Youth Perceptions of Staff as a Predictor of Restrictive Housing and Recidivism in Juvenile Detention Facilities

By

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Abstract

Background: Youth perceptions of detention center staff may be particularly important for achieving desired outcomes both within juvenile detention centers and after youth are released. In order to fill gaps in the literature, the current study aimed to determine the role of youth perceptions of staff by (a) establishing the appropriate use of a youth perceptions of staff measure, (b) examining the relationship between youth perceptions of staff and restrictive housing and recidivism, as well as (c) evaluating the moderating role of callous unemotional (CU) traits. *Methods*: Youth admitted into two juvenile detention facilities in the Midwestern United States were administered questionnaires and assented to participate in research, resulting in a sample of 228 youth. *Hypotheses*: It was expected that a one factor model would best characterize the use of the youth perceptions of staff measure. Further, it was anticipated that more negative perceptions of staff would be related to increased risk for and incidents of restrictive housing and detainment over the course of one year. High levels of CU traits were expected to moderate the associations between youth perceptions of staff and outcomes of interest. *Results*: Findings differed between the two facilities. Youth perceptions of staff emerged as a significant predictor of risk for recidivism in facility one but not facility two. Further, youth perceptions of staff was a significant predictor of risk for and frequency of restrictive housing in facility two but not in facility one. Additionally, for youth exhibiting higher levels of CU traits, more negative perceptions of staff were associated with increases in the frequency of restrictive housing in facility two. *Conclusions*: The current study suggests that youth perceptions of staff may be an important factor to consider within juvenile detention facilities, and that these perceptions may be particularly important for youth exhibiting CU traits. Further, it appears that the implementation of universal interventions is important to consider in these associations.

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Introduction

The incarceration of juvenile offenders is a costly intervention for youth exhibiting antisocial behavior. In fact, each youth incarcerated costs taxpayers on average $407.58 per day (Justice Policy Institute [JPI], 2014), with approximately 48,043 youth being placed in residential facilities due to delinquent offences (Office of Juvenile Justice and Delinquency Prevention [OJJDP], 2010). Considering the high rates of recidivism in this population, the average juvenile offender will cost millions of dollars in their lifetime (JPI, 2014). Adding to the cost of incarceration, involvement in solitary confinement and other forms of restrictive housing is particularly costly (Solitary Watch, 2011). Additionally, there are concerns that the use of restrictive housing and other disciplinary techniques implemented within detention facilities serve to perpetuate the problem behavior they are trying to reduce (Daffern et al., 2007; Jones & Timbers, 2002), suggesting current standards of care in juvenile justice settings may fail to prevent problematic behavior while incarcerated and following release. Accordingly, it is important to consider factors that may contribute to youths' involvement in restrictive housing and reoffending behavior (i.e., recidivism) in order to reduce their occurrence.

Juvenile detention represents an important *intercept* of intervention for youth within the juvenile justice system. When involved in the juvenile justice system, youth travel through several contact points, or intercepts, in which they may be able to receive services aimed at deterring future system involvement (Heilbrun et al., 2017). Intercepts within the juvenile justice system begin with arrest and continue through initial detainment, formal prison/court involvement, re-entry, and community corrections (Heilbrun et al., 2017). Detainment in juvenile detention centers represent contact at the second intercept, a relatively early intervention point, suggesting that interventions or practices within juvenile detention settings may serve to limit

continued contact with the juvenile justice system. Given that current practices and procedures within detention centers fail to prevent future problem behavior and/or juvenile justice involvement (Gatti et al., 2009), it is important to establish how resources, such as correctional officers, at this intercept may be leveraged to improve outcomes for these youth.

Behavioral interventions represent a promising course of action for the development of effective alternatives within juvenile detention and correctional facilities (Gendreau et al., 2014; Nelson et al., 2009). However, these interventions do not work for all youth (Weisz et al., 2013). Thus, it is important to determine other contextual factors that may contribute to youth behavior and subsequent consequences (e.g., restrictive housing, recidivism). One factor that may contribute to the effectiveness of behavioral interventions in juvenile detention centers is the relationship between youth and staff. Detention staff, such as correctional officers, are in a unique position to influence youths' behavior as they are employed to consistently monitor detained youth and maintain facility safety. In fact, it is suggested that having correctional staff included in intervention efforts in detention is vital to improving outcomes for youth within these facilities (Peterson-Badali & Koegl, 2002), such as reductions in restrictive housing and recidivism. In the few studies evaluating youth perceptions of staff, research suggests their perceptions are important to decreasing unwanted behaviors and increasing desired outcomes (Cesaroni & Peterson-Badali, 2016; Kupchik & Syder, 2009). Therefore, understanding how youth perceptions of staff contribute to their involvement in restrictive housing and recidivism provides vital information on the adaptation of intervention strategies within these facilities.

Further, callous unemotional (CU) traits (e.g., lack of remorse, interpersonal insensitivity) may also be important for understanding how youth perceptions of staff relate to behaviors resulting in restrictive housing and recidivism. CU traits may serve to alter youth

perceptions and subsequent interactions with staff. Youth within detention settings exhibit significantly more CU traits than youth in the community (Pihet et al., 2015). Additionally, youth with high levels of CU traits engage in more severe and frequent antisocial behavior, even while detained in detention facilities (Pihet et al., 2015). Thus, it is important that intervention efforts be tailored to fit the needs of detained youth. However, it remains unclear how youths' perceptions of facility staff may affect youth higher in CU traits, with some evidence suggesting that developing warm, positive relationships with others may be particularly effective for these youth (Mattos et al., 2017). Accordingly, the current study had three aims to (a) evaluate a measure of youth perceptions of staff in order to establish its appropriate use, (b) examine the role of youth perceptions of detention center staff as it relates to risk for and frequency of restrictive housing incidents and risk for and frequency of recidivism, and (c) examine the moderating role of CU traits in these relations.

Evidence-Based Behavioral Interventions

In line with national policy goals, evidence-based interventions need to be evaluated in juvenile detention. In particular, interventions developed within a behavioral framework have been found to be most beneficial for delinquent youth (de Vries et al., 2015). While behavioral interventions can be implemented in a variety of ways, of most interest would include universal interventions that can be individualized as needed (Matthews & Hubbard, 2007; Wilson & Lipsey, 2007). Behavioral interventions are based on learning theory and utilize principles of applied behavior analysis and operant conditioning techniques. Learning theory suggests the likelihood of an individual engaging in any given behavior is based on anticipated consequences developed through previous experiences (Johnson et al., 1997). One component of learning theory is operant conditioning, in which behaviors are maintained through reward and eliminated

by punishment or no reward (Kazdin, 1997). Behavioral interventions use these reward and punishment mechanisms as a basic principle to obtain desired behavioral change; however, different behavioral interventions apply these principles in different ways.

One approach to behavioral intervention within juvenile detention settings is the token economy. Token economies have a long history of implementation in institutional setting such as residential facilities as well as within adult prisons (Doll et al., 2013; Gendreau et al., 2014; Kazdin & Bootzin, 1972). In a token economy, individuals receive rewards for wanted behavior and are similarly punished for unwanted behavior (i.e., token; Kazdin & Bootzin, 1972). Individuals are awarded tokens, which can take on a variety of forms from points to poker chips, for good behavior; however, these tokens can also be taken away for unwanted behavior. Individuals are motivated to earn tokens to obtain back up rewards, which youth can earn following the accumulation of tokens (Doll et al., 2013; Gendreau et al., 2014). For instance, individuals may exchange their tokens for commissary money or additional television time.

Another behavioral approach, which has been widely implemented in school settings, is Positive Behavioral Interventions and Support (PBIS). PBIS is intended to increase the positive behavior exhibited by youth while decreasing negative behavior through the creation of an environment that encourages social learning and allows youth and staff to work together to solve problems (Carr et al., 2002; Scott et al., 2010). PBIS defines expected behaviors and rewards them in order to reduce unwanted behaviors (Chitiyo et al., 2012). The use of PBIS involves a three-tier system in which the primary goal is to prevent unwanted behaviors. All individuals receive a tier 1 intervention, by instituting a system in which youth earn rewards. Individuals who continue to engage in unwanted behavior while receiving tier 1 supports, then receive tier 2 interventions (e.g., skills groups) in order to further support engagement in positive behavior.

Finally, a tier 3 intervention (e.g., medication management, individual therapy) may be implemented through further supports if tier 2 interventions are unsuccessful at mitigating unwanted behavior (Dunlap et al., 2009).

Evidence suggests these forms of behavioral intervention (i.e., token economy, PBIS) are effective at reducing problem behavior in a variety of settings (e.g., Doll et al., 2013; Fernandez et al., 2015; Gendreau et al., 2014). Token economies have shown to be effective in residential settings for reducing symptoms of schizophrenia and delinquent behavior as well as in classrooms for reducing unwanted behavior and improving academic performance (Doll et al., 2013; Gendreau et al., 2014; Kazdin & Bootzin, 1972). Token economies have also been used in both adult and juvenile detention settings (see Gendreau et al., 2014, for review). In a meta-analysis examining the literature on contingency management plans, participants' behavior improved by 69% in prison settings (Gendreau et al., 2014). Further, token economies have been found to reduce recidivism in psychiatric inpatient facilities (Milby, 1975; Hollingsworth & Foreyt, 1975). PBIS in particular has been shown to be effective in school settings (Chitiyo et al., 2012; LaVigna & Willis, 2012). Further, the implementation of a PBIS system in juvenile detention facilities in Georgia indicated reductions in youth-on-youth and youth-on-staff assaults (Fernandez et al., 2015). Implementation of PBIS in another juvenile detention facility in Iowa was associated with significant reductions in rate of restrictive housing and restraints as well as reductions in problem behavior (Nelson et al., 2009).

Overall, evidence would suggest that these are promising interventions in juvenile justice settings; however, behavioral interventions are not uniformly effective for all individuals (Weisz et al., 2013). Given the importance of improving care within detention settings, additional factors need to be evaluated in order to tailor intervention efforts in these settings and prevent additional

maladaptive outcomes (e.g., restrictive housing, recidivism) for these youth. Accordingly, the current study aimed to evaluate how additional factors, namely youth perceptions of staff, relate to restrictive housing and recidivism within the context of these interventions.

Restrictive Housing

Interventions for undesirable behavior exhibited by juvenile offenders while incarcerated came into national attention with President Obama's executive order banning solitary confinement (i.e., placement in a cell with limited interaction with other inmates) for juveniles in federal custody (Exec. Order No. 2016-05232, 2016). This decision was based on guiding principles developed by the Department of Justice noting harmful effects of restrictive housing and violations of human rights (United States Department of Justice, 2016). Along with evidence-based initiatives advocated for by the Office of Juvenile Justice and Delinquency Prevention (OJJDP), it is an issue of national importance to identify factors within juvenile detention facilities that may be helpful in reducing the use of restrictive housing.

As defined by the Department of Justice (United States Department of Justice, 2016), restrictive housing includes three distinct components. First, it involves voluntary or involuntary removal from the general inmate population. Second, the individual is placed in a room or cell (often locked), alone or with another roommate. Third, the individual is unable to leave the room or cell for a period of time. The Department of Justice (2016) notes restrictive housing typically occurs for the majority of the day (i.e., 22 hours). Often, the most violent, disruptive, and vulnerable inmates are placed in restrictive housing as a way to ensure safety and maintain control of the facility (United States Department of Justice, 2016). Unfortunately, in its most extreme forms, such as solitary confinement, restrictive housing may be the costliest and most

psychologically damaging form of intervention (Appelbaum, 2015; Metzner & Fellner, 2010; Solitary Watch, 2011).

While research suggests that brief confinement may be useful in reducing problematic behavior (Cotton, 1995; Drabman & Spitalnik, 1973; Tyler & Brown, 1967), more punitive forms of intervention, including seclusion and restraints, typically implemented in juvenile detention settings may set out to increase the behaviors these interventions are trying to avoid (Daffern et al., 2007; Jones & Timbers, 2002). Some evidence indicates that the use of restrictive housing neither improves nor worsens inmate behavior (Frost & Monteiro, 2016), suggesting that, at the very least, the use of restrictive housing fails to change problem behavior. Further, the ethics and legality of the use of the most limiting forms of restrictive housing has been questioned, suggesting that the use of restrictive housing is disproportionally harmful to those who are placed in such settings for long periods of time (Metzner & Fellner, 2010; "Policy Statement," 2016; Shalev, 2011). Accordingly, involvement in restrictive housing is problematic from ethical, legal, and practical standpoints. Although, at times, it may be a necessary intervention to keep all parties involved safe, the current literature supports reduction of its use. As such, the current study aimed to identify factors that put youth at risk for restrictive housing, namely their perceptions of staff, to prevent the need for this strategy.

Recidivism

Recidivism, or the repetition of criminal behavior, has been identified as a chronic problem in the American justice system, as most individuals who are incarcerated will reoffend within three years (Durose et al., 2014). In one study of recidivism in 30 states, 67.8% of prisoners were rearrested within 3 years, and 76.6% were rearrested within 5 years. However, rates of rearrest were above these averages for individuals 24 and younger. Within three years,

75.9% of inmates 24 years or younger were arrested with a new offense, and within five years 84.1% of inmates 24 years or younger were arrested with a new offense (Durose et al., 2014), suggesting that younger individuals are at an increased risk of recidivism. Similarly, in a meta-analysis of 31 studies, Piquero and colleagues (2015) similarly found that younger individuals were at increased risk for violent recidivism. Recidivism increases the cost of maintaining the justice system, and the staggering rates of recidivism, especially in younger populations, suggest little is done in current justice settings to reduce reoffending rates.

Rates of recidivism are confused by the many different types of measurement used to assess for the number of times a youth is involved with the justice system. As such, there are no national rates of juvenile recidivism, as states are allowed to define their own measure (Harris et al., 2011). There are many decision points that influence the rate of recidivism reported by any state. For instance, if recidivism is measured based on the number of times a youth is adjudicated, the amount of recidivism would be lower than if recidivism was measured by the number of times a youth is rearrested. These rates can be further confused by the amount of time covered, such that recidivism measures that consider reoffending over the course of a year have naturally larger numbers than recidivism that is measured over the course of six months (National Center for Juvenile Justice [NCJJ], 2014). Accordingly, recommendations made by the NCJJ and other agencies call for best practices to include clearly defining the measure of recidivism used (NCJJ, 2014). Empirical research has similarly inconsistent definitions of recidivism. The follow-up timeframe for recidivism can span anywhere from three months to 18 years for juvenile offenders (e.g., Edens et al., 2007; Fortune & Lambie, 2005; Schwalbe et al., 2012). Accordingly, the current study aimed to define the recidivism construct consistent with recommendations made by NCJJ. For the purposes of the current study, recidivism was defined

as re-detainment (including new charges and parole violations) following one year after their first detainment within the study timeframe.

Given the high rates and associated societal and personal costs of continued involvement in the juvenile justice system, recidivism is important to consider when developing interventions that work with justice involved youth. While there are reviews identifying evidence-based approaches to reducing recidivism (e.g., McCart & Sheidow, 2016), it is unclear the extent to which the identified interventions are implemented with youth while in juvenile detention nationwide. However, there is evidence to suggest that current practices such as confinement and programs that focus on threat of punishment (e.g., Scared Straight) increase the risk for recidivism, suggesting that many of the systems in place in the United States may increase offending behavior (Lipsey & Cullen, 2009; Lipsey et al., 2010). As such, more research is necessary to understand the role of detention centers and their staff in order to effectively implement programming designed to reduce continued involvement in the juvenile justice system. Accordingly, the current study aimed to take an important step to understanding factors within juvenile detention that contribute to recidivism, specifically youth perceptions of staff.

