Mediterranean Journal of Clinical Psychology

ISSN 2282-1619

MJCP

Articles in press

Affiliative Bonds and Cruel Behavior in Childhood Interspecific Relationships: A Conceptual Framework on the Psychodynamics of Affect Regulation

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Abstract

Background: Childhood interspecific relationships can be viewed as a mirror of the person's capacity to interact with other living beings. The interspecific relationship can involve different attachment styles, affect regulation skills, transitional object dynamics, and self-awareness and mentalization processes. Yet interspecific relationships can also be disrupted, since they can be associated with cruel behavior toward animals, which is in turn related to possible psychopathology.

Method: We provided a conceptual framework based on the literature addressing the interspecific relationship in both its adaptive and positive features as well as in its disrupted aspects.

Discussion: Pets have often been regarded as attachment figures that can aid children in socialization and growth processes. They have been deemed to represent "social catalysts" that tend to facilitate human relationships, thus increasing prosocial behaviors. On the dark side of the pet-child interaction, childhood abuse of animals tends to be associated with behavioral and emotional problems that have been thought of as underlying psychopathology (e.g., conduct disorder and antisocial personality traits). Childhood cruelty to animals seems to accompany emotion dysregulation, poor social information processing, and low empathy.

Conclusions: Since the child-pet relationship has substantial implications for the individual's mental health and for the potential development of psychopathology, addressing children's attitudes toward animals can aid in understanding the affective and emotional dimensions of their interpersonal experience.

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Keywords:
Affect regulation; Childhood interspecific relationship; Conduct disorder; Antisocial traits; Clinical psychology.

Received: 4 August 2022
Accepted: 8 September 2022
Published: 28 December 2022

Citation: Mezzalira, S., Scandurra, C., Santaniello, A., Mezza, F., Saturnino, C., Cristiano, S., Pizzo, R., Maldonato, N.M., Menna, L.F., Bochicchio, V. (2022). Affiliative Bonds and Cruel Behavior in Childhood Interspecific Relationships: A Conceptual Framework on the Psychodynamics of Affect Regulation. *Mediterranean Journal of Clinical Psychology, 10*(3).
https://doi.org/10.13129/2282-1619/mjcp-3547

1. Introduction

The human-animal relationship represents a central topic in comparative psychology (Hosey & Melfi, 2014). The interspecific relationship can involve different attachment styles (Sable, 2008; Shaver & Mikulincer, 2007), affect regulation skills (Parfitt & Alleyne, 2018), transitional object dynamics (McNicholas & Collis, 2001), and self-awareness and mentalization processes (Davis, 1987; van Houtte & Jarvis, 1995). On the other hand, interspecific relationships can also be disrupted, since they can be associated with cruel behavior toward animals, which is in turn related to possible psychopathology (Girotra, 2021; Shapiro et al., 2006). However, outlining a rift between positive and negative aspects of the child-animal interaction risks to dichotomize the forms that the pet-child bond can acquire, and to separate phenomena that can co-occur, such as affiliative behavior and harmful conduct (Wauthier & Williams, 2022). In this view, "kindness and cruelty" (Ascione, 2005; Ascione & Shapiro, 2009) might be regarded as different forms of the interspecific relationship that can characterize this type of interaction without being mutually exclusive. In any case, the human-animal interaction is to be viewed considering the different environmental milieus in which it takes place, which comprise physical, social, and cultural factors (Melson, 2011).

Within the field of Animal Assisted Intervention (AAI) settings, Animal-Assisted Therapy (AAT), founded by Levinson (1969), is a healing method used to achieve therapeutic action by means of animal-human interactions whose effects are supposed to (at least partially) consist of the "tactile comfort" that is so produced (Halm, 2008). Even though it seems to be still lacking a valid, unified framework (Geist, 2011), AAT has been shown to reduce symptoms of various psychic and physical disorders, and to enhance emotional well-being (Fine, 2006). Animal-Assisted Education (AAE), as well as animal-assisted activities, have been also proven significant in children's education and emotion regulation (Arkow, 2010; Scandurra, Santantaniello et al., 2021; Mezza et al., 2022). Overall, AAE seems to be beneficial for children, even though a lack of reference to risk assessment and animal welfare have been also pointed out (Brelsford et al., 2017).

