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Crisis Intervention Team Training in a Correctional Setting: Examining Compliance, Mental Health Referrals, and Use of Force

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Research Summary

The Crisis Intervention Team (CIT) model was developed as a specialized police-based program in which officers are trained to safely interact with individuals with mental illnesses. In 2011, the Minnesota Department of Corrections adapted this program for corrections. This study compares prison incidents involving CIT officers to a comparison sample of non-CIT incidents on a number of outcomes, including gaining compliance from people in custody (either immediately or as an incident unfolds), making mental health referrals, and using force against people in custody. We conducted a content analysis of reports describing 500 incidents in an all-male, maximum security prison and estimated multivariate binary logistic models in order to control for situational, incarcerated person, and employee characteristics. The findings provide some support for implementing CIT training in a correctional setting, but some less encouraging results show that improvements to the program are still needed.

Introduction

The closure of psychiatric hospitals across the United States beginning in the 1950s and the subsequent influx of mentally ill individuals returning to communities has created an increase in significant mental illness within prisons (Lamb & Weinberger, 2005). An estimated 300,000 men and women with mental illness may be housed in jails and prisons throughout the United States (Abramsky & Fellner, 2003). In 2011-2012, one in seven state and federal prisoners met the threshold for serious psychological distress (Bronson & Berzofsky, 2017). Rates of mental illness among incarcerated people are significantly higher than in the general population (Al-Rousan et al., 2017). For example, 33% of male inmates and 50% of female inmates housed in the Minnesota Department of Corrections (MnDOC) have a diagnosed mental illness and/or receive mental health services, compared to approximately 25% of the general population (Haigh et al., 2020).

When individuals engage in behaviors related to their mental health diagnoses, law enforcement may respond inappropriately if not properly trained on the symptoms of mental illness. In line with this, use of force by police is higher against those with mental illness (Morabito et al., 2017; Rossler & Terrill, 2017). Because this may also be the case within correctional facilities, it is crucial that correctional staff receive mental health training. For this reason, Crisis Intervention Team (CIT) training – originally designed as a training for police officers – was introduced in MnDOC facilities in 2011 (see Minnesota Department of Corrections, 2015). The training is intended to expand correctional officers' understanding of mental illness, provide tools to support intentional communication between officers and incarcerated people, and educate officers on interventions for those experiencing mental health crisis (Dupont & Cochran, 2000).

CIT programs in police departments have shown improvements in outcomes such as medical transports or referrals to mental health services (Bratina et al., 2020; Compton et al., 2008;

Compton et al., 2014b; Heilbrun et al., 2012; Kohrt et al., 2015; Lattimore et al., 2003; Ritter et al., 2011; Scantlebury et al., 2017; Strauss et al., 2005; Teller et al., 2006; Tyuse, 2012; Watson et al., 2010) and use of force (Compton et al., 2014; Compton et al., 2015; Morabito et al., 2012; Skeem & Bibeau, 2008). Only a handful of studies have examined outcomes associated with corrections-based CIT training, with encouraging but limited results (Center for Health Policy, Planning and Research, 2007; Davidson, 2016; Public Health Research Institute, 2005).

The present study compares outcomes of prison incidents involving CIT officers to incidents without CIT-trained officers, while controlling for relevant predictors. In particular, the study examines whether CIT training is related to compliance (either immediately or later as an incident unfolds), mental health referrals by staff, and use of force. To do this, we examine reports written for 500 incidents within an all-male, maximum security prison. The present study makes several important contributions. First, we are aware of no other studies that measure the relationship between CIT training and compliance or examine the relationship between CIT training and mental health referrals within a correctional setting. Second, while there has been one study to examine the association between CIT training and use of force in jails (Center for Health Policy, Planning and Research, 2007), that study did not control for situational factors that likely influence officers' behavior. Finally, the study provides valuable information about the impact of mental health de-escalation training in correctional facilities, and informs the literature on the effectiveness of CIT training more broadly.

Crisis Intervention Team Training

CIT – also known as the “Memphis Model” – was first utilized in 1988 in the Memphis Police Department (see Dupont & Cochran, 2000). CIT training was designed as a diversionary program to channel mentally ill individuals to the appropriate mental health facilities or resources

such as veterans' services or chemical dependency services, rather than involve them in the criminal justice system. The model was developed and provided in collaboration with the National Alliance on Mental Illness (NAMI), community mental health professionals, academic experts, hospital administrators, and church officials (Dupont et al., 2007). It is estimated that CIT has been implemented in approximately 3,000 agencies in the United States (see Taheri, 2016), as well as in other countries worldwide (Kohrt et al., 2015; Taheri, 2016).

Like most police-based CIT programs, the CIT training provided by MnDOC is forty hours in length. Thirty hours include presentations on topics such as mental health basics, signs and symptoms of specific disorders, hearing voices, trauma-informed care, and de-escalation communication techniques. Topics are presented using PowerPoint, videos, and other interactive tools. For example, one interactive tool includes the use of MP3 players with headphones that simulate auditory hallucinations. Each trainee is given a set and listens to the recorded voices while trying to accomplish tasks assigned by the facilitators such as crossword puzzles or word finds. This simulation teaches participants what it is like to be a voice-hearer and helps them understand how challenging it may be to follow directions while experiencing hallucinations. The remaining ten hours are spent with the class broken into small groups in which trainees practice de-escalation by responding to a paid actor in "crisis." To make these scenarios as realistic as possible, the actors and actresses who portray incarcerated people in crisis have toured MnDOC correctional facilities, have been trained on specific mental health conditions and how they present, and wear prison-issued clothing when engaging in scenarios.

Effectiveness of CIT Training

Research on the effectiveness of CIT training shows marked improvement in knowledge of mental health issues, perceptions of the mentally ill, and self-reported confidence in responding

to situations involving persons with mental illness (Bonfine & Munetz, 2014; Compton et al., 2006; Compton et al., 2014a; Ellis, 2014; Hacker & Horan, 2019; Haigh et al., 2020; Hanafi et al., 2008; Kohrt et al., 2015; Ritter et al., 2010; Tulley & Smith, 2015; but for null results see Compton et al., 2015). Further, officers trained by CIT-like programs are better able to direct individuals with mental illnesses to the appropriate medical or social services by engaging in medical transports or making referrals and diversions to service providers (Bratina et al., 2020; Compton et al., 2008; Compton et al., 2014b; Heilbrun et al., 2012; Kohrt et al., 2015; Lattimore et al., 2003; Ritter et al., 2011; Scantlebury et al., 2017; Strauss et al., 2005; Tyuse, 2012; Watson et al., 2010). Similarly, Teller and colleagues (2006) noted an increase in medical transports in Akron, Ohio after the Akron Police Department's CIT training program was implemented.