Youth Perceptions of Staff

One factor that may contribute to youths' behavior while detained and following their release is their perceptions of staff at the detention center. In accordance with ecological models of child behavior, children operate within a complex system of relationships beginning with their immediate environment, such as their relationship with caregivers, extending to cultural and geopolitical contexts (Bronfenbrenner, 1977; Neal & Neal, 2013). Ecological systems theory posits that interconnected layers of the environment, including both the physical environment and networks of relationships, influence the ways in which an individual behaves

(Bronfenbrenner, 1977; Neal & Neal, 2013). Accordingly, facility-wide rules and expectations provided through universal interventions likely influence the behavior of all individuals within detention facilities (Bronfenbrenner, 1977; Neal & Neal, 2013). Additionally, however, individual interactions between youth and staff provide another context for behavior, suggesting the direct interactions between staff and youth are of importance when determining the reward potential of a given behavior that may help to determine its ultimate use.

One important component of behavioral interventions involves the encouragement of supportive interactions between the staff implementing the intervention and youth (Gendreau et al., 2014; McIntosh et al., 2010). It could be the nature of interactions between staff and youth serve as a setting event, or an antecedent condition, impacting the likelihood of a particular response (e.g., compliance or noncompliance, Nosik & Carr, 2015). For instance, McLaughlin and Carr (2005) noted that, in a sample of youth with developmental disabilities, good rapport was linked with less problem behavior; whereas, poor rapport was linked with more problem behavior. Additionally, more positive relationships between teachers and students are related to less problem behavior (Baker, 2006). Accordingly, it could be that behavioral programs affect the relations between staff and youth, which in turn fosters appropriate antecedent conditions increasing the likelihood of compliance and less need for restrictive housing. Further, this concept is consistent with principles of behavioral parent training programs (Shaffer et al., 2001), which may be considered smaller versions of the universal interventions described previously. The development of positive interactions between parents and children are emphasized within behavioral parent training programs as necessary components of an effective intervention and subsequent behavioral improvement (e.g., McMahon & Forehand, 2005). Thus, these positive interactions may serve as a setting event by increasing the likelihood of compliance.

Unlike appraisal theory, wherein stressful events are interpreted in relation to their impact or relevance to an individual's wellbeing which influences coping and emotional and behavioral responses (e.g., Carpenter, 2016; Folkman & Lazarus, 1980), youth perceptions of staff may be best characterized in frameworks of parenting and/or the therapeutic alliance. There is a relative dearth of studies examining the interactions between staff and youth and subsequent relation to meaningful outcomes; however, these interactions may be consistent with literature regarding effective parenting practices, in which warm, supportive parents provide environments that foster the effective use of discipline and reduce conduct problems (e.g., Slicker, 1998). Of particular interest may be research regarding parenting styles. Parenting styles that exhibit support while also enforcing developmentally appropriate expectations and limits are considered authoritative (Baumrind, 1991; Darling & Steinberg, 1993). Whereas, permissive styles of parenting offer acceptance and support but with little limit setting or demandingness, making few attempts to control child behavior (Baumrind, 1991; Darling & Steinberg, 1993). All in contrast to authoritarian parenting styles, which offer little support with rigid limits, and perhaps engagement in harsh, punitive forms of punishment (Baumrind, 1991; Darling & Steinberg, 1993).

Research on these parenting styles suggests authoritative parenting styles are associated with adaptive adjustment outcomes, such as less engagement in risky behavior, lower levels of substance use, and delayed onset of delinquency (Bronte-Tinkew et al., 2006; Calafat et al., 2014; Slicker, 1998), whereas authoritarian styles are associated with externalizing behavior, such as conduct problems, substance use, and poor academic performance (Baumrind, 1991; Calafat et al., 2014; Dornbusch et al., 1987; Slicker, 1998). Accordingly, it could be that authoritative styles offer options for both control and support within a detention facility and

foster improved behavior, especially when compared to the methods for control traditionally used in detention facilities, which may be more authoritarian in nature.

Another framework for understanding the impact of the relationship between youth and staff on youth behavior may be the therapeutic alliance. The therapeutic alliance is defined by a positive bond and agreement on goals between practitioner and client (Manso & Rauktic, 2011). Further, the therapeutic alliance involves the practitioner and client agreeing on goals and working together to achieve these goals, all within the context of a trusting and respectful relationship (Matthews & Hubbard, 2007). In a meta-analysis of 201 research reports, the quality of therapeutic alliance was associated with improvements in mental health symptoms in adults (Horvath et al., 2011). Further, in a meta-analysis of 23 studies in children, the quality of the therapeutic alliance between practitioner and youth was also moderately associated with a variety of outcomes including symptomatology, family functioning, and global functioning (Shirk & Karver, 2003).

The therapeutic alliance is also meaningful in the context of evidence-based treatments. For instance, in a sample of youth and families participating in parent management training, child-reported therapeutic alliance was associated with reductions in deviant behavior and improvements in controlling their behavior (Kazdin et al., 2005). Indeed, positive evaluations of the therapeutic alliance can be related to improvements in behavior while within residential facilities. For instance, in a sample of delinquent youth being treated within a community residential program, higher youth ratings of therapeutic alliance at three weeks into treatment was associated with lower staff reported internalizing symptoms, externalizing symptoms, and 1-year recidivism (Florsheim et al., 2000). Further, in a residential treatment facility, youths' positive evaluations of therapeutic relationship quality were positively associated with service

provider-reported improvement of youth behavior and negatively associated with aggression and incidents of problem behavior (Duppong Hurley et al., 2015; Duppong Hurley et al., 2017). Thus, a positive relationship between youth and staff within the detention facility may facilitate improvements in youth behavior.

Interestingly, research suggests it may be youth perceptions of their relationship with staff that is of importance (Kupchik & Snyder, 2009). For instance, low levels of perceived staff fairness were associated with poor wellbeing in a sample of detained youth (Cesaroni & Peterson-Badali, 2016). In another study evaluating the effect of youth perceptions of staff, youths' positive perceptions of staff were related to reductions in institutional violence (Brown et al., 2019). Additionally, youth who perceive staff as helpful are less likely to experience victimization outcomes, such as fear, sexual abuse, and physical fights (Kupchik & Syder, 2009). Further, positive youth perceptions of a staff member were associated with increases in their belief they could succeed upon release (e.g., involvement in prosocial activities, development of social support, reductions in substance abuse/reoffending, improvements in conflict resolution; Marsh & Evans, 2009). These perceptions may be particularly important within a population of juvenile offenders, as it has been noted that a majority of juvenile offenders are distrustful of facility staff and do not perceive fairness in their treatment by staff (Office of Juvenile Justice and Delinquency Prevention, 2010; Pederson et al., in press), and up to one half of youth in custody report witnessing correction staff (i.e., guards) use direct or indirect violence against youth (Peterson-Badali & Koegl, 2002). Thus, understanding youth perceptions of staff as they relate to the need for restrictive housing while in detention is an important avenue for improving the evidence base for behavioral interventions broadly and in juvenile detention facilities specifically.

Despite the potential importance of this construct, no measure has been established examining youth perceptions of staff. Previous studies have utilized self-created measures examining a wide variety of staff characteristics (e.g., fairness, problem solving, helpfulness, happiness, trust; Brown et al., 2019; Cesaroni & Pererson-Badali, 2016; Kupchik & Snyder, 2009; Marsh & Evans, 2009). The National Survey of Youth in Custody (Pederson et al., in press; United States Department of Justice, 2008-09; United States Department of Justice, 2012) utilizes several questions aimed at assessing a wide range of youth perceptions of staff including whether youth view staff as respectful, good role models, fair, helpful, and appropriate in their use of force. This measure provides a list of items that may provide an appropriately comprehensive measure of youth perceptions of staff consistent with constructs evaluated in previous studies. Providing detention facility administrators with an accessible tool to evaluate youth perceptions of staff may prove to be an important advancement in the literature as facilities look to improve youth outcomes. Accordingly, the current study adapted the measure used in the National Survey of Youth in Custody and evaluated the associated factor structure to determine its appropriate use.

Youth perceptions of staff may be important in reducing the use of restrictive housing as it may help to prevent youths' engagement in unwanted behavior. It is theoretically unclear how restrictive housing itself would result in decreases in problem behavior, as restrictive housing fails to address the variety of reasons youth are placed there (Mears, 2016). Given that one reason youth are placed in restrictive housing is as punishment for unwanted behavior and maintenance of institutional control (Mears, 2016), increasing compliance should result in decreased use of restrictive housing. Thus, to the extent that positive perceptions of staff may

serve as a setting event aiding in the prevention of unwanted behavior, the use of restrictive housing may also be decreased.

Youth perceptions of staff may also be important to reducing recidivism. Social control theory posits that deviant behavior is the result of a lack of societal constraints (Watt et al., 2004). For many youths, connectedness to traditional societal institutions, which can include supportive family and friends and school involvement, provides natural incentives to engage in prosocial behavior, as engagement in prosocial behavior helps to maintain social relationships (Watt et al., 2004). However, individuals who are unconnected to society are less likely to conform to societal expectations of behavior, as they are not able to capitalize on the same social incentives (Groff, 2015; Watt et al., 2004). In fact, evidence suggests access to social bonds, such as an intimate partner relationship and family ties, reduces risk for recidivism (Cobbina et al., 2012). Further, in a meta-analysis of 53 studies, social support was identified as a key predictor of later recidivism, with more social support associated with less involvement in the justice system (Serin et al., 2013). While, to my knowledge, no studies have examined how youth perceptions of staff in juvenile detention facilities relate to later recidivism, there is some evidence to suggest that positive evaluations of the therapeutic alliance are related to less recidivism for boys placed in a community-based residential program (Florsheim et al., 2000). Thus, it could be that if youth perceive some adults in their world are fair and supportive, these perceptions could serve as a means to connect youth to a larger social environment, producing some constraints to behavior and reducing recidivism.

Of note, first impressions may be particularly important to establishing lasting impressions and perceptions. Evidence suggests first impressions of a given object or person are likely to influence later perceptions of the same object or person (DiGirolamo & Hintzman,

1997; Willis & Todorov, 2006). For example, Clayson (2013) found initial impressions of instructor's fairness in assigning grades were related to the student's evaluation of teaching 16 weeks later. These first impressions can be developed in as little as 100 milliseconds, and additional time to make impressions may serve to further affirm initial judgments including trustworthiness (Willis & Todorov, 2006). Further, initial impressions may not change, even in the presence of additional information that may be contrary to them (Okten et al., 2019). Individuals establish initial impressions of trustworthiness that influence later psychological states of trust and fairness (Holtz, 2015), and impressions of trustworthiness appear to develop on the same timeline as other impressions (e.g., attractiveness; Sutherland et al., 2017). Accordingly, the current study evaluated perceptions of staff as soon as possible following their admittance into the facility (typically within 24-48 hours), which allows for the development of initial impressions to be established with staff members throughout the facility and to perhaps begin establishing more developed personal impressions.

The Role of Callous-Unemotional Traits

Consistent with ecological systems theory (Bronfenbrenner, 1977; Neal & Neal, 2013), youth characteristics also exert influence on their environment and perceptions of others. Personal traits represent the most basic level of analysis that can impact the functioning of all other systems (Bronfenbrenner, 1977). Accordingly, callous unemotional (CU) traits represent a personal characteristic of youth that may influence the relationship between youth perceptions of staff and later behavior and are particularly salient for detained youth (Pihet et al., 2015). CU traits in youth are defined as a lack of remorse, deficient affect, and callousness towards others (Frick & White, 2008). CU traits are often conceptualized as a component of psychopathy in adulthood and, in youth, a developmental precursor to later psychopathic traits (Frick & White,

2008). Evidence suggests that CU traits are associated with a more severe and persistent style of antisocial behavior (see Frick & White, 2008, Frick & Dickens, 2006, for review) as well as institutional violence (Pihet et al., 2015), which may put them at greater risk for restrictive housing. However, in the only known study to examine CU traits as a predictor of restrictive housing, CU traits were unrelated to two levels of housing restriction in a facility using a behavioral intervention (Fite et al., 2018). Accordingly, further investigation is necessary to understand the influence of CU traits on facility functioning. Additionally, perhaps as a result of the severe and persistent style of offending, CU traits in youth are associated with increases in recidivism (Kahn et al., 2013).

CU traits may affect the way that individuals perceive their relationships. Namely, youth exhibiting CU traits express less distress over the consequences of their actions, which includes a lack of emotional response to the distress of others (Frick & White, 2008). Further, higher levels of CU traits in children are associated with less concern with punishment and less empathy and concern towards others (Pardini & Byrd, 2012). While these findings may suggest the influence of others may be less motivating in changing behavior for those who exhibit higher levels of CU traits, studies indicate CU traits are associated with more positive ratings of the therapeutic alliance (Mattos et al., 2017; Simpson et al., 2013). For instance, in one study examining the role of CU traits in the relationship between the therapeutic alliance and reductions in self-reported delinquency, CU traits were a significant moderator. Findings were such that youth exhibiting higher levels of CU traits demonstrated a stronger association between the therapeutic alliance and reductions in delinquency than those youth who did not exhibit CU traits (Mattos et al., 2017). These findings are consistent with literature suggesting parental warmth is associated with less CU traits (e.g., Bisby et al., 2017; Ray et al., 2019; Waller et al., 2018). Accordingly, the

proposed study continues to expand on existing literature to understand how personal characteristics of CU traits play a role in relations between youth perceptions of staff and restrictive housing and recidivism. This extends previous work by using objective measures of restrictive housing and recidivism rather than self-reported delinquency, which may be subject to underreporting related to social desirability.

The Current Study

The first goal of the current study was to evaluate the use of a measure of youth perceptions of staff, in order to establish psychometric properties and inform appropriate use in subsequent analyses. The second goal of the current study was to understand how youth perceptions of staff may relate to behavior while detained and one-year recidivism in facilities using behavioral interventions. The third goal of the current study was to understand how CU traits may impact the relation between perceptions of staff and restrictive housing and recidivism. To begin, the measure of youth perceptions of staff was evaluated to determine the underlying factor structure. A one factor model was expected to emerge as the best fitting, as all items were expected to relate to youth perceptions of staff behavior and characteristics. Next, youth perceptions of staff in collaborating juvenile detention facilities were evaluated as they relate to the use of restrictive housing while detained and one-year recidivism. It was expected that higher ratings of youth perceptions of staff (i.e., more negative perceptions of staff) would be related to greater risk for and frequency of restrictive housing. Further, it was expected that higher ratings of youth perceptions of staff would increase the risk of recidivism and the number of detainments over the course of one year. Finally, it was expected that CU traits would significantly moderate the effects of youth perceptions of staff and outcomes of interest, such that, in youth exhibiting high levels of CU traits, positive youth perceptions of staff would be

associated with greater reductions in risk for and frequency of restrictive housing and recidivism. Of note, age, sex, and race were included as control variables, as these demographic characteristics have been associated with differences in youth perceptions of staff (Pederson et al., in press). Further, whether youth had been detained at the same facility before and whether youth had been detained at another facility before were also included as control variables, as it was expected that prior experiences with staff at the same facility or another facility would influence their perceptions of staff at the time of the interview.