Reviews already exist as to the value and implications of human-animal interactions (Hosey & Melfi, 2014; Barker & Wolen, 2008; Herzog, 2007; McNicholas et al., 2005; Wells, 2019), some of which specifically focus on animal abuse and cruel behavior (Gullone, 2014; Longobardi & Badenes-Ribera, 2018; McPhedran, 2009; Mogbo et al., 2013), whereas others are based on a developmental framework (Mueller, 2021; Purewal et al., 2017). Hosey and Melfi (2014) pointed out that research on human-animal interactions does not represent a unified field, and that much

still needs to be done in order to better define standard terminology, discover the types of effects of these interactions, and enhance the research efforts to include laboratory, zoo, and wild-living animals. Wells (2019) reviewed the effects that human-animal interactions have on different dimensions of the individuals' well-being, including social life and physical health, and discussed the extent to which attitudes such as biophilia or the tendency to own pets is actually relevant in enhancing the individuals' well-being. Herzog (2007) highlighted that, in different domains of human-animal interactions, the genders tend to behave very similarly, and that the type of interaction influences the way the genders think about non-human animals. Reviews have been also written regarding the interaction between humans and farm animals (Waiblinger et al., 2006; Zulkifli, 2013), whose focus is more concentrated on productivity and animal welfare than on humans' perception of the interspecific interaction.

1.1 The present study

Our work is intended to clearly outline different modes of the interspecific relationship, which can acquire the form of an affectionate, affiliative bond, but can also be accompanied by disrupted, cruel behavior toward animals. We aim to investigate how interspecific relationships can acquire different psychological meanings based on the type of interaction that is involved. Indeed, the frequent use of the term "companion" rather than "pet" points to the significance of a psychological relationship between human and animal (Walsh, 2009). However, there is still a great debate on this topic. On the one hand, it has been shown that animals can aid in enhancing individuals' health outcomes, in particular when they are combined with established interventions (Nimer & Lundahl, 2007). On the other hand, however, as Droboniku and Mychailyszyn (2021) showed in their meta-analysis, the effects of animal integration into treatment methods for young individuals with neurodiversity (e.g., autistic people) seem to be relatively small. Therefore, there seems to be no unified position on the effects that the interspecific relationship has on the individuals' mental health and well-being. Our paper is thus intended to be a contribution to such debate.

2. The animal-human bond and the socio-emotional development of the child

Mueller (2021) suggested that "relationships with animals can be a particularly important component of the developmental system" (p. 54). In this view, the relationship between children and animals is deemed to be dynamic, often changing, and never static. Companion animals have been consistently regarded as representing significant social objects that can foster children's socio-emotional development (Cain, 1983; Melson, 1988; Salmon & Salmon, 1983). The pet-child bond has been thought of as having stabilizing effects on both emotional and

social levels (Poresky & Hendrix, 1990). Pets seem to serve as bonding facilitators (Corson & Corson, 1981), and as "social catalysts" (McNicholas & Collis, 2000; McNicholas et al., 2005) that can facilitate other human relationships and increase prosocial behavior (Pachana et al., 2011). Mueller (2021) argued that companion animals have a "social lubricant" role, since they foster inter-human relationships as well. Caring for and looking after one's pet thus seems to be a significant aspect for the child's growth process and developmental trajectory (Mueller, 2021; Rost & Hartmann, 1994).

The child's psychological and emotional development can be facilitated by the presence of companion animals (Robin & ten Bensel, 1985; Stevens, 1990), which can provide a sense of security and protection (Vidović et al., 1999). Children who own pets have been found to benefit from better social integration, relational life, and popularity among peers (Endenburg & Baarda, 1995). Pet ownership seems to promote better coping skills and positive social values in children, and is also relevant for the child to build positive self-concept, self-esteem, empathy, and autonomy (Davis, 1987; Levinson, 1978; van Houtte & Jarvis, 1995). Pets not only play an important role in offering psychological, emotional, and physiological benefits, but they also contribute to the person's health and well-being (Peacock et al., 2012; Wishon, 1987). Pet ownership has been found to be associated with psychophysiological health outcomes from childhood to adulthood (O'Haire, 2010). Overall, pets are deemed to positively influence the development of socio-emotional competencies in children and individuals in general (Crawford et al., 2006; Marsa-Sambola et al., 2015).

