

PRISON DOG TRAINING PROGRAMS LINKED TO  
POSITIVE PRISON SOCIAL CLIMATE

by

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## ABSTRACT

While dog training programs have spread into prisons across the United States and have received substantial attention in both media and qualitative research, few studies have looked to quantify their effects on the prison environment. Using available outcome studies, the present study assessed the relationship between participation in a dog training program and prison social climate through a quantitative meta-analysis ( $N=9$ ). The meta-analysis includes studies relating to two of the three elements of prison social climate as defined by Ross et al. (2008) in their factor pattern analysis but excludes the third element, environmental quality of life, due to an absence of research into those outcomes. The results demonstrated that a small to moderate effect size exists in the relationship between participation in a dog training program and a more positive prison social climate ( $g=0.204$ ,  $SE=0.068$ ,  $95\% \text{ CI}=[0.005, 0.069]$ ). While the results are promising, future research is needed to determine whether the relationship is causal or merely correlational.

*Keywords:* prison-based dog programs, DTP, corrections, meta-analysis, prison social climate

## DEDICATION

For my parents, who have always exemplified the virtue of hard work and championed the belief that I can accomplish anything I set my mind to.

Your love and support made this thesis possible.

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## CHAPTER ONE

### INTRODUCTION

A positive prison social climate is associated with safer and healthier prison environments, benefiting those who live and work in prisons by allowing the facility to run more effectively and efficiently (Auty & Liebling, 2019; Friis & Helldin, 1994). Additionally, more than two decades of research has shown that prisons with more positive climates also experience lower recidivism rates (Auty & Liebling, 2019). However, there remains uncertainty about which prison programs affect social climate and to what degree. In particular, there are mixed findings surrounding the effects of prison-based dog training programs (DTPs) on the individual elements of prison social climate: environmental quality of life, personal well-being, and safety and security (Ross et al., 2008). DTPs address all four elements of social control theory: attachment, commitment, involvement, and belief (Hirschi, 1969) and may therefore present a salient method of improving prison social climate. Thus, the present study, guided by social control theory, utilizes a (quantitative) meta-analysis to determine what broad conclusions can be drawn about the relationship between DTPs and prison social climate.

There are currently 2.3 million people incarcerated in American prisons and jails, comprising almost 0.7% of the American population (Wagner & Bertram, 2020). In 1980, the United States incarcerated 140 per 100,000 people (Kalish, 1981). Only three decades later, that rate has soared to 698 incarcerated per 100,000 people (Wagner & Bertram, 2020). Rising incarceration rates place added strain on the resources of the carceral system as it assumes custodial responsibility for more people.

One way of categorizing and evaluating human needs is through Maslow's hierarchy. The most fundamental responsibility of a prison or jail is to keep its inmates alive. The duty to keep prisoners and inmates alive corresponds to the lowest two tiers of Maslow's five categories: physiological needs (air, water, food, rest, and physical health) and safety needs (safety, shelter, and stability) (Maslow, 1943). However, even these most basic of human needs are often unsatisfied within the American carceral system, meaning many inmates with serious physical and mental illnesses may fail to receive adequate medical treatment while incarcerated (Wilper et al., 2009). Nonetheless, incarceration often improves healthcare access for many inmates while in prison due its often prohibitive expense in the free world (Sufrin, 2017; Wildeman & Wang, 2017).

Unfortunately, prison deaths over the past decade are on the rise, due overwhelmingly to chronic illnesses (Carson & Cowhig, 2020) as well as the long-term impacts of mandatory minimum sentencing and three-strikes policies which have increased the numbers of elderly people in prison. Furthermore, due to the widespread closures of mental institutions around the United States, prisons and jails have unfortunately become an asylum of last resort for many who struggle with mental disorders. Bronson and Berzofsky (2017) found that 37% of American prisoners and 44% of American jail inmates studied were plagued by diagnosed mental disorders including depression, bipolar disorder, post-traumatic stress or personality disorder, and schizophrenia or other psychotic disorders (see also James & Glaze, 2006). The same 2017 study found that just 54% of prisoners and 35% of jail inmates who met the threshold for serious psychological distress had received mental health treatment since admission to their carceral facility.

Additionally, prisoners are often threatened by violence (Wolff & Shi, 2009) and by emotional problems like loneliness (in and out of solitary confinement) (Weir, 2012; Kao et al., 2014), boredom (Luna & Renninger, 2015), and hopelessness (Kao et al., 2014). These emotional problems can also be understood through Maslow's hierarchy as they correspond to the third tier of human needs: love needs, which include social support concepts like love, affection, and belongingness (Maslow, 1943). At first glance, love needs may be written off as nonessential, particularly as the carceral system has yet to fully ensure the physiological or safety needs of its wards. However, research has found that loneliness is associated with a higher risk of suicide, depression, and hopelessness (Kao et al., 2014; Cashin et al., 2008) as well as family disruption (Comfort, 2008), which can further weaken an individual's social bonds. Therefore, carceral programs that address love needs are also essential to addressing both physiological and safety needs as well. Improving the overall health and well-being of prisoners is a critical component of improving public safety and upholding human rights.

Social climate is one method of assessing an institution that goes beyond the descriptive statistics more frequently tracked in the United States, like bed occupancy, inmate offenses, or facility-wide recidivism rates. Instead, social climate accounts for the prison experience of both prisoners and staff. Ross et al. (2008) divide the experience of social climate into three elements: environmental quality of life, personal well-being, and safety and security. Positive prison social climate has been associated with increased motivation and engagement in treatment (Long et al., 2011), better satisfaction and therapeutic relationships with staff (Bressington et al., 2011), and more positive treatment outcomes (Cheliotis & Jordanoska, 2016). It has also been linked to lower rates of behavioral disturbances (Long et al., 2011), violence (Bierie, 2011; Bierie, 2010; Friis & Helldin, 1994), aggression (Robinson et al., 2016), and staff attrition (Bennett & Shuker,

2018). Further, a positive prison social climate can mean better outcomes for prisoners during incarceration such as improved safety, psychological well-being, and quality of life (Bennett & Shuker, 2018) and upon release through a reduced likelihood of reoffending (Auty & Liebling, 2019; Bennett & Shuker, 2018). Social climate literature, therefore, suggests that prisons that focus on rehabilitation and positive social climate, rather than punitiveness, offer improved outcomes for prisons, prisoners, and society alike. Improving the social climate in prisons is a cooperative endeavor which requires the buy-in of prisoners, staff, and the community which has mandated a prisoner's incarceration. Understanding which programs affect prison social climate and in what ways is a critical step in enabling prison administrators to design institutional environments which provide for the emotional needs of a prisoner in addition to their physical health and safety. The current study seeks to add to this body of knowledge by evaluating the relationship between prison-based dog training programs (DTPs) and prison social climate.

## Background

Dogs are not a new addition to the criminal justice system nor the prison environment. In fact, dogs are a common sight working alongside police officers and prison guards, assisting with the identification of contraband and ensuring security through the immobilization, control, and intimidation of subjects both psychologically and physically (Bodnar, 1990). However, some Western nations are increasingly bringing dogs into the prison environment for a new purpose: rehabilitation. Dogs may fulfill a variety of inmate-positive roles through their presence in prison, such as providing companionship, love, joy, and purpose in an environment otherwise predisposed toward loneliness, frustration, and boredom.

Dog training programs (DTPs) are one type of prison-based dog program (PBDP) which is, in turn, one category of prison animal program (PAP). After the initial successes of other

PAPs in the 1970s, Sister Pauline Quinn and Dr. Leo Bustad established the first American DTP at the Washington Corrections Center for Women in Gig Harbor, Washington (Lee, 1987; Strimple, 2003)<sup>1</sup>. Only decades later, a 2018 study identified approximately 255 American DTPs operating in 47 states at a variety of local, state, and federal correctional facilities (none were identified in Mississippi, Vermont, or Hawaii) (Han et al., 2018). Despite the limited evaluation research available on the subject, DTPs have become widely popular in American prisons and jails.

While other PBDPs may involve boarding, grooming, fostering, and therapy dog visitation (Montana Correctional Enterprises, 2016), DTPs bring dogs into the carceral environment specifically for training. There are two primary DTP models which can be distinguished by the dogs' end purpose. The first are programs which draw canine participants from shelters and rescues where dogs who are unwanted or who struggle with behavioral issues have been passed over by adopters (for example, Paws For Life K9 Rescue, 2020). These programs aim for their dogs to achieve the Canine Good Citizen certification, which is widely recognized as the mark of a well-trained and properly socialized dog (American Kennel Club, 2017; Marley's Mutts, 2017; Paws For Life K9 Rescue, 2020). Upon completion of the course, these dogs are adopted by members of the community and become well-loved pets. The second major DTP model brings puppies, or in some cases well-suited shelter dogs (NEADS World Class Service Dogs, 2020) into prisons where they are painstakingly trained and socialized to perform very specific jobs. Because of the more intensive training involved, these programs typically last much longer than an obedience-focused program, typically between ten to eighteen months (Dern, 2020; Patriot Paws Service Dogs, 2019). Depending on their training, these dogs

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<sup>1</sup> See also Deaton, 2005; Jalongo, 2019.

go on to become service, support, or working dogs and live productive, meaningful lives in the community. Some prisons implement a mixture of the two programs or allow crossover for particularly adept canine candidates (Bay Area Greyhounds, 2019; Magic City K9, 2020).

In DTPs, inmates become dog trainers. Generally, participation requirements include no behavioral infractions within a certain period of time (though some allow discretionary participation decisions by prison staff), meaning that participants are also those least likely to recidivate regardless of program participation (Jalongo, 2019; Marley's Mutts, 2017). Participation additionally requires continued good behavior and no history of animal or sexual abuse (Dern, 2020; Marley's Mutts, 2017). Trainers attend dog training classes, keep journals about their dog, and in most cases, live with and train their dog 24 hours a day, 7 days a week (Dern, 2020; Han et al., 2018)<sup>2</sup>. One major advantage of DTPs is their versatility. This flexibility has allowed a number of unique implementations to develop which address unique characteristics and goals. These goals may include increasing interracial cohesion and tolerance, decreasing violent incidences by providing behavioral incentives, reducing future recidivism, or improving the outlook of inmates (Jalongo, 2019; Mims et al., 2017; Currie, 2008).

For example, some prisons which are located near metropolitan populations enlist volunteers to take the dogs on public outings over the weekends (Dern, 2020; Little Angels Service Dogs, 2016). While the dogs learn a host of skills within the prison walls that are necessary for their future success, it is important that they are also exposed to a wide variety of people and environments outside the prison. This helps to ensure that the canine graduates are well-adjusted to both genders, to children, to other animals, and to environmental stressors

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<sup>2</sup> See also Leader Dogs for the Blind, 2020; Marion County Animal Services, 2020; Marley's Mutts, 2017; Puppies Behind Bars, 2020.

present beyond the prison walls. Other programs have formed partnerships between prisons and occasionally swap dogs for the same reasons (Little Angels Service Dogs, 2016). If a prison deems public outings or prison swaps too high a security risk, administrators are free to exclude those features from their implementation. Other prisons have customized DTPs based on application criteria, such as requiring parole eligibility (Jalongo, 2019; Marley's Mutts, 2017). Others utilize DTPs to ease interracial tensions by assigning racially intermixed trainers into teams to train a single dog. As the team members and dogs live side by side and work together to succeed, they foster a sense of interracial cooperation and tolerance (Leader Dogs for the Blind, 2020; Marley's Mutts, 2017).

Yet, the customization of any prison program must not violate existing institutional policies or risk excessive negative media attention, and must still meet broader administrative goals. Along with their potential advantages, DTPs may also present several potential disadvantages.

First, it is important to recognize that the common, positive Western connotation of keeping dogs as pets is not universally held in all cultures nor by all Western individuals. Islam, for example, traditionally views dogs as haram (ritually unclean) and disavows the keeping of dogs as pets (Coren, 2010; Huda, 2018). Muslim prisoners, therefore, may experience emotional or psychological distress if dogs are brought into shared facilities. Other prisoners may be allergic, fearful, or simply dislike dogs. Others may have had traumatic experiences with dogs, either in general or within the criminal justice system. Some may have been chased or attacked by police dogs, while others may have been subjected to what they view as an illegal search at the prompting of a police or guard dog. In these cases, the presence of dogs within the carceral environment may negatively impact their well-being. Other prisoners may have had histories of

animal abuse which could put canine participants at risk if their paths were to cross.