Methods

Participants

The sample included youth from two facilities in the Midwestern United States. Both facilities utilize variations of behavioral interventions throughout their residential programs. For instance, facility staff are encouraged and trained to provide at least five positive feedbacks per every corrective feedback given to youth at the facility. Youth are able to earn points based on the amount of positive feedback they receive. They can then use these points in exchange for larger rewards (e.g., access to video games, additional commissary). Each facility has a different way of providing corrective feedback, although both facilities focus on using this feedback to teach youth how and when to engage in appropriate alternative behaviors. In facility one, corrective feedback is given in the form of fines, which are deducted from the same points system in which they earn rewards (i.e., points are earned and lost within the same system). In facility two, corrective feedback is given in the form of teachable moments, in which staff interact directly with youth to instruct them on the use of appropriate behavior. No points are lost for negative behavior within facility two, such that it is not possible to lose points they have already earned. Restrictive housing methods are used in these facilities as last resort options with

systems put in place to limit the length of stay in restrictive environments. Accordingly, it should be noted that the types of restrictive housing used in these facilities are markedly different than restrictive housing used in other facilities in the United States, as the time spent in restrictive housing in these facilities is typically shorter (United States Department of Justice, 2016).

Collaborating juvenile detention facilities are state funded. Youth admitted into these facilities may be pending court-imposed sanctions, serving sanctions already imposed, or a child in need of care. Facilities serve male and female youth age 10 to 17 years old. In facility one, a total of 108 youth assented to participate in both the standard and the supplemental survey, representing 77.14% of eligible youth. Additionally, 16.43% of youth assented to participate in the standard survey but not the supplemental survey, while 0.7% assented to participate in the supplemental survey but not the standard survey. A small percentage (5.7%) of youth declined assent for research in either survey. Of youth who agreed to participate in both the standard and the supplemental survey (n = 108), their age ranged from 12 to 17 (M = 15.76, SD = 1.27) and were predominantly male (67.6%). The sample was predominantly Caucasian (68.5%), followed by 24.1% African American, 1.9% Asian, and 0.9% American Indian/Alaskan Native. Information on race and sex was not available for five youth.

Youth were detained at facility one for a variety of reasons. A majority of youth were placed in detention for a new charge (48.1%). Further, 8.3% were placed in detention for a probation violation, with 38.0% of youth placed in detention for some other reason, such as a child in need of care or a runaway violation. One youth was placed in detention for both a probation violation and a new charge. The severity of charges indicated that 38.9% of youth were placed in detention related to a felony, while 30.6% were placed in detention due to a misdemeanor. Youth arrest charges varied, with 6.5% being admitted for a sexually based

offense, 30.6% being admitted for a violent, nonsexual offense, 7.4% being admitted for a drug-related offense, 16.7% for a theft related offense, 17.6% for a weapon related offense, 0.9% for arson, and 29.6% for other offenses that did not readily fit into other categories (e.g., criminal damage to property, criminal threat, disorderly conduct). A moderate percentage (28.7%) of youth were classified as a child in need of care (i.e., a youth requiring placement due to inadequate care, such as abuse or neglect or running away from placement). Note that offense data were not provided for seven youth, and youth could be detained for multiple charges or charges that met criteria for more than one category.

In facility two, a total of 120 youth assented to participate in both the standard and supplemental survey, representing 76.43% of eligible youth. Additionally, 11.46% of youth assented to participate in the standard survey but not the supplemental survey. In contrast, 3.82% of youth assented to participate in the supplemental survey but not the standard survey. A small percentage (8.28%) of youth declined to assent to any research participation. Of youth who agreed to participate in both the standard and supplemental survey (n = 120), their age ranged from 11 to 17 (M = 15.20, SD = 1.51) and were predominantly male (75%). The sample included primarily Caucasian youth (53.3%), followed by 38.3% African American, and 3.3% American Indian/Alaskan Native. Information on race and sex was not available for six youth.

Similar to facility one, youth were detained at facility two for a variety of reasons, with a majority of youth being placed in detention for a new charge (56.7%), and 5.0% of youth placed in detention for a probation violation, while 31.7% of youth were placed in detention for some other reason, such as a child in need of care or a runaway violation. Regarding the severity of charges, 55.8% of youth were detained due to a felony, while 23.3% of youth were detained due to a misdemeanor. Two youth were placed in detention for both a probation violation and a new

charge. Youth arrest charges varied, with 13.3% being admitted for a sexually based offense, 35.0% being admitted for a violent, nonsexual offense, 2.5% being admitted for a drug-related offense, 24.2% being admitted for a theft related offense, 30.8% being admitted for a weapon related offense, 1.7% being admitted for arson, and 15.0% being admitted for other offenses that did not readily fit into other categories (e.g., criminal damage to property, criminal threat, disorderly conduct). Further, 14.2% of youth were classified as a child in need of care. Note that offense data was not provided for six youth, and youth could be detained for charges that met criteria for more than one category.

T- and chi square tests were used to determine whether youth who assented to both the standard and supplemental survey were different from youth who only assented to the standard survey. To compare youth who assented to both the standard and the supplemental survey to youth that only assented to the standard survey on continuous variables (e.g., age, CU traits), *t*-tests were used. To compare youth on categorical variables (e.g., sex, race), chi square tests were used. In both facilities, youth who assented to both surveys and youth who assented only to the standard survey did not differ based on age, race, sex, level of CU traits, or whether they had been detained at any other facility before. However, in both facilities, there was a significant effect of whether youth had been previously detained at the same facility on whether they assented to the standard survey, $\chi^2(1, 1) = 4.25$ and 4.64, $p = 0.04$ and 0.03, respectively. In facility one, findings were such that, of youth who had not been previously detained at the facility, the proportion of youth who assented to both surveys was significantly greater than the proportion of youth who only assented to the standard survey. In contrast, of youth who had been previously detained at the facility, the proportion of youth who assented to both surveys was significantly less than the proportion of youth who only assented to the standard survey. In

facility two, the opposite was true. Of the youth who had not been previously detained at the facility, the proportion of youth who assented to both surveys was significantly less than the proportion of youth who assented to only the standard survey. On the other hand, of youth who had been previously detained at the facility, the proportion of youth who assented to both surveys was significantly greater than the youth who only assented to the standard survey.

Facilities were compared based on the youths' reason for detainment. The proportion of youth detained for violent crimes was not significantly different between facilities, χ^2 (1) = 0.41, p = .52. However, there was an effect of facility on the severity of the charge, χ^2 (1) = 3.84, p = .05, such that the proportion of youth charged with a misdemeanor was significantly greater than the proportion of youth charged with a felony in facility one. Whereas, in facility two, the proportion of youth charged with a felony was significantly greater than the proportion of youth charged with a misdemeanor. Additionally, there was a significant effect of facility on whether youth were classified as a child in need of care, χ^2 (1) = 7.46, p < .01. The proportion of youth, in facility one, classified as a child in need of care was significantly more than the proportion of youth who were not. In facility two, the proportion of youth classified as a child in need of care was significantly less than the proportion who were not.

Measures

Demographics. Facilities provided information on race, sex (*0* = Male, *1* = Female), and age for each youth. Note that race was dichotomized (*0* = White, *1* = Non-white, minority) for analyses.

Prior Detainment. Youth were asked two dichotomous (*1* = Yes, *0* = No) questions regarding their prior detainment. Specifically, they were asked whether they had been detained at the current facility before and whether they had ever been detained at another facility before.

These items were included as control variables, as prior experiences with staff at the same facility or another facility could influence youth perceptions of staff at the time of the interview. It was expected that each item may relate independently to outcomes of interest; accordingly, both items were included separately in analyses.

Youth Perceptions of Staff. Youth reported on 15 items from the Facility Perceptions and Victimization questionnaire to assess their perceptions of staff characteristics and behavior (see Appendix A for list of items). Youth responded using a 4-point Likert scale (*1* = Strongly agree, *4* = Strongly disagree). Items assess perceived staff characteristics (e.g., Are facility staff friendly?) and views of staff behavior toward youth (e.g., Punishments given are fair). Mean scores were used for analyses, with higher scores indicating more negative perceptions of staff. While these questions have not been examined for reliability or validity, they have been used in national datasets aimed at understanding the experiences of youth within juvenile detention facilities (United States Department of Justice, 2008-09; United States Department of Justice, 2012). An exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were used to evaluate the psychometric properties of the measure. Using the resulting model (see Results section for additional information), internal consistencies for facility one and facility two were good, $\alpha = .90$ and $\alpha = .85$ respectively.

Restrictive Housing. Restrictive housing was monitored by the facilities while youth were on the unit. In facility one, restrictive housing included: day room restriction, self-imposed lockdown, lockdown, permanent day room restriction, and restraints. Based on the behavioral intervention established by facility one, restrictive housing interventions are categorized based on levels, with restrictive housing techniques considered Tier 2 and Tier 3 restrictions. Tier 2 and Tier 3 restrictions were analyzed separately, as previous results indicated that risk factors for

Tier 2 and Tier 3 interventions may vary (Fite et al., 2018). However, facility two did not distinguish between different forms of restrictive housing.

Tier 2 Restrictive Housing (Facility One). Tier 2 restrictive housing includes day room restriction and self-imposed lockdown. Day room restrictions are imposed when a youth is unable to manage their behavior, characterized by continued acting out following other less restrictive interventions, falling behind in completing schoolwork, or being generally disruptive. Individuals involved in day room restriction are required to return to their room to complete work while the door remains unlocked. Youth may return from day room restriction following an hour of good behavior. Self-imposed lockdowns occur when a youth feels that they are not able to control their behavior and request a lockdown (i.e., remain in their room with the doors locked).

Tier 2 restrictive housing outcomes were accounted for in two ways. First, risk for Tier 2 restrictive housing was coded dichotomously (*1* = Yes, *0* = No), such that risk is coded as yes, if youth were ever placed on day room restriction or self-imposed lockdown while detained. Second, frequency of Tier 2 restrictive housing was coded as a count variable of the number of times youth were place on Tier 2 restrictions while detained.

Tier 3 Restrictive Housing (Facility One). Tier 3 restrictive housing includes permanent day room restriction, lockdown, and restraints. Youth are placed on permanent day room restriction if their behavior continues to deteriorate following Tier 2 restrictive housing. During permanent day room restriction, youth do not have the opportunity to leave their room following positive behavior. Lockdowns are issued for extreme misbehavior that is out of control, refusal to comply with repeated requests, or behavior that is a threat to themselves or others. Individuals issued lockdown restrictions are required to return to their room with the doors locked. Restraints

are used when a youth's behavior creates an unsafe environment at the facility. Restraints, including shackles and handcuffs, are put on the youth to ensure safe transport to their assigned room for lockdown procedures.

Tier 3 restrictive housing outcomes were accounted for in terms of risk and frequency. First, risk for Tier 3 restrictive housing was coded dichotomously (*1* = Yes, *0* = No). If youth were ever placed on permanent day room restriction, lockdown, or restraints while detained, risk was coded as yes. Second, frequency of Tier 3 restrictive housing was a count variable of the number of times youth were placed on Tier 3 restrictions while detained.

Restrictive Housing (Facility Two). Restrictive housing within facility two included any instance of isolation that involved confinement in a cell. Restrictive housing is used as a disciplinary action when youth are engaging in behavior that is deemed threatening to the health and safety of themselves or others. These sanctions are intended to be short in duration, with youth returning to the milieu as soon as possible as determined by staff. Again, restrictive housing was accounted for in terms of risk and frequency. First, risk for restrictive housing was coded dichotomously (*1* = Yes, *0* = No). If youth were ever placed in restrictive housing while detained at the facility, risk was coded as yes. Second, the frequency of restrictive housing was coded as a count variable of the number of times youth were placed on restrictive housing while detained.

Recidivism. Recidivism was tracked by determining the number of times a youth was detained at the same facility within one year of their initial assessment. Returning to the facility for any reason including, but not limited to, a new charge or probation violation, was considered recidivism. Facilities provided these data, as they monitor the number of times a youth is in their facility as a part of internal data collection. Recidivism was coded in two ways to account for

both risk and frequency of redetainment. Risk was coded using a dichotomous yes-no variable (*1* = Yes, *0* = No). If, over the course of one year, the youth was detained more than one time, then risk for detainment was coded as yes. Frequency of recidivism was coded as a count variable, reflecting the number of times youth were redetained within a one-year time period. Note that frequency was coded such that a score of 0 reflected that the youth had not been detained following their initial detainment and completion of the initial assessment.

Callous-Unemotional (CU) Traits. Levels of CU traits were reported by youth using the Inventory of Callous Unemotional traits (Kimonis et al., 2008, see Appendix A). Youth rated their agreement with twenty-four items (e.g., "I do not show my emotions to others," "I do not care if I get into trouble"), using a four-point Likert scale (*0* = Not at all true, *3* = Definitely true). In samples of juvenile offenders, this self-reported measure has demonstrated both validity and reliability (Fink et al., 2012; Kimonis et al., 2008). Mean scores were used for analysis with higher values indicating of higher levels of CU traits. Internal consistencies for facility one and facility two were both good, $\alpha = .88$ and $\alpha = .80$.

Procedures

The researchers' Institutional Review Board approved all study procedures. High qualifications for interviewers and stringent training procedures were maintained in order to ensure fidelity to the survey procedure and protect the rights of the youth being surveyed. An assessment battery was administered to all youth entering the facilities by trained interviewers with at least a bachelor's degree who were not affiliated with either facility. Interviewer training included being familiar with written protocol and procedures, reviewing the protocol with a senior interviewer, observing at least two interviews being conducted, and being observed while

conducting two interviews by a senior interviewer. All interviewers also completed the volunteer training and background checks required by the facilities.

The assessment battery was administered as soon as possible following the youth's arrival into their respective facility. Within facility one, interviews typically occurred within 24 hours, while interviews within facility two typically occurred within 48 hours. Assessment batteries were administered using Qualtrics survey software on a password-protected laptop computer. The interviews were completed in approximately 30 minutes. While facility staff visually monitor all interviews to ensure safety of interviewers, facility staff were separated and unable to hear questions and responses from the youth to improve accuracy in reporting. All questions were read aloud to youth to ensure comprehension, with interviewers elaborating when necessary. Youth provided verbal answers, and interviewers marked their responses on an electronic survey. Youth who were determined by staff to be behaviorally dysregulated (e.g., noncompliant with staff in an unsafe manner) upon the arrival of the interviewer were unable to participate in the survey at that time. However, efforts were made to follow up with these youth until they were released. Research staff were scheduled to interview youth daily at facility one, while research staff were scheduled to interview youth three days a week at facility two due to staffing and transportation constraints.

In accordance with established procedures at each facility, youth were required to participate in a standard survey. The purpose of the standard survey was twofold. The primary purpose was to aid administration in understanding the characteristics and background of the youth in their facility. The secondary purpose was for research. Upon the start of the interview, youth were informed the survey was a part of standard information collected by the facility and could be used to determine the services youth may need. Facility administration were provided

with selected data, including means and sum scores on measures of interest to the facility (e.g., depression, anxiety, CU traits, proactive and reactive aggression), from this survey on each youth, regardless of assent status. For data to be used for research purposes, the director of the youths' respective facility provided written consent, as they also serve as the youths' acting guardian during their detainment. At the end of the standard survey, youth were asked if they would be willing to provide assent for this data to be used for research purposes. Assent for the data to be used for research purposes was placed at the end of the standard survey to reduce confusion regarding who would have access to their answers and for what purpose.

