These analyses were restricted to boys because there were only four girls in traditional facilities for

this subsample of the data set. Both analyses showed a statistically significant relationship between a history of family violence and level of anxiety and depression. Facilities that were perceived, on average, as more hostile had higher levels of anxiety but not depression. Contrary to expectation, however, the interactions of facility type and facility-level hostility with history of family violence were not statistically significant. Based on these data, a history of family violence does not appear to interact with the type of facility (boot camp or traditional) or with the degree of perceived hostility. The regression analyses did show that youths perceiving the facility as more hostile and having less freedom and choice relative to their peers in the same facility were more likely to be anxious and depressed. It may well be that anxious and depressed youths are more likely to perceive their environment negatively.

TABLE 4: Perception of Facility Environment Measures by Facility Type and Sample

<i>Variable by Facility Type</i>	<i>Fw/ Sample</i>			<i>Pre/Post Sample^a</i>		
	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>n</i>
Therapeutic environment						
Boot camps	3.8*	0.7	2,341	3.7*	0.7	263
Traditional facilities	3.3	0.7	1,508	3.5	0.7	262
Hostile environment						
Boot camps	2.5*	0.8	2,343	2.5*	0.7	263
Traditional facilities	2.8	0.8	1,506	2.7	0.8	262
Freedom and choice						
Boot camps	2.3*	0.7	2,329	2.0	0.7	263
Traditional facilities	2.7	0.8	1,486	2.7	0.7	262
Positive environment composite						
Boot camps	0.07*	.36	2,388			
Traditional facilities	-0.12	.36	1,568			

NOTE: Mean difference tested using a nested analysis of variance, with facilities nested within facility type.

a. Values for the pre/post sample represent the first measurement for the 530 adolescents who were measured on two occasions.

* The difference between groups (boot camps versus traditional facilities) is statistically significant at $p < .05$.

TABLE 5: Facility Level Descriptive Statistics

<i>Variable by Facility Type</i>	M	SD	n
Size*			
Boot camps	70.9	64.4	25
Traditional facilities	150.5	156.7	22
Selectivity index*			
Boot camps	0.6	0.2	26
Traditional facilities	0.3	0.2	22
Seriousness index*			
Boot camps	1.0	0.4	26
Traditional facilities	1.5	0.4	22
Level of contact permitted with the outside			
Boot camps	0.7	0.2	22
Traditional facilities	0.8	0.1	21
Average length of stay*			
Boot camps	4.5	2.3	25
Traditional facilities	8.3	4.0	22
Follow-up information on youth			
Boot camps	46%		25
Traditional facilities	32%		22

* $p < .01$.

TABLE 6: Levels of Depression and Anxiety for Respondents Surveyed during First Month of Stay

<i>Variable</i>	M	SD	n
Depression			
Boot camps	3.1	1.0	765
Traditional facilities	3.0	1.0	267
Anxiety			
Boot camps	1.5	0.3	760
Traditional facilities	1.4	0.3	266

Changes in Anxiety, Depression, Social Bonds, Dysfunctional Impulsivity, and Prosocial Attitudes

A main question of this article is whether the boot camp and traditional facilities produce positive changes in correlates of delinquency. That is, during youths' stay in a facility, do they become less impulsive, increase their bonds to conventional society, decrease their antisocial attitudes, and become less anxious and less depressed? To address this issue, we examined a sub-sample of the study that was measured on two occasions, ranging from one to six months between occasions, four months on average. For this sample (264 boot camp respondents and 266 traditional facility respondents), a maximum-likelihood estimated random-effects regression model (Bryk and Raudenbush 1992; StataCorp 1999) was used to examine change in the five outcome variables. Shown in Table 8 are the mean Time 1, Time 2, and difference scores for the five

outcome variables by type of facility for the pretest-posttest sample. The boot camps observed larger average changes in the desired direction for all five outcomes. In standardized mean difference effect-size units, this difference was largest for prosocial attitudes, depression, and dysfunctional impulsivity. The observed effect sizes for the traditional facilities were all less than 0.10 in absolute values; these are small effects by most standards. The magnitude of change for the boot camp facilities range from a small effect for bonds to conventional behavior to a modest effect for prosocial attitudes.