Administrators may mitigate some of these risks by housing canine and trainer participants in separate units or dormitories, but this is not a universal practice as housing arrangements depend on facility resources (Han et al., 2018). Overall, while some may benefit from bringing dogs into a prison, there may be others who are harmed.

Second, the presence of dogs in prison environments may introduce additional security or physical safety risks. For example, dogs that go on public outings may be used as mules for smuggling contraband into the facility upon their return. Nervous, frightened, or aggressive dogs may pose a threat to the physical well-being of inmates and staff in the event the dog lashes out. So, while the potential benefits of DTPs are numerous, it is important to acknowledge that they may also carry negative side-effects. A complete cost-benefit analysis in favor of DTPs would require that their positive effects far outweigh the sum of their negative effects. At this time, no research exists which evaluates the side effects of DTPs on the prison environment. This gap directly informs the methodology of the current study (see Chapter Three and Chapter Five).

#### Theoretical Framework: Social Control Theory

The current study seeks to add DTP literature by investigating its relationship with prison social climate. The independent variable (DTP participation) and the dependent variable (prison social climate) are theoretically related through the lens of social control theory. As postulated by Travis Hirschi in 1969, social control theory states that social bonds are inversely related to delinquency (Hirschi, 1969). In effect, the social bonds between individuals and the social integration of an individual into their community act as safeguards, or controls, against delinquent behavior. Rather than attempting to explain why individuals commit crime, social control theory attempts to explain why people do not commit crime. Since its publication,

Hirschi's social control theory has received much attention and has been subjected to numerous empirical tests that have lent it validity and credibility (Hirschi, 2002; Cullen et al., 2010).

Hirschi proposed four elements that, together, create a social bond. The first is attachment, referring specifically to the emotional attachment an individual has to others (Hirschi, 1969; Cullen et al., 2010). A deviant criminal act has the potential to damage one's reputation among those to whom the individual is attached. Thus, a strong attachment to others acts as an informal control against the motivation to commit crime (Cullen et al., 2010). The second element in a social bond is commitment, which refers to one's conformity to achieving conventional goals through conventional means, such as career success through education (Hirschi, 1969; Cullen et al., 2010). In many cases, engaging in criminal acts endangers one's ability to achieve these goals. Therefore, commitment to conventional goals, particularly through conventional means, makes crime riskier and less attractive. The third element of a social bond is involvement (Hirschi, 1969; Cullen et al., 2010). The more involved an individual is, whether with work, hobbies, or other conventional activities, the less time the individual has to commit crime (Cullen et al., 2010). In other words, a busier individual has less time to engage in delinquent behavior. The fourth and final element of a social bond, according to Hirschi, is a belief in conventional norms (Hirschi, 1969; Cullen et al., 2010). When an individual subscribes strongly to the moral validity and personal applicability of laws and societal norms, they are less likely to deviate (Hirschi, 2002; Cullen et al., 2010). In this way, stronger belief in the legitimacy of social norms is expected to act as a control against the appeal of committing crime.

The current study applies social control theory to predict a positive relationship between the presence of DTPs and a prison's social climate because DTPs foster the formation of each element of Hirschi's social bonds. In DTPs, incarcerated trainers form attachments to their

canine partners, their fellow trainers – particularly in team training models – and to the community members who benefit from their time and effort. By training a dog for either a companion or service role, inmates are offered a way to improve the community’s perception of them as individuals and of prisoners/criminals as a subgroup. The development of emotional attachment to dogs and to people may provide incarcerated trainers an avenue towards improving their social standing in society and disincentivize delinquent behavior or disciplinary infractions that would threaten their improving social standing. Since safety and security, one element of social climate is affected by the frequency and severity of disciplinary infractions within an institution, controls that disincentivize infractions may result in a more positive social climate. Additionally, DTPs provide a strong shared sense of commitment to a common goal. Training a puppy into a service animal or a shelter dog into an obedient family pet takes significant time, energy, and in many programs, teamwork between trainers, staff, and sometimes volunteers. This establishes a micro-social contract within the small community involved with raising the dog. Committing to this goal requires an individual to avoid behavior that would threaten the attainment of the group’s goal while at the same time strengthening the social bond between those involved. Involvement is present in any type of complementary programming in prison. Keeping prisoners busy, particularly in productive ways, lessens boredom, which may, in turn, improve personal well-being, another element of social climate. Since participants are typically with their dogs 24 hours a day, they may have less time available to commit disciplinary infractions or to engage in antisocial behaviors. Finally, belief in social norms is fostered through a shared training program, agreement on best practices, and the value of the canine graduate. Participants in DTPs must agree to personally abide by the norms and rules of both the program and the prison in order to maintain their privileged position as a dog trainer.

In prison, decreasing disciplinary infractions and increasing social cohesion among prisoners and with staff may be a particularly salient way to improve the prison social climate (Ross et al., 2008). The Essen Climate Evaluation Schema (Version for Prisons and Correctional Settings; EssenCES), for example, specifically assesses inmates' cohesion, experienced safety, and hold and support (the relationship between staff and prisoner) in order to determine the overall social climate of the prison (Schalast, 2010). Improving social bonds is likely to not only decrease the conflict between prisoners and between prisoners and staff but also improve those relationships as well. Additionally, several studies and many testimonials by participants have indicated that the opportunity to give back to the community which the participant had harmed with their crime offered them a meaningful way to rebuild their social ties to their community (Britton & Button, 2005; Mims et al., 2017). Since DTPs appear to foster social bonds among inmates, staff, and the community, the current study's application of social control theory predicts a positive relationship between the DTP participation and prison social climate.

### Overview

While DTPs have received substantial participant support through testimonials shared by partner non-profits (Marley's Mutts, 2017; Paws for Life K9 Rescue, 2020), academic studies of DTP outcomes, limited in quantity as they are, have demonstrated less consistent results. No studies were identified which directly assessed the effects of DTPs on prison social climate, leaving a large gap in the literature and in the professional understanding of DTP potential. Existing DTP and PAP literature tends to focus on discrete outcomes, including long-term outcomes like recidivism likelihood (Chianese, 2010; Cushing et al., 1995; Furst, 2007a, 2007b)<sup>3</sup> and intermediary outcomes like disciplinary behavior (Cushing et al., 1995; Fournier et al., 2007;

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<sup>3</sup> See also Merriam-Arduini, 2000.

van Wormer et al., 2017)<sup>4</sup>, emotional/psychological effects (Britton & Button, 2005; Deaton, 2005; Mims et al., 2017;)<sup>5</sup>, and socio-behavioral effects (Currie, 2008; Fournier et al., 2007; Humby & Barclay, 2018; W. G. Turner, 2007)<sup>6</sup>(see Chapter Two). These outcomes certainly comprise important components of the prison experience; in fact, emotional/psychological effects and disciplinary behavior directly relate to two of the three elements of prison social climate as defined by Ross et al. (2008): personal well-being, and safety and security. Moreover, evidence from human-(domesticated)animal interaction (HAI) also suggests that the presence of, and interaction with friendly animals can have positive effects on human physiology (Allen et al., 2001; Fine, 2006; Virués-Ortega & Buéla-Casal, 2006; Yeh et al., 2019)<sup>7</sup>, psychology (Banks & Banks, 2002; Cline, 2010; Fick, 1993; Orlandi et al., 2007)<sup>8</sup>, and psychosociology (McNicholas & Collis, 2000; Sterman & Bussert, 2020; Wood et al., 2005)<sup>9</sup>.

The current study utilizes a meta-analysis (see Chapter Three) to assess the mean effect size of DTP participation on prison social climate through two of its three elements, personal well-being and safety and security that are present in prior DTP outcome (Ross et al., 2008). By contributing to the understanding of DTP impact and its realistic utility, the current study can be used by non-profits and prison administrators to allocate resources and efforts toward programs which actively improve prison social climate and therefore improve the experience and outcomes of prisoners and staff.

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<sup>4</sup> See also Burger et al., 2011; Furst, 2007a, 2007b; Katcher et al., 1989; Moneymaker & Strimple, 1991.

<sup>5</sup> See also K. Turner et al., 2011; Richardson-Taylor & Blanchette, 2001; Stetina et al., 2009; Suthers-McCabe et al., 2004; Walsh & Mertin, 1994.

<sup>6</sup> See also K. Turner et al., 2011; Richardson-Taylor & Blanchette, 2001; Suthers-McCabe et al., 2004.

<sup>7</sup> See also Charnetski et al., 2004; Friedman, 1995; Marcus, 2011.

<sup>8</sup> See also Barker & Dawson, 1998; Braun et al., 2009; Chu et al., 2009; Currie, 2008; Lust et al., 2007; Marcus, 2011; Richeson, 2003; Sobo et al., 2006; Sockalingam et al., 2008.

<sup>9</sup> See also Burgon, 2003; Carr et al., 2020; Fine, 2006; Kotrschal & Ortbauer, 2003; Marcus, 2011; Palagi et al., 2015; Woods & Bulsara, 2005; Zimolag & Krupa, 2009.

## CHAPTER TWO

### LITERATURE REVIEW

#### Prison Social Climate

Prison social climate can be affected, positively, and negatively, by a number of prison characteristics. In their factor pattern analysis of the construct known as prison social climate (PSC), Ross et al. (2008) determined that three primary elements defined a prison's social climate: environmental quality of life, personal well-being, and safety and security.

Environmental quality of life refers to physical characteristics of the prison environment, such as noise, crowding, accidents, food, and visitation. Personal well-being is even simpler, defined by psychological symptoms and somatic complaints. Finally, safety and security are determined by factors like the influence of others' behavior on inmates, frequency of assaults and shakedowns, and freedom of movement (Ross et al., 2008; see Table 1 in Chapter Three). Since a prison's social climate includes all those who live and work inside it, both inmate and staff experiences are critical components. Each element is interrelated, as each affects the others.

For example, prisons which suffer from crowding, noise, dilapidation, stress, and clutter have also been found to experience increased incidences of violence (Bierie, 2011) and negative outcomes among prison staff, such as higher rates of burnout (Auerbach et al., 2003; Finn, 1998); turnover (Auerbach et al., 2003; Finn, 1998); substance use (Bierie, 2010; Finn, 1998); psychological symptoms (Bierie, 2010; Finn, 1998); physical duress (Auerbach et al., 2003; Bierie, 2010; Finn, 1998); and sick leave usage (Auerbach et al., 2003; Bierie, 2010; Finn, 1998). Moreover, in prisons with high rates of violence, prisoners and staff are at greater risk for

victimization, which has, in turn, been linked to the development of post-traumatic stress (Schappell et al., 2016). The growth of mental illnesses and disorders while in prison directly opposes the goals of rehabilitation and makes reentry much more difficult for prisoners.

Understanding what factors affect social climate enables administrators to improve the social climate of their facility and to better avoid the counterproductive outcomes which research has demonstrated are tied to negative climates. The current study falls under a larger collection of studies which seek to increase this understanding by testing the relationship between DTP participation and social climate, hypothesized to be positively correlated due, in part, to the social bonds developed through program participation.

In addition to the social bonds prisoners have to friends, family, and partners outside the prison walls, prisoners also form social bonds with other prisoners and with staff. All of these bonds can affect the social climate of a prison through social control. Positive self-perception and interpersonal perception – along with the mutual belief of prisoners and staff in a prisoner’s ability to change – have been linked to higher levels of experienced safety and positive social climate (Blagden et al., 2016). These findings suggest that the cultivation of relationships in prison based on mutual self-respect and pro-social labeling may improve social climate. This goal requires buy-in from correctional staff, prison administrators, and prisoners, all of whom are critical in establishing the institutional culture. To a degree, it also requires support from a public willing to deemphasize the punitive nature of prisons so that rehabilitation and the growth of pro-social relationships may instead take priority. In DTPs, all of the aforementioned stakeholders are involved: prisoners act as trainers, staff act as facilitators, and the public provides non-profit volunteers and gratefully accepts the time and effort of offenders in the form of a service animal or family pet.