Once the standard survey was completed and assent was determined, a separate, supplemental assent was acquired to ask questions regarding youth perceptions of staff. Information obtained as a part of the supplemental survey was not considered as a part of standard procedures within the facilities. Accordingly, individual responses were not provided to the facility. Youth were informed that their answers to questions on the supplemental survey would not be shared with anyone, not even people at the facility. During this portion of the survey, interviewers continued to read the questions aloud; however, youth marked their responses to survey items using the computer, to ensure their privacy and encourage accuracy in responding. Concerns regarding youths' understanding of assent procedures were raised when youth opted to assent to the supplemental survey but not the standard survey. In these cases, interviewers were trained to consult with youth regarding their understanding of assent and ask whether youth wanted to reconsider their assent to the standard survey. Data were only used for the current study if consent and assent for the data to be used for research had been obtained. Thus, youth who assented to the supplemental survey were included in analyses specific to the youth perceptions of staff measure (e.g., exploratory factor analysis, confirmatory factor

analysis). While, only youth who assented to both the standard and the supplemental survey were included in analyses that involved information from multiple sources (e.g., general linear models).

Data were collected at facility one from June 2017 until January 2019, and data were collected at facility two from January 2017 until January 2019. Facility data regarding youth demographic characteristics, charges, restrictive housing, and other information beyond the scope of the current study were obtained from each facility sixty days following the last participant (March 2019). A minimum of sixty days of follow up data were obtained in order to capture the majority of youths' average stay at the facility, based on previous data obtained from facility one. Facilities then provided data on whether youth had been redetained at their facility one year following the last participant. Thus, recidivism data was collected from both facilities through January 2020. To ensure that youth who may have been detained at both facilities were not included in both datasets, facilities were provided with the name numbers of youth included in the dataset. Name numbers are assigned to youth as they enter the facility and function as a unique identifier for youth within the facility. Facilities then communicated with each other regarding youth who were detained in both facilities and provided research staff with a final list of youth who were detained in both. Four youth were identified as being detained in both facilities. Youths' first assessment was retained in the final dataset.

Data Analysis Plan

MPlus 8 version 1.7 (Muthén & Muthén, 1998-2017) was used to conduct analyses. First, an exploratory factor analysis (EFA) and a confirmatory factor analysis (CFA) were conducted to evaluate the factor structure of the youth perceptions of staff measure and inform its use in subsequent analyses. EFA and CFA analyses were conducted in two separate samples (Flora &

Flake, 2017), with the EFA being completed with data obtained from facility two and the CFA completed with data obtained from facility one. Given that both facilities were sampled from the same population (i.e., youth in detention facilities), EFA procedures were intended to examine the dimensionality of the items, while CFA procedures were used to confirm the resulting factor structure and test this factor structure against the hypothesized structure, if different (Flora & Flake, 2017). First, the EFA was conducted in order to take a data driven approach to establishing measurement validity of the youth perceptions of staff measure. In an EFA, no specifications are made regarding the number of factors included within the measure. Thus, EFA can be used to inform the number of factors represented as well as determine appropriate indicators (Brown, 2006). A robust weighted least squares (WLS) estimator was used, due to the ordinal nature of the measurement scale (Flora & Curran, 2004). Normality of individual items was not assessed, due to the use of this estimator, which is robust to nonnormally distributed data (Kline, 2011). An oblique rotation was used to obtain the simple structure of the model. Rotation procedures are used to maximize the factor loadings closer to one and minimize factor loadings closer to zero. Oblique rotation methods are preferred to orthogonal rotation methods, as oblique rotation allow for interrelations between factors, which would be anticipated in the current measure (Brown, 2006; Preacher & MacCallum, 2003).

Several metrics were used to evaluate EFA results. First, eigenvalues were evaluated to inform the appropriate number of factors represented by the data. Eigenvalues represent the amount of variance explained by successive factors (Brown, 2006). While the Kiaser-Guttman rule, wherein models with eigenvalues greater than one are retained and those models with eigenvalues less than one are dropped, has been applied to the determination of factors represented in an EFA, this method has been criticized (Brown, 2006; Preacher & MacCallum,

2003). Accordingly, a scree plot was specified, such that the number of factors were plotted on the horizontal axis and corresponding eigenvalues were specified on the vertical axis. The graph was then inspected to determine the last substantial drop in eigenvalue and corresponding change in slope, to determine the appropriate number of factors represented in the data (Brown, 2006; Preacher & MacCallum, 2003). Next, goodness of fit indices were used to evaluate the model, including Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR), in which .08 and lower indicates acceptable fit. Further, the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI) was used, with .95 and higher indicating acceptable fit (Brown, 2006). Regarding factor loadings, items with *p*-values greater than .05 were interpreted as significant, and factor loadings greater than or equal to .3 were interpreted as robust (Brown, 2006).

Next, a CFA was used to evaluate the use of the youth perceptions of staff measure, based on the information obtained during the EFA. Specifically, the items determined to significantly load onto factors within the EFA were then used as indicators within the CFA. Based on the EFA, when items were significantly associated with more than one factor, the item was retained on the factor that had the larger factor loading during CFA procedures. Specifying CFA models in this way is consistent with past research (Flora & Flake, 2017), and having one item load on only one factor was consistent with the creation of mean scores, which are more easily used in applied contexts and retained for future analysis in the current study. Similar to the EFA, items were determined to significantly load onto factors when the *p*-value was less than 0.05 (Brown, 2006). Again, goodness of fit indices were used to evaluate the model and determine the appropriate use of the youth perceptions of staff measure. A one, two, three, and four factor model was specified and compared based on prior EFA analyses, and the goodness of

fit indices were used to determine the most appropriate model. Note that recent recommendations suggest standards of model fit may not generalize to all CFA models and that an iterative approach of fit comparison may be preferred (Flora & Flake, 2017). Accordingly, multiple models were specified based on an a priori hypothesis and to allow for adequate model comparison.

After determining the appropriate number of factors represented by the youth perceptions of staff measure, SPSS Version 26 (released 2019) was used for subsequent analyses. Mean scores of the youth perceptions of staff measure were used for analyses, as mean scores could be more easily utilized within detention settings. Next, correlations were run between all study variables to determine simple relations between them. *T*-tests and chi square tests were conducted between variables in facility one and facility two in order to determine significant differences between samples. For these analyses, a combined restrictive housing variable was created, wherein Tier2 and Tier 3 risk and count variables were combined with the restrictive housing variable for facility two, thus creating one restrictive housing variable by which to compare facilities. This procedure was done in order to determine if the risk for and rate of restrictive housing differed between facilities; however, this variable was not retained for subsequent analyses as the definitions of restrictive housing were conceptually different.

Originally, multilevel modeling was proposed to address the nested nature of the data used in the current study (e.g., youth within facilities). However, outcome variables, namely restrictive housing, were defined differently between facilities making it inappropriate to use them as comparable outcomes within one model. Additionally, multilevel models with less than 10 groups within their nesting variable may result in variances that are too small (Hox et al., 2010). Only two facilities were observed in the current sample, suggesting that alternative

modelling approaches were appropriate. Accordingly, generalized linear models were used to conduct planned analyses within both facilities. Given the novelty of the current study as well as the call within psychology to replicate and report robust findings (De Boeck & Joen, 2018; Wiggins & Christopherson, 2019), the similar models were run in data obtained in both facilities.

For outcomes that were binary in nature (e.g., risk for recidivism, risk for restrictive housing), models were analyzed using a logit distribution (Cohen et al., 2003). Binary analyses indicate the probability of individuals falling within a category (e.g., placed in restrictive housing/not placed in restrictive housing). Thus, the means and variances of the logit distribution are based on the proportion of individuals falling into these categories (Cohen et al., 2003). For count variable outcomes (e.g., frequency of recidivism, frequency of restrictive housing), either a Poisson or negative binomial distribution was used to model the outcome variable. Poisson distributions are representative of nonnegative numbers, in which means exert strong influence on the distribution of the data (Atkins & Gallop, 2007). Importantly, the means and the variances are the same in a Poisson distribution, indicating that if either too many or too few zero counts are included in the data, standard errors will be incorrect (Atkins & Gallop, 2007). Accordingly, a negative binomial distribution, which allows for differing means and variances and therefore the allowance of overdispersion (Atkins & Gallop, 2007) was also considered. Frequencies of these outcome variables were run. For those variables that did not have an overdispersion of zero, a Poisson distribution was used. For those variables that appeared to have an overdispersion of zero, a negative binomial distribution was used.

First, models were specified in facility one to examine the relations between youth perceptions of staff and outcome measures (e.g., recidivism, restrictive housing). Specifically, in facility one, six models were specified such that age, sex, race, whether youth had been detained

at the same facility prior, whether youth had been detained at any other facility prior, number of days in detention, and youth perceptions of staff were associated with risk for Tier 2 restrictive housing, frequency of Tier 2 restrictive housing, risk for Tier 3 restrictive housing, frequency of Tier 3 restrictive housing, risk for recidivism, and frequency of recidivism, respectively.[1] CU traits and youth perceptions of staff were mean centered in order to aid in the interpretation of effects. CU traits were then included as a moderator to each of the above specified models by adding CU traits and a multiplicative term between perceptions of staff and CU traits. Significant interactions were probed at high (+1 SD) and low (-1 SD) values of CU traits in order to determine the nature of the interactions (Aiken & West, 1991). Wald tests were used to test the significance of effects (i.e., model predictors; Hox et al., 2010). The same process was followed in facility two. However, only four models were specified such that age, sex, race, whether youth had been detained at the same facility prior, whether youth had been detained at any other facility prior, number of days in detention, and youth perceptions of staff were associated with risk for restrictive housing, frequency of restrictive housing, risk for recidivism, and frequency of recidivism.

Missing data were present within both facilities, even after removing individuals who did not assent to the study. At the item level, on the youth perceptions of staff measure, the percentage of missing data in facility one ranged from 1.8% to 9.2% and the percentage of missing data in facility two ranged from 0% to 10.3%. While the amount of missing data on any one item included in the EFA procedures was 10.3%, software was unable to accommodate

[1] Note that a combined Tier 2 and Tier 3 risk and frequency variable was considered for use in facility one, as a combined variable may be more consistent with restrictive housing procedures in facility two. In analyses using this variable, a similar pattern of findings was observed. Given previous literature (Fite et al., 2018) demonstrating that different risk factors predict involvement in Tier 2 and Tier 3 restrictive housing, the separated Tier 2 and Tier 3 variables were retained.

missing data techniques such as multiple imputation (MI) or full information maximum likelihood (FIML). Given recommendations that listwise deletion be avoided (Newman, 2014), pairwise deletion was used to account for missing data. Data suggest that unbiased estimates can be produced when using pairwise deletion with a robust weighted least squares estimator (Asparouhov & Muthén, 2010).

Within CFA procedures, the amount of missingness on any one item was as high as 9.2%. Accordingly, in line with the most stringent recommendations for item-level missingness (Newman, 2014), multiple imputation was attempted. Of note, when using MI during CFA procedures, goodness of fit statistics were *not* produced. Given the importance of establishing model fit in order to select the most appropriate model for subsequent analyses, CFA models were estimated using both pairwise deletion and MI in order to evaluate the accuracy of parameter estimates.[2] MI uses available data to replace individual scores within the dataset, with these scores estimated across many datasets. During model analyses, these datasets are aggregated to create unbiased estimates of model parameters (Little et al., 2014; Sinharay et al., 2001). MI was implemented in lieu of FIML procedures, as a robust weighted least squares estimator was used to accommodate the categorical nature of indicators precluding its use. Simulation research suggests that given a fraction of missing data less than 20%, at least 20 imputed datasets are necessary to achieve unbiased estimates (Graham et al., 2007). Accordingly, 25 imputed datasets were estimated and used for analysis.

For variables included in general linear models, the percentage of missing data in facility one ranged from 0% to 5.6%, while the missing data in facility two ranged from 0% to 15.0%.

[2] Analyses using MI produced the same pattern of findings, such that the same pattern of significance was maintained in the one, two, three, and four factor models. Thus, only results from analyses using pairwise deletion are described in the results.

Of note, software would allow for pairwise deletion procedures when using logistic regression. However, when modeling outcomes with a Poisson or negative binomial outcome, software would not allow for pairwise deletion and instead defaulted to listwise deletion. Based on inclusion in these analyses, the percent missing for these models ranged from 5.6% to 6.5% in facility one and 8.3% to 17.5% in facility two. Recommendations regarding the amount of missing data requiring the use of maximum likelihood missing data routines (e.g., FIML) or multiple imputation is disputed, ranging from 5% to 10% of missing data (Jakobsen et al., 2017; Newman, 2014). While the extent of missing data from facility one may be negligible based on these definitions, the extent of missing data from facility two are not. MI was used to address missing data concerns in both facility one and facility two. However, MI has limitations as it applies to count variables. Specifically, because the average score over multiple imputations is likely to result in a non-integer, generalized linear models utilizing count variable distributions (e.g., Poisson, negative binomial) excluded cases with an imputed outcome variable in analyses.[3] Accordingly, in generalized linear models using logistic regression, no cases are deleted due to missing data. However, in generalized linear models using count distributions, the rate of missing cases was 4.6% and 5.6% in facility one and 8.3% and 14.2% in facility two. This rate of missing cases remains an improvement over models estimated without MI, as the amount of missingness was reduced up to 1.1% in facility one and 9.2% in facility two when compared to models estimated without MI procedures.

[3] FIML estimates were also considered in order to maintain sample size when estimating models with count outcomes. However, when specifying these models, a non-positive definite first-order derivative product matrix was produced, suggesting that standard errors and resulting *p* values may not be trustworthy. Based on the most stringent recommendations from MPlus developers, these models were considered not identified and are not reported in the current manuscript. Of note, the pattern of findings (i.e., significant predictors) regarding variables of interest (i.e., youth perceptions of staff, CU traits moderation) were maintained during FIML analyses, with one exception. In facility one, youth perceptions of staff significantly predicted the frequency of recidivism.

Power

Post hoc power analyses were completed using G*power 3.1 (Faul et al., 2009), within a linear multiple regression framework and two-tailed tests with $\alpha = .05$. Power was gauged for models with seven predictors (i.e., age, sex, race, whether youth had been detained at the same facility prior, whether youth had been detained at another facility, and youth perceptions of staff) in both facilities. Post hoc power analyses based on a moderate effect size of $f^2 = .15$ indicated that analyses were powered (1-β) between .82 and .87. Further, post hoc power analyses based on a large effect size of $f^2 = .35$ indicated that analyses were powered (1-β) at .99 for both facilities. In models where moderation was examined, a total of nine predictor variables were included in the model. Accordingly, post hoc power analyses based on a moderate effect size ($f^2 = .15$) indicated that analyses were powered (1-β) between .78 and .83. Further, post hoc power analyses based on a large effect size of $f^2 = .35$ indicated that analyses were powered (1-β) at .99 for both facilities. Based on these analyses, the current study was expected to detect moderate to large effect sizes.