Scholars have hypothesized that the tools provided by CIT training increase officers' ability to communicate and reduce their reliance on force and arrest (Haigh et al., 2020; Watson et al., 2010), especially when interacting with persons with mental illness. In line with this, Skeem and Bibeau (2008) found that CIT officers in Las Vegas, Nevada used force in only 15% of the 189 incidents in which a risk of violence was observed; however, their study did not include a comparison group. Only a handful of studies have compared use of force between CIT and non-CIT officers. CIT-trained police officers in Chicago were less likely than their peers to use physical force with resistant subjects (Morabito et al., 2012). That study also showed that officers working in districts with higher levels of CIT saturation used significantly less force. In an evaluation based in Georgia, Compton and colleagues (2014b) found no effect of CIT training on the use of physical force or arrests; however, a later study controlling for electronic control devices did show CIT officers were less likely to use force (Compton et al., 2015). Like Compton et al. (2014b), Watson and colleagues (2010) found CIT-trained officers were no less likely than non-CIT-trained officers

to make arrests during an incident. Relatedly, several studies have shown that arrests of persons with mental illness were lower among CIT officers (Borum & Franz, 2010; El-Mallakh et al., 2008; Skeem & Bibeau, 2008; Steadman et al., 2000).

The Current Study: CIT Training in Corrections

To date, only three studies have evaluated the success of this type of training among correctional officers. First, an evaluation of CIT implemented in the Androscoggin County Jail in Maine (Public Health Research Institute, 2005) showed that CIT officers appreciated the new skills and knowledge provided by the training, and indicated that they were better prepared to handle mental health crises. They also self-reported using more verbal de-escalation and less physical or chemical force when responding to incidents involving persons with mental illness.

Second, police and correctional officers in Florida were surveyed before, immediately after, and one month after participating in CIT training (Davidson, 2016). The training improved officers' scores on tests covering mental illness, self-efficacy in responding to crises, and perceptions of their verbal de-escalation skills. However, the program participants showed a substantial decrease in self-efficacy and perceptions of de-escalation skills in the later follow-up time frame, regressing to lower levels than before they completed the training. The author provided several possible explanations for the drop: they may have had few opportunities to use the skills learned in the training, the increased knowledge and awareness they obtained from the training may have made them more aware of their shortcomings when they returned to work, or the de-escalation tools they learned during CIT training may not be as effective as hoped when in the field.

Finally, only one study has explored how CIT training may impact actual incidents within a correctional setting. A follow-up to the earlier Maine evaluation (Public Health Research

Institute, 2005) examined incident reports to determine the relationship between the training and incident outcomes. The results suggest that CIT-trained correctional officers are more likely to verbally de-escalate a situation and less likely to use physical force (Center for Health Policy, Planning and Research, 2007). However, that study is limited in that it only examined bivariate relationships without controlling for other relevant factors.

In line with these earlier studies, participant surveys have shown that MnDOC officers perceive many benefits of CIT (Minnesota Department of Corrections, 2015). A majority of officers who have undergone training believe it makes them safer, they report that it makes them more comfortable in encounters with people who are mentally ill, and they believe they learn de-escalation skills that prevent discipline and the use of force. However, it is unknown whether these perceptions, reported shortly after completion of CIT training, reflect reality. Therefore, the present study attempts to measure the success of MnDOC's CIT training by examining whether the use of CIT techniques and the presence of CIT officers are related to the outcome of incidents that occur in a correctional setting, net of situational, offender, or employee characteristics.

In particular, we test the following three hypotheses. First, based on prior research showing that CIT-trained police officers are more likely to make mental health referrals or medical transports (Bratina et al., 2020; Compton et al., 2008; Compton et al., 2014b; Heilbrun et al., 2012; Kohrt et al., 2015; Lattimore et al., 2003; Ritter et al., 2011; Scantlebury et al., 2017; Strauss et al., 2005; Teller et al., 2006; Tyuse, 2012; Watson et al., 2010), we expect CIT training within corrections to be positively related to the use of mental health referrals. Second, based on the literature on CIT and use of force in policing (Compton et al., 2015; Haigh et al., 2020; Skeem & Bibeau, 2008; Watson et al., 2010), as well as the limited evidence that CIT training is related to lower use of force in corrections (Center for Health Policy, Planning and Research, 2007), we

expect CIT training of correctional officers to be related to lower use of force.

Third, we are not aware of any research that examines the relationship between CIT training and suspect compliance. However, based on the training's focus on verbal communication and de-escalation strategies, as well as the evidence in prior research that the training may reduce the need to use force (Center for Health Policy, Planning and Research, 2007; Compton et al., 2015; Haigh et al., 2020; Skeem & Bibeau, 2008; Watson et al., 2010), we expect CIT training of correctional staff to be related to higher compliance during incidents. CIT officers may use strategies they learned in training right away as an interaction with an inmate begins or as directives are being given, or they may use them as a response to initial non-compliance. Therefore, we test whether there is a relationship between CIT training and either immediate compliance or eventual compliance that occurs after initial non-compliance.

Method

Data and Sample

This study analyzes reports from 500 incidents that occurred at Minnesota Correctional Facility (MCF)-Oak Park Heights between October 12, 2016 and March 31, 2018. MCF-Oak Park Heights is an all-male facility and is the only maximum security prison operated by the MnDOC. This prison contains the Administrative Control Unit (ACU), where those who pose a threat to others or to the orderly operation of a correctional facility are placed. MCF-Oak Park Heights also houses the Mental Health Unit (MHU) designated to assist all incarcerated males with severe mental health needs and the Transitional Care Unit (TCU) that serves incarcerated males who need intensive medical care.