One way of demonstrating belief in a prisoner's social value and their capacity for change is by offering prison programming like book clubs, academic courses, evidence-based therapeutic groups, and spiritual discussion groups that anyone can join. Other programs like DTPs require an application process, strict acceptance criteria, and small class sizes, which means participation is much more restricted. In either case, an investment of time and resources into prison programs demonstrates that an inmate's education; spiritual, mental, and physical health; vocational suitability; and social well-being are important to society. Though many prisoners view the institutional environment as detrimental to their health, others look at it as a respite from the pressures of the world outside and an opportunity to seek health services and self-improvement (Goomany & Dickinson, 2015). Capitalizing on the willingness of some individuals to seek help and growth, socio-therapeutic prisons prioritize rehabilitation as a means of successful reentry.

This rehabilitation approach can make a difference in the social climate of an institution, identifiable either through direct measurement of prison social climate or through the improvement of its elements. Using the Essen Climate Evaluation Survey (EssenCES) and the Correctional Institutions Environment Scale (CIES) to compare a traditional and a socio-therapeutic German prison, Schalast and Laan (2017) confirmed that the therapeutic prison had a significantly more supportive, safe, and therapeutic climate than its counterpart. Additionally, other research highlights links between programming in prisons and positive outcomes related to the elements of social climate, such as improved social skills, an increased interest in learning, and important shifts in attitude and psychological perspectives which have in turn been associated with desistance from crime (Cheliotis & Jordanoska, 2016). When prisoners are offered real chances for personal development, society demonstrates that their improvement is

both possible and worthwhile. Likewise, by participating in these programs, prisoners demonstrate an optimism that change is possible and demonstrate an increase in self-esteem which implies that seeking change is, indeed, worthwhile.

The types of programs available in prisons throughout the United States vary, but often include vocational training, educational and degree-oriented courses, family and marriage counseling, mental health counseling, religious support, job preparation, substance abuse counseling, and more (Bureau of Prisons, 2017). Likewise, the sourcing and cost of these programs differ. While some programs come at relatively high cost to the prison system, volunteer and non-profit programs are often popular for their cost-effectiveness in offering services and social support. Volunteers and non-profits can provide a vast array of support functions which fulfill several of the programming types listed above.

Largely organized and operated by non-profits and volunteers in partnership with prison staff, DTPs are one example of complementary programming in prisons. Most programs, while tackling important issues like education, vocational skills, and mental and physical health, still struggle to meet all of an inmate's needs. Providing for the emotional needs of inmates is particularly difficult in the prison setting (Deaton, 2005). Specifically, meeting Maslow's third tier of human needs, which includes love, respect, and purpose, is challenging when prisons necessitate the removal of a person from the circumstances where they used to, if ever, find these qualities. Yet, as discussed in Chapter One, love needs have been shown to have direct effects on physiological and safety needs as well and should therefore not be trivialized.

In terms of social control theory, the prison environment often neglects to provide the emotional support that social bonds offer an individual, which furthers feelings of isolation that are ever-present in prison. While dogs cannot address problems of substance abuse, trauma, or

change the socioeconomic and racial inequalities that many offenders struggle with, they may offer the unique opportunity to bring love, joy, and purpose into the prison environment. In this way, they can address several of these higher-level emotional needs. The time, training, affection, and care that dogs require may push offenders to reevaluate their identity, relabeling themselves as someone empowered to take care of others rather than a victim to their prison circumstances (Bachi, 2013). Taking care of dogs can allow people, both inside and outside prison, to feel needed and to receive unconditional love, something many in prison find very difficult to obtain.

Some literature reviews and meta-analyses have suggested that DTPs and PAPs may exercise interpersonal social effects on the prison environment (Suthers-McCabe et al., 2004; Currie, 2008; W. G. Turner, 2007; Bachi, 2013; Humby & Barclay, 2018) which could prove a significant driving force in improving social climate. In a preliminary investigation into the motivations, challenges, and benefits perceived by inmate trainers in two Kansas DTPs, Britton and Button (2005) noted that the benefits perceived by program participants extended to fellow inmates as well and, “improved the institutional climate” (Britton & Button, 2005 p. 91). This suggests that the social climate of a prison may be impacted by the implementation of DTPs – an idea echoed by others (Deaton, 2005; Bachi, 2013) and investigated in the current paper. If the benefits of DTPs extend to improve the lives of non-participants as well, a relatively minor investment in DTPs may have major cost-benefit implications for policy makers. Further research into the effects of DTP implementation on the non-participant prison population, as well as the prison environment as a whole, is necessary to better understand the full breadth of DTP impacts.

A single quantitative study was identified on the effect of DTPs on the prison environment (though social climate may be considered a synonym in this case) which was measured through the Correctional Environment Status Inventory (CESI) (Richardson-Taylor & Blanchette, 2001). The researchers found no statistical difference between the perceptions of program participants and non-participants regarding the prison environment, which suggests that if the DTP had indeed improved the prison environment, the improvement was experienced facility wide. While the current study seeks to test a similar relationship, albeit through secondary meta-analysis, it differs in its definition of the dependent variable. Notably, where the CESI and other social climate instruments (e.g., EssenCES) include interpersonal variables regarding the support and cohesion between inmates and staff, the definition of prison social climate utilized in the current study is provided by the factor pattern analysis conducted by Ross et al. (2008). Though one might assume that socio-behavioral outcomes would fall under the element “environmental quality of life”, the factor pattern analysis includes only physical, not interpersonal environmental characteristics. Only two studies were identified which measured outcomes related to the physical prison conditions (Conroy et al., 2019; Richardson-Taylor & Blanchette, 2001). Despite this gap in DTP research regarding environmental quality of life, the definition of prison social climate and its elements provided by Ross et al. (2008) was selected for use in the current study due to its established validity across geographic regions and across instruments. Since the current study sought to make generalized conclusions regarding the relationship between DTP participation and prison social climate, the dependent variable was operationalized with a definition which has already been proven to be valid when generalized.

The absence of research into the relationship between DTPs and prison social climate has resulted in a critical gap in evaluative literature. But in order to understand how and why DTPs

may influence the social climate of a prison, it is useful to start with an examination of the ways in which human-animal interaction affects the humans it involves.

### Human-Animal Interaction

Over the years, the impacts of human-(domesticated)animal interaction (HAI) have been studied from a variety of angles. Researchers now understand that animal interaction has physiological, psychological, and psychosocial effects on humans through direct and indirect mechanisms. As a result, animals have increasingly been incorporated into social work and therapeutic practices in a variety of settings including hospitals, counseling, schools, hospice, and correctional facilities. As environmental features and stimuli for personal and interpersonal well-being, dogs are likely very useful tools for improving social climate in prisons.

#### Physiological Effects

A number of investigations into the impact of human-animal interaction have sought to measure medical observables of physiological changes. Several well-documented, direct and indirect health benefits of pet ownership and animal interaction include exercise and weight loss, lower risk of heart disease (Yeh et al., 2019; Marcus, 2011); decreases in blood pressure (Allen et al., 2001); and decreases in the body's negative reaction to stressors (Virués-Ortega & Buéla-Casal, 2006; Marcus, 2011). In a 2004 study, researchers found a thirty-three percent boost in immunoglobulin A (IgA) levels in the bloodstreams of college students after petting a dog, compared to control groups that pet a stuffed animal or sat by themselves (Charnetski et al., 2004). As an important antibody in the human immune defense, an increase in immunoglobulin A may be interpreted as a boost to the immune system as a whole (Marcus, 2011:112). In this way, dogs may offer direct improvements to the physical well-being of humans who enjoy being around them. The researchers remarked on an absence of correlation between IgA change and

assessed Pet Attitude, meaning subjects did not need to like dogs more in order to get the IgA boost but it seems unlikely that these results can be assumed to be true in all cases. People with negative attitudes, allergies, or fears regarding dogs are unlikely to have volunteered for participation in the study. Thus, future research should continue to test and investigate this result.

The exact mechanisms through which animal interaction alters human physiological states are not precisely known. Virués-Ortega and Buela-Casal (2006) proposed three hypotheses that may explain these effects: first, touching a pet – tactile interaction – has a spontaneous relaxation effect; second, pets provide emotional support that functions as a buffer for their human counterpart against stressors; and third, classical conditioning has created a physiological relaxation response within humans when interacting with or exposed to animals. Therefore, even those uninvolved with a DTP may benefit from the presence of dogs in the prison environment. Since social climate is built partially upon personal well-being and environmental features, the physical presence of dogs, which causes physiological responses in the humans around them, is predicted to improve the prison social climate as a whole.

While some physiological effects like lowered blood pressure may be relatively short-term changes (Friedman, 1995), the stress-reducing effects of animal companionship could potentially translate to highly beneficial long-term health outcomes (Fine, 2006). Further research is still needed, however, to determine which effects last beyond a given interaction, to what degree the change occurs, and the threshold of interaction level required to effect the change. Nonetheless, these preliminary physiological studies on HAI certainly show promise.

#### Psychological Effects

Researchers in the field of psychology have also examined HAI to determine its effects on human psychology. Animal-assisted therapy (AAT) has been demonstrated to reduce anxiety,

distress, and pain in children and adults in a variety of situations, including post-surgery visits (Braun et al., 2009; Marcus, 2011; Sobo et al., 2006; Lust et al., 2007) and visits during hospitalization (Barker & Dawson, 1998). While further investigation is needed to broaden the knowledge base on the subject, several studies have exposed intriguing relationships between animal interaction and depression in humans. Orlandi et al. (2007) found that chemotherapy patients experienced a thirty-three percent drop in feelings of depression after visits from a therapy dog. In a 2010 study, dog ownership was shown to decrease depression in women and in single people (Cline, 2010). Sobo, Eng, and Kassity-Krich (2006) suggested that the presence of – or interaction with – animals provides an external focus and distraction to humans, which may work in parallel with the feelings of comfort and companionship that animal-interaction commonly elicits. Though dog ownership did not significantly affect mood overall, nor did it affect all participants, understanding the impacts of HAI on specific groups of people is just as valuable. For example, among seniors, therapy dog visits have been shown to reduce agitation associated with memory problems, increase socialization and verbal interaction with others (Marcus, 2011; Richeson, 2003; Fick, 1993), and decrease loneliness (Banks & Banks, 2002). These results have spurred the creation of DTPs aimed specifically at serving incarcerated seniors and senior shelter dogs in an effort to provide both with comfort and companionship. Social workers, health professionals, dog handlers and patients all benefit from an increased ability to tailor therapy plans to an individual patient’s characteristics in order to address their needs most effectively.

Among patients with mental illnesses, therapy dog visitation has resulted in a number of success stories. Chu et al. (2009) found that levels of self-esteem and self-determination increased among schizophrenic patients who participated in therapy dog visits. In a case study by

Sockalingam et al. (2008), a particular patient with bipolar disorder was effectively treated, in part, through therapy dog visits after traditional medication alone failed to produce positive results. When canine visitation therapy was integrated into the treatment plan, the patient's anxiety decreased, self-esteem increased, mood improved, and he became more active and less isolated. Of particular relevance is that the man recognized that continued therapy dog visits were contingent upon his emotional control, which provided the motivation necessary to stick to the rest of his treatment plan (Marcus, 2011). This case study demonstrates that the incentives and perceived psychological benefits of dog interaction were powerful and able to be effectively leveraged to ensure behavioral compliance. This has utility not only in medical treatment scenarios but may also offer correctional staff an incentive-based tool to manage inmate behavior in prison environments (Currie, 2008). By extension, DTPs may contribute to increases in safety and security, one of the three elements of prison social climate. Generally, dog training programs in prisons require good behavior and few to no disciplinary points for an applicant to be accepted into the program (Marley's Mutts, 2017). Continued participation remains contingent upon good behavior, thus incentivizing the avoidance of disciplinary infractions and improving the prison social climate.

Improving physical and mental health contributes to increased personal well-being, and thus is liable to improve social climate as well. By lessening the effects of illnesses of both kinds, the prison environment slowly becomes a healthier one with a much higher quality of life. DTPs also provide added incentives for behavioral compliance through positive (interaction with the dogs) rather than negative reinforcement, which may contribute to a more positive atmosphere overall and a more pleasant relationship between staff and inmates.

## Psychosocial Effects

One final field of human well-being that is affected by HAI and which bears particular relevance to social control theory are its psychosocial effects. Pet ownership or frequent animal interaction has a unique impact on the life of an individual where animal therapy does not: the nature of caring for another living being establishes an intimate relationship and, in many cases, a sense of purpose and responsibility. While studies in social support traditionally define social relationships as those occurring between two people, others have questioned whether human-animal relationships may also provide a form of social support. Fine (2006) proposed several social support functions that a pet may offer their human companion. Several of these functions are particularly relevant to the human experience during incarceration, including the reestablishment of routines, initiation of social contact in normalizing ways, replacement for lacked human support, no feeling of awkwardness in seeking support, and the provision of a respite from the strains of human interaction and obligation.