Childhood pet ownership comprises different dimensions, such as the child's understanding of the pet's needs, the attitudes towards the pet, and the emotional components of the pet-child attachment (Muldoon et al., 2010). Pet owners showing stronger pet attachment tend to report greater empathy and prosocial orientation than non-owners and children less attached to their pets (Vidović et al., 1999). As age increases, children seem progressively less attached to their pets (Hirschenhauser et al., 2017). This possibly occurs because, as they get older, children develop other interests together with their peers and outside the family setting (Marsa-Sambola et al., 2015). Also, children of employed mothers tend to view pets as "special friends" more than children of non-employed mothers (Bryant, 1990), since pets can become substitute "attachment objects" for them (Melson, 1991). As a matter of fact, pets tend to be more common in families where mothers own a full- or part-time job than in homemaker families (Melson, 1988).

Parental actions can strongly influence the child's attitudes toward pets (Kidd & Kidd, 1990). When pets become part of the family, they contribute to the emotional atmosphere of its "undifferentiated ego mass" (Bowen, 1965). A stronger pet attachment seems to be associated with a better perception of the family atmosphere (Vidović et al., 1999). Applebaum and Zsembik (2020) showed that the amount of family conflict is positively associated with the strength of pet attachment. If pets represent potential playmates for people of all ages, then pet attachment is likely to lessen transgenerational family tensions (Blue, 1986). Also, the features of the child-pet relationship can signal possible family crises (Bryant, 1990).

In addition to having various benefits (e.g., Barker & Wolen, 2008), pet ownership can also have socio-emotional costs for children (Bryant, 1990; Katcher, 1985). On the one hand, the benefits of a pet-child bond include mutuality (i.e., reciprocal caring), enduring affection (i.e., the perceived lasting quality of the relationship), self-enhancing affection (i.e., the sense, provided by the pet, to be important and feel good with oneself), and exclusivity (i.e., the experience of the possibility to share private feelings and confidential secrets with the pet) (Barker & Wolen, 2008). On the other hand, however, other factors have been detected, which can represent possible areas of cost or distress for children owning pets (Bryant, 1990). For instance, distress can arise due to pet rejection or pet loss, and worry can be present when care and nurturing behaviors clash with the pet's sickness or death.

Overall, the pet-child bond seems to provide children with the opportunity to nurture and care for another living being, which can aid them in developing empathy towards animals and other people (Muldoon et al., 2010). Serpell (2004) argued that the two main motivational attitudes towards pets consist of "affect," which is related to the person's emotional responses to pets, and "utility," which refers to the perception of the pet's instrumental value. Affect and utility are then viewed as influenced by different variables, such as the pet's attributes, the person's individual characteristics, and wider social and cultural factors (Serpell, 2004).

Building on E. Gibson's works on perceptual development, Melson (2003) argued for a "biocentric approach to development," intended to better understand children's relationships with the non-human world (e.g., animals, plants, and natural ecologies). According to Gibson (1988), by looking at, hearing, feeling, tasting, and acting on objects, children discover what these items can "afford," that is, the "what-can-I-do-with-this?" of things. Pet attachment is supposed to begin at about 18 months of age, and the vast majority of children report to love their pets (Kidd & Kidd, 1985, 1987). Accordingly, in the first year of life, infants would be able to distinguish the movement of living beings from that of inanimate objects precisely because

living beings are supposed to exhibit "affordances" that are different from those of inanimate objects.

The so-called "biophilia", namely, the human need to keep close relationships with nature and other animals (Wilson, 1984), has been deemed to be a common human disposition, as manifested by children's interests towards animals regardless of their cultural background (DeLoache et al., 2011). Daly and Morton (2006) found that pet attachment is positively associated with empathy, which is in turn correlated with a positive attitude towards companion animals. Pet attachment is also linked to a better quality of life, a positive sense of well-being, low psychophysiological distress, more extended social networks, and increased security and self-worth (McNicholas & Collis, 2000; Sable, 1995). In addition to increasing compassion, caring, and friendship behavior, pets can also provide a secure base from which children can explore the surroundings (Hawkins & Williams, 2017). Overall, pet attachment seems to be strongly correlated with empathy and prosocial concern, which can diminish the potential of perpetrating cruel behavior toward animals (Taylor & Signal, 2005).