Results

Exploratory and Confirmatory Factor Analysis

Model fit statistics and eigenvalues for the EFA are reported on Table 1. A four-factor model provided the best fit for the data based on model fit indices and examination of eigenvalues. See Table 2 for factor loadings for the one and four factor solution. In the four-factor model, factor one consisted of five items related to staff characteristics (e.g., “Are facility staff good role models?”, “Are facility staff friendly?”, “Are the staff helpful?”, “Do the staff seem to genuinely care about you?”, “Are the staff fun to be with?”). Another item loaded on factor one (i.e., “Problems between facility staff and youth here can be worked out”); however, it

was below the threshold of .3 described by Brown (2006). The majority of items in this factor were asked in a question format within the youth perceptions of staff measure. A second factor was identified using three items (e.g., “Are the staff disrespectful?”, “Are the staff hard to get along with?”, “Are the staff mean?”). One item (i.e., “Are the staff fun to be with?”) was negatively associated with this factor. The second factor appeared to similarly measure staff characteristics; however, these items were all reverse coded. Factor three included three items (e.g., “Youth here are punished even when they don’t do anything wrong”; “Something bad might happen to me if I file a complaint against a staff member”; “Facility staff use force when they don’t really need to”). This factor appeared to be related to staff behavior towards youth. Of note, these questions were asked differently than the majority of items included in factor one and factor two, such that they were presented as statements. Further, items included in this factor were all reverse coded. The fourth factor also consisted of three items related to staff behavior towards youth (e.g., “I usually deserve any punishment that I receive”; “Punishments given are fair”, “The staff treat youth fairly”). None of the items included in this factor were reverse scored. This pattern of factor loadings (e.g., grouped by reverse scored items, grouped by how questions were asked), suggest that, while a four-factor model may have had the best fit for the data, these factors may not have been based on the content of the questions but were rather based on methodological variance.

Next, CFA models were conducted in order to establish the resulting factor structure and test the iterative best fit of the model. Model fit statistics for the CFA are reported on Table 3. Multiple CFA models were specified based on EFA procedures in order to appropriately compare model fit between them (Flora & Flake, 2017). Of note, in models containing two and three factors, correlations between factors were greater than .80, which suggests poor

discriminant validity and that a more parsimonious model may be obtained (Brown, 2006). Further, the four-factor model, specified consistent with the EFA, demonstrated correlations between factors ranging from 0.68 to 0.82. Similar to the EFA, the four-factor CFA model also provided the best model fit (see Table 4).

EFA models are subject to creating erroneous factors based on methodological variance rather than underlying, content-based variance (Brown, 2006; Flora & Flake, 2017). These considerations make it important to evaluate the exploratory factor structure with confirmatory procedures. While the four-factor model provided the best fit for the data, it is notable that these factors appeared to be largely based on method variance. Concerns regarding the validity of the four-factor model are compounded, as correlations between factors within the four-factor CFA model were relatively high, between .68 and .82, suggesting inconsistent discriminant validity between the factors. Further, it is unclear the substantive meaning of each of the four factors identified. For instance, whether staff are disrespectful, mean, and hard to get along with seem conceptually similar and related to whether they are good role models, friendly, and helpful, albeit worded in an opposite fashion. Similarly, items regarding whether staff and youth could work out problems, staff treated the youth fairly, punishments were fair, or youth were deserving of punishment appear to be similar to whether youth were punished when they did nothing wrong or staff used force when it was not necessary.

During EFA procedures, the item related to filing a complaint against a staff member did not significantly load onto the one-factor model. Accordingly, this item was not included in the subsequent CFA model specification. The one-factor model using 14 items provided reasonable fit to the data, with robust factor loadings, ranging from .44 to .85, suggesting that a single mean score could adequately characterize the data. In order to avoid the naming fallacy that can result

from the application of EFA procedures and overidentification of factors (Flora & Flake, 2017), this one factor model was considered to be the most theoretically meaningful specification of the data. Thus, due to the interpretability, applicability, and robustness of the one factor model, a single mean score was retained for further analyses. Additionally, the use of a single mean score was advantageous to the use of this measure in applied settings (e.g., detention facilities).

Descriptive Statistics

In facility one, 35.0% of youth received Tier 2 restrictive housing and 23.3% of youth received Tier 3 restrictive housing at least one time. The frequency of Tier 2 restrictive housing ranged from 0 to 76 times, while the frequency of Tier 3 restrictive housing ranged from 0 to 30 times. On average, youth were placed in Tier 2 restrictive housing 4.24 times and Tier 3 restrictive housing 1.41 times. Regarding recidivism, 34.3% of youth returned to the same facility at least one time, ranging from 0 to 4 times. Youths' average rate of recidivating was less than one time, as most youth did not return to facility one. In facility two, 54.9% of youth received restrictive housing at least one time, ranging from 0 to 47 times. Additionally, regarding recidivism, 59.1% of youth returned to the same facility at least one time, ranging from 0 to 6 times. In facility two, youth averaged being placed in restrictive housing 3.44 times and recidivating 1.27 times.

T-tests and chi square analyses were used to compare facilities on constructs of interest. Regarding predictor variables, facilities did not differ on levels of youth perceptions of staff, $t(225) = -1.43$, $p = .15$, CU traits, $t(226) = .49$, $p = .63$, or age, $t(213.98) = 1.87$, $p = .06$. Similarly, facilities did not differ based on sex, $\chi^2 (1) = 1.89$, $p = .17$. However, there was a significant effect of facility on the number of days in detention, $t(205) = - 4.19$, $p < .001$, such that youth in facility two ($M = 83.43$) spent significantly more days in detention than youth in

facility one ($M = 40.28$). The effect of facility on race was also significant, χ^2 (1) = 5.76, p = .02. Effects were such that the proportion of White youth in facility one was significantly more than the proportion of youth who were identified as a non-white minority. On the other hand, in facility two, the proportion of youth who were identified as White was significantly less than the proportion of youth who were identified as a non-white minority.

Significant effects were also observed regarding youths' prior detainments. There was a significant effect of facility on whether youth had been detained at the same facility prior, χ^2 (1) = 12.77, $p < .001$. Findings were such that, in facility one, the proportion of youth who had been detained in the same facility prior was significantly less than the proportion of youth who had not been detained in the same facility prior. Conversely, in facility two, the proportion of youth who had been detained in the same facility prior was significantly more than the proportion of youth who had not. There was an effect of facility on whether youth had been at any other facility before, χ^2 (1) = 9.24, p = .002. Findings were such that, in facility one, the proportion of youth who had been detained at any other facility before was significantly more than the proportion who had not. Conversely, in facility two, the proportion of youth who had been detained at any other facility before was significantly less than the proportion who had not.

Regarding outcome variables, there was a significant effect of facility on risk for restrictive housing, χ^2 (1) = 7.45, $p < .01$. In facility one, the proportion of youth who received restrictive housing was significantly less than the proportion of youth who did not receive restrictive housing. In contrast, the proportion of youth in facility two who did receive restrictive housing was significantly more than youth who did not. There was not a significant effect of facility on frequency of restrictive housing. Additionally, there was a significant effect of facility on risk for recidivism, χ^2 (1) = 13.04, $p < .001$, such that the proportion of youth at facility one

who were redetained was significantly less than the proportion of youth who had not been redetained. The opposite pattern was evident in facility two. The proportion of youth in facility two who were redetained was significantly more than the proportion of youth who were not. Similarly, the effect of facility on frequency of recidivism was significant, $t(188.86) = -3.83$, $p < .001$, such that youth in facility two were redetained ($M = 1.27$) significantly more often than youth in facility one ($M = 0.60$).

Correlations

Facility One. First, correlations were completed in order to understand simple relations between variables (see Table 5). All outcome variables (i.e., Tier 2 risk and frequency, Tier 3 risk and frequency, and recidivism risk and frequency) were positively associated with each other. Youth perceptions of staff were significantly positively associated with Tier 2 risk and frequency, Tier 3 frequency, and recidivism risk and frequency but not Tier 3 risk. CU traits were not significantly associated with any outcome variable. However, CU traits were significantly positively associated with youth perceptions of staff, such that high levels of CU traits were associated with more negative perceptions of staff.

Significant associations between control and other study variables were also evident. The number of days in detention were positively associated with all outcome variables and youth perceptions of staff, such that youth who were in detention longer had more negative views of staff. Additionally, the number of days in detention were positively associated with race and whether they had been detained at the same facility previously, such that minority youth and youth who had been detained at the same facility prior were more likely to have a higher number of days in detention. Further, whether youth had been detained at the same facility prior was positively associated with all outcome variables, such that youth who had been previously

detained at the same facility were more likely to experience restrictive housing and recidivism. Whether youth had been detained at the same facility prior was also significantly positively associated with youth perceptions of staff and whether they had been detained anywhere else previously. There was a significant positive correlation between whether youth had been detained at the same facility previously and race, such that minority youth were more likely to have been detained at the same facility prior. Whether youth had been detained at any facility prior was only significantly positively related to CU traits and risk for Tier 2 restrictive housing. Race was significantly positively associated with the frequency of Tier 2 restrictive housing, risk of Tier 3 restrictive housing, frequency of Tier 3 restrictive housing, risk of recidivism, and frequency of recidivism but not risk of Tier 2 restrictive housing, such that racial/ethnic minority youth were more likely to experience these outcomes. Sex was negatively associated with risk for Tier 3 restrictive housing, risk of recidivism, and frequency of recidivism, such that males were more likely to experience these outcomes. Age was unrelated to all variables.

Facility Two. See Table 6 for correlations, means and standard deviations for facility two variables. The risk of recidivism was significantly positively associated with frequency of recidivism and risk for restrictive housing but was not associated with frequency of restrictive housing. Risk of restrictive housing was positively associated with frequency of restrictive housing and frequency of recidivism. Youth perceptions of staff were positively associated with risk and frequency of restrictive housing, such that more negative ratings of youth perceptions of staff were associated with greater risk for and higher frequency of restrictive housing. Youth perceptions of staff were also significantly positively associated with CU traits, with more negative ratings of youth perceptions of staff being associated with higher levels of CU traits. Youth perceptions of staff were not associated with risk for or frequency of recidivism.

Additionally, CU traits were significantly positively associated with the frequency of restrictive housing but not with any other outcome variable.

Significant associations were also observed between control variables and other study variables. The number of days in detention were positively associated with youth perceptions of staff and risk and frequency of restrictive housing, and frequency of recidivism. Whether youth were detained at the same facility prior was positively associated with youth perceptions of staff, risk of restrictive housing, risk of recidivism, and whether they had been detained at another facility before. The associations were such that youth who had been detained at the same facility before were more likely to have been detained at some other facility before, have more negative perceptions of staff, be placed in restrictive housing, and return to the same facility again. Age, sex, and race were unrelated to all other variables.

Restrictive Housing

Facility One. In a logistic regression, risk for Tier 2 restrictive housing was regressed on age, sex, race, whether youth had been detained at the same facility prior, whether youth had been detained at some other facility prior, number of days in detention, and youth perceptions of staff (see Table 7). Only control variables were associated with risk for Tier 2 restrictive housing. Days in detention were positively associated with risk for Tier 2 restrictive housing (B = 0.05, $p < .001$), such that youth who spent more time in detention were more likely to receive Tier 2 restrictive housing. Additionally, whether youth had been detained at another facility prior was positively associated with risk for Tier 2 restrictive housing (B = 1.44, p = .03), such that youth who had been detained at another facility before were more likely to receive Tier 2 restrictive housing. Similarly, in a negative binomial regression, the frequency of Tier 2 restrictive housing was regressed on age, sex, race, whether youth had been detained at the same

facility prior, whether youth had been detained at some other facility prior, number of days in detention, and youth perceptions of staff (see Table 7). Again, the number of days in detention emerged as a significant predictor ($B = 0.02$, $p < .001$). Days in detention were significantly positively associated with the frequency of Tier 2 restrictive housing, such that more days in detention were associated with increases in the frequency of Tier 2 restrictive housing involvement. The moderating effects of CU traits were then examined by adding a multiplicative term between youth perceptions of staff and CU traits and CU traits to the model. CU traits did not moderate the association between youth perceptions of staff and either Tier 2 outcome (Bs = .43 & .30, ps = .67 & .56, respectively).

The same two models were specified for risk and frequency of Tier 3 restrictive housing (see Table 8). Using a logistic regression, results indicated that age ($B = 1.06$, $p = .01$) and the number of days in detention ($B = 0.03$, $p < .001$) were significantly positively associated with risk for Tier 3 restrictive housing. Associations were such that older youth and youth with more days in detention were more likely to be placed in Tier 3 restrictive housing. Similarly, using a negative binomial regression, age ($B = 0.53$, $p = .01$) and number of days in detention ($B = 0.02$, $p < .001$) emerged as the only significant predictors of the frequency of Tier 3 restrictive housing. Both age and days in detention were positively associated with the frequency of Tier 3 restrictive housing. The moderating effect of CU traits was examined. Similar to Tier 2 outcomes, CU traits did not moderate the association between youth perceptions of staff and either Tier 3 outcome (Bs = -0.06 & -.09, ps = .96 & .91, respectively).

Facility Two. A logistic regression model was estimated in which risk for restrictive housing was regressed onto age, sex, race, whether youth had been detained at the same facility prior, whether youth had been detained at some other facility prior, number of days in detention,

and youth perceptions of staff. As seen in Table 9, the number of days in detention ($B = 0.02$, $p < .001$) and youth perceptions of staff ($B = 1.51$, $p = .003$) were significantly positively associated with risk for restrictive housing, such that increases in the number of days in detention and more negative perceptions of staff were associated with increased risk for restrictive housing. Additionally, whether youth had been detained at the same facility prior ($B = 1.23$, $p = .02$) was significantly positively related to restrictive housing, such that youth who had been detained at the same facility prior were at greater risk for restrictive housing. In a negative binomial regression, in which the frequency of restrictive housing was regressed onto age, sex, race, whether youth had been detained at the same facility prior, whether youth had been detained at some other facility prior, number of days in detention, and youth perceptions of staff, days in detention ($B = 0.01$, $p < .001$) and youth perceptions of staff ($B = 0.89$, $p < .001$) emerged as significant predictors. Increases in the number of days in detention and youth perceptions of staff were associated with increased frequency of restrictive housing. Additionally, age ($B = -0.19$, $p = .03$) was significantly negatively associated with the frequency of restrictive housing, such that decreases in age were associated with increases in the frequency of restrictive housing.

The moderating effect of CU traits was then examined by adding a multiplicative term between youth perceptions of staff and CU traits and CU traits to the model. While CU traits did not moderate the association between youth perceptions of staff and risk for restrictive housing ($B = 0.89$, $p = .56$), CU traits did moderate the association between youth perceptions of staff and frequency of restrictive housing ($B = 1.41$, $p = .04$, see Figure 1). At high levels of CU traits, youth perceptions of staff were significantly positively associated with frequency of restrictive housing ($B = 1.31$, $p = .001$), such that more negative views of staff were associated with

increases in the frequency of restrictive housing. In contrast, at low levels of CU traits, youth perceptions of staff were unrelated to the frequency of restrictive housing (B = .31, p = .37).

Recidivism

Facility One. In a logistic regression, risk for recidivism was regressed on age, sex, race, whether youth had been detained at the same facility prior, whether youth had been detained at some other facility prior, number of days in detention, and youth perceptions of staff (see Table 10). Race (B = 1.39, p = .02), days in detention (B = 0.03, p < .001), and youth perceptions of staff (B = 1.04, p = .04) emerged as significant predictors. Results indicate that minority youth were at increased risk for recidivism. Additionally, increases in the number of days youth spent in detention were associated with greater risk for recidivism, and youth with more negative views of staff were at increased risk for recidivism. In a negative binomial regression, the frequency of recidivism was regressed on age, sex, race, whether youth had been detained at the same facility prior, whether youth had been detained at some other facility prior, number of days in detention, and youth perceptions of staff (see Table 10). The only significant predictor of the frequency of recidivism was the number of days in detention (B = 0.01, p = .003). The association was such that increases in the number of days in detention were related to increases in the frequency of recidivism. The moderating effects of CU traits were then examined by adding CU traits and the multiplicative term between youth perceptions of staff and CU traits to the model. CU traits did not moderate the association between youth perceptions of staff and either recidivism outcome (Bs = .02 & .09, ps = .98 & .90).