Case Study Comparison. Though the experience of incarceration is certainly different from that of a cancer diagnosis, unexpected parallels may be drawn between the social aspects of both. In a study investigating a companion animal's effect on human recovery and adjustment to a breast cancer diagnosis, Fine (2006) points out several social experiences common among patients. He notes that patients often struggle with the loss of initial support, with adjusting to a new identity as a cancer patient, with the continuation of symptoms or other stressors, and the fear and stigmatization surrounding the possibility of relapse.

Drawing on Fine's observations, one might note several similarities in the experiences of a prisoner. While an inmate may begin a prison sentence with the support of friends and family, incarceration is often a very isolating experience, compounded by the institutional living

arrangement in which a prisoner is surrounded by their peers while simultaneously experiencing feelings of loneliness; often prisoners must also cope with long-term health effects of addiction and other isolating mental health problems. Just as breast cancer patients must adjust to their new identity, so too must prisoners adjust to being labeled a criminal and the realities of being an inmate. Similar to the way a cancer patient may experience the continuation of medical symptoms, prisoners continue to experience the stressors of incarceration and the consequences of their crime over the duration of their sentence and beyond. Finally, stigmatization and fears of recurrence – either of disease or of crime – are present for both cancer patients and prisoners. This can disrupt interpersonal relationships and result in the patient feeling unwanted and unloved (Fine, 2006). Such a disruption may be equally present in the interpersonal relationships of prisoners, thereby compromising the strength of their social bonds.

Fine's study of breast cancer patients revealed that 87.8% of patients with pets felt that their pet fulfilled at least one important type of support, while 43.3% reported fulfillment of at least 10 support functions. Patients stated that their pets most often provided, "comfort, a sense of being cared for, trust, and disclosing emotions and feelings that subjects felt uneasy or uneasy in disclosing to their human sources of support" (Fine, 2006, p. 60). While the study did not find a significant relationship between pet ownership and self-reported perceived health, it did identify a significant relationship between pet ownership and better feelings of control over the disease and treatment. In this way, pet ownership seemed to foster resiliency and empowerment in a situation predisposed towards helplessness. These results are encouraging particularly for the implications that animal-interaction may hold in prisons, another situation certainly predisposed towards perceived helplessness and continued exposure to stressors.

The support that a pet or frequent animal interaction provides can come in the form of indirect or direct support. Pet owners – regardless of the species of pet – were found to be more likely to form relationships, build social capital, and engage with their community than non-pet owners (Wood et al., 2005; Zimolag & Krupa, 2009). In other words, being a pet owner was found to act as a bridge towards social bonding within one’s community.

Dog ownership in particular has revealed even stronger psychosocial effects, perhaps due to the often-public nature of dog ownership (e.g., dog parks, walks, training, doggy-day care, etc.). A study by McNicholas and Collis (2000) reported that dog ownership significantly increased the number of positive social interactions that an owner experienced with other members of the public, especially among strangers. This effect, presumably a result of interaction with community members while participating in aforementioned public activities with their dogs, demonstrates the indirect social support that dogs may stimulate for their owners. Through the development of social bonds between an individual and their community, the growth of trust between two recently acquainted parties can occur and impart a sense of emotional support for both (Sterman & Bussert, 2020; Wood et al., 2005).

In a similar way, DTPs help bridge the gaps among incarcerated trainers and between trainers and the community member(s) who benefit from receiving a well-trained animal. The opportunity for an offender to give back to their community in a productive, meaningful way offers a path towards building healthy social ties within that community, and, based on social control theory, may act as a safeguard against social deviance (Cullen et al., 2010). In turn, the interhuman relationships that emerge indirectly from HAI can go on to serve as their own sources of social support and may therefore improve an inmate’s perceived prison social climate.

In some ways, animals may also provide a direct source of social support to those with whom they interact. Pet owners going through spousal bereavement reported that the presence of their pet lent routine and purpose to their day as well as alleviated feelings of isolation (Carr et al., 2020; Fine, 2006). Furthermore, interactions in public with their pet provided a sense of normalcy, particularly among others who did not know of their recent loss. Participants also reported that their pet served as an outlet for emotions that they were unwilling to disclose to others for fear of breaking down or causing embarrassment (Fine, 2006). These results suggest, therefore, that pets can act as direct sources of social support in addition to facilitating social bonding between humans. Prisons, by design, are places where one is isolated from society and as a result, social support becomes much harder to build and rely upon. Improving social support directly impacts the quality of life – and thus the social climate – that inmates experience. It may also aid them in their rehabilitation and reentry by bolstering their community ties. According to social control theory, strong ties with the community and sufficient social support act as safeguards against crime, which should make the social well-being of prisoners a priority for carceral administrators and the public.

Several studies of HAI in therapeutic settings can be analyzed for their potential application in prison environments where the same effects could benefit prisoners and prison social climate. In her book reviewing dog therapy, Marcus (2011) reports on its usefulness in increasing self-esteem, self-determination, independence, and socialization of patients. In some cases, first building trust in a less intimidating animal relationship can aid in reestablishing a client's trust in human relationships (Marcus, 2011; Sterman & Bussert, 2020) and encourage social integration. As silent, non-judgmental, unconditionally loving participants, animals can act as a safe haven from the awkwardness and mistrust that the ill and incarcerated often experience.

This may be a particularly salient benefit for prisoners, many of whom have developed trust issues due to negative life experiences and the punitive nature of the prison environment. In social work, HAI has been cited in some cases as a successful technique for encouraging a client to interact with their treatment provider or peers (Fine, 2006; Woods & Bulsara, 2005). Kotrschal and Ortbauer (2003) described a similar effect in classroom settings: previously withdrawn children became more socially integrated during therapy dog visits. In the prison environment, building trust with a dog may serve as a critical first step in rebuilding trust in human relationships and developing prosocial bonds with the community.

In addition to improving social integration and bonding, a common theme in human-animal studies is the relationship between HAI and increases in self-esteem and self-determination in the human participants – changes which tend to extend beyond a person’s immediate relationship with the animal (Burgon, 2003). As these results predict, the development of emotional intelligence is often cited in the testimony of DTP participants in prisons (CCI, 2020; Paws for Life & Rogers, 2019). Fine (2006) suggests that analyzing the feelings of an animal may come easier to patients than analyzing their own. Since animals often mirror the emotions of humans as they interact, the animal’s emotions can serve as a proxy toward approaching the patient’s own feelings. This may assist the patient (or prisoner) in indirectly learning ways to process and cope with emotions (Palagi et al., 2015; Fine, 2006). Similar to the mirroring process of patients in animal-therapy programs, learning how an animal reacts to fear, stress, and conflict through participation in a DTP may help prisoners reflect upon their own responses to those emotions. Likewise, observing an animal’s expression of love, trust, and openness may encourage the same in their incarcerated trainers.

Further empirical research is needed to quantify the effects of animal interaction on human quality of life (Fine, 2006; Banks & Banks, 2002), but current research and anecdotal accounts make clear their significant potential and should stimulate further studies on the subject. Prisons offer an opportunity to investigate the effects of HAI through DTPs on human experiences such as quality of life and social climate through the lens of social control theory. Understanding the benefits of DTPs on prison social climate has the potential to improve many lives, including those of canines, incarcerated persons, and corrections workers.

### Evaluations of PAPs and DTPs

Gaining a clearer understanding of the effects of DTPs is important for administrators and non-profits to make evidence-based decisions about resource allocation and to set realistic expectations for the outcomes of such programs.

#### Non-Profit Evaluations

Evaluating the success of DTPs is vital for non-profits to ensure that their program is creating a positive impact and to aid in their fundraising efforts. Since program sizes are generally small, many non-profits utilize qualitative evaluations based on self-reports from their participants. Through their testimonials, many trainers vocalize a deep pride in their positive contribution to the program and a profound appreciation and respect for the opportunity to participate (Cell Dogs Inc., 2018; Paws for Life K9 Rescue, 2020; Tender Loving Canines, 2015). Many demonstrate emotional intelligence and introspection surrounding their emotions, actions, and circumstances. Above all, their words express hope, optimism, gratitude, and love. These testimonials offer a valuable glimpse into the emotional experience of inmates who have participated in DTPs.

Some non-profits have attempted to evaluate the long-term success of their participants through their recidivism and release rates. The Paws for Life K9 Program advertises, “as of January 2020, 21 participants have had their sentences commuted, most of whom were serving life-sentences. This is more than any other program in the State [of California]”. The Canine Support Teams Prison Pup Program reports that, “nearly every Prison Pup Program participant has stayed out of prison after their release”. Similarly, the POOCH Program claims that, “research concludes that inmates who train dogs are less likely to re-offend” (Tender Loving Canines, 2015), while Cell Dogs, Inc. compares the recidivism rates of their participants to California’s averages: “California recidivism rates for juvenile offenders are upwards of 55% within the first year of release. Recent research by the University of California Irvine found the recidivism rate for our Cell Dogs program to be just 16%”. And, in respect to another Orange County facility they operate in, “the recidivism rate at this institution is over 70% for males and 47% for females. The rate for our male and female program participants is 14% and 11% respectively” (Cell Dogs, Inc., 2017).

While these statistics are encouraging, few non-profits cite peer-reviewed studies if they cite the source of their statistics at all. Moreover, they largely ignore the possibility of participation bias. The behavioral requirements for participating in a DTP mean that the best-behaved prisoners who already carry the lowest risk of recidivism are preferentially selected to participate in DTPs. This means that evaluating the success of a DTP based on the recidivistic likelihood of its participants must be done very cautiously, as the participant and non-participant populations may not be directly comparable in their baseline attributes. These statistics run the risk of assuming causation (participation in a DTP leads to lower recidivism) rather than correlation (the people who participate in DTPs are also those least likely to recidivate

regardless). Further, focusing exclusively on the recidivism potential of DTPs neglects the immediate effects that a DTP may have in the prison environment. It is possible that creating stronger social bonds among inmates, with staff, and with the community through service may improve the social climate of a prison. This, in turn, could benefit a much larger proportion of the prison population than that which recidivism studies acknowledge, to include non-participants and those who will never be released from prison.

### Academic Research

Academics and correctional professionals are also keen to evaluate the impacts of DTPs in their pursuit to improve prison operations. While the overall quantity of primary studies regarding DTPs remains somewhat limited, several reviews (Furst, 2019; Allison & Ramaswamy, 2016; Bachi, 2013; Deaton, 2005; Humby & Barclay, 2018; Currie, 2008; Kohl & Wenner, 2012; Mulcahy & McLaughlin, 2013) and two meta-analyses (Cooke & Farrington, 2016; Duindam et al., 2020) of DTPs and PAPs<sup>10</sup> have been conducted in the past decade or so, which generally include the entire breadth of outcome studies performed. Much of the current primary literature has sought answers using qualitative measures similar to those employed by non-profits, which various researchers (Duindam et al., 2020; van Wormer et al., 2017; Mulcahy & McLaughlin, 2013; Furst, 2011; Bachi, 2013; Britton & Button, 2005) have lamented. This limitation of the literature, however, may be slightly misconstrued. Rather than citing the overwhelming existence of qualitative evidence, it may be more accurate to note the relative absence of quantitative studies. While further quantitative research in the field is certainly needed to make statistical conclusions and generalizations of program impact (as in the current

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<sup>10</sup> Since the availability of quantitative DTP outcome studies is limited, it is common to include PAP studies within literature reviews. While program models differ between the two, PAPs are a close relative of DTPs and can therefore offer additional insight into what effects might exist within dog-specific prison programs.

study), qualitative accounts also offer a useful assessment of program efficacy through the perceptions of the participants and staff involved. If the goal of complementary programming is to improve the prison experience – to humanize the prison environment – then the subjective evaluation of those who participate in these programs and directly experience the prison environment should be valued as well.

Four outcome categories are commonly assessed in DTP and PAP program evaluations: recidivism, changes in disciplinary behavior, emotional/psychological effects, and socio-behavioral effects (Bachi, 2013). Since it is common within the literature for a single study to utilize metrics of multiple categories, this categorical breakdown offers a useful framework for consideration of the existing DTP and PAP literature.