Incidents are defined by MnDOC policy as any situation that could adversely impact facility or department operations or that necessitates administrative review. This can include a

security breach, an escape or attempted escape, an injury or death of any person, a violation of facility rules, the loss or damage to property, a situation in which use of force occurred, or non-routine conduct by offenders or others. This study examines outcomes that require the physical presence of offenders and staff; therefore, incidents were not included in the sample if they described situations in which there was no face-to-face interaction between at least one incarcerated person and at least one employee. For example, incident reports may be submitted after employees review security footage, receive written communication from incarcerated people, interact with visitors or other employees, or conduct searches with no incarcerated people present; however, such incidents were not included in the study. It is important to note that incident reports are not only written for emergency situations; staff may choose to write incident reports to document non-critical interactions, such as conversations.

Reports on 4,812 incidents that appeared to be eligible for the study were written during the study period. To obtain a random sample, we created a sampling frame containing these incidents and randomly selected 500 of them. Closer review of the incident reports showed that 107 of the selected incidents were not eligible for the study because they did not involve in-person contact between incarcerated people and staff; these incidents were removed from the sample and replaced, resulting in a sample of 500 incidents.¹ When multiple employees observed or were involved in an incident, each were required to write a separate report. All reports for the sample incidents were reviewed and coded by the two authors of the study. After jointly coding several incidents and finding consistency in coding, we divided the sample of incidents to review. The

¹ Because several individuals may be involved in an incident, the dataset was structured as a long file with a separate row for each inmate-employee combination involved in an incident. The rows for the incidents were then inversely weighted by their frequency. For example, an incident involving two incarcerated people and one employee would appear in the dataset twice, each with a weight of 0.50. Because there were multiple employees or incarcerated people in some incidents, we were not able to use a multilevel structure with incidents clustered within incarcerated persons or employees.

first author re-examined several of the other coder's incidents in order to further ensure consistency between coders.

There were 308 employees who responded to the incidents in the sample. Nearly three-quarters (72%) of employees were male, while 28% were female. The majority of employees identified as White (78%), while 4% were Black, 4% were Asian, 2% were Hispanic, 1% were American Indian, and 12% were unknown or other. The employees ranged in age from 19 to 66 years, with an average of 38 years. The employees had worked for MnDOC for an average of 8 years; the length of employment ranged from less than one year to 33 years.

The incidents in the sample involved 238 incarcerated people. The sample of incarcerated people was 45% Black, 40% White, 14% Native American, and 1% Asian. Approximately 9% were Hispanic or Latino. The average age of offenders was 36 years, with a range of 19 to 74 years. As of their earliest incidents, they had been incarcerated for an average of 62 months; the length of incarceration ranged from less than one month to about 29 years. The majority (79%) were incarcerated for a new sentence, while the remaining 21% were in prison due to violating the conditions of their supervised release. Compared to the general population of individuals in Minnesota state prisons, non-whites are over-represented in the sample, especially Blacks, Native Americans, and Hispanics. For example, on January 1, 2018, Whites made up 53% of the Minnesota prison population, while the population was 35% Black, 10% Native American, and about 6% Hispanic (Minnesota Department of Corrections, 2018). In addition, the sample contains a greater percentage of those incarcerated for a person offense; 74% were incarcerated for a person offense, compared to 53% of the general population on January 1, 2018.

Dependent Variables

First, compliance is measured with two binary variables. Immediate compliance indicates

that all incarcerated people complied with officer instructions as they were given. Eventual compliance indicates that at least one did not initially follow officers' instructions, but eventually did. This second compliance variable excludes cases with immediate compliance, so that cases of eventual compliance are only compared with cases of non-compliance. Incarcerated people were immediately compliant in almost two-thirds of incidents (62%). Of the 189 incidents that did not involve immediate compliance, eventual compliance occurred in 34%, while the other 66% involved non-compliance. Descriptive statistics for all study variables are provided in Table 1.

Second is a binary measure indicating whether staff made or offered to make a referral to mental health services or clergy for the incarcerated person. According to MnDOC policy, staff submit mental health referrals when an incarcerated person has mental health symptoms, is unable to communicate, or shows a significant change in mood or behavior. Those without observable symptoms are able to make their own requests to meet with mental health staff. Officers often offer a referral to clergy in conjunction with an offer of referral to mental health services, as some incarcerated people may prefer this alternative. We did not find any incidents in which a referral to clergy was offered without a referral to mental health services also being offered. We therefore refer to this variable throughout the manuscript as "mental health referral." Referrals occurred in 5% of incidents.

The final dependent variable is use of force, which is measured at the incident level as a binary variable indicating whether or not any employee used any of the following types of force against any incarcerated person: physical force (e.g., pressure point techniques, strikes, holds), chemical irritant, pinion restraints (e.g., a restraint board or chair), or cell extractions (i.e., the forcible removal of an offender from his cell). Because the individual types of force were relatively rare, these were combined instead of examined separately in order to maximize the number of

events per independent variable in the analyses (see Penduzzi et al., 1996). Some type of force was used in 19% of incidents. Staff used physical force in 8.8% of incidents, cell extractions in 8.6% of incidents, pinion restraints in 6.4% of incidents, and chemical irritant in 3.8% of incidents. It is important to note that the use of force variable captures any force and not excessive force; the appropriateness of force as a response to the incident was not measured.

Table 1. Descriptive Statistics

	<i>Mean or %</i>	<i>SD</i>	<i>Min-Max</i>	<i>N</i>
Dependent Variables				
Immediate compliance	62.2% (311)	---	---	500
Eventual compliance	34.4% (65)	---	---	189
Mental health referral	5.4% (27)	---	---	500
Use of force	19.0% (95)	---	---	500
Situational Characteristics				
CIT techniques	11.2% (56)	---	---	500
Proportion CIT officers	0.24	0.27	0-1	500
Mental health symptoms	0.59	0.72	0-4	500
Aggressive behavior	18.4% (92)	---	---	500
Resisted restraints	6.2% (31)	---	---	500
Medical incident	37.0% (185)	---	---	500
Number of offenders	1.08	0.47	1-9	500
Number of employees	5.37	4.05	1-19	500
Time of day				500
<i>First watch (reference group)</i>	12.8% (65)	---	---	
<i>Second watch</i>	50.2% (251)	---	---	
<i>Third watch</i>	36.9% (184)	---	---	
Location				500
<i>Offender's cell</i>	43.5% (67)	---	---	
<i>Segregation</i>	43.3% (217)	---	---	
<i>Other location (reference group)</i>	13.2% (216)	---	---	
Staff Characteristics				
Female	28.2% (87)	---	---	308
White	77.9% (240)	---	---	308
Age	38.01	9.99	19-66	308
Length of employment	8.19	7.87	0-33	308
Security staff	78.9% (243)	---	---	308
Incarcerated Person Characteristics				
Age	35.69	11.14	19-74	238
Minority	68.1% (162)	---	---	238
Prior discipline	37.55	50.92	0-567	238
Length of stay	61.62	70.54	0-349	238
Person offense	73.9% (176)	---	---	238

