

THE EFFECTIVENESS OF PRISON DOG PROGRAMS ON THE MENTAL HEALTH AND RECIDIVISM RATES OF INMATES

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ABSTRACT

Although incarceration is meant to correct and deter criminal behavior, the structure of the prison system appears to create more crime than it currently corrects. As a result, correctional facilities have a growing interest in programs that can improve the behavior and wellbeing of inmates. One of these programs employs dogs in activities that have proven to be psychologically and emotionally rewarding for participating inmates. Currently, Prison Dog Programs (PDPs) consist of several models where inmates can: (1) train and care for shelter dogs; (2) attend therapy sessions that include dogs in the curriculum; (3) participate in visitation programs with community members and their dogs; and (4) attend vocational programs involving animal studies. Despite growing popularity, research on PDPs lacks methodological rigor and structure as well as crucial theoretical explanations to support the reported benefits. Before PDPs can be fully approved and implemented into the prison system, they must be rigorously tested and understood. The present review provides an updated analysis of the current literature on PDPs by gathering and evaluating 14 articles that have been published within the past 10 years. The present review also proposes recommendations and study practices for future research in this field.

INTRODUCTION

On a global scale, over 10.35 million people have been incarcerated for allegedly committing crimes within their respective countries. The United States is the leading contributor to the global incarceration rate, with roughly 2.2 million Americans currently detained (Walmsley, 2020). Incarceration is meant to deter future criminal activity but can influence various unintended consequences due to its exploitative and restrictive nature (Wallace & Wang, 2020). The numerous consequences caused by exposure to an overly punitive prison culture are dependence on institutional structure, hypervigilance, emotional blunting, social withdrawal, diminished self-worth, and increased susceptibility to developing mental illnesses (Haney, 2003).

Once convicted and sentenced for a crime, an inmate is immediately stripped of their freedom and autonomy. As a result, the inmate becomes a *ward of the State*, which means they are placed under the legal custody of the State or Federal prison they are sentenced to (Teaster et al., 2005). This transition from private citizen to inmate can be challenging as it requires an individual to forfeit their autonomy for dependence on the correctional institution. As a result, inmates become doubtful of their decision-making abilities and personal restraint, which can cause issues upon reentry into society (Haney, 2003).

Additionally, living conditions serve as a reminder of an inmate's compromised social status and role as a prisoner. The high-stakes and tumultuous environment created within a prison may cause many inmates to feel the need to be highly alert should extreme violence occur. Consequently, the constant threat to personal safety can cause an inmate to become paranoid, making it hard to engage in prosocial interactions. The prison environment breeds an acceptance towards taking advantage of weaker inmates; therefore, any admission of vulnerability or emotional expression is construed as an invitation for exploitation. For self-preservation purposes, inmates may attempt to stunt their reactions to violent or emotionally disturbing events causing many to experience emotional dissonance. Inmates may also strive to remain inconspicuous by isolating themselves from the rest of the prison population. While momentarily effective, the long-term repercussions of this strategy can cause inmates to develop symptoms of apathy and severe depression. (Haney, 2003).

The ramifications of prison culture are harmful to the general inmate population; however, they pose an extreme threat to individuals with mental illness or developmental disorders. These inmates struggle to conform to the formal and informal rules in prison, causing their continuous abuse. Unfortunately, inmates with mental illness or other disorders are commonly unsupported while in prison. According to recent statistics, roughly 3 in 5 (63%) people diagnosed with a mental illness fail to receive mental health treatment while incarcerated in U.S. State or Federal Prisons (NAMI, 2020). Without proper treatment, the living conditions of prison can exacerbate the symptoms of mental illness (Holman et al., 2019). In a study by Wallace and Wang (2020) concerning the correlation between recidivism and in-prison health, it was found that inmates with better mental health in prison had lower odds of recidivism once released. Perhaps, better mental health can be facilitated by a prison environment that is supportive and rehabilitation-oriented. Auty and Leibling (2018) examined the relationship between the prison environment and rates of reoffending. They discovered that inmates are less likely to recidivate when they have supportive relationships that cause them to feel safe and fairly treated.

Although the purpose of incarceration is to be a corrective experience, rates of recidivism remain incredibly high. On average, the United States releases 7.6 million people from jail and prison annually. However, within three years of their release, 2 in 3 people are re-arrested for parole violations or other crimes. As a result, half (50%) of those people are incarcerated again for their crimes (Healthy People, 2020). To improve these outcomes, prisons need to become more rehabilitation-oriented by implementing meaningful programs that allow inmates to engage in prosocial and positive activities.