### Recidivism

In addition to the less rigorous recidivism statistics reported by non-profits, several academic studies have sought to determine the recidivistic impact of participation in a DTP. Two studies identified zero recidivism among program participants over periods of three and four to five years, respectively (Merriam-Arduini, 2000; Furst, 2007a and 2007b) and six other studies of DTPs and PAPs found reduced recidivism rates (Weaver, 2015; Hill, 2016; Antonio et al., 2017; Chianese, 2010; Moneymaker & Strimple, 1991; Cushing et al., 1995).

While these studies indicated general support for the efficacy of DTPs in reducing the recidivism of participants upon release, using recidivism as a measure of program efficacy can be problematic for several reasons. The studies included in this category have often lacked a comparable, equivalent control group to identify whether participation itself was the cause of reduced recidivism or if the DTP had simply selected the portion of the prison population already least likely to recidivate. Additionally, accurately measuring recidivism can be difficult if

reoffending occurs within a different jurisdiction (Bachi, 2013). Furthermore, focusing exclusively on recidivism neglects the potentially significant impacts that a DTP may have on the social climate and quality of life inside a prison. It also neglects the benefits that a DTP may present to those who will never be released or paroled. Positive prison social climate offers a host of secondary benefits, meaning any potential improvement in social climate should not be overlooked. For these reasons, the present study utilized social climate as the dependent outcome variable of the meta-analysis and excluded recidivism studies.

### Disciplinary Behavior

Bachi (2013) posited that the privilege of participation, hinged as it is on good disciplinary behavior, provides an incentive for DTP participants to abstain from infractions that would otherwise result in their removal from the program. Several studies have sought to identify whether a relationship between PAP/DTP participation and disciplinary behavior exists, but have often discovered mixed results.

In some studies, the frequency of disciplinary infractions decreased through PAP or DTP participation (Hill, 2016; Flynn et al., 2020; Fournier et al., 2007; Katcher et al., 1989; Mims et al., 2017; van Wormer et al., 2017). In others, no relationship was identified (Offermans et al., 2020; Brown, 2015; Cushing et al., 1995). Likewise, some studies identified an inverse relationship between the severity of infractions and program participation (Cushing et al., 1995; van Wormer et al., 2017) while others found no correlation (Katcher et al., 1989). One study investigated the risk of victimization of participants compared to non-participants, and found no statistically significant relationship (Hill, 2020b).

Two studies were identified which sought to evaluate the disciplinary behavior of PAP and DTP participants by tracking the number removed from a program due to behavioral

infractions (Moneymaker & Strimple, 1991; Furst, 2007a, 2007b). Moneymaker and Strimple (1991) found that though only 11% of PAP participants were dismissed from the program for disciplinary reasons, 45% of participants anonymously reported involvement in the distribution or use of drugs while in the program. Furst (2007a, 2007b) also identified a low attrition rate due to behavioral infractions and reported that only one participant had been removed from the two DTPs studied over a four- to five-year period due to disciplinary misconduct. However, as the prior study demonstrates, a program's behavioral attrition rate may not be an accurate reflection of participants' actual adherence to prison or program rules.

Improving disciplinary behavior directly impacts the social climate of a prison by increasing the safety and security of the prison environment. Therefore, this metric can be viewed as an intermediary – though sustained – impact of DTPs on prison social climate. Yet, this measure is only one aspect of several potential contributions DTPs may make toward a more positive social climate. As highlighted by the current study, assessing the overall social climate of a prison in the context of a DTP should take a more holistic approach that incorporates rather than isolates a single outcome like disciplinary behavior.

#### Emotional and Psychological Effects

More common than studies measuring disciplinary or recidivistic outcomes are those which measure the emotional and psychological effects of DTP participation. Many of these studies have utilized qualitative methodology, like those of non-profits, whose analyses have generally suggested positive program impacts (Bachi, 2013).

Several studies have identified improvements in mental health resulting from PAP or DTP participation, assessed through metrics like treatment level (Fournier et al., 2007);

depression (Cooke & Farrington, 2015; Walsh & Mertin, 1994)<sup>11</sup>; and anxiety (Flynn et al., 2020; Mims et al., 2017)<sup>12</sup>.

Likewise, general psychological well-being appears to improve as well. Across qualitative and quantitative studies, DTP and PAP participants often demonstrated boosted self-esteem (Weaver, 2015; Grommon et al., 2018)<sup>13</sup>; self-confidence (Weaver, 2015; Mims et al., 2017)<sup>14</sup>; self-control (Cooke, 2014b; Minton et al., 2015)<sup>15</sup>; self-efficacy (Cooke & Farrington, 2015; Furst, 2007a)<sup>16</sup>; empathy (Grommon et al., 2018; Seivert, 2016)<sup>17</sup>; patience (Britton & Button, 2005; Fournier, 2016)<sup>18</sup>; selflessness (Bauer & Abel, 2019; Turner, 2007); and emotional coping, acceptance, and regulation (Fournier, 2016; Cooke, 2014b)<sup>19</sup>.

Other outcomes indicate that DTP and PAP participation may also help decrease experienced stress (Hill, 2020b; Fournier, 2016; Mercer et al., 2015; Minton et al., 2015; Cooke & Farrington, 2015); boredom (Mims et al., 2017); and loneliness (Richardson-Taylor & Blanchette, 2001) and improve future outlook through increased optimism regarding time served (Grommon et al., 2018; Kocheratz, 2019)<sup>20</sup> and the acquisition of employable job skills (Antonio et al., 2017; Cooke & Farrington, 2014)<sup>21</sup>.

Nonetheless, there are a number of exceptions to these general trends. Several studies have identified instances of nonsignificant, unimproved or worsened outcomes including stress,

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<sup>11</sup> Also: Burger et al., 2011; K. Turner et al., 2011; Stetina et al., 2009

<sup>12</sup> Also: Cooke & Farrington, 2015

<sup>13</sup> Also: Turner, 2007; Fournier, 2016; Walsh & Mertin, 1994; Conroy et al., 2019

<sup>14</sup> Also: Cooke & Farrington, 2015

<sup>15</sup> Also: Bauer & Abel, 2019; Burger et al., 2011

<sup>16</sup> Also: Cooke, 2014b; Minton et al., 2015; Bauer & Abel, 2019

<sup>17</sup> Also: Minton et al., 2015; Cooke, 2014b; Bauer & Abel, 2019

<sup>18</sup> Also: Furst, 2007a; Bauer & Abel, 2019; Turner, 2007; Mims et al., 2017

<sup>19</sup> Also: Furst, 2007a; Burger et al., 2011; Conroy et al., 2019; Mims et al., 2017

<sup>20</sup> Also: Fournier, 2016; Cooke & Farrington, 2015

<sup>21</sup> Also: Cooke & Farrington, 2015

depression, anxiety, self-esteem/efficacy, empathy, and personal control (Hill, 2020b; Gilger, 2007; Flynn et al., 2020; Richardson-Taylor & Blanchette, 2001; Suthers-McCabe et al., 2004; Offermans et al., 2020; Seivert, 2016). Due to the overwhelming majority of qualitative studies in this field, reaching an objective conclusion about the overall emotional and psychological effects of DTP participation is challenging through a literature review alone.

Additionally, there are potential measurement flaws that result from relying on emotional and psychological improvements to determine program efficacy. For example, Bachi (2013) noted that these studies could be hampered by the ceiling effect, where pretest scores for items such as self-esteem, empathy, and personal control may have already been within a healthy range and therefore unlikely to improve further, regardless of the quality and effectiveness of the program. Yet these themes of improvement have also been frequently highlighted in self-reports, testimonials, and interviews, which suggests that the perception of change exists regardless of its measurement.

Since many forms of prison programming may provide these desired emotional and psychological outcomes, comparative studies should be conducted to determine how the effect sizes of DTP outcomes compare to those of alternate programs. In a preliminary investigation into this question, Burger et al. (2011) studied emotional outcomes among participants of three intervention programs and found that those within the DTP exhibited the most significant improvements, which suggests that participation in a DTP may be more effective at improving emotional well-being than the other types of complementary programming studied. Certainly, the relative effectiveness of any program depends on its operating model and its population characteristics, thus requiring additional evidence to support any claim of program superiority. If DTPs can be shown to demonstrate exceptional or equivalent effects on emotional and

psychological outcomes compared to alternate programs, they should be seriously considered for implementation or expansion.

Improvements in emotional and psychological well-being directly impact personal well-being, one of the three elements of prison social climate (Ross et al., 2008). As a result, improving the psychological and emotional health of DTP participants may in turn improve the overall social climate of the prison. Further research is necessary to determine whether such benefits are limited to participants or if they also extend to non-participants and staff in prisons with DTPs.

#### Socio-behavioral Effects

The fourth and final category of outcome studies are those which measure the socio-behavioral impacts of DTP or PAP participation. These studies have generally found support for positive relationships between participation and social skills (Grommon et al., 2018; Fournier et al., 2007; Turner, 2007; Weaver, 2015); social sensitivity/compassion (Grommon et al., 2018); prosocial interactions and relationships (Furst, 2007a; Antonio et al., 2017; Conroy et al., 2019; Hill, 2020b; Minton et al., 2015; Weaver, 2015); interpersonal problem solving (Cooke & Farrington, 2015; Mims et al., 2017); trust (Cooke & Farrington, 2015; Mercer et al., 2015); community morale (Antonio et al., 2017); and communication (Mercer et al., 2015).

These effects parallel those seen in more general human-animal interaction studies. Participants in Mims et al. (2017) noted that identifying and processing the emotions of the dogs they worked with became a transferrable skill that they described using in their interactions with those around them. As a result, they reported that they had become better at communicating and resolving conflict among their peers and prison staff, thereby improving the social interaction and bonds with those around them. This, in turn, is likely to improve the quality of life

experienced in prison by both prisoners and staff. While this may improve the prison social climate according to some instruments, socio-behavioral impacts are not accounted for within the Ross et al. (2008) definition of social climate or its elements. The only exception are two factors within the safety and security element that cover the impact of staff behavior on inmates and the impact of inmate behavior on inmates.

In the present study, the relationship between DTP participation and prison social climate was assessed through a meta-analysis of two outcome categories discussed above: disciplinary behavior and emotional/psychological well-being. Aggregating these categories for evaluation offers a more inclusive approach than isolating a single outcome or category. Since participants are likely to experience outcomes in both categories, it is important that program effect sizes be evaluated holistically as well.

## CHAPTER THREE

### METHODOLOGY

The methodology of the present study is outlined in this chapter, beginning with an overview of the design then discussing population identification, inclusion criteria, operationalization of variables, research questions, hypotheses, and data collection procedures. The chapter concludes by outlining the analytic plan of the current study.

This thesis began just after the onset of the COVID-19 pandemic in 2020. While social climate instruments exist, such as the EssenCES and the CIES, primary data collection was deemed impractical for the current study given the lockdown of high-risk facilities like prisons. Other sources of existing social climate data were also investigated for potential use in this study. Though DTPs are extremely common inside the walls of American prisons, there is a concerning absence of accessible data surrounding the social climate of these institutions. Under the Prison Rape Elimination Act, the Bureau of Justice Statistics administers the National Inmate Survey which contains a section relating directly to social climate (Bureau of Justice Statistics, 2013). However, due to the sensitive nature of the rest of the survey data, access to the social climate section is severely restricted (Bureau of Justice Statistics, 2018) and was thus also deemed impractical for use in the current study. Conversely, English and Welsh prisons undergo social climate measurement every three years through the Measuring Quality of Prison Life (MQPL) survey, whose data is publicly and internationally accessible through the United Kingdom's Freedom of Information Act. However, as DTPs are only just gaining attention in the United Kingdom, the few that exist are so recent that they were implemented since the latest MQPL was

administered. For these reasons, secondary data was not used to evaluate the present research questions. However, as explained below, the mixed findings currently present among DTP outcome literature lend themselves well to evaluation through meta-analysis to standardize and make general conclusions in response to the research questions.