These outcomes were measured separately and not in conjunction with each other. In particular, we did not measure use of force as a response to compliance or non-compliance. In

correctional facilities, force is not used every time an incarcerated person is non-compliant; verbal communication, informal or formal discipline, or some sort of later action can be used instead – especially when the non-compliance does not pose a danger to the incarcerated person or others. Force was not used against non-compliant incarcerated people in 69 incidents. As another example, force can be used before or while giving directives; 17 use of force incidents were coded as including immediate compliance. The decision to use force in this way is based on the incarcerated person’s recent history, including events earlier in the day. For example, someone who has been engaging in self-harm may be compliant while being placed on the restraint board or chair (this accounts for 15 of the 17 incidents). Unfortunately, the incident reports are not stored in a way that allows us to link the sample incidents to earlier incidents in order to include more contextual information in the study.

Independent Variables

We measured the CIT status of an incident in two ways. First is a binary variable indicating whether any employee reported using CIT techniques during the incident. The incident report form instructs employees to indicate (with a checkbox) whether they are a CIT member and used CIT techniques during the incident. If the checkbox was not checked, we still considered CIT techniques to have occurred if the reports discussed that an officer used CIT techniques or explained that an incarcerated person made a request to speak to a CIT officer due to feeling distressed or mentally unstable. Using these criteria, we categorized 11.2% of incidents as using CIT techniques. Second, we created a variable that measured the proportion of employees present during the incident who had received CIT training. On average, about a quarter of employees present during an incident were trained in CIT.

Control Variables

The pool of control variables included situational, incarcerated person, and employee characteristics. Situational characteristics were coded from the incident reports. Time of day is measured in shifts, with three binary variables indicating whether the incident occurred during first watch (overnight, from 10:25pm to 06:44am), second watch (6:45am to 2:34pm), or third watch (2:35pm to 10:24pm). First watch is used as the reference group. Location is measured with three binary variables indicating whether the incident occurred in segregation, the person's cell, or another type of location. Other locations included living unit common areas (4%), canteen (2.4%), recreation/gym (2%), mental health (1%), medical (1%), education (1%), intake (1%), due process (0.4%), kitchen (0.2%), employee dining room (0.2%), or an off-ground area such as a hospital (1%).

Medical incident is a binary variable indicating whether or not the incarcerated person experienced medical problems or received medical treatment during the incident. In order to reduce correlations between independent variables, this does not include medical problems or treatment that resulted from self-harm or violence during the incident. Mental health symptoms is a continuous variable indicating how many of the following symptoms the incarcerated person was described as exhibiting during the incident (see Center for Health Policy, Planning and Research, 2007): agitated or irritable, anxiety or panic, confusion, delusions, depression or sadness, disoriented, embarrassed, hearing voices or command voices, hopelessness or crying, hyperactive, impulsive, insomnia, isolating, lack of eye contact or blank stares, lack of personal hygiene, not eating, pacing, paranoia, phobia or fear, recent loss, yelling or screaming, or engaged in self-harm or having thoughts about self-harm or suicide.

Aggressive behavior is a binary variable indicating whether an incarcerated person engaged

in any of the following behaviors: made threats, was verbally abusive (e.g., cursing, shouting, insults), assaulted or attempted to assault employees or other offenders, or used or displayed a weapon. While it would be interesting to examine the differences in physical and verbal aggression, we combined them into one binary variable for two reasons: the need to reduce the number of independent variables and the rarity of both types of aggression in the dataset (combined, verbal and physical aggressive behavior only occurred in 18% of incidents). Last is a binary variable indicating whether the incarcerated person resisted restraints. This includes resisting placement in pinion restraints as well as mechanical restraints, such as handcuffs. Because resisting restraints can be considered a type of non-compliance, this variable is not used as a predictor in the models predicting offender compliance.

Employee data were obtained from the MnDOC's human resources department. Gender is a binary variable coded as 1 if the employee was female. Race is measured as a binary variable coded as 1 if the employee was White. Age in years and length of employment in years are continuous variables that are calculated as of the date of the earliest incident in which the employee was involved. Security staff is a binary variable that indicates an employee's work assignment was in security.

Data on incarcerated people were taken from MnDOC's Correctional Operations Management System (COMS). The first three variables were continuous measures calculated as of the date of the earliest incident in which the person was involved: age in years, number of prior discipline convictions, and length of confinement in months. Race is measured as a binary variable indicating whether the person was a minority, which includes Black, Hispanic, Native American, and Asian inmates. Offense type is a binary variable indicating whether the person was incarcerated for a person offense. While it would be ideal to examine differences in outcomes by

specific racial groups and offense types, we dichotomized these variables due to the need to restrict the number of independent variables.

Analytic Strategy

First, bivariate analyses were conducted to explore whether CIT training is associated with the outcomes of events. Second, to control for situational, incarcerated person, and staff characteristics, we conduct multivariate binary logistic regression models. Because of the small sample size, there are few events, or cases with scores of 1 on the dependent variable. Scholars argue there should be a minimum of five to ten events for each independent variable that is included in a logistic regression model (Penduzzi et al., 1996; Vittinghoff & McCulloch, 2007). Therefore, in the multivariate analyses, it is important to choose a smaller set of variables. In particular, since there are 65 incidents with eventual compliance, 95 incidents with use of force, and 27 incidents in which staff made referrals, there should be no more than 13, 19, and 5 predictors in these models, respectively. To account for this, we used backward elimination stepwise regression (likelihood ratio) to select the best-fitting models with the appropriate number of predictors.