TRADITIONAL INTERVENTIONS IN PRISON

Even though the United States is constitutionally required to provide healthcare to prisoners, it is not obligated to supply health-promoting opportunities. Such health-promoting activities could include exercise, stress-relieving activities, or the receipt of proper nutrition (Wallace & Wang, 2020). With that being said, a common mental health intervention provided within prison is the distribution of prescription drugs. The primary objective of a drug intervention is to manage the mental health symptoms of diagnosed inmates (Bronson & Berzofsky, 2017). Although this intervention is beneficial in managing symptoms of illness and keeping inmates safe during their incarceration, inmates are frequently unable to obtain their medication upon release. It is often expensive and difficult for inmates to continue such treatment as most lack access to healthcare or medical treatment facilities once released. Therefore, while this treatment is cost-effective and efficient for correctional facilities to utilize, it can perpetuate the opposite effect for inmates, often resulting in increased odds of recidivism.

Cognitive Behavioral Therapy (CBT) is an intervention provided in some correctional institutions that is used to create a safe and trusting atmosphere where inmates can expose their true selves and feelings. CBT sessions are led by a licensed therapist or trained assistant and emphasize education, skill-building, and coping techniques. Due to its standardized treatment procedures, CBT is inexpensive and easy to implement into a prison system. CBT is effective in improving mental health conditions, such as symptoms of depression, anxiety, and post-traumatic stress disorder (PTSD). However, for inmates with PTSD and depression, the benefits of CBT were found to be temporarily effective. Furthermore, the material presented during CBT sessions can trigger traumatic memories for some inmates. (Holman et al., 2019).

Another intervention correctional facilities may provide is programs that teach inmates skills to help them reintegrate into society. Such programs can include themes of work, education, and transition. Inmates involved in work programs are assigned to perform odd duties around the prison, such as laundry, lunch service, or janitorial duties. The prisons utilizing these additional programs report they are cost-effective and beneficial in improving an inmate's disciplinary behavior (Corleto, 2018). These findings suggest that the combined methods of rehabilitation and punishment have a higher likelihood of curbing delinquent behavior in inmates because their emotional needs are considered.

INTRODUCTION TO PRISON DOG PROGRAMS

The growing incarceration and recidivism crisis has caused society to begin shifting its inclinations of incarceration towards a more rehabilitative approach. Hence, more health-promoting interventions are

being established within correctional facilities, especially Animal-Assisted Interventions (AAIs). AAI is a term utilized to describe the deliberate incorporation of animals in multiple contexts, all of which are beneficial to humans. Therefore, other animal-assisted activities, therapies, and teachings are all interventions encompassed under the term AAI (Villafania-Dominguez et al., 2020).

Although traditionally seen as pets or animal companions, dogs have been resourceful in various educational, health, and therapeutic contexts. For instance, numerous studies have reported that dogs have a keen ability to prevent poor health, encourage recovery, and predict hidden illnesses, such as seizures or cancers (Humby & Barclay, 2018). As a result, dogs have been used as service animals for both the disabled and individuals prone to having seizures. In addition, these animals may also visit terminal hospital wings to facilitate recovery in patients. Dogs have assisted in educational settings by motivating students, reducing stress, and improving students' reading scores and focus (Humby & Barclay, 2018). Consequently, these discoveries have led to the implementation of dog-assisted interventions in various settings.

In the criminal justice setting, 290 U.S. State and Federal prisons have implemented Prison Dog Programs (PDPs) in their facilities (Cooke & Farrington, 2016). Inmates who participate in PDPs have experienced substantial benefits, including decreases in violent behavior, stress, poor self-esteem, symptoms of depression, infraction rates, and antisocial behavior (Villafania-Dominguez et al., 2020). These programs usually consist of the inmates learning to care, groom, and train the dogs; however, many different models can be applied. For instance, the *Community Service model* allows inmates to train and care for abandoned or shelter dogs until they are adopted or rehomed (d'Angelo et al., 2021; Humby & Barclay, 2018; Leonardi et al., 2018; Smith, 2019; Van Wormer et al., 2017). The primary objective of the community service program is to improve the behavior of the rescue dogs and the inmates. The program intends to improve engagement in education, employability skills, and overall well-being (Leonardi et al., 2018). The process used within this program can be enlightening for inmates as it is often mentioned that both the inmates and the dogs were rejected by society. Therefore, when inmates observe changes in the dog's behavior, they feel inspired to facilitate changes within themselves (Cooke & Farrington, 2016).