TABLE 7: Random Effects Regression Analyses (HLM) of Initial Levels of Anxiety and Depression for All Juveniles Completing a Survey during Their First Month. Excluding Girls

Variable	Anxiety ^a	Depression ^a
Individual level		
Age	.00	.01
Race (White)	.03*	.00
Drug/alcohol abuse	.01	.05*
Criminal history	-.00	-.05
History of family violence	.05***	.25***
By facility type	-.00	-.03
By hostile environment	.01	-.02
Perceived as therapeutic	-.02	-.15***
Perceived as hostile	.09***	.18***
Perception of freedom/choice	-.04***	-.10**
Facility level		
Facility type ^b	.02	-.00
Therapeutic environment	.04	-.08
Hostile environment	.06*	-.02
Freedom/choice	-.06***	-.07
Selectivity	-.08	-.32*
Seriousness	-.02	-.09
Facility capacity	-.00*	-.00*
Intercept	1.39***	2.78***

NOTE: Sample sizes were (individuals/facilities) the following: anxiety 1,432/48; depression 1,432/48.

a. Regression model significant ($p < .01$).

b. Facility type coded as 1 for boot camp and 2 for traditional facility.

* $p < .10$. ** $p < .05$. *** $p < .01$.

For purposes of analysis, residualized change scores were used, as is common practice in the analysis of change (see Campbell and Kenny 1999). Table 9 presents the regression coefficients for four regression models applied to each of the five outcomes. Model 1 simply tests whether the boot camp facilities differ in the amount of change from the traditional facilities. For depression and social attitudes, boot camps observed greater change in the desired direction. Model 2 tests whether there is a relationship between the overall facility rating and amount

of change. As with facility type, this effect was significant for the depression and social attitudes regression models. This is not surprising, for facility type and the overall facility rating are correlated. Models 1 and 2 do not control for known individual differences between the boot camp and traditional facilities. It is not surprising that the regression effects for anxiety, social bonds, and dysfunctional impulsivity were statistically nonsignificant because the amount of change observed on these variables was small.

Model 3 incorporated individual-level covariates, including age, race, history of alcohol and drug abuse, criminal history, and history of family violence and child abuse, and provides a more realistic test of the relationship between facility characteristics and individual change. The coefficients for these individual characteristics were assumed to be fixed, that is, constant across facilities. From Table 2, we know that the pretest-posttest sample differed across facility type in the average months in the facility. Therefore, this variable was also included in the analysis to control for any linear relationship between amount of change and time in facility at first measurement. At the facility level, coefficients were estimated for the facility type, the composite indicator of the facility environment (facility mean across the individual perceptions by the youths), the selectivity of the facility, and the seriousness of the juveniles admitted. Several interaction effects also were tested. We theorized that the facility environment may moderate the relationship between race, criminal history, and history of family violence, and the amount of change on the outcome variables. We also theorized that the facility type might moderate the relationship between history of family violence and amount of change. Facility type was statistically nonsignificant across all models with the full complement of covariates. For both change in depression and change in social attitudes (a predictor of delinquency), however, the overall rating of the facility environment was related to change in the desired direction. It appears that the boot camp versus traditional facilities distinction is far less relevant than how positively the youth perceive an environment to be. Recall that in these models, it is the facility means of the youths' perceptions that are used. Presumably, the composite of all of the youths' perceptions of the environment produced an index of the facility

environment that is relatively inde-pendent of each individual youth's perceptions, although it might be affected by the composition of youths completing the survey.

TABLES: Change In Anxiety, Depression, Bonds to Conventional Behavior, Dysfunctional Impulsivlty, and Social Attitudes for the Pre/Post Sample

<i>Variable</i>	<i>Time 1</i>		<i>Time2</i>		<i>Difference</i>		<i>n</i>	<i>Effect Size</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Anxiety								
Boot camps	1.49	0.34	1.42	0.30	-0.06	0.36	254	-0.16
Traditional facilities	1.42	0.32	1.40	0.30	-0.02	0.32	255	-0.05
Depression								
Boot camps	3.17	0.99	2.86	1.05	-0.30	1.16	256	-0.25
Traditional facilities	3.34	0.98	3.16	0.99	-0.09	1.06	258	-0.07
Bonds to conventional behavior								
Boot camps	4.34	0.71	4.35	0.79	0.02	0.84	253	0.02
Traditional facilities	4.20	0.87	4.12	0.83	-0.09	0.87	251	-0.08
Dysfunctional impulsivity								
Boot camps	1.66	0.35	1.61	0.35	-0.05	0.38	255	-0.12
Traditional facilities	1.64	0.34	1.65	0.33	0.02	0.35	249	0.05
Prosocial attitudes								
Boot camps	1.49	0.13	1.53	0.15	0.05	0.14	252	0.36
Traditional facilities	1.48	0.14	1.49	0.15	0.01	0.14	248	0.07