There were no missing data for the variables measuring characteristics of incidents or incarcerated people, or most of the employee variables. There were a small number of missing values on employee age ($n = 12$, 3.9% of employees) and length of employment ($n = 7$, 2.3% of employees); these were handled with mean replacement. Checks for multicollinearity were conducted and no problems were found: all but four variables had tolerance values above 0.4 (see Allison, 1999); the four variables representing the shift and location of the incident had tolerance values above 0.3 (see Hair et al., 2010).

Results

Bivariate Results

Table 2 displays bivariate correlations between all predictors and the dependent variables. Neither the use of CIT techniques nor the proportion of employees present with CIT training was related to immediate compliance. The proportion of CIT employees was also not related to eventual compliance. However, the use of CIT techniques was positively related to whether, after

Table 2. Bivariate Correlations

	<i>Immediate compliance</i>	<i>Eventual compliance</i>	<i>Mental health referral</i>	<i>Use of force</i>
Immediate compliance	---	---	.004	-.441***
Eventual compliance	---	---	.078 ^a	-.107 ^a
Mental health referral	.004	.078	---	-.003
Use of force	-.441***	-.107	-.003	---
CIT techniques	-.075	.184*	.196***	.053
Proportion CIT officers	-.055	.081	.142**	.011
Mental health symptoms	-.045	-.166*	.112*	.206***
Aggressive behavior	-.235***	.155*	-.045	.152**
Resisted restraints	---	---	.012	.341***
Medical incident	.010	-.153*	-.055	.209***
Number of incarcerated persons	-.051	-.037	-.003	.102*
Number of employees	-.284***	.335**	.035	.470***
Second watch	-.155**	-.208**	-.045	.146**
Third watch	.081	.174*	.037	-.097*
Cell	-.083	-.149*	-.013	.120**
Segregation	.050	.066	.024	-.093*
Incarcerated person age	.060	-.245**	-.056	-.054
Minority incarcerated person	-.128**	-.071	-.033	.063
Incarcerated person discipline	-.009	-.137	-.026	-.049
Incarcerated person length of stay	.121**	-.150*	-.045	-.149**
Person offense	-.087	-.177*	-.042	.092*
Staff female	.038	-.087	-.012	-.071
Staff white	.018	.013	.049	-.025
Staff age	.014	-.029	-.001	.003
Staff length of employment	-.020	-.052	.042	.046
Security staff	-.054	.066	.023	.049
<i>N</i>	500	189	500	500

*** $p < .001$, ** $p < .01$, * $p < .05$, ^a $N = 189$

initially being non-compliant, an incarcerated person eventually agreed to comply with instructions ($r = .184, p = .011$). Both the use of CIT techniques ($r = .196, p < .001$) and the proportion of employees with CIT training ($r = .142, p = .002$) were positively related to mental health referral. Finally, neither of the two CIT variables was related to use of force. Table 2 also provides bivariate correlations between the dependent variables (except between immediate compliance and eventual compliance). Only one relationship between dependent variables was significant; use of force was negatively related to immediate compliance ($r = -.441, p < .001$).

Multivariate Results

Compliance. The results of the binary logistic regression models predicting immediate compliance are presented in Table 3. The results show neither the proportion of CIT officers ($b = -0.21, p = .608$) nor the use of CIT techniques ($b = -0.20, p = .554$) was related to immediate compliance. Three control variables were significantly related to immediate compliance. Incarcerated people were less likely to comply during second watch than during first watch ($b = -1.25, p = .001$). Minorities ($b = -0.67, p = .007$) were less likely to immediately comply with officer instructions. Immediate compliance was negatively related to the number of employees who responded to the incident ($b = -0.17, p < .001$), likely because more employees are deployed to incidents with non-compliance. Overall, the model fit the data well ($\chi^2 = 101.972, p < .001$) and adequately improved prediction of immediate compliance over the null model ($r^2 = 0.251$).

The results of backward elimination stepwise regression models (not presented here) identified the following twelve control variables for the models predicting eventual compliance: mental health symptoms, medical incident, number of offenders, number of employees, shift (second watch), location (cell and segregation), incarcerated person's age, incarcerated person's

Table 3: Multinomial Logistic Regression Models Predicting Immediate Compliance

	Model 1				Model 2			
	<i>b</i>	<i>SE</i>	<i>OR</i>	<i>95% CI</i>	<i>b</i>	<i>SE</i>	<i>OR</i>	<i>95% CI</i>
CIT techniques used	-0.20	0.33	0.82	[0.43-1.58]	---	---	---	---
Proportion CIT officers	---	---	---	---	-0.21	0.40	0.82	[0.37-1.78]
Mental health symptoms	0.11	0.17	1.12	[0.80-1.56]	0.10	0.17	1.11	[0.79-1.54]
Aggressive behavior	-0.74	0.28	0.48	[0.27-0.83]	-0.74**	0.28	0.48	[0.27-0.83]
Medical incident	0.44	0.26	1.56	[0.94-2.59]	0.45	0.26	1.57	[0.94-2.60]
Number of incarcerated persons	0.11	0.24	1.12	[0.70-1.78]	0.12	0.24	1.12	[0.71-1.79]
Number of employees	-0.17***	0.03	0.84	[0.79-0.90]	-0.17***	0.03	0.84	[0.79-0.89]
Second Watch	-1.25**	0.37	0.29	[0.14-0.60]	-1.22**	0.37	0.30	[0.14-0.61]
Third Watch	-0.52	0.37	0.60	[0.29-1.23]	-0.52	0.37	0.59	[0.29-1.22]
Cell	-0.41	0.36	0.66	[0.33-1.34]	-0.40	0.36	0.67	[0.33-1.35]
Segregation	-0.03	0.38	0.97	[0.46-2.04]	-0.03	0.38	0.98	[0.46-2.06]
Incarcerated person age	0.004	0.01	1.00	[0.98-1.03]	0.003	0.01	1.00	[0.98-1.03]
Minority incarcerated person	-0.67**	0.25	0.51	[0.32-0.83]	-0.67**	0.25	0.51	[0.31-0.83]
Incarcerated person discipline	-0.004	0.002	1.00	[0.99-1.00]	-0.004	0.002	1.00	[0.99-1.00]
Incarcerated person length of stay	0.01*	0.003	1.01	[1.00-1.01]	0.01*	0.003	1.01	[1.00-1.01]
Person offense	-0.33	0.26	0.72	[0.43-1.20]	-0.34	0.26	0.71	[0.43-1.19]
Staff female	-0.03	0.31	0.97	[0.53-1.77]	-0.04	0.31	0.96	[0.52-1.76]
Staff White	0.16	0.26	1.18	[0.71-1.97]	0.17	0.26	1.18	[0.71-1.97]
Staff age	0.003	0.02	1.00	[0.97-1.03]	0.003	0.02	1.00	[0.97-1.03]
Staff length of employment	0.01	0.02	1.01	[0.97-1.05]	0.01	0.02	1.01	[0.97-1.05]
Security staff	-0.19	0.37	0.83	[0.40-1.70]	-0.18	0.37	0.84	[0.41-1.73]
Constant	2.60**	0.99	---	---	2.64**	0.99	--	---
-2 log likelihood	560.682				560.771			
Model chi-square	101.972***				101.88***			
Nagelkerke R^2	0.251				0.251			
<i>N</i>	500				500			