Facility Two. A logistic regression, in which risk for recidivism was regressed onto age, sex, race, whether youth had been detained at the same facility prior, whether youth had been detained at some other facility prior, number of days in detention, and youth perceptions of staff,

was estimated to determine which factors uniquely predicted recidivism risk. As seen in Table 11, the number of days in detention was positively associated with risk for recidivism (B = 0.01, p = .01), such that greater days in detention were associated with increased risk for recidivism. Further, whether youth had been detained at the same facility prior was positively associated with risk for recidivism (B = 1.38, p = .002). A negative binomial regression was specified, in which frequency of recidivism was regressed onto age, sex, race, whether youth had been detained at the same facility prior, whether youth had been detained at some other facility prior, number of days in detention, and youth perceptions of staff (see Table 10). The number of days in detention again emerged as a significant predictor of the frequency of recidivism (B = 0.004, p = .02). CU traits were then added as a moderating variable between youth perceptions of staff and risk and frequency of recidivism. CU traits did not moderate the association between youth perceptions of staff and either recidivism outcome (Bs = 1.38 & 0.93, ps = .21 & .18).

Discussion

The current study extended previous research by examining youth perceptions of staff as they relate to outcomes of restrictive housing and one-year recidivism within two juvenile detention facilities utilizing behavioral interventions. This study advances the field by adapting a youth perceptions of staff measure, accessible to detention facility administrators, by considering the psychometric properties of a measure used in previous work (Pederson et al., in press; United States Department of Justice, 2008-09; United States Department of Justice, 2012). Given policy goals to reduce the use of restrictive housing and recidivism for youth involved in the juvenile justice system (United States Department of Justice, 2016), considering the role of youth perceptions of staff and examining a measure to accurately reflect this construct is an important first step to understanding the role of staff within juvenile detention. Further, the moderating

effect of CU traits was considered in the association between youth perceptions of staff and outcomes of interest. Youth high in CU traits represent an important subgroup of youth in detention (Frick & White, 2008; Pihet et al., 2015), making understanding under what conditions interventions may be effective for these youth important to addressing their needs.

Overall, results indicated that the youth perceptions of staff measure performed best as a one-factor model. Additionally, youth perceptions of staff proved to be significantly associated with both restrictive housing and recidivism outcomes, although these findings were not consistent across facilities. In facility one, but not facility two, youth perceptions of staff were positively associated with risk for recidivism, with more negative views of staff associated with greater risk for recidivism. While, in facility two, but not facility one, more negative youth perceptions of staff were associated with increased risk for and frequency of restrictive housing. Further, CU traits were a significant moderator of the association between youth perceptions of staff and frequency of restrictive housing in facility two.

Regarding the measurement of youth perceptions of staff, findings from the EFA suggested a four-factor model best fit the data. Specifically, the four factors identified appeared to fall into two categories, with factors one and two related to staff characteristics (e.g., "Are facility staff friendly?", "Are the staff disrespectful?") and factors three and four related to staff behavior towards youth (e.g., "Youth here are punished even when they don't do anything wrong," "Punishments given are fair"). Notably, these questions are posed differently to youth, such that items regarding staff characteristics were asked as questions, whereas items regarding staff behavior towards youth were statements. Additionally, factors within these constructs appeared to be differentiated based on whether they were reverse coded. In factors related to staff characteristics (i.e., factors one and two), factor two consisted of completely reverse coded items,

while factor one contained no reverse coded items. The same was true in factors related to staff behavior toward youth (i.e., factors three and four), with factor three consisting of completely reverse coded items, while factor four contained no reverse coded items. While the four-factor model continued to provide the best fit for the data within a CFA framework, questions regarding the utility of the four-factor model persisted. In evaluating the CFA models, factors were highly correlated with one another in models where more than one factor was identified, suggesting poor discriminant validity beyond a one factor model. This finding may not be surprising considering that youth perceptions of staff characteristics (e.g., genuineness, friendliness) likely influence their perceptions of staff behavior (e.g., fairness of punishment) and vice versa. Thus, it seems likely that the four-factor model established during EFA procedures was remnant of methodological variance (i.e., how questions were asked) rather than different measurement constructs.

Notably, in the specification of a one-factor model during EFA procedures, an item regarding filing a complaint against a staff member did not produce a significant factor loading and was subsequently dropped during CFA analyses. The item (i.e., “Something bad might happen to me if I file a complaint against a staff member”) appears to reflect institutional policies rather than reflect relational qualities of staff members (e.g., helpfulness, fairness), suggesting it does not meaningfully relate to other indicators in measuring youth perceptions of staff. Internal consistencies resulting from the 14-item measure further supported the use of the measure as a whole. Accordingly, a one-factor model appeared to best characterize the measure of youth perceptions of staff and provide the most accessible use of the scale for more ready application to detention settings.

Youth perceptions of staff was a predictor of risk for and frequency of restrictive housing in facility two but were not predictive of restrictive housing outcome in facility one. Findings in facility two were consistent with hypotheses, such that increases in negative views of staff were associated with increases in risk for and frequency of restrictive housing. Consistent with conceptual frameworks of parenting (e.g., Baumrind, 1991) and the therapeutic alliance (e.g., Matthews & Hubbard, 2007), it seems that more positive youth perceptions of staff served as a setting event for more compliant behavior and associated reductions in restrictive housing outcomes. One alternative explanation could be that youth who were not involved in restrictive housing viewed staff more positively. However, given that youth were assessed at the beginning of their stay at the facility and youth who were behaviorally dysregulated were unable to participate in the survey as determined by staff, opportunities to engage in behavior resulting in restrictive housing prior to the interview was unlikely, although not impossible. This may be particularly true in the case of facility two, as research staff were not scheduled to interview youth each day but rather three days a week.

Interestingly, the same pattern of findings was not evident in facility one. Based on ecological systems theory (Bronfenbrenner, 1977; Neal & Neal, 2013), it was expected that the implementation of universal interventions would affect all systems it subsumes, including youth perceptions of staff. The implementation of universal behavioral interventions may change the effect of youth perceptions of staff, either making these perceptions more or less salient as a setting event when determining whether to engage in a particular behavior. The facilities involved in the current study differed in their implementation of their behavioral programming in three important ways. First, in reviewing policies and procedures related to the implementation of facility programing (Pederson et al., in preparation), it appears that guidelines regarding the

use of restrictive housing may differ between facilities. While facility one has a complex and well-defined system in which certain behaviors result in a certain level of restrictive housing, it appears that less defined guidelines are provided to staff in facility two regarding when to use restrictive housing. This difference could mean that staff in facility two have more control over which youth are placed in restrictive housing and for what reason, lessening the effect of universal intervention efforts and making youth perceptions of staff more salient to restrictive housing involvement. Second, facility two's behavioral intervention is relatively new when compared to the established program at facility one, with facility two beginning the implementation of their program shortly before the research team began data collection. Effective uptake of interventions takes between two and four years (Barrett et al., 2008), suggesting that intervention practices and procedures may not have been fully implemented with fidelity within facility two at the start of data collection. This difference could mean that the facility-wide climate within facility two may not have been as positive, again placing more salience on youth perceptions of staff in determining behavior. Third, there was a difference between the facilities in the way restrictive housing involvement was tied to their respective points system. In facility one, youth who are involved in restrictive housing lose points for doing so, while youth in facility two do not lose points they have earned for any reason. Accordingly, youth placed in facility two have fewer consequences for involvement in restrictive housing.

These differences in policies regarding restrictive housing may be supported by significant differences in the risk for restrictive housing in each facility. In facility two, the proportion of youth involved in restrictive housing was significantly larger than the proportion of youth who were not. This finding is in contrast to facility one, where the proportion of youth involved in restrictive housing was significantly less than the proportion of youth who were not.

Thus, it appears that youth in facility two are more likely to be involved in restrictive housing than those in facility one. It seems likely that facility policies and intervention practices affect the use of restrictive housing as a discipline strategy, which, in turn, may indicate that facility level procedures regarding the use of restrictive housing may influence how youth perceptions of staff relate to restrictive housing outcomes.

To summarize, facilities differed in their guidelines for restrictive housing use, length of time implementing the intervention, and the consequences for youth being placed in restrictive housing. It appears that, in facility two, staff may have more discretion regarding who is placed in restrictive housing and for what reason; the facility climate may not have shifted to be more positive; and, the consequences for engaging in unwanted behavior may be less punishing. These considerations may lessen the impact of the universal intervention on youth behavior and consequently make youth perceptions of staff more salient to compliance or noncompliance and subsequent restrictive housing. In contrast, in facility one, staff may have less discretion regarding who is placed in restrictive housing and for what reason; the facility climate may have shifted to be more positive; and, the consequences for engaging in unwanted behavior may be more punishing, serving to strengthen the effect of the universal intervention on youth behavior and mitigating the impact of youth perceptions of staff on compliance or noncompliance and subsequent restrictive housing.

Interestingly, CU traits moderated the relationship between youth perceptions of staff and the frequency of restrictive housing in facility two. Findings were such that, for youth high in CU traits, more negative views of staff were associated with increases in incidents of restrictive housing. However, for youth who were low in CU traits, there was no effect of youth perceptions of staff and frequency of restrictive housing. These findings are largely consistent with

burgeoning literature (Mattos et al., 2017; Simpson et al., 2013), noting youth exhibiting CU traits respond better to interventions in the context of a strong therapeutic alliance. In the same way positive perceptions of staff may serve as a setting event for compliance, negative perceptions of staff may serve as a setting event for noncompliance. Thus, it appears that for youth high in CU traits, negative perceptions of staff serve to increase the frequency in which youth engage in behavior that places them in restrictive housing. Youth exhibiting CU traits are less distressed by punishment and demonstrate less concern for others (Frick & White, 2008; Pardini & Byrd, 2012). As such, when youth exhibiting high levels of CU traits have negative perceptions of staff, they may be less concerned with behavioral contingencies and more likely to engage in behavior that places them in restrictive housing. Of note, CU traits did not moderate the relation between youth perceptions of staff and risk for restrictive housing. This finding suggests that, while CU traits may be important to determining the frequency of behaviors resulting in restrictive housing in facility two, they are not as important to determining whether a youth will be place in restrictive housing.

Youth perceptions of staff were related to risk for recidivism in facility one. Consistent with hypotheses, more positive views of staff were associated with lower risk for recidivism, while more negative views of staff were associated with greater risk for recidivism. Preliminary evidence suggests that positive relationships between youth and staff may result in reductions of recidivism, based on a sample of youth in a community based residential placement receiving treatment services (Florsheim et al., 2000). Social control theory suggests that connection to societal institutions and supportive others may provide natural incentives for engagement in prosocial behavior (Watt et al., 2004), which may result in a reduction of future offending behavior. Engaging in a positive relationship with an adult characterized by support and fairness

could serve a rehabilitative function by connecting youth to social supports and teaching youth that authority figures can serve in a supportive role. Relationships with detention staff may be particularly salient to connecting youth to the justice system and appreciating supportive adults functioning within it. Additionally, more positive perceptions of detention staff may help to facilitate treatment gains, consistent with literature on the therapeutic alliance (Shirk & Karver, 2003). Given that behavioral interventions encourage supportive teaching interactions between the staff implementing the intervention and youth (Gendreau et al., 2014), youth positive perceptions of staff may facilitate the learning of new skills that they can then apply in different environments.

Again, this finding was not consistent across facilities. In addition to differences in universal behavioral intervention implementation, facilities differed in other notable ways. Youth in facility two spent more time in detention, had a greater proportion of minority youth, had a greater proportion of youth who had been detained at the same facility prior, and had a smaller proportion of youth who had been detained as some other facility prior. Additionally, facility two had a greater proportion of youth in detention for a felony and a lesser proportion of youth who were classified as a child in need of care. However, facilities did not differ based on age, sex, youth perceptions of staff, and CU traits. It could be that factors related to sentencing and judicial processing (e.g., number of days in detention, prior detainment, race, recidivism, severity of charge) may be more susceptible to the influence of the youths' county of residence (Feld, 1991). Whereas, other factors, such as age, sex, youth perceptions of staff, and CU traits are not as likely to be considered in sentencing and judicial processing decisions, and thus may be expected to be similar between facilities.

These differences suggest that the youth served within facility two have more criminogenic needs. When youth reenter into the community following detainment, underlying criminogenic needs (e.g., substance use, family/parenting problems, negative peer relations) should be addressed in order to reduce future offending behavior (e.g., Nelson & Vincent, 2018). Within facility two, there was a larger proportion of youth were detained for a felony offense. Conversely, in facility one, a larger proportion of youth were detained for a misdemeanor or classified as a child in need of care. Especially given that children in need of care are not detained for criminal behavior, youth within facility one may have fewer rehabilitative needs than youth in facility two. For instance, the proportion of youth at risk for recidivism was greater in facility two. Similarly, youth in facility two recidivated more frequently than youth in facility one. With less criminogenic needs, positive perceptions of facility staff may provide a greater incentive for more engagement in prosocial behavior and less engagement in offending behavior.

Further, as reviewed above, detention facility one may function in a more rehabilitative capacity than facility two in its use of universal intervention strategies. The implementation of a universal behavioral intervention may shift the role of staff. The role of staff within facility one has expanded on traditional staff roles to serve a rehabilitative function, as staff provide positive reinforcement and engage in problem solving with youth. In contrast, due to reasons discussed above, namely the relatively short length of time implementing the intervention, staffs' role within facility two may not have completely shifted to be more rehabilitative. It could be that facility level interventions within facility two may not provide sufficient support to engage in prosocial behavior, thus limiting the effect of youth perceptions of staff. This may be evidenced by the proportionally greater risk for restrictive housing within facility two. In sum, facility one may implement more effective programming with youth who have less criminogenic needs,

allowing the effect of youth perceptions of staff to be more salient. In contrast, facility two may implement less effective programing with youth requiring more intervention, making youth perceptions of staff less salient to recidivism.

CU traits did not moderate the relation between youth perceptions of staff and risk for and frequency of restrictive housing in facility one. Further, CU traits did not moderate the association between youth perceptions of staff and risk for or frequency of recidivism in either facility. It could be that CU traits are less important in the context of a behavioral intervention high in positive reinforcement. Research suggests that detained youth high in CU traits respond to interventions high in positive reinforcement within a cognitive behavioral framework (Caldwell et al., 2007; Caldwell et al., 2006; Salekin et al., 2012), which is conceptually similar to the universal interventions used in both facilities. Previous research suggests that CU traits are not predictive of either Tier 2 or Tier 3 restrictive housing (Fite et al., 2018), suggesting that intervention efforts within facility one may appropriately deter unwanted behavior. Further, interventions using positive reinforcement within detained populations have evidenced reductions in recidivism for youth high in CU traits (Caldwell et al., 2007; Caldwell et al., 2006). Taken together, it could be that facility level interventions render the effect of CU traits on the relation between youth perceptions of staff and most outcomes of interest nonsignificant.

