Introduction

Incarceration rates have increased 500% in the past 40 years (The Sentencing Project, 2022), leading to detrimental impacts on the mental health and well-being of incarcerated individuals due to a lack of adequate mental health care. Prisons face an increasing demand for therapeutic interventions to rehabilitate inmates and improve overall well-being. According to Thekkumkara and colleagues (2022), rates of mental and substance use disorders are three to five times higher among inmates, and they exhibit significantly higher levels of depression and life dissatisfaction (Yi et al., 2016). This literature review explores how animal-assisted interventions (AAI) can be beneficial in prison contexts to address the mental health crisis and, ultimately, reform the prison system. It explores the theoretical basis for animal-assisted interventions, going into detail about AAI in various settings, touching on mental health in prisons, and finally, addressing the ways in which AAI can be beneficial to incarcerated individuals.

Human-Canine Bond Theory

There is a strong neurobiological basis for the attachment between humans and canines, as explored by Odendaal and Meintjes (2003). This study examined the human-animal bond (HAB) by measuring blood pressure and levels of various neurochemicals and hormones in their blood, including dopamine (a neurotransmitter associated with reward and pleasure), cortisol (the stress hormone), and oxytocin (the love hormone). Between 5 and 24 minutes of interaction, both the dogs and humans showed a decrease in blood pressure. Humans showed a decrease in cortisol and an increase in concentrations of dopamine, and both humans and dogs showed an increase in oxytocin levels. The decrease in blood pressure and the decrease of cortisol in humans shows how relaxing canine interaction can be. The increase in oxytocin shows the joy that comes from human-canine interactions for both the dog and the animal.

While Odendaal and Meintjes (2003) explored the neurobiological mechanisms underlying the human-canine bond, Nagasawa and colleagues (2009) explored this same relationship with a focus on

attachment theory. We bond with dogs primarily through visual stimuli, or "gazing." Even though dogs have much more developed olfactory and auditory centers, we not only bond with dogs through vision, but dogs can differentiate their owner from other humans by simply looking at a photo. These findings provide a neurological basis and theoretical support of the effectiveness of AAI. The attachment between dogs and humans mirrors attachment styles between mothers and infants. Attachment theory examines how early relationships with caregivers influence future development and behavior, with secure attachments being crucial to foster healthy relationships and well-being in adulthood.

Therapy Dogs

Animal-assisted intervention (AAI) is an umbrella term encompassing animal-assisted therapy (AAT), animal-assisted activity (AAA), and animal-assisted education (AAE). AAT refers to therapeutic programs with structure and goals, using trained and certified therapy dogs. AAA refers to less structured, often recreational activities involving dogs, providing comfort rather than performing specific tasks. This may include bringing pets to facilities like nursing homes and hospitals, or participating in playful activities like playing fetch. AAE refers to the use of animals in educational settings. Examples of AAE include reading programs, where children may read to dogs in a classroom setting to improve reading skills, as well as support for special education programs, as the presence of dogs has been shown to improve socio-emotional behavior (Brelsford et al., 2017).

Therapy dogs have been used in a variety of settings, such as schools, hospitals, nursing homes, prisons, and mental health facilities. There is growing interest in the use of dogs in therapeutic settings, as dogs have been found to benefit people in a number of ways. These benefits include reductions in symptoms of depression, dementia, post-traumatic stress disorder (PTSD) (Charry-Sánchez et al., 2018), and schizophrenia (Koukourikos et al., 2019).

Additionally, canine interaction can improve physical health, benefiting patients with MS and spinal cord injuries (Charry-Sánchez et al., 2018). Canine interaction can act as a preventor of physical

health issues, as pet owners have been found to be healthier than non-owners (Wilson & Turner, 1998 as cited in Wells, 2007). For example, Friedmann and Thomas (1995) found that dog owners were 8.6 times more likely to be alive one year after a heart attack than non-dog owners. There is evidence of dogs' ability to predict illnesses like cancer, seizures, and hypoglycaemia (Wells, 2007). For example, dogs have been trained to detect bladder cancer using olfactory senses (Willis et al., 2004). It is clear that dogs have demonstrated the ability to improve psychological and physical well-being in a variety of ways.

Therapy dogs in schools

Animal-assisted education has been shown to reduce students' stress and anxiety, providing them with comfort and unconditional acceptance (Baird et al., 2023). The presence of a therapy dog facilitates learning, promotes social skills, and improves overall well-being (Wintermantel & Grove, 2022). When conducting a program with therapy dogs in schools, one must consider issues like allergies and sanitation, as there are no official guidelines (Grove et al., 2021).