*** $p < .001$, ** $p < .01$, * $p < .05$

Table 4: Multinomial Logistic Regression Models Predicting Eventual Compliance

	Model 1				Model 2			
	<i>b</i>	<i>SE</i>	<i>OR</i>	<i>95% CI</i>	<i>b</i>	<i>SE</i>	<i>OR</i>	<i>95% CI</i>
CIT techniques used	1.19*	0.58	3.30	[1.07-10.21]	---	---	---	---
Proportion CIT officers	---	---	---	---	1.77*	0.87	5.85	[1.07-32.12]
Mental health symptoms	-1.17**	0.34	0.31	[0.16-0.61]	-1.11**	0.34	0.33	[0.17-0.64]
Medical incident	-1.06	0.64	0.35	[0.12-1.00]	-0.88	0.54	0.42	[0.15-1.19]
Number of incarcerated persons	-1.89**	0.70	0.15	[0.04-0.60]	-2.14**	0.71	0.12	[0.03-0.48]
Number of employees	0.30***	0.06	1.34	[1.20-1.50]	0.32***	0.06	1.38	[1.23-1.55]
Second Watch	-0.43	0.45	0.65	[0.27-1.57]	-0.70	0.46	0.49	[0.20-1.21]
Cell	-2.19**	0.76	0.11	[0.03-0.50]	-2.54**	0.77	0.08	[0.02-0.36]
Segregation	-1.50*	0.76	0.22	[0.05-0.98]	-1.96*	0.89	0.14	[0.03-0.66]
Incarcerated person age	-0.07*	0.03	0.93	[0.88-0.99]	-0.07*	0.03	0.94	[0.89-0.99]
Minority incarcerated person	0.83	0.54	2.30	[0.80-6.66]	1.05	0.57	2.84	[0.94-8.64]
Incarcerated person length of stay	-0.03**	0.01	0.97	[0.95-0.99]	-0.03**	0.01	0.97	[0.95-0.99]
Person offense	-0.59	0.54	0.55	[0.19-1.59]	-0.58	0.53	0.56	[0.20-1.59]
Staff female	-0.46	0.56	0.63	[0.21-1.88]	-0.34	0.56	0.71	[0.24-2.15]
Constant	4.94**	1.57	---	---	4.85**	1.55	---	---
-2 log likelihood	157.494				157.594			
Model chi-square	85.957***				85.856***			
Nagelkerke R^2	0.504				0.504			
<i>N</i>	189				189			

*** $p < .001$, ** $p < .01$, * $p < .05$

ethnicity, incarcerated person's length of stay, and staff gender. In contrast to the results regarding immediate compliance, the models predicting eventual compliance (presented in Table 4) show that both the use of CIT techniques ($b = 1.19, p = .038$) and the proportion of employees who were CIT-trained ($b = 1.77, p = .042$) were related to greater eventual compliance. Additionally, seven control variables were significantly related to eventual compliance. Once initially non-compliant, incarcerated people were less likely to eventually comply if they displayed mental health symptoms ($b = -1.17, p = .001$), if the incident involved more incarcerated people ($b = -1.89, p = .003$) or took place in segregation ($b = -1.50, p = .013$) or an incarcerated person's cell ($b = -2.19, p = .001$). Eventual compliance was more likely when more employees reported to the incident ($b = 0.30, p < .001$), when incarcerated people were younger ($b = -0.07, p = .014$), and when they had been incarcerated for shorter periods ($b = -0.03, p = .001$). Overall, the models fit the data well ($\chi^2 = 85.957, p < .001$) and, compared to the null model, substantially improved prediction of eventual compliance ($r^2 = 0.5041$).

Mental health referral. Backward elimination stepwise regression (results not presented here) was used to identify the following four control variables: mental health symptoms, aggressive behavior, medical incident, and number of employees. The results of the logistic regression models predicting mental health referral can be seen in Table 5. Staff were more likely to make or offer to make mental health referrals during incidents in which they used CIT techniques ($b = 1.55, p = .001$) or when there was a larger proportion of CIT-trained employees present ($b = 2.07, p = .003$). Mental health referrals were more likely in incidents in which incarcerated people exhibited mental health symptoms ($b = 0.65, p = .002$). In one model, referrals were less likely in incidents in which incarcerated people showed physical health symptoms or received medical care ($b = -1.04, p = .038$) and were more likely when more employees reported

to the incident ($b = 0.11, p = .049$). The models predicting mental health referrals adequately fit the data ($\chi^2 = 24.990, p < .001$) and adequately improved prediction of referral compared to the null model ($r^2 = .142$).