Another commonly used program model is the *Service Animal model*, which allows inmates to raise and train puppies to become service dogs for individuals with physical, mental, and psychological disabilities (Minton et al., 2015). The goal within this program is to teach inmates to have patience and empathy as well as how to work towards a common goal. Through this process, inmates often feel accomplished and recognize that they are doing a service for their community (Minton et al., 2015). The *Visitation model* is a program permitting volunteers to bring their pets to the prison to socialize with the inmates. While there are no standard objectives for these programs, inmates report feeling more normal and connected with society after petting and interacting with the dogs (Koda et al., 2015). Programs designed to increase an inmate's employment eligibility through vocational training utilize the *Vocational model*. Within the vocational model, inmates are certified in animal studies, grooming, and general care (Flynn et al., 2020). Finally, *Multimodal* programs are a combination of two or more of the aforementioned models or of an accredited therapy intervention and dog intervention (Contalbrigo et al., 2017; Eaton-Stull et al., 2020; Holman et al., 2019; Stetina et al., 2019).

THEORETICAL FOUNDATIONS OF PDPs

A review of the current literature on PDPs reveals an overall failure to apply theoretical explanations to the successes and failures of the program. However, considering the objectives and benefits of the mentioned program, the theories of Social Support, Attachment, and Mastery would be most applicable to this research.

According to Social Support Theory, the likelihood of committing delinquent behavior and crime can be reduced through experiences of instrumental, informational, and emotional support (Kort-Butler, 2018). In applying Social Support Theory to the current literature, one could assume that the dogs serve as a mediator for human social interactions. For instance, Minton et al. (2015), reported improved inmate/officer and inter-inmate relationships following participation in a PDP. Smith (2019) observed that inmates perceived program dogs as creating a sense of community and harmony within the

participating cell blocks. As a result, even inmates who were not directly involved within the program benefited from its positive effects.

Attachment Theory states that children have an innate desire to form attachments to others, especially primary attachment figures. However, if these attachments are dysfunctional, it can cause the child to develop unhealthy habits and experience trauma (Bowlby, 1958). Attachment theory can be applied to the current research under the assumption that the dogs may serve as the first concrete attachment inmates form either in prison or their lifetime. Cooke and Farrington (2016) noted that an inmate's participation in a PDP could be their first experience with unconditional love and acceptance. Therefore, becoming attached to the dogs may help inmates cope with stress, become more receptive to therapy, and develop better human connections (Duindam et al., 2018). Furthermore, inmates participating in PDPs bond with dogs that will eventually be adopted or otherwise removed from the inmate's possession. Thus, inmates may learn better coping mechanisms for handling their grief and feelings of abandonment (Cooke & Farrington, 2016).

According to Control-Mastery Theory, traumatic experiences and severe stress can cause an individual to develop poor self-identities and constricting beliefs. As a result, this theory predicts that developing new skills will allow an individual to deconstruct their negative self-image and become more self-aware (Younger, 1991). In applying Control-Mastery Theory to this research, one could assume that learning how to train the dogs provided inmates with a sense of accomplishment and pride; thus, improving their self-perception and mental health. In a survey by Leonardi et al. (2018), several inmates reported that successfully training and rehoming a dog provided them with increased confidence, self-efficacy, and autonomy. The inmates felt they had something positive to offer their community and society with PDPs.

LIERATURE REVIEW

The present review provides a fresh analysis of the current literature on the effects of PDPs in United States and international prisons. The review also provides recommendations for how future research should proceed. Within the current review, 10 of the 14 research articles focus on PDPs utilizing the community service model. The remaining four research articles examined multimodal programs involving a combination of therapy and visitation programs.