### Research Design

The overall quantity of research into the efficacy of DTPs remains limited, irrespective of the measures they involve. Among studies available, many seek to evaluate the effectiveness of DTPs on several discrete measures, such as recidivism, disciplinary behavior, emotional and psychological impacts, and socio-behavioral effects (Bachi, 2013). Two of these outcome groups directly relate to two of the Ross et al. (2008) elements of prison social climate: disciplinary behavior affects safety and security (S&S), while emotional and psychological outcomes affect personal well-being (PWB). The third and final element of prison social climate, according to the factor pattern analysis conducted by Ross et al. (2008) is environmental quality of life (EQL). The factors defining environmental quality of life, however, all address physical conditions of the prison, such as crowding, noise, and accidents (Ross et al., 2008). While DTPs very well may affect the physical conditions of a prison, only two studies have been conducted which overtly measured these effects and neither provided calculable effect sizes (Conroy et al., 2019; Richardson-Taylor & Blanchette, 2001). For this reason, the relationship between DTP participation and social climate is evaluated through only S&S and PWB in the current study.

Currently, the literature demonstrates mixed results surrounding the efficacy of DTPs, which makes it difficult to come to conclusions about their general impact. The current study therefore sought to standardize and evaluate the quantitative studies available within the

literature through a meta-analysis and to make conclusions about the relationship between DTPs and prison social climate.

Literature reviews, in the methodological sense, generally involve a discursive consideration of studies within a field and come to qualitative judgments about the overall support or absence of support for a relationship by “vote counting”, comparing the number of studies “for” to the number “against” (Pratt, 2010). Indeed, they are useful in providing context, guiding future research, and accounting for the rich variety and detail of qualitative data, but it can be difficult to make conclusions in cases of mixed findings, to account for variations in significance levels, and to avoid including bias in the discussion (Pratt, 2010). In contrast, a (quantitative) meta-analysis refers to:

The statistical analysis of a large collection of analysis results from individual studies for the purpose of integrating the findings. It connotes a rigorous alternative to the casual, narrative discussions of research studies which typify our attempts to make sense of the rapidly expanding research literature (Glass, 1976).

A meta-analysis, therefore, offers a way to organize, summarize, and evaluate the breadth of literature through quantitative, empirical means and produce a summary of many studies in a parsimonious format (Glass, 1976; Pratt, 2010). This method goes beyond simple vote counting to provide a single, precise estimate of the strength (effect size) of the relationship between two variables (Pratt, 2010). Methodological decisions must be well-documented and reported to ensure that a meta-analysis is valid and replicable (Pratt, 2010). Given the existence of DTP outcome research directly related to two elements of prison social climate with mixed results, the current study employed a meta-analysis to investigate the proposed relationship.

## Population

The population of the present study included all available, identified studies conducted on DTPs. Given the limited quantity of research currently available, it was important that all relevant literature, both published and unpublished, including theses and dissertations, was identified. However, given a lack of translation resources, only studies written in English were included. Studies were first assessed by research design. Qualitative studies were excluded to enable statistical analysis and conclusions. Next, non-primary studies were excluded. Then, studies which did not assess outcomes relevant to personal well-being or safety and security were excluded. Relevance was determined by matching measured outcomes to particular element factors, provided by Ross et al. (2008) (Table 1). Each outcome included in the meta-analysis was coded by element and by matched to a corresponding factor ID.

**TABLE 1**

*Ross et al. (2008) elements and factors of prison social climate*

Element	Factor	Code
Personal Well-Being	Psychological well-being	1
	Somatic complaints	2
Safety and Security	Safety for staff and inmates	3
	Influence of staff on inmate behavior	4
	Influence of inmates on inmate behavior	5
	Frequency of assaults	6
	Freedom of movement around prison	7
	Searches and shakedowns	8
Environmental Quality of Life	-	-

*Note.* An insufficient quantity of studies measuring relevant environmental quality of life factors were identified for analysis in this study.

Finally, only studies with common or favorable metrics and reported or calculable effect sizes were included. Inclusion or exclusion was not determined based on the collection or

publication date of a study, its participant characteristics, or for reasons of practicality, since it was important to include as large a breadth of research as possible given its limited availability. The variant characteristics of each study are reported in Table 2 (Chapter Four) and discussed in Chapter Five.

As described by Slavin (1986), a best evidence synthesis involves the identification of several studies of high internal and external validity. In the present study, internal validity was established through the use of the Ross et al. (2008) confirmed factor pattern analysis in defining variables and assigning studies. Additionally, the outcomes measured by studies included in this meta-analysis utilized consistent, clear definitions which were commonly used across studies. Since the purpose of a meta-analysis is to generalize results across the included contexts, internal validity produces external validity by default.

Two groups of studies (S&S and PWB) were collected from the subpopulation of included DTP studies (N=9). Since only one study (Antonio et al., 2017) was eligible for resampling (e.g., it contained outcomes of both elements), the decision was made to sample studies for only one or the other element group to maintain a simpler analysis. Antonio et al. (2017) was grouped with the PWB studies because its measure of job skills had not otherwise been accounted for in the PWB group, in contrast to its S&S measures.

## Variables

### Independent Variable (IV)

Participation in a DTP was operationalized as a nominal variable with a binary outcome: participant or non-participant.

### Dependent Variables (DV)

Personal well-being was operationalized as the effect sizes of studies which measured physiological and psychological effects, and which matched confirmed social climate factors (Ross et al., 2008).

Safety and security were operationalized as the effect sizes of studies which measured disciplinary effects, and which matched confirmed social climate factors (Ross et al., 2008).

Social climate was operationalized through the overall standardized, pooled mean effect size of a random-effects model, which accounted for two of the three elements of prison social climate (Ross et al., 2008).

### Research Questions

The primary research question of this study asked whether participation in a DTP was related to experienced prison social climate:

1. How is prison social climate related to the presence of a DTP?

Two secondary research questions are as follows:

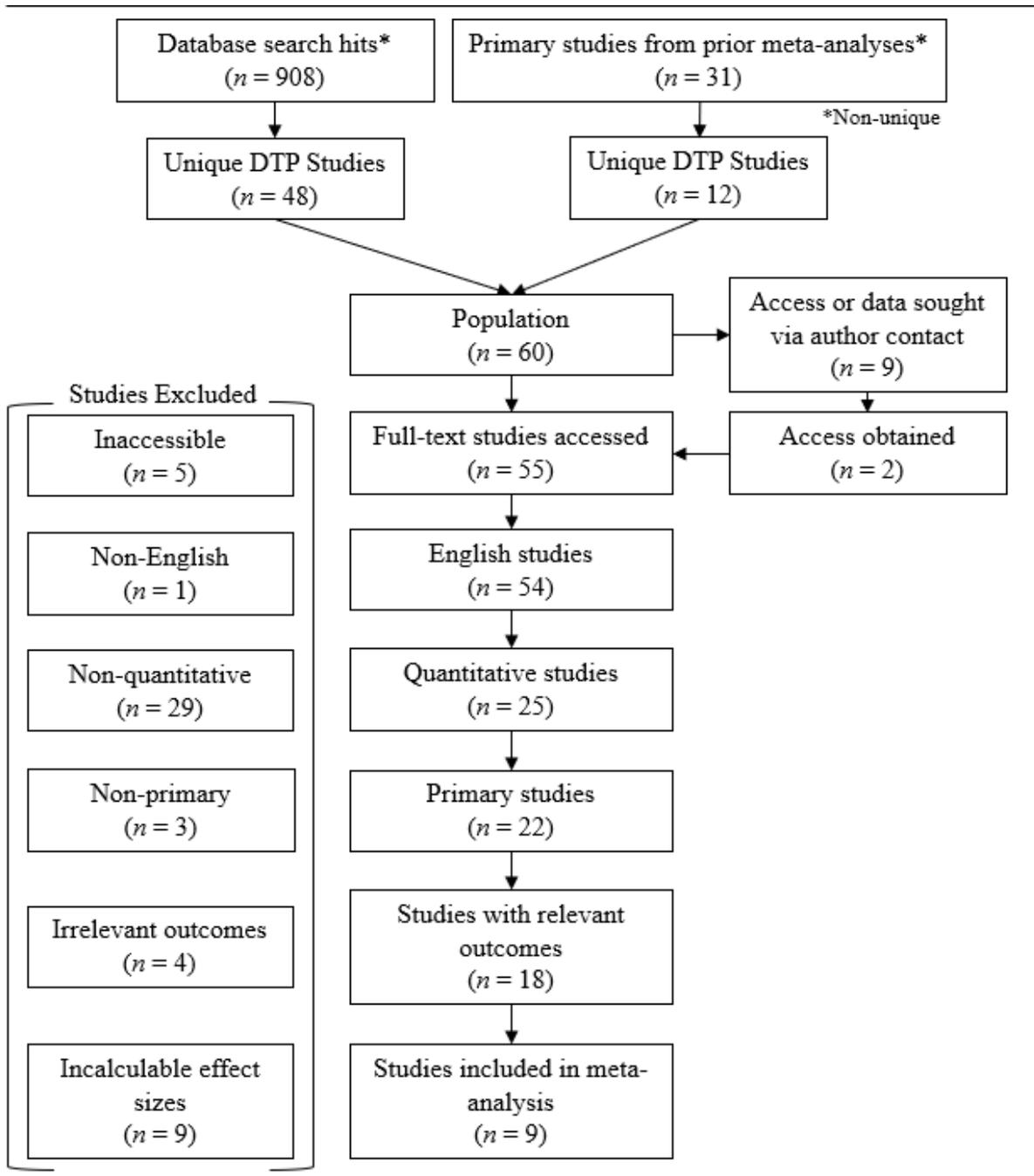
2. How is an individual's personal well-being related to participation in a DTP?
3. How is an individual's contribution to safety and security related to participation in a DTP?

### Hypotheses

Based on the findings from the literature review and the theoretical basis supplied by social control theory, it was predicted that participation in a DTP is positively associated with improvements in participants' personal well-being, the safety and security of the prison through their behavior, and the prison social climate.

**FIGURE 1**

*Flowchart of literature search and inclusion process*



Source: Adapted from Duindam et al. (2020)

Note. n = number of unique studies unless otherwise specified

## Data Collection Procedure

Figure 1 illustrates the literature search and inclusion process. Data collection occurred in Fall 2020 after obtaining IRB approval (Appendix A). An exhaustive online search of primary research was conducted using the following phrases: “prison dog training program”, “prison dog program”, “dog training program”, “prison animal program”, “prison dog”, and “prison animal”. Electronic databases served as the chief source of literature in this review. These included Taylor & Francis Online, Nexis Uni, ICPSR, JSTOR, Wiley Online Library, Hathi Trust, Center for Research Libraries Global Resources Network, World Cat, ProQuest, and EBSCOhost with access provided by the University of Alabama. Further, references included within existing meta-analyses on the efficacy of DTPs were reviewed to identify additional studies. Access to these references was established through the same avenues and sources as described above. In some cases, research frequently cited within the literature was not publicly available. In these instances, the authors were contacted in an attempt to obtain access to all relevant studies. The studies included in the current meta-analysis were obtained and stored exclusively in electronic format in a private, cloud-based folder on Box.

## Analytic Plan

After exclusion criteria were applied, the effect sizes of each relevant outcome from each included study (N=9) were gathered or calculated using Comprehensive Meta-Analysis software (CMA-3). The included studies were tested for potential publication bias using the Classic fail-safe N and a funnel plot of standard error of Hedges’ *g*. A random-effects model was ultimately selected after performing a Q-test to confirm its applicability over a fixed-effects model. Using Hedges’ *g* for each included study, a forest plot was generated, and statistical conclusions were made regarding the primary research question.

## CHAPTER FOUR

### RESULTS

The following chapter begins with a descriptive summary of the studies included in the final meta-analysis. Then, following justification of the use of a random-effects model, the results of the meta-analysis are presented. Finally, several sources of potential publication bias are discussed and tested.

#### Summary of Included Studies

As detailed in Chapter Three, inclusion within the current meta-analysis depended on four criteria. The nine studies ultimately included were written in English, were quantitative, and measured outcomes relevant to at least one of the elements of social climate as defined by Ross et al. (2008) by relating to one of their published factors (see Table 1). Additionally, these studies provided sufficient information to estimate effect sizes for use in cross-comparison (see Figure 1). Outside of these common criteria, the included studies varied widely in research design, including their publication year, sample size, population gender, prison type, and prison location. Seven of the nine are peer-reviewed published papers, while Cooke (2014b) and Hill (2016) are a thesis and dissertation, respectively. A summary of the characteristics of each study is provided in Table 2.