3. Pets as attachment figures

Traditional attachment theories defined attachment as a lasting emotional tie involving the need for closeness to the object of attachment and the effort to ensure that the relationship continues (Ainsworth et al., 1971, 1978; Bowlby, 1969, 1973, 1980). The pet-child bond has been deemed to resemble this conceptualization of attachment as it refers to an "affectional tie that one person forms to another specific person, binding them together in space and enduring over time" (Poresky et al., 1988, p. 1). Early bonding between pets and children is not only significant *per se*, but is also supposed to affect later, adult social development (Levinson, 1982).

Of note, the availability of a pet is to be distinguished from the child's involvement with the animal (Melson, 1988). More specifically, the relationship between pet and child appears as more important than the mere presence of a pet in the house (Poresky & Hendrix, 1988). In other words, it is the nature of the child-pet relationship, as opposed to the mere ownership of a pet, that strongly affects different aspects of the child's development, such as cognitive development, perceived competence, empathy, and social adjustment (Kidd & Kidd, 1985; Melson, 1990). In this process, a key role might be played by the behavioral synchrony between child and animal, since the systems that self-regulate arousal and attention are strongly linked to the primary forms of interpersonal synchrony (Feldman, 2006).

As to children's mental representation of their attachment bond with pets, Melson (1990) distinguished four dimensions of attachment: the time spent with the attachment object,

affection expressed towards it, knowledge of the pet, and behavioral responsiveness to its needs. Furthermore, children "who express more affective attachment have more complex ideas about pets and their care than do children who show less affective attachment" (Melson et al., 1991, p. 62). Interestingly, children who own a pet tend to draw themselves as closer to the pet-figures than to their family member-figures, perhaps because "relationships with pets are more accepting and less complex than those with other family members" (Kidd & Kidd, 1995, p. 239). Accordingly, children tend to draw dog- and cat-figures as closer to their self-figures than fish-figures, probably because attachment to dog and cats is typically felt as stronger than attachment to a pet fish (Kidd & Kidd, 1995).

Even though pet attachment has been supposed to potentially replace other human relationships (van Houtte & Jarvis, 1995), Carr and Pendry (2022) noted that, as conceptualized in the human-animal bond literature (Meehan et al., 2017; O'Haire, 2010), attachment is not fully equivalent to the classical definition provided by Ainsworth and Bowlby. However, since human attachment representations evolve into the so-called "internal working models" (IWMs) of the caregiver, this same process has been supposed to make it possible for non-caregiving figures, involving pets, to be felt as attachment objects (Shaver & Mikulincer, 2007; Sable, 1995), thus incorporating traditionally acknowledged functions such as proximity seeking, separation distress, safe haven, and secure base (Ainsworth, 1973, 1979, 1991; Meehan et al., 2017; Zilcha-Mano et al., 2012). IWMs involve a representation of the self and the attachment figure, and integrate the relationship into the personality structure (Bretherton, 1985). Importantly, even though insecure IWMs can represent risk factors in later human relationships, pets are deemed to help the person re-establish attachment relationships with others (Hawkins & Williams, 2017). This is particularly evident within AAT settings, where the interactions with the co-therapist animal have been shown to influence the person's attachment representations (Balluerka et al., 2014). In AAT contexts, the positive regard and unconditional acceptance offered by the animal can help the person perceive the therapeutic environment as safe and friendly while engaging in psychologically relevant exploration activities (Parish-Plass, 2008). Overall, the relationship with companion animals may provide the opportunity to establish a secure attachment relationship, which represents a crucial factor for personal change (Bowlby, 1988; Obegi, 2008).