Table 5: Binary Logistic Regression Models Predicting Mental Health Referral

	<u>Model 1</u>				<u>Model 2</u>			
	<i>b</i>	<i>SE</i>	<i>OR</i>	<i>95% CI</i>	<i>b</i>	<i>SE</i>	<i>OR</i>	<i>95% CI</i>
CIT techniques used	1.55**	0.46	4.69	[1.90-11.55]	---	---	---	---
Proportion CIT officers	---	---	---	---	2.07**	0.70	7.95	[2.00-31.56]
Mental health symptoms	0.65**	0.25	1.91	[1.18-3.12]	0.75**	0.24	2.12	[1.32-3.43]
Aggressive behavior	-1.32	0.68	0.27	[0.07-1.01]	-1.29	0.67	0.28	[0.08-1.02]
Medical incident	-0.99	0.51	0.37	[0.14-1.00]	-1.04*	0.50	0.35	[0.13-0.95]
Number of employees	0.07	0.05	1.07	[0.97-1.19]	0.11*	0.06	1.12	[1.00-1.24]
Constant	-3.54***	0.42	---	---	-4.13***	0.56	---	---
-2 log likelihood	185.049				186.378			
Model chi-square	24.990***				23.662***			
Nagelkerke R^2	0.142				0.135			
<i>N</i>	500				500			

*** $p < .001$, ** $p < .01$, * $p < .05$

Use of force. Backward elimination stepwise regression (results not presented here) was used to select eighteen control variables, identifying two that would be removed: location in a cell and staff work assignment. Table 6 displays the results of the models predicting use of force. There was no statistically significant relationship between the force used against incarcerated people and the use of CIT techniques ($b = 0.12, p = .797$) or the proportion of employees with CIT training ($b = 0.09, p = .903$). Six control variables were significantly related to use of force. Force was more likely to be used when incarcerated people resisted restraints ($b = 3.4, p = .002$), when more employees were involved in the incident ($b = 0.31, p < .001$), during second watch than first watch ($b = 1.55, p = .003$), against those incarcerated for person offenses ($b = 0.85, p = .033$), and against those who had been incarcerated for shorter periods ($b = -0.01, p = .035$). Force was less likely to be used in segregation than in other locations ($b = -0.68, p = .042$). The models predicting use of force fit the data well ($\chi^2 = 173.980, p < .001$), and substantially improved the prediction of use of force over the null model ($r^2 = .473$).

Table 6: Binary Logistic Regression Models Predicting Use of Force

	Model 1				Model 2			
	<i>b</i>	<i>SE</i>	<i>OR</i>	95% <i>CI</i>	<i>b</i>	<i>SE</i>	<i>OR</i>	95% <i>CI</i>
CIT techniques used	0.12	0.46	1.13	[0.46-2.75]	---	---	---	---
Proportion CIT officers	---	---	---	---	0.09	0.76	1.10	[0.25-4.87]
Mental health symptoms	0.23	0.23	1.26	[0.80-1.96]	0.23	0.23	1.26	[0.80-1.96]
Aggressive behavior	-0.39	0.40	0.68	[0.31-1.49]	-0.38	0.40	0.69	[0.32-1.50]
Resisted restraints	1.68**	0.53	5.34	[1.88-15.17]	1.69**	0.53	5.39	[1.90-15.31]
Medical incident	0.56	0.34	1.75	[0.90-3.38]	0.56	0.34	1.75	[0.90-3.41]
Number of incarcerated persons	0.21	0.37	1.24	[0.60-2.57]	0.21	0.37	1.23	[0.60-2.55]
Number of employees	0.31***	0.05	1.37	[1.25-1.50]	0.31***	0.05	1.37	[1.25-1.50]
Second watch	1.55**	0.51	4.70	[1.79-12.86]	1.53***	0.53	4.63	[1.66-12.97]
Third watch	0.58	0.53	1.78	[0.63-5.05]	0.59	0.53	1.81	[0.64-5.09]
Segregation	-0.68*	0.34	0.51	[0.26-0.98]	-0.68*	0.34	0.51	[0.26-0.98]
Incarcerated person age	-0.01	0.02	1.00	[0.96-1.03]	-0.01	0.02	1.00	[0.96-1.03]
Minority incarcerated person	0.29	0.36	1.34	[0.66-2.73]	0.30	0.36	1.35	[0.66-2.75]
Incarcerated person discipline	0.003	0.004	1.00	[1.00-1.01]	0.003	0.004	1.00	[1.00-1.01]
Incarcerated person length of stay	-0.01*	0.01	0.99	[0.98-1.00]	-0.01*	0.01	0.99	[0.98-1.00]
Person offense	0.85*	0.40	2.34	[1.07-5.12]	0.85*	0.40	2.34	[1.07-5.13]
Staff female	-0.27	0.41	0.76	[0.34-1.70]	-0.27	0.41	0.76	[0.34-1.71]
Staff white	-0.33	0.36	0.72	[0.35-1.46]	-0.33	0.36	0.72	[0.35-1.46]
Staff age	-0.01	0.02	0.99	[0.95-1.04]	-0.01	0.02	0.99	[0.95-1.04]
Staff length of employment	0.01	0.03	1.01	[0.96-1.07]	0.01	0.03	1.01	[0.96-1.07]
Constant	-5.00	1.25	---	---	-5.02	1.26	---	---
-2 log likelihood	311.712				311.763			
Model chi-square	173.980***				173.929***			
Nagelkerke R^2	0.473				0.473			
<i>N</i>	500				500			

*** $p < .001$, ** $p < .01$, * $p < .05$

Supplemental Analyses

To account for the fact that use of force is rarely used in cases of immediate compliance, we conducted additional analyses of use of force among the subsample of 189 incidents in which incarcerated people were not immediately compliant (available upon request). Some type of force was used in 41% of not-immediately-compliant incidents ($n = 78$); staff used physical force in 22% of these cases, cell extractions in 22%, pinion restraints in 9%, and chemical irritant in 10%. The analyses controlled for fourteen variables capturing situational, incarcerated person, and staff characteristics. As when examining the full sample of incidents, neither the use of CIT techniques ($b = -.441, p = .451$) nor the proportion of employees who had CIT training ($b = .357, p = .738$) were associated with use of force in these models.

In additional supplemental analyses (available upon request), we measured the presence of CIT officers with a binary variable indicating whether at least one CIT-trained employee was present during the incident. Net of control variables, the presence of a CIT-trained employee was positively related to eventual compliance ($b = 2.480, p = .002$), but was not related to immediate compliance ($b = 0.145, p = .572$), mental health referral ($b = 0.943, p = .091$), use of force among the full sample ($b = 0.166, p = .685$), or use of force among the subsample of not-immediately-compliant incidents ($b = .476, p = .437$).