Significant associations were demonstrated between control variables and outcomes of interest. Specifically, the number of days youth spent in detention were related to all outcomes. The increases in the number of days in detention was associated with increases in the risk for and frequency of Tier 2 restrictive housing, Tier 3 restrictive housing, and restrictive housing in facility two. This relationship between days in detention and Tier 2 and Tier 3 outcomes has been demonstrated in prior research (e.g., Fite et al., 2018). Functionally, it appears that youth

who spend more time in detention have more opportunities to engage in behavior that would result in restrictive housing, thereby increasing their likelihood of being placed in restrictive housing and increasing the number of times they are placed there. Interestingly, the number of days in detention were positively associated with both risk for and frequency of recidivism. It could be that the number of days in detention were inflated by the number of stays, such that youth who returned to the facility multiple times accumulated more days in detention. However, it could also be that youth who spend more time in detention have learned behavior patterns that make it more likely for them to return. Similarly, whether youth had been detained at the same facility prior was associated with risk for restrictive housing and recidivism in facility two. Further, whether youth had been detained at any other facility prior was associated with risk for Tier 2 restrictive housing. These findings appear to be consistent with research demonstrating that formal processing is associated with increased risk for recidivism and delinquency (Gatti et al., 2009; Petrosino et al., 2013). Research suggests that increased involvement in the juvenile justice system begets further involvement, suggesting being detained for longer lengths of time and at other facilities increases youths' risk for negative outcomes.

Consistent with prior analyses (e.g., Fite et al., 2018), age was positively associated with risk for and frequency of Tier 3 interventions. It could be that older youth are less responsive to authority figures as they search for autonomy (Cumsille et al., 2006; Kuhn & Laird, 2011; Padilla-Walker et al., 2014); however, the opposite was true in facility two, where age was negatively associated with the frequency of restrictive housing. Additional studies would be needed to elucidate these findings. Additionally, in facility two, race was positively associated with risk for recidivism, such that non-white minority youth were at greater risk for recidivism. This finding is consistent with prior literature demonstrating that Black youth are detained at a

rate nearly six times the rate for Caucasian youth (Hockenberry, 2016). The proportion of racial/ethnic minority youth in facility two is greater than the proportion of ethnic/racial minority youth in facility one, which may speak to the diversity of the surrounding community. It could be that in communities with more racial and ethnically diverse populations, biases in detainment may be reduced. However, future research would be needed to understand these differences.

Limitations

The findings of this study should be considered in light of its limitations. Facilities included in the study are unique in their use of behavioral interventions. While behavioral interventions have been used in other juvenile detention facilities (e.g., Fernandez et al., 2015; Nelson et al., 2009), the use of behavioral interventions at this level of intensity cannot be assumed for all juvenile detention centers. Especially given that the results of the current study appear to be influenced by the use of these interventions, findings from the current study may not generalize to other facilities that do not implement the same type of intensive behavioral programming. It may be expected that youth perceptions of staff would be more important in facilities where no behavioral interventions were being implemented, as no other predictable contingencies (e.g., rewards, punishments) would be placed on youth behavior beyond those given at the voluntary discretion of staff. Accordingly, it could be that youth perceptions of staff are more important in facilities that foster less positive, treatment-focused climates. Thus, future research should continue to evaluate these associations within other detention facilities that may better represent the standard of care across the country.

Due to the nature of data collection, the temporal precedence of events was unable to be established at each facility. While efforts were made to survey youth as soon as possible following their admittance into the facility, it is not possible, given current data, to know whether

youth had been placed in restrictive housing prior to interviews with the research team. Thus, the directionality of the associations is unable to be established. Future work in this area would benefit from examining these associations in discrete timepoints in order to determine the influence of youth perceptions of staff on outcomes of interest and vice versa.

The measure of recidivism used for the current study was relatively narrow, in that recidivism was only coded when youth returned to the same facility one year following their initial assessment. This definition precludes other forms of recidivism (e.g., arrest) which may be meaningful. Additionally, the current measure of recidivism was unable to account for contact with the juvenile justice system outside of the county in which they were originally detained. Thus, events in other counties were not included in the current measure, perhaps limiting the frequency of recidivism artificially. Further, the timeframe of recidivism was determined from their initial admission to the facility within the study timeframe, rather than their initial release. As such, youths' length of stay in detention was liable to truncate the recidivism timeframe for at least some youth. Future studies would benefit from evaluating other definitions of recidivism events in order to better capture the wide range of events that include justice involvement. Additionally, other measures should evaluate recidivism following their release from detention in order to reduce potential confounds of the length of stay in detention.

Notably, other factors that may be meaningfully associated with youth perceptions of staff and subsequent outcomes were beyond the scope of the current study but may be important in understanding these relationships. For instance, staff perceptions of youth may also have meaningful implications for not only youth perceptions of staff but also on the use of restrictive housing. Further, other factors such as youth perceptions of authority figures more generally may influence their perceptions of detention staff. Additionally, while facility level characteristics

likely contributed to the findings of the current study, specific differences between these facilities were not assessed and could not be accounted for in models. Future work would benefit from evaluating facility level characteristics, such as facility climate or fidelity of behavioral intervention implementation, to better understand the effect of the facility on these associations. Accordingly, future studies should continue to consider factors that may be contributing to youth-staff interactions and perceptions.

Finally, the current study was underpowered to detect small effects, especially in moderation models, suggesting that meaningful effects may not have been detectable. Power was also affected by the rate of missingness. While the most stringent application of missing data procedures was used, this still resulted in the loss of data in models utilizing count outcomes. Further, a sample size of 100 is considered relatively small for factor analysis and more complex structural equation models, with recommendations that a sample size of 200 or greater be used to conduct these kinds of analyses (Kline, 2011). The sample size of the current study may have contributed to difficulty specifying generalized linear models with FIML and identifying more complex factor analytic structures. Accordingly, these associations should continue to be replicated in future studies with larger samples sizes, in order to determine the reliability of the current findings and detect small effects.

Conclusions and Implications

The current study evaluated a measure of youth perceptions of staff and examined how these perceptions were related to risk for and frequency of restrictive housing and recidivism in two juvenile detention facilities utilizing behavioral interventions. The role of CU traits was also considered as a moderating variable in these relations. The measure of youth perceptions of staff used within the current study was determined to represent a single factor of youth perceptions of

staff encompassing both staff characteristics and staff behavior towards youth. Overall, findings suggest that, in facility one, where universal intervention strategies were well-established, well-defined, and leveraged punishment for involvement in restrictive housing, there was no effect of youth perceptions of staff on risk for or frequency of restrictive housing. However, in facility two, where universal interventions were still being established and did not leverage punishment for involvement in restrictive housing, more negative youth perceptions of staff were associated with increases in risk for and frequency of restrictive housing. Further, CU traits were found to significantly moderate the association between youth perceptions of staff and frequency of restrictive housing in facility two, such that, in youth exhibiting high levels of CU traits, more negative views of staff were associated with increases in the frequency of restrictive housing. However, at low levels of CU traits, youth perceptions of staff were unrelated to the frequency of restrictive housing. Regarding recidivism, in facility one, where less severe youth were detained, more negative youth perceptions of staff were associated with increased risk for recidivism. In contrast, in facility two, where more severe youth were detained, youth perceptions of staff were not associated with recidivism. The moderating effect of CU traits was unrelated to risk for and frequency of recidivism in both facilities.

The development of a measure of youth perceptions of staff provides a valuable resource to facility administrators and other researchers who may be looking to evaluate youth perception of staff within detention facilities. The use of a single mean score to assess these perceptions is particularly advantageous as it allows for a measure that is easy to score and interpret. Given that youth perceptions of staff may be a significant consideration in the functioning of juvenile detention facilities, it is important for future research to continue assessing these perceptions.

Using an established, comprehensive measure by which to assess these perceptions may help to advance the field.

Discrepant findings between facilities highlights the need to tailor interventions to the facilities and jurisdictions using them and to the youth receiving them (Matthews & Hubbard, 2007; Wilson & Lipsey, 2007). Facility level procedures appeared to greatly affect the use of restrictive housing and county level policies may have been particularly salient to rates of recidivism. Consistent with social ecological theory (Bronfenbrenner, 1977), functioning at higher levels (e.g., facility, county) likely impact functioning at lower levels (e.g., youth staff relationships), suggesting that policies at higher levels may mitigate or enhance interventions at lower levels. In fact, implementation science literature suggests that larger systems and organizational factors meaningfully contribute to intervention fidelity and sustainability (e.g., Demby et al., 2014; McIntosh et al., 2018). Current findings suggest that well-established, universal interventions may serve to mitigate youth perceptions of staff when it comes to day-to-day functioning of the facility (e.g., restrictive housing) but enhance the effect of youth perceptions of staff after they leave the facility (e.g., recidivism). Accordingly, the current study provides further support for the continued dissemination and implementation of behavioral interventions in these settings and suggests that augmenting these interventions with supports to improve youth-staff relations may be helpful to achieving long-term outcomes.

These findings also suggest that, in settings with less established behavioral interventions, youth perceptions of staff are important to understanding engagement in behavior that places youth at risk for restrictive housing. It seems likely these findings would extend to facilities that do not implement any universal behavioral intervention, as these facilities would provide even fewer universal guidelines and consequences surrounding restrictive housing. As

such, fostering youths' positive perceptions of staff appears to be an important component of effectively reducing youth involvement in restrictive housing. Improving youth perceptions of staff upon entry into the facility may require streamlining intake procedures and providing more one-on-one time with staff to explain facility expectations, while interacting with youth in line with rehabilitative practices (Walden & Allen, 2019). It could be that increasing youths' positive perceptions of staff is a mechanism by which behavioral interventions are effective (e.g., Gendreau et al., 2014). However, in the context of less well-established interventions, the effect of youth perceptions of staff may not persist beyond the facility. Regardless of the implementation of universal intervention, developing positive perceptions of staff may be important to improving outcomes for youth within the juvenile justice system, and opportunities to create more positive youth-staff relationships should be encouraged.

The implications of increasing youth positive perceptions of staff appear to be particularly true for youth exhibiting CU traits. Findings suggest that, in facilities with less well-established behavioral intervention procedures, youth high in CU traits who also have negative perceptions of staff may be placed in restrictive housing at a higher frequency than youth who do not exhibit these traits. Importantly, labeling youth as having CU traits and perceptions that youth have more CU traits may cause individuals to react to them prejudicially, by expressing stronger support for the use of punishment and engagement in mandated treatment (Edens et al., 2017; Prasad & Kimonis, 2018). This reaction may be particularly counterproductive in light of these findings, as youth exhibiting high levels of CU traits would likely benefit from intervention efforts aimed at increasing their positive perceptions of staff. Finally, youth perceptions of staff had no effect on recidivism in facility two, suggesting that intervention efforts focusing on youth-staff relationships are likely not sufficient to reducing recidivism. Instead, established

interventions focused on addressing criminogenic needs (e.g., Multisystemic Therapy, Functional Family Therapy) and reentry programs are more likely to be successful (e.g., Calleja, 2019).

Findings of the current study also have implications for policy. Given that positive perceptions of staff may be important to day-to-day facility functioning and outcomes for youth after they are released, it is important to consider the training of staff within the detention facility. Specifically, hiring practices could be altered to prioritize hiring staff who are believed to be capable of building positive relationships with youth. Further, continuing education for detention staff regarding how to build effective relationships with youth may be helpful to fostering more positive perceptions of staff. Detention staff currently get very little training in relationship building with youth (Gagnon & Swank, 2020), suggesting that additional efforts to train staff may be helpful to increasing positive youth perceptions of staff. Additionally, findings regarding the length of stay in detention and the effect of prior detainments continues to confirm that involvement in the juvenile justice system is associated with poor outcomes (Gatti et al., 2009; Petrosino et al., 2013). Diversionary efforts should continue to be expanded to limit youth involvement in the justice system, with the intention of reducing further involvement.

Future Directions

The empirical examination of the relationship between youth and staff within detention and correctional facilities is in its infancy, meaning there are numerous directions for future work. The current study contributed to the burgeoning literature suggesting that youth perceptions of staff may be meaningful to their engagement in negative outcomes such as restrictive housing and recidivism. Given that youth perceptions of staff are likely related to their direct experiences with staff members, future work examining youth perceptions of staff should

aim to integrate their perceptions with objective measures of youth and staff behavior as well as consider the perspectives of staff. It seems likely that staff perceptions of youth are influential in understanding the interplay of youth-staff relationships and youth perceptions of staff within detention facilities. Outlined below are a few promising future directions for this work.

Future work aimed at understanding youth-staff relations in detention facilities would benefit from longitudinal analyses in which the temporal precedence between predictor and outcome can be established and/or controlled for in analyses. Longitudinal analyses may also provide information on youth-staff relationships, wherein the development of these relationships can be assessed alongside events at the facility. Ecological momentary assessment methods, wherein individuals complete multiple assessments over the course of a specified time frame (Ram et al., 2017), may be best able to capture these types of longitudinal interactions within the facility and may provide opportunities to answer questions regarding the interplay of youth perceptions of staff with greater accuracy than standard data collection methods. These methods may also present opportunities to examine how changes in youth perceptions or relations with staff over time effect outcomes of interest. Further, future studies would benefit from understanding the characteristics of staff (e.g., staff position within the facility [correctional staff, social worker]) that influence youth perceptions and interactions with them. It may also be important to consider the number of staff required to reduce unwanted and increase positive outcomes. For instance, it could be important that youth perceive staff at the facility to be helpful, fair, and supportive generally, or it could be that having even one positive, supportive staff is sufficient to stifle unwanted outcomes.

Examining youth-staff relations and perceptions within the context of interventions may also be a promising area for future research. Specifically, research aimed at examining whether

youth perceptions of staff or youth relationships with staff function as a mechanism by which behavioral interventions work could provide interesting information regarding whether these relationships need to be established within the context of larger intervention efforts. Further, it could be important to know whether focusing intervention efforts within detention facilities on building more positive relationships between youth and staff is sufficient to achieve desired outcomes in facilities that may not be open to implementing more comprehensive behavioral interventions. Additionally, while universal interventions may impact youth-staff relations via a top-down process (e.g., Bronfenbrenner, 1977), understanding whether developing interventions to improve youth-staff relations directly can function as a bottom-up strategy for improving facility climate could be important to dissemination of evidence-based interventions. Implementation science questions regarding the acceptability and feasibility of interventions aimed at improving the relationship between youth and staff could be interesting in understanding the types of interventions most promising in detention facilities.