NOTE: None of the mean gain score differences between facility types were statistically significant ($p > .01$) using a nested ANOVA model. Effect size is computed as the difference score divided by the pooled within facility standard deviation at Time 1.

A hypothesis of these analyses was that facility type would interact with history of family violence. As expected, youth with histories of family violence changed less in social attitudes, on average, than youth without histories of family violence. Also, as expected, this relationship interacted with facility type and was stronger for boot camp facilities. That is, there is only a slight relationship between history of family violence and change in social attitudes for the traditional facilities. The boot camp environment appears detrimental (or at least less therapeutic), based on these data, for youths with a history of family violence. This pattern of effect, albeit statistically nonsignificant, was consistent across all five regression models. Thus, youths with a history of family violence exhibit less positive change overall yet fare better relative to their peers in traditional facilities.

TABLE 9: Random Effects Regression Analyses (HLM) of Residualized Change for the Five Outcome Variables on the Pre/Post Sample, Excluding Girls^a

<i>Variable</i>	<i>Anxiety</i>	<i>Depression^b</i>	<i>Social Bonds</i>	<i>Dysfunctional Impulsivity</i>	<i>Social Attitude</i>
Model 1					
Facility type ^c	0.027	0.313***	-0.093	0.060*	-0.044**
Model 2					
Positive environment	-0.038	-0.358***	0.060	-0.037	0.043***
Model 3					
Individual level					
Age	0.005	-0.040	-0.005	0.003	-0.007
Race (African American)	-0.056*	0.150	-0.041	-0.002	-0.025*
By + environment	0.048	0.290	0.126	0.051	-0.059*
Drug/alcohol abuse	0.023	0.064	-0.046	0.008	-0.002
Criminal history	0.001	-0.058	0.022	0.010	-0.001
By + environment	0.062*	0.060	-0.089	0.000	-0.016
History of family violence	0.164	0.899*	-0.510	0.095	-0.163**
By facility type	-0.098	-0.326	0.228	-0.034	0.089**
By + environment	-0.077	-0.311	0.263	-0.038	0.052
Time in facility	0.002	0.013	-0.012*	-0.001	0.003**
Facility level					
Facility type ^c	0.004	0.157	-0.062	-0.061	-0.008
+ environment	-0.044	-0.261**	-0.080	-0.048	0.048**
Seriousness	0.043*	-0.226	0.072	0.069	-0.037
Selectivity	0.117	-0.236*	0.151	-0.131	0.006
Intercept	-0.258	0.381	0.279	-0.020	0.221**

a. Sample sizes were (individuals/facilities) anxiety (446/41), depression (450/41), social bonds (444/41), dysfunctional impulsivity (443/41), and social attitudes (453/41).

b. Regression model statistically significant, $p < .05$.

c. Facility type coded as 1 for boot camp and 2 for traditional facility.

* $p < .10$. ** $p < .05$. *** $p < .01$.

An unexpected finding was the relationship between race and change in social attitudes and the interaction of this effect with the overall rating of the facility environment. On average, African Americans exhibited less positive change in social attitudes. Furthermore, a plot of the regression function shows that the relationship between the overall rating of the facility environment and change in social attitudes is not evident for African Americans. The average amount of change in social attitudes is roughly equal across facilities rated differentially on overall rating. These two regression coefficients are statistically significant at the rather liberal level of $p < .10$ and were not hypothesized effects. Therefore, these findings need replication for any confidence to be placed in them.