**TABLE 2**

*Summary descriptive data of studies in analysis*

Author	Year	Pub Design	N	Sample Characteristics			Outcomes Measured (Factor Code)		
				Gender	Age	Type	Location	PWB	S&S
Antonio et al.	2017	Y	62 inmates 29 staff	quasi	mix	adult	state	PA	Job Skills (1)
Cooke	2014	N	42 participants 35 control	quasi	male	adult	state	FL	Criminal Thinking (1), Emotional Intelligence (1), Empathy (1), Self-Control (1), Self-Efficacy (1)
Flynn et al.	2020	Y	150 participants 79 control	quasi	mix	adult	state	WA	Empathy (1), Self-Efficacy (1), State Anxiety (1), Trait Anxiety (1)
Richardson-Taylor & Blanchette	2001	Y	12 participants 11 control	quasi	female	adult	federal	Canada	Depression (1), Interpersonal Control (1), Loneliness (1), Self-Efficacy (1), Self-Esteem (1)
Walsh & Mertin	1994	Y	8 participants	quasi	female	juv	state	Australia	Depression (1), Self-Esteem (1)
Fournier et al.	2007	Y	24 participants 24 control	quasi	male	adult	state	VA	Infractions (3)
Hill	2016	N	459 participants 525 control	quasi	mix	adult	state	FL	Infractions (3)
Seivert	2016	Y	83 participants 55 control	RCT	mix	juv	juv	Midwest	Externalizing Behavior 1 (3), Externalizing Behavior 2 (3)
van Wormer et al.	2017	Y	484 participants 517 control	quasi	male	adult	state	WA	Grievances (3), Sanctions (4), Violent Infractions (6)

*Note.* Pub indicates publication in a peer-reviewed journal. Outcomes Measured refers to outcomes included in the current analysis. Factor Code refers to Table 1.

In keeping with prior research (Pratt & Cullen, 2000; Pratt et al., 2006), the present meta-analysis utilized multiple effect sizes from individual studies, parsed as a subgroup (by PSC element), where such studies measured different factors of social climate provided by Ross et al. (2008). Five studies measured outcomes which matched factors of personal well-being (PWB) while four studies measured outcomes matching factors of safety and security (S&S). The specific outcomes included from each study are reported in Table 2.

### Meta-Analysis Findings

In each study, the outcome data were combined underneath their respective social climate element. Individual effect sizes were calculated and compared for each study, including Cohen's *d*, Hedges' *g*, and the mean difference. Very little difference was noted between these estimates for each study included in this analysis. Since there were a number of smaller studies included in the current meta-analysis, Hedges' *g* was selected as the appropriate measure of effect size as it corrects for small sample sizes.

A random-effects model was selected because this set of data comes from a series of independent studies, while a fixed-effects model would require shared methodology and structure. Moreover, a number of characteristics varied between studies, including outcome measures, sample size, and study setting (e.g., correctional type and location). Using a random-effects model enabled each of the included studies to be treated as a part of a sample with sampling error to estimate a true population parameter (Hedges & Cooper, 2009). The appropriateness of this a priori decision was confirmed by generating both fixed- and random-effects models and examining the Q-test for homogeneity of the effect size distribution. A Q-test

examines the assertion that a group of studies shares a common effect size and can therefore indicate whether a fixed-effects model would be better selected. If all the studies share a common effect size, the Q value should be equal to or less than the degrees of freedom, suggesting that there is no additional error. In the present analysis, however, the Q-value was 14.269 with 8 degrees of freedom ( $p=0.08$ ). This indicated that random dispersion was present in the data and that the random-effects model was the correct choice.

Tables 3 and 4 report the effect sizes and corresponding forest plot for the weights of each study. The overall standardized (pooled mean) result of both elements' effect size was 0.204 ( $SE=0.068$ , 95%  $CI=0.005$  to  $0.069$ ). All studies generated positive effect sizes for both elements, suggesting that the presence of a DTP is positively related to prison social climate through both personal well-being and safety and security. Larger effect size shifts (to the right) were generally noted among studies within PWB, including three studies whose CI included an effect size of one. However, it should be noted that across both elements, most of the CI included zero, except for Antonio et al. (2017), whose included outcome measured improved job skills. In spite of this overlap with zero, the overall group mean effect size was found to be significant ( $Z=2.974$ ,  $p=0.003$ ). Taken together, then, the results suggest that participation in a DTP is related to improvements in both elements over control groups by 0.20 standard deviations.

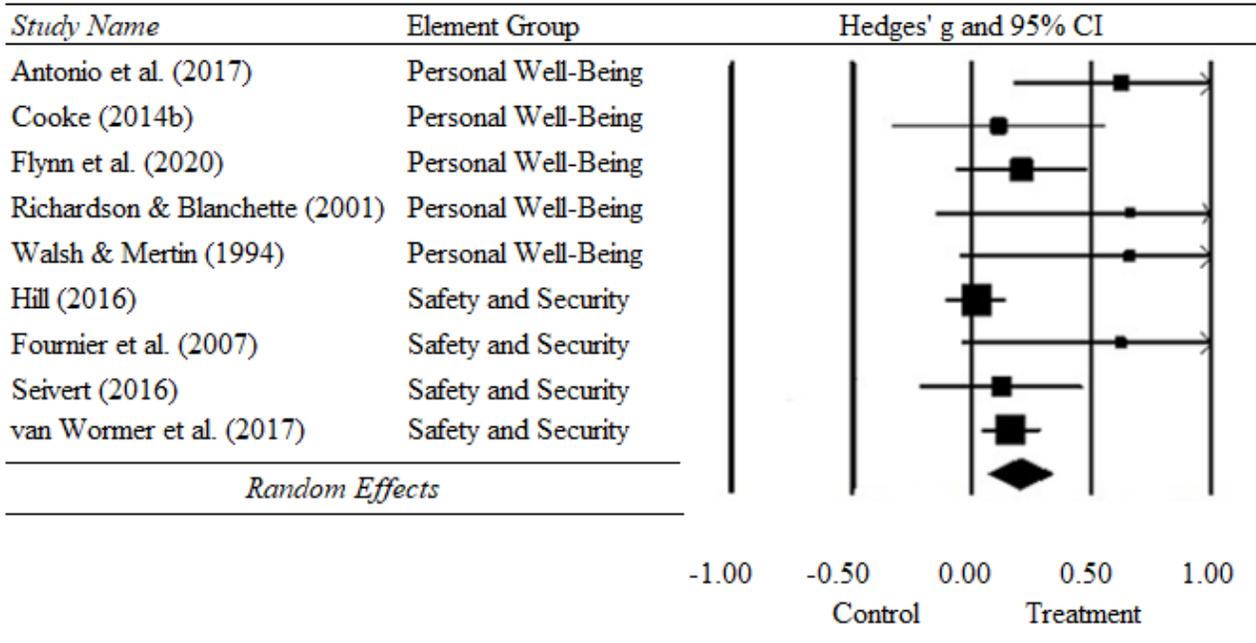
**TABLE 3**

*Effect size summary data for random-effects model*

Study	Measure	Hedges's g	Standard Error	Lower Limit	Upper Limit	Z-Value	p-Value	Treated (n)	Control (n)
Antonio et al (2017)	Personal Well-Being	0.627	0.228	0.180	1.073	2.751	0.006	62.000	29.000
Cooke (2014b)	Personal Well-Being	0.113	0.227	-0.332	0.557	0.497	0.619	42.000	35.000
Flynn et al (2020)	Personal Well-Being	0.209	0.140	-0.065	0.482	1.495	0.135	149.250	78.000
Richardson & Blanchette (2001)	Personal Well-Being	0.666	0.417	-0.151	1.482	1.598	0.110	12.000	11.000
Walsh & Mertin (1994)	Personal Well-Being	0.660	0.361	-0.047	1.367	1.829	0.067	8.000	8.000
Hill (2016)	Safety and Security	0.020	0.063	-0.104	0.144	0.315	0.753	459.000	525.000
Fournier et al (2007)	Safety and Security	0.624	0.340	-0.042	1.290	1.837	0.066	24.000	24.000
Seivert (2016)	Safety and Security	0.125	0.172	-0.212	0.461	0.727	0.467	83.000	55.000
van Wommer et al (2017)	Safety and Security	0.165	0.063	0.041	0.289	2.612	0.009	484.000	517.000
<i>Random Effects</i>		<i>0.204</i>	<i>0.068</i>	<i>0.069</i>	<i>0.338</i>	<i>2.974</i>	<i>0.003</i>	-	-

**TABLE 4**

*Forest plot random-effects model*



**Publication Bias**

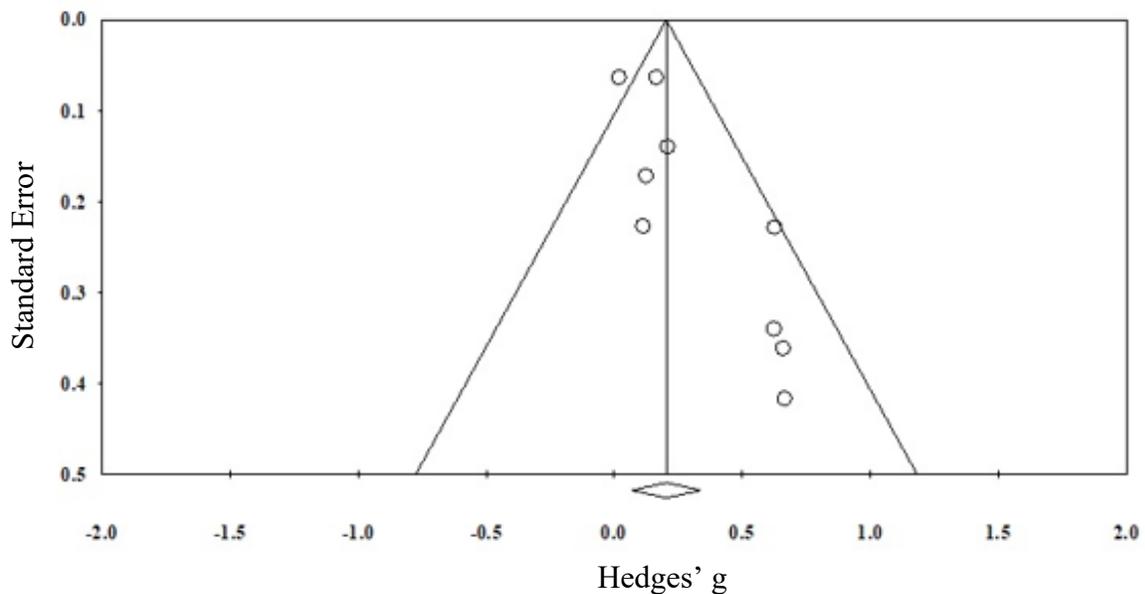
The present analysis also involved testing for several possible forms of publication bias to ensure that the included studies were representative of the actual phenomenon. If the literature is missing studies that are systematically different from those that are published, it causes the literature, and by extension any meta-analyses of the literature, to become biased. Several potential sources of publication bias were acknowledged and tested (Borenstein et al., 2009).

First, publication bias can arise when only studies which report large treatment effects are published. To test whether this was the case among the included DTP literature, a funnel plot was generated with standard error compared against the effect size for each of the studies (Figure 2) (Borenstein et al., 2009). As the figure indicates, there were very few studies near the bottom

of the graph, indicating a lower level of standard error among the studies included. Additionally, the studies were relatively evenly dispersed on either side of the mean, suggesting that larger studies or studies with great effect were not, in fact, more likely to be published and hence included in the current data set.

**FIGURE 2**

*Funnel plot of standard error of Hedges' g for publication bias*



Similarly, potential publication bias can occur from a failure to publish studies with non-significant findings. This was tested in the current study using the Classic fail-safe N, which calculates the number of unpublished studies that would need to exist to bring the calculated effect size to non-significance. It was found that for the present meta-analysis,  $N=40$  ( $Z=4.55$ ,  $p<0.001$ ). Given the nine studies included in this analysis, the results of the Classic fail-safe N suggest that there would need to exist nearly four and a half unpublished studies with null findings for every study included in this data set to bring the current effect size to non-significance. Since this many unpublished studies are unlikely to exist, particularly given the

relatively small quantity of studies performed in the field overall, this form of publication bias likely did not play an impactful role in the results of the current study.

Finally, and especially relevant to the current study, is the fact that published studies are more likely to be included in meta-analyses than are unpublished “grey” studies like theses and dissertations (Borenstein et al., 2009). Grey literature can be more difficult to access and more difficult to identify due to less frequent citation in the literature. In the present meta-analysis, this tendency was avoided through the concerted identification and inclusion of unpublished literature through intentional methodological design. If publication bias had been identified through the funnel plot or the fail-safe N, missing grey literature could have provided a potential explanation. However, since unpublished literature was specifically sought out and included where possible, and because no major publication bias was detected through the first two tests, it was unlikely that the present meta-analysis was biased towards the inclusion of only published studies.