Standardization of Recruitment

Since research on PDPs is relatively new, studies are rarely conducted using the same standardized methods and procedures. The lack of standardization was most commonly seen in the recruitment process. As a result, some studies recruited participants with a history of substance abuse and addiction (Contalbrigo et al., 2017; Stetina et al., 2019) or mental illness (Eaton-Stull et al., 2020; Flynn et al., 2020; Holman et al., 2019; Koda et al., 2015). Most of the studies recruited participants for their lower risk of violence (Cooke & Farrington, 2014; d'Angelo et al., 2021; Humby & Barclay, 2018; Kunz-Lomelin & Nordberg, 2020; Leonardi et al., 2018; Smith, 2019), while only a few researched the effect of PDPs on inmates designated as high risk or incarcerated for violent crimes (Minton et al., 2015; Van Wormer et al., 2017). Given the discrepancy in the number of male and female offenders, studies also differed in whether they focused on only male inmates (Contalbrigo et al., 2017; Eaton-Stull et al., 2020; Koda et al., 2015; Kunz-Lomelin & Nordberg, 2020; Leonardi et al., 2018; Smith, 2019), female inmates (Holman et al., 2019; Minton et al., 2015), or a combination of both (d'Angelo et al., 2021; Flynn et al., 2020; Stetina et al., 2019).

The lack of standardization among these studies also occurred in the methods used to procure animals for these programs. Hence, dogs were recruited from either local animal shelters (d'Angelo et al., 2021; Humby & Barclay, 2018; Kunz-Lomelin & Nordberg, 2020; Leonardi et al., 2018; Smith, 2019; Van Wormer et al., 2017), or volunteers in the surrounding community (Contalbrigo et al., 2017; Eaton-Stull et al., 2020; Flynn et al., 2020; Holman et al., 2019; Stetina et al., 2019).

Duration of Sessions

Regarding the duration and frequency of the PDP, most of the interventions reported holding 8-12 sessions throughout the program (d'Angelo et al., 2021; Eaton-Stull et al., 2020; Holman et al., 2019; Koda et al., 2015; Leonardi et al., 2018; Stetina et al., 2019). However, some programs reported having as few as two sessions (Flynn et al., 2020) or as many as 20 (Contalbrigo et al., 2017). Studies that opted to simply survey inmates reported having a single one-hour session where questionnaire distribution or interviews occurred. (Cooke & Farrington, 2014; Humby & Barclay, 2018; Minton et al., 2015; Smith, 2019). While not specifically reported by previous studies, past research has indicated longer therapeutic programs and interventions have a greater effect on subjects (Villafaina et al., 2020). Therefore, future studies should investigate the correlation between program length and effectiveness.

Handler Training and Animal Certification

Few studies within this literature indicated whether handlers received proper training. However, when this information was specified, handlers were routinely community volunteers trained outside of the prison program (Holman et al., 2019; Koda et al., 2015). In some studies, if the prisoners displayed good behavior or were experienced with the PDP, they were selected to fulfill the handler role (Smith, 2019).

Most of the PDP studies used AAI-certified and well-trained dogs (Contalbrigo et al., 2017; Eaton-Stull et al., 2020; Holman et al., 2019; Koda et al., 2015). Other studies chose to use uncertified but well-tempered dogs (d'Angelo et al., 2021; Humby & Barclay, 2018; Koda et al., 2015; Leonardi et al., 2018; Smith, 2019; Stetina et al., 2019). For these studies, recruiting untrained dogs was necessary due to the type of program model used within the prison. For example, in the service animal or community service programs, the inmates are responsible for training the dogs; therefore, recruiting already trained dogs would defeat the purpose of the program. Despite this research emphasizing the utilization of dogs, few studies actually described the dogs used within the PDP. Studies that did report the demographics of the recruited dogs were descriptive in mentioning the dog's breed, size, age, and temper (d'Angelo et al., 2021; Koda et al., 2015; Kunz-Lomelin & Nordberg, 2020; Leonardi et al., 2018).

RESEARCH METHOD

Methodological Controls

Regarding the use of methodological control within this research, only four studies utilized control or comparison groups (Contalbrigo et al., 2017; Flynn et al., 2020; Holman et al., 2019; Van Wormer et al., 2017) while the majority failed to do so (Cooke & Farrington, 2014; d'Angelo et al., 2021; Eaton-Stull et al., 2020; Humby & Barclay, 2018; Koda et al., 2015; Kunz-Lomelin & Nordberg, 2020; Leonardi et al., 2018; Minton et al., 2015; Smith, 2019). While it is understandable why these studies failed to achieve quality research standards within such a limited environment, studies that lack control or comparison groups become vulnerable to validity threats and bias. Concerning research on PDPs, the studies that lacked control groups are especially vulnerable to the novelty effect which occurs when participants are exposed to new and exciting experimental procedures during an intervention. Considering a majority of the research in this field has failed to utilize a control group, it is difficult to determine if inmates benefited from effects of the PDP or merely a deviation in normal prison life.