Discussion

Overall, this study provides mixed results on CIT training in corrections. On one hand, there is limited evidence that CIT training of correctional officers is related to positive outcomes. For example, the significant relationship between CIT and eventual compliance suggests that CIT-trained officers may be more successful in de-escalating situations so that incarcerated people who are initially non-compliant choose to comply with instructions. In addition, consistent with

research on police (Bratina et al., 2020; Compton et al., 2008; Compton et al., 2014b; Heilbrun et al., 2012; Kohrt et al., 2015; Lattimore et al., 2003; Ritter et al., 2011; Scantlebury et al., 2017; Strauss et al., 2005; Teller et al., 2006; Tyuse, 2012; Watson et al., 2010), officers were more likely to make mental health referrals for those experiencing mental health issues during CIT incidents. This suggests CIT training equips correctional officers with the knowledge they need to help incarcerated people obtain appropriate mental health care. This is beneficial not only for the health of the incarcerated person, but also for the safety of other incarcerated people and staff and for the operation of the facility (see Abramsky & Fellner, 2003).

On the other hand, CIT training was not related to lower use of force among either the full sample or the subsample of incidents without initial compliance. This is not so surprising given the mixed results in the policing literature (Morabito et al., 2012; Compton et al., 2014b). CIT officers may be more likely to be present for and use CIT techniques during troublesome incidents in which use of force ends up being needed. Therefore, there may be two relationships that cancel each other out: CIT techniques may help resolve the incident without force in some circumstances, but the fact they were used means the incident was difficult to resolve and therefore may still have required force.

In addition, we were unable to measure the timing of events as they unfolded during the incident, partly because the incident report narratives were sometimes unclear about the order of events. Because of this, we cannot be sure that the situational characteristics used as independent variables always preceded the outcomes; therefore, the results should be viewed with caution. For example, we noticed in many incidents that CIT officers may have attempted verbal de-escalation after force had already been employed. Given these results and past research showing force is used more often against those experiencing mental health symptoms (Morabito et al., 2017; Rossler &

Terrill, 2017), it may be beneficial to more specifically incorporate the concept and practice of use of force into CIT training. This may help officers better understand how to use CIT techniques to avoid the use of force. It is also important for CIT officers to be aware of how force can influence incarcerated people's continuing mental health (see Meade et al., 2017).

Additionally, while CIT training may have provided tools for gaining compliance later in an incident, CIT training was not related to immediate compliance. Therefore, it may be useful for CIT training to give more focus to how officers open interactions and begin engaging with incarcerated people, thereby helping them gain compliance earlier. Officers may view the strategies covered in CIT training as tools to utilize in specific situations rather than a new perspective that broadly shapes their interactions with inmates. In particular, there may be some aspect of an incarcerated person or incident – such as a mental health history, obvious mental health symptoms, or non-compliance – that triggers the use of CIT-approved strategies. It may be more useful for officers to use communication initially or as an attempt to de-escalate situations in any incident that appears to have potential for escalation, regardless of the incarcerated person's mental health. One way to achieve this might be to include more general de-escalation training for correctional officers (for a review of research on police de-escalation training, see Engel et al., 2020).

Relatedly, Compton et al. (2010) note that police-based CIT programs are less successful when adequate training is not provided to dispatchers, as they are less able to deploy CIT officers quickly to the appropriate situations. Similarly, for CIT officers to be most effective in a correctional setting, all employees should be somewhat knowledgeable about mental health issues and about the CIT program so that they can identify a crisis and request assistance from a CIT officer. This is especially important for higher-ranking employees, who have the most authority to

bring in CIT officers as well as to authorize other responses such as use of force. To achieve this, it may be beneficial to offer a brief version of CIT training – including some information about mental health issues and a summary of the CIT program – to all staff, possibly during new employee orientation or as a part of continuing education requirements.

Limitations

As with all research, there are limitations of the study that must be acknowledged. First, all incidents examined here occurred in a single, maximum security facility. In particular, the results may not be generalizable to facilities with lower custody levels, as these situations may unfold differently. Importantly, we examined an all-male facility in this study, so the extent to which CIT training is associated with outcomes of incidents involving incarcerated females is unknown. Given the prevalence of mental health issues among incarcerated females (e.g., James & Glaze, 2006), future research should give particular focus to whether CIT training – either among police or correctional officers – is effective for responding to women undergoing mental health crisis. Second, employee education is an important control variable, but was not available for use in this study. Officers who attended college may already be knowledgeable about mental health issues, as these topics are often covered in psychology and criminal justice courses. Therefore, a portion of CIT training may overlap with coursework already completed by some officers, and CIT training could be more important for officers with lower levels of education. Since little is known about how individual characteristics of officers are related to CIT training (Peterson & Densley, 2018), future research should consider whether there are different effects of CIT training based on education, prior training, or demographics.

Third, MnDOC does not use an incident management system that provides standardized data collection on critical incidents. Rather, the incident reports include an open-ended narrative

completed by each employee. Because those narratives vary in quality, level of detail, and completeness, our measurement of some variables may not be completely accurate. Relatedly, while employees often self-reported that they used CIT techniques during an incident, they rarely described the particular attempts they made to de-escalate the crisis. Therefore, we were unable to examine precisely how CIT officers were successful or unsuccessful at gaining compliance or reducing the use of force. We recommend that corrections employees receive training on report writing to increase the likelihood that they provide sufficient information in a clear, concise manner. Fourth, it is possible that CIT and non-CIT incidents are substantially different in ways that make them difficult to compare. We attempted to address this by including as many control variables as possible. However, given the small size of the sample, we could only include a limited number of predictors in most models. Therefore, we cannot rule out the possibility that the significant relationships we found may be due to an uncontrolled third variable. This is especially true for mental health referral, which occurred very rarely in this sample.

Conclusion

In conclusion, this study provides an important early look at the value of mental health de-escalation training within correctional facilities. The results suggest CIT training can in some ways be beneficial in a prison setting, as it is related to gaining compliance from unruly incarcerated people and is associated with officers' use of mental health referrals. But there were also less encouraging results, especially regarding the use of force. It is important to note that incident reports are only recorded when employees perceive a threat to staff or inmate safety or to the proper operation of the facility. While there were reports that documented simple conversations between staff and incarcerated people, some positive interactions between CIT officers and incarcerated people may not have been documented. If de-escalation occurred through a brief

conversation before an incarcerated person acted out, officers may not have felt it necessary to submit an incident report. Therefore, it is possible that CIT officers have a more positive impact than could be detected in this study.

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