## CHAPTER FIVE

### DISCUSSION

This chapter interprets and contextualizes the results of the present meta-analysis within the larger field of DTP literature. The limitations of the methodology and of the existing literature are considered, and their potential impact on the current results are discussed. Recommendations for future research and policy implications are provided before the chapter concludes with a summary of the value that this study adds to DTP and prison social climate literature.

#### DTPs and Prison Social Climate

The current study investigated the relationship between participation in a prison-based dog training program and perceived prison social climate. The meta-analysis findings indicated that a statistically significant, small- to medium-sized, positive correlation exists between the two variables (Hedges'  $g=0.204$ ,  $SE=0.068$ ,  $p=0.003$  95%  $CI=0.005$  to  $0.069$ ). This confirms the primary hypothesis of this paper, which predicted that participation in a DTP would be positively correlated with prison social climate. Additionally, both social climate elements incorporated in this study exhibited positive effect sizes, confirming the secondary hypotheses which predicted positive relationships among each element of social climate and DTP participation. However, the effect sizes of the personal well-being outcomes were shifted further to the right than those of safety and security (see Table 4, Chapter Four), suggesting that DTP participation is more strongly predictive of personal well-being than safety and security. Nonetheless, when combined

under a random-effects model, the studies included within both element groups produced an overall positive effect size on prison social climate.

Though this is the first study to investigate the relationship between DTPs and prison social climate, two past meta-analyses of DTP outcome literature have been conducted (Duindam et al., 2020; Cooke & Farrington, 2016). The mean effect size found in the present study (Hedges'  $g=0.204$ ,  $SE=0.068$ ,  $p=0.003$  95%  $CI=0.005$  to  $0.069$ ) falls in between those of the previous meta-analyses. It is slightly higher than that identified by Duindam et al. ( $d = 0.153$ ,  $p=0.019$ , 95%  $CI=0.026$  to  $0.281$ ) but much less than that of Cooke and Farrington ( $d=0.92$ ,  $SE=0.27$ ,  $z=3.46$ ,  $p=0.0003$ , 95%  $CI=0.40$  to  $1.44$ ). Like the present meta-analysis, both past studies also utilized random-effects models. However, the current study notably diverged from the methodology of previous studies in its inclusion criteria. Unlike the previous meta-analyses, which included all available outcome studies related to DTPs, the current analysis only included outcomes which directly related to the definition of prison social climate established by Ross et al. (2008). In doing so, it excluded outcomes related to recidivism and socio-behavioral effects that were included in Duindam et al. (2020) and Cooke and Farrington (2016). The broader inclusion criteria of previous meta-analyses due to their broader dependent variables likely explains the differentiation in resultant effect sizes. Still, all three meta-analyses agree: a small to medium effect size exists between DTPs and desired outcomes.

As discussed in Chapter Two, some researchers have suggested that DTPs (and PAPs in general) may improve the prison environment (Britton & Button, 2005; Deaton, 2005; Bachi, 2013). Yet, until now, no studies existed which explored this potential relationship between DTP participation and prison social climate. The results of this correlational meta-analysis provide preliminary evidence to support Deaton, Britton and Button, and Bachi's predictions. Likewise,

the results also support the primary and secondary hypotheses of the current study, which, through an application of social control theory and existing outcome and human-animal interaction research, predicted that a positive relationship exists between DTP participation and prison social climate. Finally, the results of this overarching investigation into DTPs and prison social climate echoes many of the findings of qualitative DTP research which have frequently reported themes like improved mood and well-being (Leonardi et al., 2017) and improved relationships with staff (Furst, 2011). This concurrence between the results of this quantitative meta-analysis and existing qualitative studies lends further support to the measurable and perceived positive relationship between DTPs and prison social climate.

### Limitations

This study is groundbreaking in its exploration and discovery of a statistically significant, positive relationship between DTP participation and prison social climate. Like any meta-analysis, however, it is limited by the availability of existing outcome research. Publication bias was not identified among the included studies in either personal well-being or safety and security, which indicates that the availability of research was not a particularly influential factor in determining the overall effect size. On the other hand, virtually no research exists regarding the third element of prison social climate, environmental quality of life, as it relates to DTPs. For this reason, the entire element was excluded from the current meta-analysis. This exclusion resulted in an incomplete assessment of the actual, full relationship between DTPs and prison social climate. While the results of this study indicate the presence of a statistically significant, positive relationship, the significance or magnitude of that relationship could change if future studies on environmental quality of life find detrimental or insignificant effect sizes. Nevertheless, until studies of this category are conducted, the current meta-analysis represents

the best available synthesis of existing research and evaluation of the relationship between DTP participation and prison social climate.

Though tempting to conclude that the effect size demonstrates that DTPs improve prison social climate, one must be cautious in interpretation. Some of the studies included in the present meta-analysis lacked true control groups, almost all lacked random sampling, and few were able to control for potentially confounding variables. Therefore, this meta-analysis only establishes a positive, significant correlational, not causal, relationship between DTP participation and prison social climate. This study should pave the way for future causal studies to test and confirm the resultant hypothesis that DTP participation improves prison social climate.

#### Future Research

One particularly valuable contribution that this study makes to the field is its lowering of the risk barrier associated with conducting such a causal study. Ideally, a causal relationship would be tested in a randomized-controlled trial or quasi-experimental study which explicitly uses an established social climate instrument, such as the EssenCES, CIES, MQPL, or CESI, to identify changes in social climate before and after the new implementation of a DTP in a prison. Studies of this kind, however, are very time and resource intensive. Gaining access to a suitable prison population, arguing for the implementation of a new program, securing funding, and collecting longitudinal data generally require much more time and investment than performing a secondary meta-analysis such as this one. In some cases, the time and cost associated with a primary study of this kind are prohibitive and as a result, the study is not conducted at all. However, the results of this meta-analysis shift the balance of the cost-risk ratio associated with conducting a longer, more expensive causal study because there is now statistical evidence that a significant relationship does exist. The risk of finding a non-significant relationship (and perhaps

struggling to publish as a result) is now less and the reward of finding an impactful, causal relationship with the potential to inform policy is now more promising.

### Policy Implications

The correlation between DTP participation and improved prison social climate offers support for the continued operation of DTPs in prisons. While it has yet to be proven that DTP participation causes improvements in prison social climate, the correlation between the two is promising. The results of the current study suggest that DTPs may be an effective programming strategy for improving the quality of life of people living and working in prisons. Research has shown that prisons with positive social climates are in turn more successful in rehabilitating offenders into law-abiding citizens (Auty & Liebling, 2019; Friis & Helldin, 1994), meaning research and improvement into prison social climate should be a priority for all. In the event that a DTP is planned for implementation at a new prison, administrators should intentionally seek out academic partners to collaborate on a concurrent evaluation of the program, like the causal study proposed above.

This may be particularly feasible and practical in the United Kingdom, where DTPs are still a very new addition to prison programming and where prison social climate has received regular attention and measurement for the past two decades through the MQPL (Auty & Liebling, 2019). As described in Chapter Three, the most recent MQPL data does not yet contain a posttest measurement needed for a longitudinal comparison of prison social climate before and after implementation due to the youth of UK-based DTPs. In a few more years, however, particularly if more DTPs are piloted in English and Welsh prisons, the MQPL may prove a convenient data source for the investigation of a causal relationship between DTP implementation and prison social climate.

## Current Practices

Based on the relationship established in this study between participation in a DTP and positive prison social climate, several recommendations for current DTP practices can be made through an examination of social climate elements and factors.

For example, inmate cohesion is an integral part of prison social climate (Schalast & Tonkin, 2016). To improve social climate via interpersonal cohesion, DTP practices should be modified to emphasize inmate cooperation within the program. Indeed, the interpersonal potential of DTPs has been noted in several qualitative studies (Mims et al., 2017; Britton & Button, 2005; Strimple, 2003) and should be leveraged. While some programs already utilize inmate training teams (and in some cases are racially diverse as well) (Leader Dogs for the Blind, 2020; Marley's Mutts, 2017), this team-based training model should be more widely adopted in other prisons where feasible. Similarly, hold and support, which describes the relationship between staff and prisoner, is another key piece of determining a prison's social climate. DTPs could be structured to specifically foster increased hold and support by incorporating more staff involvement into the dog training process.

Likewise, strategic decisions about program operations could be made to target improvements in personal well-being. Additional advancements in psychological well-being, for example, may be possible by pairing DTP participation with counseling sessions in order to build upon the emotional and psychological growth achieved during dog training. Drawing on HAI evidence of improved treatment motivation through dog interaction (Marcus, 2011; Sockalingham et al., 2008), prison and program administrators could make concurrent counseling sessions a requirement or recommendation for continued DTP participation, provided sufficient availability of counseling resources.

Finally, while the prison's physical environment may not be practically benefitted by the inclusion of dog training programs, DTPs must still take this element of prison social climate into consideration when defining operating practices. Care must be taken to minimize any harmful effects on the environmental quality of life of the prison, such as the addition of allergens, mess, noise, and security risks, which could negatively impact the prison social climate. A common and practical solution is to house DTP participants and their dogs in physically removed dormitories to ensure that non-participants (who may have allergies, fears, or pose safety risks) are not negatively impacted by the dogs nor vice versa. However, this isn't possible in all prisons due to resource or space limitations. In these cases, other solutions must be designed to ameliorate the potential harms that DTPs may bring to the environment quality of life of the prison. Neutralizing these unwanted side-effects allows for a net improvement in prison social climate if positive changes in safety and security and personal well-being are made.

### Conclusion

This study addressed an important gap within the existing DTP literature by confirming the previously unstudied hypothesis that a positive, significant relationship exists between DTP participation and prison social climate. In doing so, the current study identified another gap in the DTP literature: there is an almost complete absence of research into dogs' effect on the physical environment of a prison. Due to barking, accidents, shedding, allergies, and injuries, DTPs could conceivably produce negative consequences for the prison environment. A complete program evaluation – and a complete evaluation of social climate – must therefore take environmental quality of life and the side-effects of DTPs into account. No studies have yet done so, nor has this research gap been noted elsewhere.

Additionally, the choice of a meta-analysis in investigating the relationship between DTPs and prison social climate allows for a higher degree of generalizability than previous primary studies have achieved. Primary DTP and PAP study results are frequently unable to be generalized across contexts due to large variations in prison and population characteristics as well as small sample sizes (see Table 2, Chapter Four). In contrast, the nature of a meta-analysis, which incorporates a broad range of study designs and contexts, lends itself well to making general conclusions and predictions about similar effects in unstudied programs and future implementations.

Finally, the usage of social climate as the dependent, evaluative variable allowed for the organization and analysis of a wide array of previously identified outcomes into a single, institutional-level metric which lends itself well to comparison. Understanding the relationship that a program has with inmate and staff well-being, prison safety and security, and the overall social climate of the institution can aid administrators in making cost-benefit comparisons between programming options. Maximizing the understanding of program risks and rewards enables more effective, efficient, and evidence-based administrative decisions. While the results of this study certainly call for future research, they also agree with a number of qualitative studies describing similar effects: DTPs and PAPs may be on the right track for improving the social climate of prisons.

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\*Denotes studies included in meta-analysis population

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APPENDIX A: IRB APPROVAL

THE UNIVERSITY OF ALABAMA® | Office of the Vice President for  
Research & Economic Development  
Office for Research Compliance

September 25, 2020

Matthew Dolliver  
School of Criminology & Criminal Justice  
The University of Alabama  
Box 870320

Re: IRB Requirement for "Meta-Analysis of the Effects of Prison-Based Dog Training Programs on Prison Social Climate"

Dear Dr. Dolliver:

This letter comes as a response to your communication received September 15, 2020. According to the Office for Human Research Protection (OHRP) under policy 45 CFR 46.102(e) the proposed work is not human subjects research.

Because the work is not considered human subjects research, it does not require IRB approval and is therefore excluded from review by the IRB.

If you have any questions or if I can be of further assistance, please do not hesitate to contact me.

Sincerely,

  
Cappantato T. Myles, MSM, CIM, CIP  
Director & Research Compliance Officer