Therapy dogs in hospitals

As human-canine interaction has been shown to decrease cortisol levels and increase oxytocin, the presence of therapy dogs in hospitals has shown positive effects. As explored by McCullough and colleagues (2016), therapy dogs can improve patients' mood and increase communication and socialization, creating a more positive environment and boosting morale of patients and staff alike. They also decrease levels of anxiety and depression in patients, and alleviate burn-out among medical staff. Participating dogs must be monitored and regularly screened for illness, as safety is especially crucial in hospital settings, particularly for immunocompromised patients

Therapy dogs in nursing homes

AAT programs are increasingly popular interventions in nursing homes, with promising benefits. They promote physical activity and social interaction, improving psychological and physiological well-being. AAT programs in nursing homes have been particularly effective in decreasing loneliness, a common feeling among nursing home residents. The more time residents spent with dogs, the more feelings of loneliness decreased (Vrbanac et al., 2013).

Challenges and Ethical Considerations

While AAI interventions have had positive effects in the above settings, there are some risks. Though these programs are often beneficial to human participants, it is vital to consider the impact on the participating dogs and prioritize their welfare. Selection is crucial, particularly when it comes to therapy dogs. Dogs and handlers must be evaluated, extensively trained, and certified. The dog and handler must be a good match to prevent dogs from becoming anxious, distressed, or disinterested (Winkle et al., 2020). Participating dogs should be calm and content when performing their tasks.

While AAI continues to grow in popularity, the field lacks sufficient research. There exists no accredited body outlining rules and regulations, which presents ethical concerns as well as discrepancies in the research and in design of programs and studies. This literature review will explore the use of AAT in correctional settings, examining the effects on both inmates and dogs, ethical considerations, and directions for future research.

Mental Health in Prisons

Given the rising rates of mental health issues among incarcerated individuals, it is crucial to implement interventions to effectively address this crisis. There is a high comorbidity among this population, with over 40% of inmates experiencing mental health issues (American Psychiatric Association, 2024). This comorbidity exists, in part, due to the criminalization of those with mental

disorders who are incarcerated rather than hospitalized, often in facilities with insufficient mental health care (Warth, 2022). A major factor for the high rates of mental illness in prisons is the psychological effect of incarceration itself. Not only does incarceration induce or exacerbate mental health issues due to various associated stressors, but the lack of adequate mental health care to address these issues only worsens conditions.

A significant stressor associated with incarceration is the prison environment. Incarcerated individuals are severely limited in their movement and therefore in human contact, which can potentially trigger anxiety, panic attacks, hallucinations and even suicidal ideation, particularly for inmates in solitary confinement (National Research Council, 2013). Social isolation is incredibly detrimental to human health, and inmates are isolated not only within prisons, but from their loved ones as well, causing intense feelings of loneliness (Haney, 2018). Lack of autonomy and feelings of helplessness contribute to mental health deterioration and depression (Mazher & Arai, 2025). Similarly, prison structures often dehumanize inmates, referring to them by numbers rather than names, which causes a deterioration in mental health (Robison et al., 2024). Additionally, the prison setting often exposes inmates to violence, leading to fearfulness, stress, and post-traumatic stress disorder (Wolff et al., 2009).

Various mental health interventions have been found to be beneficial in treating incarcerated individuals, Cognitive Behavioral Therapy, and mindfulness therapies decrease levels of anxiety and depression (Yoon et al., 2017). These interventions are also associated with a reduction in substance abuse and improvement in social skills (Thekkumkara et al., 2023).

However, many inmates have a distrust of psychological interventions. This common sentiment results from the shift to passive assessment without sufficient psychological support, which makes inmates feel dehumanized and hesitant to open up for fear of consequences or judgement (Maruna, 2011). Animal-assisted therapy provides an alternative to talk therapy that promotes empathy, prosociality and openness, decreases institutional infractions, and improves the overall well-being of inmates (Fornier et

al., 2007; Gibson et al., 2023). These interventions may provide an alternative route for inmates who are resistant to other forms of therapy.