Melson and colleagues (1991) viewed pet attachment as a multidimensional construct comprised of behavioral, affective, and cognitive components. The interactions occurring with companion animals are primarily based on non-verbal language and on a communicative code of touch, gestures, smells and sounds (Dicé et al., 2017; Shani, 2017). Through closeness with a pet,

children can learn different aspects of nonverbal language, such as tactile and/or kinetic types of communication (Robin & ten Bensel, 1985). According to Blue (1986), the child's developing sensitivity to others (including pets) can aid in the process of "decentering," which is crucial to a healthy development of one's personality. Hawkins and Williams (2017) found that pet attachment is facilitated by compassion and caring for companion animals, and that this significantly predicts positive attitudes towards pets. Companion animals are then supposed to provide children with social support even when they do not have a secure attachment to their caregivers (Wanser et al., 2019).

4. Pets as transitional objects

Winnicott (1953) described transitional objects as items helping children bridge the gap between themselves and the outer world. They represent the first "not-me" possession, to which children develop a strong attachment. Transitional objects fill the gap between the self and the world (Levinson, 1980). The idea that pets can serve as transitional objects is based on the recognition of the "compensatory" role that pets play in containing the child's emotional problems, lessening stress-related anxiety, and promoting good psychic and physical well-being (Triebenbacher, 1998). Just like transitional objects, pets can help children feel safe even when the caregiver is not present (Robin & ten Bensel, 1985).

Interestingly, Schowalter (1983) interpreted the child-pet relationship in terms of the psychoanalytic structural theory, regarding children's relationships with pets as drive-, superego-, and ego-derivatives, respectively. First, taming and rendering an animal harmless might represent a satisfaction associated with the primitive – sexual and aggressive – instincts represented by animals, which children tend to fear and try to master. Second, pets can represent children for children themselves, and appear to be particularly important for those who are to some extent deprived of the parents' presence. Third, pets can be utilized as "symbolic representations" even in young kids who are not ready yet to form coherent inner representations (Schowalter, 1983). In this perspective, the defense mechanisms involved in the child-pet relationship include displacement, projection, splitting, and identification. For instance, unconscious displacement of a loved person might lead the child to love or else hate its pet as if it was the target person of such feelings. In turn, projection involves relatively ambivalent feelings, which are often experienced towards parents. Finally, identification consists of the absence of barriers between children and pets, while at the same time providing some comforting distance. Therefore, in therapeutic settings, investigating patients' experiences with pets can be crucial to understand their wishes, fears, and feelings (Schowalter, 1983).

The role that transitional objects play in the socio-emotional development of the child have been thought of as being potentially acquired by pets, since they offer affective and emotional support, comfort, closeness, and love (McNicholas & Collis, 2001). Unconditional love, devotion, attention, lack of criticism, and non-verbal communication represent factors that can characterize both the mother-child dyad and the pet-child interaction (Robin & ten Bensel, 1985). A crucial factor in the pet-child bond is also the pet's acceptance of the child "as it is" and the lack of the possibility to provide criticism (Levinson, 1978).

5. Childhood cruelty to animals

On the dark side of the interspecific relationship, "animal abuse" and "animal cruelty" encompass a wide range of motivations and behavioral styles, and seem to depend on age, gender, personality-related, and environmental variables (Lee-Kelland & Finlay, 2018). Animal cruelty and abuse has been variously defined as a "socially unacceptable behavior that intentionally causes unnecessary pain, suffering, or distress to and/or death of an animal" (Ascione, 1993, p. 228), as a behavior "performed by an individual with the deliberate intention of causing harm (i.e., pain, suffering, distress and/or death) to an animal with the understanding that the animal is motivated to avoid that harm" (Gullone, 2011, p. 46), as "an aggressive and violent behavior that cannot logically be separated from other aggressive and violent behaviors or indeed from other deviant behaviors" (Gullone, 2014, p. 52), and as "a pattern of deliberately, repeatedly, and unnecessarily hurting vertebrate animals in a manner likely to cause serious injury" (Felthous & Kellert, 1987, p. 57).

Childhood cruelty to animals comprises different social, environmental, biological, and developmental factors. It appears to be associated with unresolved trauma, insecure attachment, poor self-image, and difficulties in affect and emotion regulation (Wauthier & Williams, 2022). Assaultive children are deemed to be often very young, male, and of normal intelligence (Beirne, 2004). Their behaviors have been associated with a personality shaped by lack of modeling figures, peer reinforcement, and hostility displacement (Boat, 1999). Childhood animal cruelty can acquire a positive or a negative form, referring to either an act committed against an animal, or an omission or failure to act (e.g., neglect in providing food, water, and shelter) (Brown, 1988).