Threats to Internal Validity

Within the current literature, internal validity was threatened by attrition, selection bias, and social interaction. The unpredictability of the prison environment caused attrition to commonly threaten internal validity. Several studies indicated that poor attrition rates were caused by inmates being transferred or released from prison (Contalbrigo et al., 2017; Leonardi et al., 2018), while others implicated illness and conflicting work schedules as the primary reason (Minton et al., 2015). In a study by Kunz-Lomelin & Nordberg (2020), only 17 (33.3%) of the original 50 inmates were able to complete the program. As a result, studies with poor attrition rates are prevented from collecting sufficient data and presenting unbiased results.

When working with a complex and potentially volatile population, like inmates, safety is a top priority. To maximize safety efforts, many studies selected participants based on their past criminal records and current attitude towards authority. Hence, selection bias was observed as a common threat to the internal validity of this research. Several studies reported the participants selected for inclusion in PDPs were not representative of the general prison population. These prisoners were often the best-behaved inmates with the least number of behavioral infractions (Eaton-Stull et al., 2020; Smith, 2019; Van Wormer et al., 2017). An in-depth discussion of the observed selection bias within this research is included in the limitations section of this review.

Prisons are often overpopulated, resulting in inmates being stripped of their privacy and personal living space. For this reason, the secrets and private affairs of inmates are often quickly exposed regardless of the inmate's personal feelings about the matter. Poor social interaction can threaten the internal validity of a study because it demoralizes resentful participants causing them to perform poorly. Minton et al. (2015) identified the social interaction between inmates within the PDP and inmates or officers who were not supportive of the program as an internal validity threat. During the study, several participants reported that interacting with non-supportive peers and officers often discouraged them and made the process more difficult to complete with an open mind. A thorough discussion of the socialization threat within this research is provided in the limitations section of this review.

Other Confounding Variables

Construct validity is another vulnerability within this area of research. Construct validity measures whether an experiment's intended variables or constructs were accurately measured or inferred, thus, reducing the likelihood of reaching biased results. Within the current literature on PDPs, construct confounding was a problem for several studies using multimodal programs as it was difficult to distinguish which aspect of the program was benefitting the participants. Considering these programs use a mixture of empirically verified therapy programs combined with dog visitation programs, it can be problematic to discern whether it is the therapy helping the inmates or the presence of the dog (Contalbrigo et al., 2017; Eaton-Stull et al., 2020; Holman et al., 2019; Stetina et al., 2019).

Holman et al. (2019), analyzed the construct confounding issue by drawing comparisons between routine Cognitive Behavior Therapy (CBT) sessions and Animal Assisted Therapy (AAT) sessions. The AAT sessions were designed to encompass a similar treatment procedure to the CBT sessions; however, the AAT sessions were manipulated to emphasize the therapy dog rather than the inmate's trauma. As a result, the study found few differences between the effectiveness of the CBT and AAT sessions on reducing symptoms of mental illness. With that being said, Holman et al. (2019) noted that the presence of the dog in the AAT group appeared to make the entire prison cell happier and more social, not just the participating inmates. While the dog's presence at the AAT sessions did appear to have a prosocial effect within the Holman et al. (2019) study, more research is needed to determine whether the reported decrease in mental health symptoms were experienced because of the dogs or the therapy.

MEASUREMENT OUTCOMES

The most measured outcome within PDP research were psychological outcomes, such as symptoms of distress, anxiety, depression, and PTSD (Contalbrigo et al., 2017; d'Angelo et al., 2021; Eaton-Stull et al., 2020; Flynn et al., 2020; Holman et al., 2019; Koda et al., 2015; Kunz-Lomelin & Nordberg, 2020). Another measured outcome was emotion and emotional intelligence outcomes, such as empathy, self-efficacy, self-concept, and emotional status (Flynn et al., 2020; Stetina et al., 2019). Lastly, the number of infractions each inmate incurred throughout their participation in the PDP was measured (Flynn et al., 2020; Van Wormer et al., 2017).