A final finding in this regression model worth noting is the positive relationship between the time in facility at first measurement and the amount of

positive change in social attitudes. This coefficient suggests that larger changes in social attitudes tend to occur in later periods of a youth's stay in these facilities. The amount of reduction in depressed mood was related, as expected, to a history of family violence. The higher the level of prior family violence, the less decrease in depressed mood between administrations of the survey instrument. Also as expected, youth in environments judged positively were more likely to have decreased depression between survey administrations, as were youth in facilities that were highly selective of the youth admitted.

The regression models for anxiety, social bonds, and dysfunctional impulsivity were statistically nonsignificant. This may be due in part to the small amount of change observed on these three outcomes (see Table 7). In particular, a ceiling effect was observed for the measure of social bonds at Time 1, leaving little room for improvement in the scores of the youths. Although there were a few significant regression coefficients across these models, little confidence can be placed in these findings given a nonsignificant overall regression model.

DISCUSSION

Boot camps for delinquent juveniles are a modern alternative to traditional detention and treatment facilities, although the notion that strict discipline and physical exercise will straighten out wayward youth has a long history. The debate surrounding boot camps has focused on the potential stressfulness of the environment and the plausibility that the confrontation and militaristic style will be harmful to the juveniles, particularly those with a history of abuse. This study contributes to the debate by examining the environment of boot camps relative to traditional facilities as perceived by the youths in the facilities, the initial stress levels of the youths in the two facilities types, and the intermediate changes of the youths on variables associated with future offending behavior.

Contrary to the expectation of the critics of boot camps, the juveniles perceived the boot camp environments more favorably relative to the traditional facilities. These differences in perceptions remained after accounting for measured differences in the characteristics of the youths across the two facility types. Not only did the youths in

the boot camps generally feel safer, they also perceived the environment to be more therapeutic or helpful. Thus, the fears that the boot camps, in general, would be hostile, negative environments appear not to have been realized. Although the boot camps were more structured and placed more constraints on the freedom of the juveniles, the implementation of the boot camp model for juveniles does not appear to produce environments that are perceived by juveniles as negative relative to existing alternatives. Based on observational information gained through site visits to all of the surveyed facilities, it is our opinion that this finding reflects the positive atmosphere of many but not all of the boot camps. Most boot camps have strict rules and discipline for disobedience; however, despite this, or because of this, close and caring relationships seem to form between youth and staff.

A concern regarding boot camps is that the militaristic environment may contrast so sharply with the past home and community experiences of the juveniles that the camps will produce harmfully high levels of stress, resulting in high levels of depression and anxiety. It was not possible with the available data to determine if the observed levels of anxiety and depression among the youths in this study were at dysfunctional levels. A contrast between the initial levels of anxiety and depression between traditional and boot camp facilities, however, showed that youths in boot camps do not appear to have higher levels of anxiety and depression than comparable youths in traditional facilities. Considering the positive perception of the boot camp environment, this finding is not surprising, although it is counter to the expectation of many. Initial levels of depression and anxiety were related, however, to a history of family violence or abuse. Contrary to expectation, this relationship was not mediated by the facility type.

We hypothesized that the structured, disciplined nature of boot camps would increase the effectiveness of these facilities at reducing impulsivity among juveniles relative to traditional facilities. Furthermore, we anticipated that traditional facilities would be more effective at modifying a youth's social bonds and antisocial attitudes. These predictions were not confirmed. The raw differences in the mean change from pretest to posttest favored the boot camps for all three of these intermediate outcomes. These differences were substantially attenuated,

and statistically nonsignificant, once the facility environment variable was included in the model, as well as characteristics of the individuals and other facility features. Thus, it appears that any differences in the effects of boot camps relative to traditional facilities on these variables can be explained by how positive the youths perceived the environment.

There is concern that the boot camp environment may be detrimental to youth with abuse histories (e.g., Morash and Rucker 1990). This study provides some support for this view. For the antisocial attitude measure, youth with abuse histories exhibited substantially less change in the desired direction. Furthermore, this effect was twice as large for boot camps as for traditional facilities. That is, there was a statistically significant interaction between facility type and abuse history for antisocial attitudes, suggesting that boot camps may be ineffective and potentially detrimental to persons with a history of family violence.