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Table 1

Fit Indices for Exploratory Factor Analysis Models

Model	df	χ^2	CFI	TLI	RMSEA	SRMR	Eigenvalue
One Factor	105	1672.40	0.87	0.85	0.13	0.13	6.38
Two Factor	105	1672.40	0.95	0.93	0.09	0.09	1.94
Three Factor	105	1672,40	0.98	0.96	0.07	0.07	1.35
Four Factor	105	1673.40	0.99	0.97	0.06	0.05	1.12
Five Factor	105	1673.40	0.99	0.99	0.04	0.04	0.80

Note. CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual

Table 2

EFA: Factor Structure of Perceptions about Staff Measure

	Items	One Factor Model	Four Factor Model			
			Factor 1	Factor 2	Factor 3	Factor 4
1.	Are the facility staff good role models?	0.82*	0.97*	-0.05	-0.12	-0.01
2.	Are the facility staff friendly?	0.81*	0.77*	0.05	0.16	-0.03
3.	Do the staff seem to genuinely care about you?	0.76*	0.74*	0.21	-0.07	-0.02
4.	Are the staff helpful?	0.82*	0.83*	0.09	-0.01	-0.03
5.	Are the staff disrespectful? (R)	0.68*	0.32	0.57*	0.07	0.03
6.	Are the staff hard to get along with? (R)	0.50*	-0.03	0.63*	0.26	0.03
7.	Are the staff mean? (R)	0.79*	0.29	0.46*	0.45*	0.01
8.	Are the staff fun to be with?	0.59*	0.76*	-0.42*	0.06	0.15
9.	Youth here are punished even when they don't do anything wrong. (R)	0.55*	0.06	0.06	0.56*	0.22
10.	Facility staff use force when they don't really need to. (R)	0.68*	0.26	0.02	0.60*	0.16
11.	Problems between facility staff and youth here can be worked out.	0.43*	0.23*	-0.05	0.15	0.25
12.	Something bad might happen to me if I file a complaint against a staff member. (R)	0.18	-0.07	-0.17	0.73*	-0.13
13.	I usually deserve any punishment that I receive.	0.35*	-0.16	-0.03	0.12	0.59*
14.	Punishments given are fair.	0.67*	-0.01	-0.02	-0.01	0.98*
15.	The staff treat youth fairly.	0.73*	0.21	0.18	-0.03	0.65*

Table 3

Fit Indices for Confirmatory Factor Analysis Models

Model	df	χ^2	CFI	TFI	RMSEA	SRMR
One Factor	91	1843.25	0.92	0.90	0.13	0.08
Two Factor	105	1870.31	0.92	0.91	0.12	0.08
Three Factor	105	1870.31	0.92	0.91	0.12	0.08
Four Factor	105	1870.31	0.95	0.94	0.10	0.07

Note. CFI = Comparative Fit Index; TLI = Tucker-Lewis Index; RMSEA = Root Mean Square Error of Approximation; SRMR = Standardized Root Mean Square Residual

Table 4

CFA: One Factor Model

	Items	One Factor Model	Four Factor Model			
			Factor 1	Factor 2	Factor 3	Factor 4
1.	Are the facility staff good role models?	0.78	0.82	-	-	-
2.	Are the facility staff friendly?	0.83	0.90	-	-	-
3.	Do the staff seem to genuinely care about you?	0.70	0.74	-	-	-
4.	Are the staff helpful?	0.72	0.76	-	-	-
5.	Are the staff disrespectful? (R)	0.83	-	0.89	-	-
6.	Are the staff hard to get along with? (R)	0.69	-	0.74	-	-
7.	Are the staff mean? (R)	0.85	-	0.90	-	-
8.	Are the staff fun to be with?	0.57	0.62	-	-	-
9.	Youth here are punished even when they don't do anything wrong. (R)	0.60	-	-	0.72	-
10.	Facility staff use force when they don't really need to. (R)	0.73	-	-	0.91	-
11.	Problems between facility staff and youth here can be worked out.	0.54	0.58	-	-	-
12.	Something bad might happen to me if I file a complaint against a staff member. (R)	na.	-	-	0.41	-
13.	I usually deserve any punishment that I receive.	0.44	-	-	-	0.49
14.	Punishments given are fair.	0.66	-	-	-	0.73
15.	The staff treat youth fairly.	0.85	-	-	-	0.97

Table 5

Correlations, Means, and Standard Deviations for Facility One

	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.	Age	-													
2.	Sex	0.02	-												
3.	Race	0.07	-0.16	-											
4.	Detained Here	0.07	0.02	0.26**	-										
5.	Detained Any	0.07	0.01	0.12	0.41**	-									
6.	Days in Detention	-0.08	-0.13	0.30**	0.33**	0.02	-								
7.	Youth Perceptions of Staff	-0.05	0.05	0.04	0.34**	0.16	0.27**	-							
8.	CU Traits	0.03	-0.14	0.03	0.11	0.23*	0.12	0.32**	-						
9.	Tier 2 Risk	0.04	-0.16	0.13	0.33**	0.23*	0.56**	0.25**	0.16	-					
10.	Tier 2 Count	-0.15	-0.18	0.29**	0.29**	0.05	0.84**	0.25**	0.13	0.47**	-				
11.	Tier 3 Risk	0.14	-0.20*	0.22*	0.26**	0.14	0.60**	0.19	0.13	0.70**	0.56**	-			
12.	Tier 3 Count	-0.09	-0.17	0.28**	0.27**	0.09	0.71**	0.23*	0.08	0.42**	0.94**	0.59**	-		
13.	Recidivism Risk	0.12	-0.20*	0.32**	0.22*	0.18	0.47**	0.26**	0.18	0.50**	0.36**	0.48**	0.36**	-	
14.	Recidivism Count	0.04	-0.19*	0.32**	0.23*	0.15	0.57**	0.33**	0.11	0.51**	0.43**	0.43**	0.39**	0.83**	-
Mean		15.76	-	-	-	-	40.28	1.88	1.07	-	4.24	-	1.41	-	.60
SD		1.27	-	-	-	-	68.59	0.56	0.45	-	12.28	-	4.36	-	1.00
Minimum		12	-	-	-	-	1	1.00	.17	-	0	-	0		0
Maximum		17	-	-	-	-	394	3.43	2.46	-	76	-	30		4
Skewness		-1.02	-	-	-	-	2.83	0.63	0.67	-	3.99	-	4.50	-	1.74
Kurtosis		0.60	-	-	-	-	9.06	-0.15	0.56	-	16.88	-	22.76	-	2.29

Note. CU = Callous Unemotional, SD = Standard Deviation, Sex (0 = male, 1 = female), Race (0 = White, 1 = Non-white minority)

* $p \leq .05$; ** $p \leq .01$

Table 6

Correlations, Means, and Standard Deviations for Facility Two

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Age	-											
2. Sex	-0.02	-										
3. Race	-0.00	0.02	-									
4. Detained Here	0.14	0.04	0.06	-								
5. Detained Any	0.08	-0.02	-0.05	0.24**	-							
6. Days in Detention	-0.15	-0.03	-0.06	0.01	0.00	-						
7. Youth Perceptions of Staff	-0.00	-0.03	0.02	0.27**	0.07	0.22*	-					
8. CU Traits	0.10	0.03	0.01	0.07	0.11	-0.01	0.23**	-				
9. Restrictive Housing Risk	-0.11	-0.00	0.06	0.25**	0.11	0.41**	0.36**	0.12	-			
10. Restrictive Housing Count	-0.11	-0.12	0.05	0.03	0.07	0.53**	0.26**	0.20*	0.42**	-		
11. Recidivism Risk	0.05	-0.01	0.06	0.26**	0.06	0.19	0.04	-0.01	0.26**	0.14	-	
12. Recidivism Count	-0.03	-0.02	0.06	0.13	0.15	0.20*	0.01	0.11	0.28**	0.13	0.69**	-
Mean	15.40	-	-	-	-	83.43	1.98	1.05	-	3.44	-	1.27
SD	1.51	-	-	-	-	79.06	0.55	0.36	-	7.49	-	1.53
Minimum	11	-	-	-	-	2	1.00	0.17	-	0	-	0
Maximum	17	-	-	-	-	529	3.77	1.96	-	47	-	6
Skewness	-0.83	-	-	-	-	2.36	0.41	-0.09	-	4.21	-	1.29
Kurtosis	0.14	-	-	-	-	9.30	0.35	-0.46	-	20.86	-	0.81

Note. CU = Callous Unemotional, SD = Standard Deviation, Sex (0 = male, 1 = female), Race (0 = White, 1 = Non-white minority)

* $p \leq .05$; ** $p \leq .01$

Table 7

Facility One: First Order Effect Model for Tier 2 Outcomes

Variables	Tier 2 Risk		Tier 2 Count	
	B	SE	B	SE
Age	0.13	0.24	0.07	0.14
Sex	-1.11	0.72	0.41	0.37
Race	-0.78	0.70	0.14	0.34
Detained Here	0.41	0.65	-0.05	0.35
Detained Any	1.44*	0.65	-0.29	0.32
Days in Detention	0.05*	0.01	0.02*	0.00
Youth Perceptions of Staff	0.20	0.56	0.26	0.28

Note. Sex (0 = male, 1 = female), Race (0 = White, 1 = Non-white minority)

*$p < .05$

Table 8

Facility One: First Order Effect Models for Tier 3 Outcomes

Variables	Tier 3 Risk		Tier 3 Count	
	B	SE	B	SE
Age	1.06*	0.44	0.53*	0.21
Sex	-1.55	0.91	0.92	0.51
Race	0.06	0.67	-0.57	0.37
Detained Here	-0.21	0.81	-0.07	0.47
Detained Any	0.61	0.70	-0.37	0.41
Days in Detention	0.03*	0.01	0.02*	0.00
Youth Perceptions of Staff	0.45	0.63	0.03	0.33

Note. Sex (0 = male, 1 = female), Race (0 = White, 1 = Non-white minority)

*$p < .05$

Table 9

Facility Two: First Order Effect Models for Restrictive Housing

Variables	Restrictive Housing Risk		Restrictive Housing Count	
	B	SE	B	SE
Age	-0.26	0.17	-0.19*	0.09
Sex	-0.15	0.58	0.42	0.34
Race	0.23	0.48	-0.24	0.27
Detained Here	1.23*	0.54	0.07	0.29
Detained Any	0.48	0.57	-0.42	0.30
Days in Detention	0.02*	0.01	0.01*	0.00
Perceptions about Staff	1.51*	0.50	0.89*	0.25

Note. Sex (0 = male, 1 = female), Race (0 = White, 1 = Non-white minority)

*$p < .05$

Table 10

Facility One: First Order Effect Models for Recidivism

Variables	Recidivism Risk		Recidivism Count	
	B	SE	B	SE
Age	0.41	0.26	0.25	0.18
Sex	-1.15	0.68	0.74	0.47
Race	1.39*	0.57	-0.53	0.42
Detained Here	-0.85	0.69	0.33	0.48
Detained Any	0.72	0.57	-0.54	0.41
Days in Detention	0.03*	0.01	0.01*	0.00
Youth Perceptions of Staff	1.04*	0.52	0.60	0.35

Note. Sex (0 = male, 1 = female), Race (0 = White, 1 = Non-white minority)

*$p < .05$

Table 11

Facility Two: First Order Effect Models for Recidivism

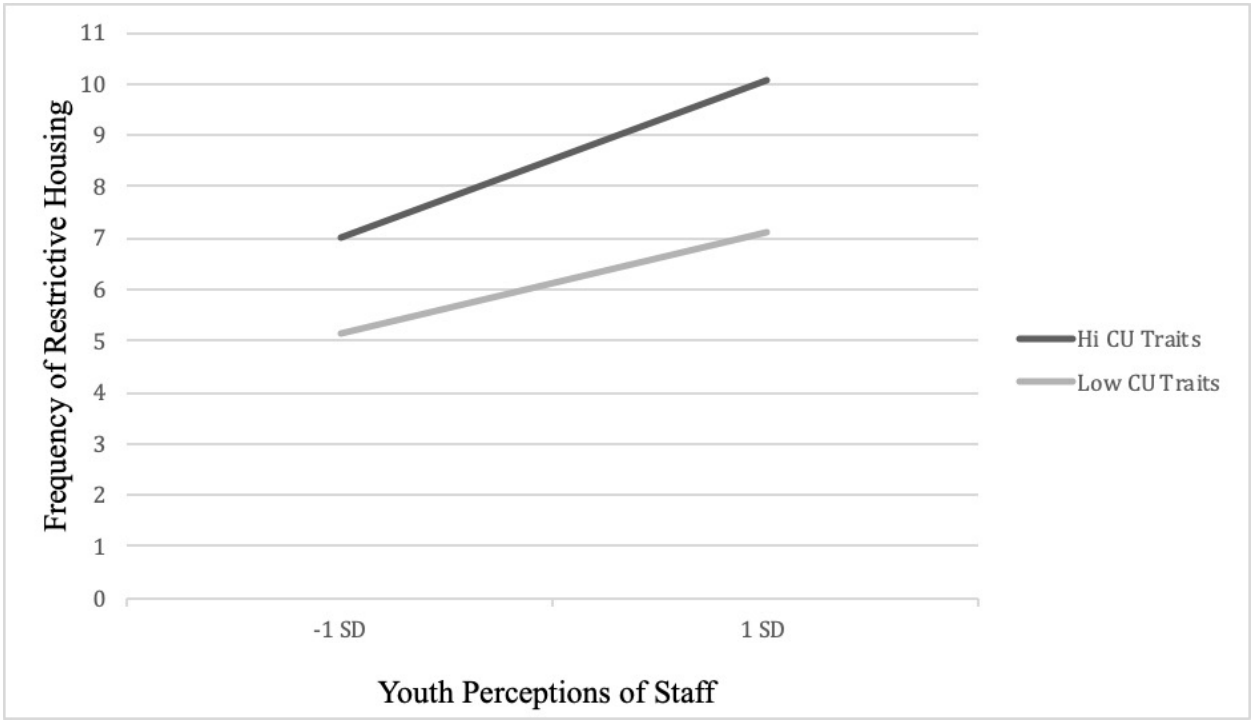
Variables	Recidivism Risk		Recidivism Count	
	B	SE	B	SE
Age	0.06	0.14	-0.04	0.10
Sex	0.03	0.50	-0.01	0.32
Race	0.25	0.40	-0.20	0.26
Detained Here	1.38*	0.45	-0.26	0.28
Detained Any	-0.25	0.47	-0.43	0.31
Days in Detention	0.01*	0.00	0.004*	0.00
Perceptions about Staff	-0.39	0.39	-0.21	0.23

Note. Sex (0 = male, 1 = female), Race (0 = White, 1 = Non-white minority)

*$p < .05$

Figure 1

Association Between Youth Perceptions of Staff and Frequency of Restrictive Housing at High and Low Levels of CU Traits



Note. SD = Standard Deviation

Appendix A: List of Measurement Scales

Youth Perceptions of Staff

Instructions: These next questions ask about this place and the kinds of things that happen here. The first questions ask about facility staff, that is, the people who work or volunteer here.

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
1. Are the facility staff good role models?	1	2	3	4
2. Are the facility staff friendly?	1	2	3	4
3. Do the staff seem to genuinely care about you?	1	2	3	4
4. Are the staff helpful?	1	2	3	4
5. Are the staff disrespectful?	1	2	3	4
6. Are the staff hard to get along with?	1	2	3	4
7. Are the staff mean?	1	2	3	4
8. Are the staff fun to be with?	1	2	3	4

Instructions: The next few questions are about what happens here

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
9. Youth here are punished even when they don't do anything wrong.	1	2	3	4
10. Facility staff use force when they don't really need to.	1	2	3	4
11. Problems between facility staff and youth here can be worked out.	1	2	3	4
12. Something bad might happen to me if I file a complaint against a staff member.	1	2	3	4
13. I usually deserve any punishment that I receive.	1	2	3	4
14. Punishments given are fair.	1	2	3	4
15. The staff treat youth fairly.	1	2	3	4

Inventory of Callous-Unemotional Traits

Instructions: Please read each statement and decide how well it describes you. Indicate your answer by stating the appropriate number (0-3) for each statement. Do not leave any statement unrated.

0 = Not at all 1 = True Somewhat True 2 = Very True 3 = Definitely True

1. I express my feelings openly.
2. What I think is "right" and "wrong" is different from what other people think.
3. I care about how well I do at school or work.
4. I do not care who I hurt to get what I want.
5. I feel bad or guilty when I do something wrong.
6. I do not show my emotions to others.
7. I do not care about being on time.
8. I am concerned about the feelings of others.
9. I do not care if I get into trouble.
10. I do not let my feelings control me.
11. I do not care about doing things well.
12. I seem very cold and uncaring to others.
13. I easily admit to being wrong.
14. It is easy for others to tell how I am feeling.
15. I always try my best.
16. I apologize ("say I am sorry") to persons I hurt.
17. I try not to hurt others' feelings.
18. I do not feel remorseful when I do something wrong.
19. I am very expressive and emotional.
20. I do not like to put the time into doing things well.
21. The feelings of others are unimportant to me.
22. I hide my feeling from others.
23. I work hard on everything I do.
24. I do things to make others feel good.