Considering the novelty of the current literature, it is unsurprising that the studies addressing the previously mentioned outcomes failed to use similar instruments to analyze data. Nevertheless, using such a broad range of research questionnaires to measure similar outcomes may lead to procedural inconsistencies and questionable results. Furthermore, except for one study that employed a multi-

informant method of reporting (Koda et al., 2015), all studies used self-reported measures when inquiring about participants' experience within the program (Cooke & Farrington, 2014; Contalbrigo et al., 2017; d'Angelo et al., 2021; Eaton-Stull et al., 2020; Flynn et al., 2020; Holman et al., 2019; Humby & Barclay, 2018; Leonardi et al., 2018; Minton et al., 2015; Smith, 2019; Van Wormer et al., 2017). Utilizing self-reported measures as the only source of data collection can make a study vulnerable to observational bias; thus, threatening internal and construct validity.

RESULTS

Psychological Benefits

Concerning the psychological benefits resulting from PDPs, the most reported benefits were an increase in responsibility, improved mood, and newfound altruism (Cooke & Farrington, 2016; Humby & Barclay, 2018; Koda et al., 2015; Leonardi et al., 2018). Leonardi et al. (2018) found that inmates participating in PDPs gained a newfound sense of responsibility and maturity that felt significantly different from their other experiences. The inmates also indicated feeling they were making significant contributions to their community through their participation in the program. Furthermore, numerous studies reported a significant decrease in recurring symptoms of anxiety, depression, and PTSD as well as significant declines in stress (Contalbrigo et al., 2017; Eaton-Stull et al., 2020; Flynn et al., 2020; Holman et al., 2019; Koda et al., 2015; Kunz-Lomelin & Nordberg, 2020).

Emotional Benefits

The current literature on PDPs reported several emotional benefits, such as increased empathy, self-efficacy, self-concept, and management of emotions (Cooke & Farrington, 2014; Flynn et al., 2020; Leonardi et al., 2018; Minton et al., 2015; Smith, 2019; Stetina et al., 2019). Minton et al. (2015), observed that 45% of participating inmates believed the program helped make their self-perception more positive. Other inmates reported developing empathy and a newfound ability to view issues from someone else's perspective. Leonardi et al. (2018) noted that inmates reported developing a greater sense of control over their emotions, as they found that expressions of frustration often prevented the dogs from learning new demands. As a result, the inmates observed an improvement in their patience and calmness, which they believe resulted from attempting to train dogs with different paces and learning curves. Other studies found that improvements in emotional health and wellbeing created stronger social bonds among the inmates and a few correctional officers (Humby & Barclay, 2018; Leonardi et al., 2018; Minton et al., 2015; Smith, 2019).

Behavioral Benefits

Studies that analyzed inmate misconduct and the associated rate of infractions found that the number of infractions an inmate received decreased significantly upon their recruitment into PDPs (Eaton-Stull et al., 2020; Flynn et al., 2020; Van Wormer et al., 2017). For instance, Flynn et al. (2020) analyzed the behavior of 229 male and female inmates across 10 prisons in Washington State. These researchers found that inmates assigned to the AAI group had a significantly lower rate of acquired infractions when compared to their pre-program rates. The AAI group also experienced a greater decline in acquired infractions than the control group. As a result, several researchers theorized that a reduction in deviant behavior was caused by fear of being removed from the highly selective program (Eaton-stull et al., 2020; Flynn et al., 2020; Holman et al., 2019). However, in a survey by Leonardi et al. (2018), participants implicated their commitment to the program as the cause for their significant improvement in behavior.

Additional Benefits

In addition to providing beneficial effects for the inmates, PDPs can positively affect the dogs recruited for the program. For example, d'Angelo et al. (2021) measured the cortisol levels of participating dogs by collecting samples of their saliva before, during, and after the dog's participation in a PDP. As a result, the study found that cortisol levels were higher before the dog participated in the program than after. Considering the dogs were recruited from a local animal shelter, d'Angelo et al. (2021) proposed that temporarily leaving the shelter to participate in PDPs benefitted the dogs' overall welfare. These results were also found in research by Koda et al. (2015), where the same cortisol level test was employed.

Negative Consequences

While the current research on PDPs reports many benefits, only one study reported program failures or consequences. In a study by Stetina et al. (2019), it was noted that the PDPs appear more effective for men than women. The researchers suggested that these results occurred because the male inmates were physically and mentally healthier than the female inmates due to fewer experienced stressors. With the limited number of studies reporting negative consequences, this field of research could be plagued by publication bias which threatens internal validity. Publication bias occurs when empirical studies that did not find significant or positive results are less likely to be published than studies with these qualifications (Duindam et al., 2018). Therefore, it is suggested that it become common practice to report negative outcomes resulting from studies on PDPs, as improving experimental techniques and knowledge is the only way these programs can be improved upon.