Motivations for cruel behaviors toward animals appear to be multidimensional. Kellert and Felthous (1985) classified animal abuse as being underlain by control, retaliation, prejudice, aggression displacement, and sadism. Also, "general relationships between cruelty type, motivations, and interpersonal relationships are similar among all those accused of animal

cruelty and those who have also been charged with other crimes" (Richard & Reese, 2019, p. 79). Childhood cruelty to animals can take the form of physical, psychological, emotional, or sexual behaviors, and can be intentional or unintentional (Lockwood & Arkow, 2016). Overall, it is associated with bullying, behavioral problems, abuse, and delinquency (Longobardi & Badenes-Ribera, 2008).

Childhood cruelty to animals seems to be more probable in abusive or conflictual families (Dadds et al., 2002), and to be associated with early trauma (Girotra, 2021). For instance, childhood animal cruelty is associated with marital violence and parental harsh (Becker et al., 2004). Domestic violence has been also found to be correlated with animal abuse during childhood (Currie, 2006; Duncan et al., 2005), which is in turn linked to experiences of abuse, neglect, bullying, and victimization (Hawkins et al., 2019).

6. Does childhood cruelty toward animals predict psychopathology and later interpersonal violence?

Research has shown that a relationship exists between actual patterns of interpersonal violence and childhood histories of cruelty toward animals (Felthous & Kellert, 1987; Tingle et al., 1986). In this regard, individuals with a history of animal abuse are deemed to be more likely than healthy controls to use interpersonal violence and to engage in antisocial behaviors (Arluke et al., 1999). A retrospective study by Miller and Knutson (1997) showed that contemporary violent behavior was associated with early animal abuse during childhood. According to Dadds and colleagues (2002), animal abuse represents one of a cluster of antisocial behaviors associated with violent and non-violent criminal behavior, rather than a single factor causally leading to interpersonal violence. In other words, animal abuse can be just an expression of a wider range of antisocial behaviors, even though violence against people often tends to begin with animal abuse (Girotra, 2021). Accordingly, bullying, conduct problems, victimization, and delinquency, which are associated with animal cruelty, also appear to be related to future adult perpetration of interpersonal violence and antisocial behaviors (Mead, 1964; Hensley & Tallichet, 2009).

Various hypotheses as to the role that animal abuse plays in predicting later interpersonal violence have been put forward. According to Arluke and colleagues' (1999) "deviance generalization hypothesis," childhood cruelty to animals co-occurs with other types of antisocial behaviors, but does not necessarily lead to interpersonal violence. Bandura and McClelland's (1977) "social learning theory" posited that children can be cruel to animals when they witness animal and human interpersonal aggression by significant others. According to Agnew's (1998) socio-psychological theory of animal abuse, the latter is associated with four individual factors,

namely, personal traits, social control, socialization, and strain (Mowen & Boman, 2019). On the other hand, according to the so-called "progression thesis" (Beirne, 2004), animal abuse tends to turn into human interpersonal violence, given that children who abuse animals are more likely to exhibit later interpersonal violence, and, on the other hand, adults who commit interpersonal violence are more likely to have been abusive towards animals during childhood. Wright and Hensley's (2003) "graduation hypothesis" also stated that childhood animal cruelty is associated with later violent interpersonal behaviors.

7. Childhood cruelty to animals and psychopathology

Given its strict association with rejection sensitivity, emotional attachment, empathy deficits, and interpersonal violence, animal abuse can also be viewed within an "emotion regulation framework" (Alleyne & Parfitt, 2018). Multiple early symptoms, including animal abuse, have been found to discriminate severity and chronicity of conduct problems during childhood (Loeber et al., 1993). According to Girotra (2021), animal cruelty is a symptom of an underlying mental disorder that can also lead the person to commit crimes against other individuals. Therefore, cruelty behavior toward animals can represent an indicator of underlying psychological problems, which involve attachment issues and, more generally, emotion regulation and behavioral control skills (Shapiro et al., 2013). Specifically, childhood animal abuse tends to co-occur along with behavioral disorders such as conduct disorder (CD) – of which it represents one of the first symptoms (Frick et al., 1993) – and the corresponding callous-unemotional traits (Hawkins et al., 2020). Indeed, a history of childhood cruelty to animals has been found to be significantly associated with antisocial personality (Gleyzer et al., 2002).