An unexpected finding that deserves additional research was an interaction between the perceptions of the facility environment and race/ethnicity (African American versus other). For African Americans, there was virtually no relationship between the characteristics of the facility environment, as measured by our single factor, and change in social attitudes, whereas non-African Americans exhibited greater change in the desired direction as the environment became more positive. As the result of an exploratory analysis, the finding may represent sampling error. However, if it is confirmed by additional research, it points to the need to examine the effect of environmental conditions on juvenile adjustment and change separately for African Americans relative to Caucasians and other racial/ethnic groups.

Almost anyone who visits a juvenile correctional boot camp recognizes the large difference between the environment of the camps and the environment of more traditional juvenile facilities. The question is whether this is a positive atmosphere conducive to positive growth and change or whether it is detrimental to juveniles and is in opposition to a high-quality therapeutic environment. Our findings suggest that, at least from the perspective of the juveniles residing in the facilities, the boot camps are a more positive environment than traditional facilities.

Boot camp residents perceive their environments as less hostile and more therapeutic than juveniles in traditional facilities. Furthermore, according to their self-reports, they are no more (or less) anxious or depressed even during the early period in boot camps when adjustment is hypothesized to be the most difficult. The boot camps also appear to have a more positive impact on the juveniles in regard to antisocial attitudes and depression; however, this effect appears to be related to the more positive atmosphere, not whether a facility is a boot camp or not. The only problematic impact of the boot camps was for juveniles with a history of abuse and family violence. These youth did not do as well in the boot camps as they did in the more traditional facilities.

Several selection bias effects are obvious in our data. First, juveniles sent to boot camps may differ from those sent to traditional facilities. Juveniles sent to boot camps may be those who would not otherwise be incarcerated, or they may be adjudicated for less serious crimes and sent to the boot camp because it requires a shorter period of confinement. When we compared the characteristics of the two samples given our knowledge of these facilities, it appears that the boot camp youth were appropriate for the traditional facilities, but not all those in the traditional facilities would be appropriate for the boot camps. To control for this in our multivariate analysis, we included measured characteristics of the youth. Our analyses are unlikely to completely control for all selection bias. Although we cannot rule out all selection bias, our examination of the data led us to believe this is not a major threat to our conclusions.

Prior research examining boot camp facilities has not demonstrated any differences in recidivism when those released from boot camps are compared to those released from traditional facilities (MacKenzie 1997). One possible reason for this finding is that the two types of facilities being compared in the prior studies were similar in environmental characteristics. Our results suggest that whether a facility is called a boot camp or not is less important than the characteristics of the environment of the facilities. Facilities perceived as having more positive environments will be more apt to have an impact on social attitudes, and, in past research; these attitudes have been found to be associated with recidivism. Despite

a generally more positive assessment of the boot camp environment by the youth, both boot camp and traditional facilities varied greatly on these measures.

Overall, we found only small changes during their time in the facilities in the characteristics of these juveniles that are related to delinquent behavior. This is disappointing. This finding may reflect deficiencies in the scales or the short period of time between the pre- and post measures of change. However, if this change truly reflects the very limited change these juveniles make during their time in the facilities, it is worrisome because the characteristics we measured have been linked to criminal behavior. This suggests to us that these facilities will have a very limited impact on the future delinquent and criminal activities of these youth. Disappointingly, few of these facilities had any information about the juveniles who left their care. Few even knew if the juveniles returned to the same facility, and fewer still had any information about whether the juveniles had recidivated, returned to a community school, or found employment. We wonder how staff and administrators who view their mission as the rehabilitation of juveniles can plan and improve programs if they do not know what happens to the youth once they leave the facility.

NOTES

1. Although 27 boot camps agreed to participate, one of the sites was very distinct from all other programs due to its three-year length and transitory nature from a boot camp into a detention program. As a result of these anomalies, this program was excluded from analyses herein.
2. A copy of this survey is available from the first author.
3. A copy of this survey is available from the first author.
4. We label this scale social attitudes because a high score on the scale
5. reflects more positive social attitudes, or conversely less antisocial attitudes.