LIMITATIONS

Several limitations were observed within the current literature on PDPs. For instance, with the exception of two studies conducted in maximum security prisons (Minton et al., 2015; Smith, 2019), most studies only utilized the “good inmates” or the inmates with the lowest number of behavioral infractions. While this recruitment technique is employed for safety reasons, it prevents studies from drawing valid conclusions on whether deviant behavior can be changed by using PDPs. However, this limitation could be resolved by allowing high-risk inmates to participate in the PDPs. Allowing the participation of high-risk inmates would strengthen the conclusions drawn within this research because it would verify that PDPs benefit all inmates, not merely the well-behaved ones. Considering safety is a concern when working with unpredictable people, it is suggested that programs intending to work with such inmates recruit handlers and dogs with training or experience in highly stressful situations (i.e., retired military and police, or crisis response teams). Due to their intense training, these dogs react well in potentially hazardous situations.

Another notable limitation is resistance from corrections officers regarding the implementation and practice of PDPs (Minton et al., 2015). As previously mentioned, poor socialization can result in the demoralization and poor performance of inmates participating in PDPs. As a result, resistance from corrections officers can be one of the most harmful limitations as it discourages inmates from making progress. Nevertheless, this limitation could be resolved by exploring why correction officers are averse to implementing PDPs. Information sessions can also be given to corrections officers on how PDPs are beneficial to them as well as the inmates. Furthermore, correction officers could be integrated into the program by training them to be animal handlers. Providing officers with such training might lead them to value the program’s success more than they currently do.

COST OF THE INTERVENTION

Several studies failed to mention how PDPs were funded and whether insufficient funding could be an issue these programs encounter in the future. Humby and Barclay (2018) noted 65% of PDPs in Australia receive a majority of their funding from private donations by the public community. The remaining 35% were financed by a combination of donations and money earned from either affiliated animal welfare organizations, corrective services, or dog adoption fees. Financial funding for PDPs is allocated towards program costs, such as dog food, veterinary fees, training equipment, and animal shelter maintenance. In the United States, PDPs are cost-effective for the public and prisons as many programs are financed using animal agency funds and donations rather than taxpayer money. Furthermore, it is cheaper to train service dogs in prison than in outside facilities. Training a service dog at a private facility costs between \$10,000 to \$12,000, whereas training a service dog in prison costs \$4,000 (Cooke & Farrington, 2016).

NEXT STEPS IN RESEARCH

Future studies on PDPs should consider the following suggestions as it is expected that these recommendations will strengthen future findings and aid the advancement of this field. As suggested by Humby and Barclay (2018), future studies should design an official program model that provides all

PDPs with the same approach, design, and delivery as this would eliminate the variability within the current research, thus, reducing bias and improving validity. Second, future studies could explore the impact PDPs have on the shelter dog population and euthanasia rates. Exploring the impact of these programs beyond just inmates would be highly beneficial, as it would verify that PDPs are also beneficial to the participating dogs. Finally, the relationship between inmates and correctional officers should be examined as this may provide insight into why correctional officers are resistant to implementing PDPs. Since PDPs are growing in popularity, it is imperative that more research is conducted to improve the current understanding and implement better versions of this program in the future.

RECOMMENDATIONS FOR EXTENSION AND USE WITHIN THE PRISON POPULATION

Based on the current research in this area, it is advised that PDPs are enhanced using one of the following suggestions. First, by expanding the PDP hours inmates could participate in the program at their own pace, thus, allowing more absorption of the intended benefits. Another improvement would be to hire formal dog trainers and handlers who could teach inmates proper training techniques. As a result, this improvement would increase the participating inmate's employability skills. Finally, PDPs could be improved by including programs geared toward the reintegration of released inmates. Providing reintegration training as a supplement to PDPs would reduce the likelihood of recidivation. If the aforementioned suggestions were to be implemented, these programs would produce better results and run more efficiently.

CONCLUSION

PDPs could be beneficial in improving male and female inmate's infraction rates, mental health issues, emotional problems, employability, and vocational skills. Despite the growing interest in this field, there has been little methodologically rigorous research on the effectiveness of these programs when applied to prisoners with mental illness and in terms of overall prisoner rehabilitation. For this reason, it is recommended that future studies apply more structured and empirically tested methodological procedures when testing the effectiveness of these programs, as this will allow stronger conclusions and recommendations to be made.

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