Animal-Assisted Interventions in Correctional Settings

Animal-assisted interventions (AAI) and animal-assisted therapies (AAT) have recently been implemented in prison settings, and are found to be beneficial to the mental health of those in prison. Fournier and colleagues (2007), followed a program called PenPals, which selects dogs from shelters for volunteer inmates to live with and train over 8-10 weeks. After the program, there was a decrease in institutional infractions and an improvement in treatment progress and social skills. Similarly, Leonardi and colleagues (2024), implemented a training program, but focused on the positive effects on the dogs themselves. After 8 weeks, the rescue dogs showed significant behavioral improvement, thereby making them more adoptable. These two studies exemplify how AAI can be beneficial both to inmates and to the participating dogs.

Therapy dogs programs have been effective in psychiatric prisons as well. Smith and colleagues (2023), conducted a case study following the effects of AAT on 6 prisoners, specifically looking at the influence of the human-animal bond on attachment style. The HAB served as a form of attachment with four major themes: touch, safety, reciprocity, and acceptance. Physical touch, such as petting and cuddling, provided comfort that was previously unavailable, allowing inmates to feel safe and secure in the presence of their dog. They took comfort in the dogs' unconditional positive regard and reciprocation of warmth. This study exemplifies how dogs can serve as healthy attachment figures for incarcerated individuals, even substituting for those who do not have or have not had a healthy attachment figure.

Animal-assisted therapy has been shown to improve the prison climate and prisoner-staff relationships. Gibson and colleagues (2023) followed a canine-assisted learning program in a Canadian prison. As reported by staff members, there was a significant shift in the prison environment, notably that there was an increase in love. Inmates felt cared for, becoming more comfortable and vulnerable, forming

positive relationships with staff members, and developing a more positive outlook on the prison itself. This program lasted only four days yet showed significant progress, demonstrating just how influential the presence of dogs can be. A positive relationship with staff members and the prison itself is a very valuable form of harm reduction and crucial to rehabilitation, as inmates are less likely to reoffend in a positive and supportive environment (Auty & Leibling, 2018, as cited in Dibsie, 2023).

A major issue in the prison system is the high recidivism rate. Within a year of release two out of three people are arrested for re-offending, half of whom are incarcerated again (Healthy People, 2020, as cited in Dibsie, 2023). There have been few studies on the effect of AAI on recidivism, and the results are mixed. Duindam and colleagues (2021) examined the effects of a prison-based dog-training program on recidivism and self-reported criminal behavior. There were no major effects found, which is consistent with prior research on short-term AAI initiatives aimed to decrease recidivism (Beaudry et al., 2021). The study suggests that long-term programs and post-release support is necessary to meaningfully decrease recidivism rates, continuing treatment as individuals reintegrate into society.

Conclusion

There is a pressing need for mental health interventions in correctional settings. This literature review contributes to the growing body of research exploring the benefits of animal-assisted therapy (AAT) in correctional settings, emphasizing its role in enhancing inmate behavior, mental health, and overall well-being. The human-canine bond is powerful, and AAI has shown positive psychological, physiological, and behavioral benefits in various settings, such as schools, nursing homes, and hospitals. This review also highlights the potential positive impacts on the participating animals, particularly in programs where rescue dogs are rehabilitated and becoming more adoptable while fostering empathy, openness, and prosocial behaviors in incarcerated individuals. While animals may benefit from these interactions, it is crucial to prioritize their safety and well-being during these programs.

Limitations and Future Directions

Though these findings are promising, several challenges remain. The lack of an accredited body to regulate AAT practices raises ethical concerns, particularly surrounding the treatment of participating animals, and leads to inconsistencies among research and program structures. As previously stated, one must consider the impact of AAI on dogs, particularly in the prison setting, which can be a volatile environment. Participating inmates should not have a history of violent behavior or animal abuse, and dogs' affect should be closely monitored to ensure the dog does not become overwhelmed, distressed, or agitated.

Many AAI initiatives that have been implemented in prison settings are short-term, underscoring the need for further research on long-term interventions and their potential effects on recidivism. The transition from correctional settings to reintegration into society is distressing. Incarcerated individuals often lack sufficient support during this transition, and long-term follow-up results do not show as much promise in reducing recidivism as short-term results.

Future in-depth, longitudinal studies will be essential to assess the impact of AAT in prisons. Establishing standardized national guidelines will streamline the effectiveness of these programs across different contexts, ensuring good practice and effective program structure. Many studies in this field are not generalizable as they use small sample sizes or lack control groups. More robust research considering any confounding factors is needed. Despite gaps in research, AAT presents a promising alternative approach to rehabilitation in prison settings and beyond.

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