APPENDIX

<i>Therapeutic Environment Scale (35 items; range 1-5)</i>	<i>Factor Score</i>	<i>Mean (SD)</i>
Residents do what the staff here tell them to do.	.445	3.78 (1.2)
Staff members check up on the residents regularly.	.437	4.04 (1.2)
If a resident believes he will be hurt by another resident, the staff will protect him.	.449	3.39 (1.5)
Staff have caught and punished the real troublemakers among residents.	.414	3.13 (1.4)
There are enough staff to keep residents safe here.	.507	3.41 (1.5)
Staff prevent violence among residents.	.427	3.42 (1.5)
Residents know what to do in case of a fire.	.450	3.93 (1.5)
Most of the jobs we have to do are safe.	.406	3.66 (1.3)
A counselor is available for me to talk to if I need one.	.543	3.55 (1.4)
I have things to do that keep me busy here.	.612	3.92 (1.2)
I spend time on school work.	.549	3.46 (1.4)
I can find something to do here at night.	.476	3.54 (1.4)
I am encouraged to plan for what I will be doing when I leave here.	.598	4.01 (1.3)
I get exercise here.	.571	4.37 (1.2)
There are things to do here when I am not in school.	.596	4.07 (1.2)
The staff encourage me to try new activities.	.576	3.56 (1.4)
Additional help with school work outside of classroom hours is available to me.	.467	2.99 (1.5)
The health care here is good.	.484	3.33 (1.4)
Staff care about residents here.	.491	3.23 (1.4)
I have a set schedule to follow each day here.	.511	4.20 (1.3)
I am required to study at certain times here.	.492	3.59 (1.5)
I know what will happen if I break a rule here.	.585	4.34 (1.1)
Staff here let me know what is expected of me.	.606	4.11 (1.2)
Problems between staff and residents can be worked out easily.	.404	2.97 (1.4)
I have a certain time that I must go to bed.	.428	4.57 (1.1)
My experiences here will help me find a job when I get out.	.608	3.48 (1.4)
The things I do here help keep me focused on my goals for the future.	.662	3.65 (1.3)
Being here helps me understand myself.	.606	3.37 (1.4)
I learn things in the educational courses given here.	.636	3.73 (1.3)
By trying new activities I am learning skills I can use when I leave.	.659	3.76 (1.3)
Things I learn here will help me with future school work.	.636	3.67 (1.3)
Substance abuse treatment services here help many residents.	.469	3.07 (1.5)
The opportunities for religious services here help me become a better person.	.429	3.16 (1.5)
I feel healthier since coming here.	.510	3.18 (1.6)
The individual attention here has helped me.	.479	2.73 (1.5)
Total scale:		3.61 (.71)
Cronbach's alpha .926		

(continued)

APPENDIX Continued

<i>Hostile Environment (29 items; range 1-5)</i>	<i>Factor Score</i>	<i>Mean (SD)</i>
Staff members ignore conflicts among residents.	.473	2.10 (1.3)
Residents can get weapons at this facility.	.410	2.26 (1.5)
Residents say mean things to other residents at this institution.	.469	3.11 (1.5)
Residents use weapons when they fight.	.462	1.63 (1.1)
Residents fight with other residents here.	.591	2.61 (1.4)
Residents are extremely dangerous here.	.548	1.91 (1.2)
Residents have to defend themselves against other residents in this institution.	.617	2.46 (1.5)
Staff say mean things to residents.	.534	3.05 (1.5)
Residents are in danger of being hit or punched by staff here.	.608	2.06 (1.4)
Residents say they have been hurt by staff here.	.614	2.28 (1.4)
Staff grab, push or shove residents at this institution.	.560	2.83 (1.5)
There are gangs here.	.418	2.66 (1.7)
Insects, rodents and dirt are a problem here.	.562	2.71 (1.5)
There is a bad odor or poor air circulation.	.565	2.62 (1.5)
There are things lying around that could help a fire spread.	.467	2.59 (1.5)
People could get hurt because the place is so dirty.	.573	2.12 (1.4)
Many accidents happen here.	.623	2.38 (1.3)
Staff tease depressed residents.	.511	2.59 (1.4)
Residents give other residents with personal problems a hard time.	.500	2.72 (1.4)
Other residents are unfriendly.	.452	2.78 (1.3)
One thing bad about this place is that it's so noisy.	.408	3.03 (1.5)
It is hard to talk with visitors because the noise is too loud here.	.408	2.41 (1.4)
Many residents look messy here.	.532	2.43 (1.4)
Staff are always changing their minds about the rules here.	.531	3.05 (1.5)
Different staff members here have different rules so you never know what you are supposed to do.	.490	3.39 (1.4)
Residents are punished even when they don't do anything wrong.	.494	3.16 (1.4)
Staff use force when they don't really need to.	.603	2.93 (1.5)
Something bad might happen to me if I file a grievance.	.468	2.53 (1.5)
Staff treat residents fairly.	.407	3.09 (1.4)
Total scale:		2.60 (.75)
Cronbach's alpha	.915	

(continued)

APPENDIX Continued

<i>Freedom and Choice (10 items; range 1-5)</i>	<i>Factor Score</i>	<i>Mean (SD)</i>
Staff say mean things to residents.	.438	2.95 (1.5)
I watch a lot of television here.	.499	1.96 (1.3)
I can talk to my friends and family on the telephone here.	.482	2.71 (1.5)
I can be alone when I want to here.	.508	1.71 (1.2)
Staff treat residents fairly.	.415	2.91 (1.4)
I can talk to my lawyer when I want.	.455	2.40 (1.5)
Residents choose the type of work they do here.	.460	2.10 (1.4)
I can read whenever I want.	.572	2.61 (1.5)
I can listen to music when I want.	.504	1.60 (1.1)
The individual attention here has helped me.	.402	2.73 (1.5)
Total scale:		2.37 (.80)
Cronbach's alpha .78		
<i>Depression (5 items; range 1-5)</i>	<i>Factor Score</i>	<i>Mean (SD)</i>
At times I worry too much about things that don't really matter.	.573	2.74 (1.3)
Sometimes, recently, I have worried about losing my mind.	.726	3.27 (1.5)
I often feel angry these days.	.743	2.51 (1.3)
In the past few weeks, I have felt depressed and very unhappy.	.739	2.63 (1.4)
These days I can't help wondering if anything is worthwhile anymore.	.758	3.25 (1.4)
Total scale:		3.12 (.98)
Cronbach's alpha .7564		
<i>Anxiety (6 items; range 1-2)</i>	<i>Factor Score</i>	<i>Mean (SD)</i>
I feel calm.	.618	1.27 (.45)
I feel upset.	.710	1.39 (.49)
I feel anxious.	.378	1.56 (.50)
I feel nervous.	.688	1.37 (.48)
I am relaxed.	.728	1.37 (.48)
I am worried.	.697	1.51 (.50)
Total scale:		1.41 (.31)
Cronbach's alpha .7121		

(continued)

APPENDIX Continued

<i>Dysfunctional Impulsivity (4 items; range 1-2)</i>	<i>Factor Score</i>	<i>Mean (SD)</i>
I will say whatever comes into my head without thinking first.	.663	1.55 (.50)
I don't spend enough time thinking over a situation before I act.	.668	1.38 (.49)
I get into trouble because I don't think before I act.	.748	1.29 (.45)
I say and do things without considering the consequences.	.767	1.31 (1.5)
Total scale:		1.62 (.34)
Cronbach's alpha .6731		
<i>Social Bonds (17 items; range 1-5)</i>	<i>Factor Score</i>	<i>Mean (SD)</i>
I would like to be like my parents.	.651	3.22 (1.5)
I feel comfortable talking to my parents if I have a problem.	.679	3.39 (1.4)
I feel bad when I do something my parents wouldn't like.	.715	3.54 (1.3)
I can count on my parents to stick by me.	.688	4.34 (1.1)
I want my children to respect me.	.567	4.78 (.71)
It is important for people to spend time with their families.	.714	4.56 (.87)
I like school.	.757	3.16 (1.2)
Finishing my homework is important to me.	.797	2.89 (1.4)
I respect my teachers.	.720	3.52 (1.3)
Getting good grades is important.	.818	3.74 (1.3)
It would make me feel bad if my teachers criticized me.	.446	2.33 (1.5)
I get into trouble at school like being suspended or expelled.	.469	2.79 (1.3)
A good education is important to me.	.664	4.39 (1.1)
The most important things that happen to me involve my job.	.524	2.33 (1.4)
I enjoy thinking about where I will work in the future.	.772	3.86 (1.3)
Doing well at work is important to me.	.851	3.97 (1.3)
I feel good when I do my job well.	.802	4.35 (1.2)
Total scale:		3.60 (.67)
Cronbach's alpha .8125		

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