Being "cruel to animals" was first considered as a specific symptom for CD in the DSM-III-TR (APA, 1987). The inclusion of this criterion was due to the fact that animal cruelty tends to be exhibited early in childhood CD (Miller, 2001). The DSM-IV (APA, 1994) stated that a substantial proportion of children who were diagnosed with CD kept showing adult behaviors that could meet the criteria for antisocial personality disorder (Duncan & Miller, 2002). More recently, CD has been referred to as "a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal norms or rules are violated" (APA, 2013, p. 469). The DSM-5 (APA, 2013) characterization of childhood CD also features animal cruelty among its criteria. In turn, the conceptualization of antisocial personality disorder in the DSM-5 requires that the condition must be diagnosed in individuals who are at least 18 years

old, and who must have also exhibited "evidence of conduct disorder with onset before age 15 years" (APA, 2013, p. 659).

Pets are among the easiest targets for affection as well as aggression (Parfitt & Alleyne, 2017). Besides being associated with CD, animal abuse tends to co-occur with bullying behaviors, which are in turn linked to antisocial traits (Duncan et al., 2005). Childhood cruelty to animals does not appear to be uniquely discriminative of conduct problems, but seems embedded within a wider range of exhibited behavioral issues (Loeber et al., 1993). Other studies found that animal cruelty is a relevant factor to discriminate between severe and mild conduct problems, and that children who exhibit animal cruelty show higher self-esteem and more conduct problems than their peers (Frick et al., 1993; Luk et al., 1999).

8. Childhood cruelty to animals and problems in affect and emotion regulation

Attachment-related strategies (e.g., proximity seeking) are strictly associated with crucial functions such as affect regulation (Mikulincer et al., 2003), which consists of both the capacity for co-regulation (i.e., the ability to regulate one's affects and emotions through the relationship with the caregiver) and self-regulation (linked to the establishment of the self as the main actor of secure attachment-related strategies). If "affect" refers to the feeling of a person in a specific point in time, and if it influences behavior and experience, then "one function of affect regulation is to limit the residual impact of lingering emotions and moods on subsequent behavior and experience" (Larsen & Prizmic, 2004, p. 41).

As slightly different from affect regulation, emotion regulation has been defined as "all of the conscious and nonconscious strategies we use to increase, maintain, or decrease one or more components of an emotional response" (Gross, 2001, p. 215). Emotion regulation is a complex set of processes featuring biological, personal, and interpersonal factors (McRae & Gross, 2020). It can be defined as having control not only over "how and when" to feel something, but also as controlling the intensity and the valence (i.e., positive or negative) of felt, experienced, and expressed emotions (Dvir et al., 2014). Accordingly, emotion regulation refers to a developmental task that is highly influenced by the potential to form secure attachments, and is in turn disrupted in the presence of early traumatic exposure, including deficits in caregiver responsiveness to the child's emotional needs (Briere & Rickards, 2007).

As Parfitt and Alleyne (2018) pointed out, several theories of animal harm consistently focused on cognitive factors, perhaps underestimating the processes pertaining to emotion and behavioral regulation mechanisms. Accordingly, the authors noted how emotion regulation-related constructs, such as poor impulse control and lack of other-oriented emotional behaviors,

can contribute to antisocial behaviors, including animal abuse. Roberton and colleagues (2014) reported that individuals that maladaptively regulate their emotions are more likely to exhibit aggressive behaviors than those who are able to better regulate emotions.

During childhood, emotion dysregulation seems to be associated with some forms of externalizing problems (Eisenberg et al., 2010), such as reactive aggression (Shields & Cicchetti, 1998). Also, emotion dysregulation during childhood seems associated with later emotion dysregulation in adulthood (Althoff et al., 2010). Through a comparison between the Animal Preference Test – APT (van Krevelen, 1956) and the Child Behavior Checklist – CBCL (Achenbach & Edelbrock, 1983), Rojas and Tuber (1991) found that children who rejected pets due to their nurturant or aesthetic features showed significantly greater aggressive and depressed behaviors on the CBCL.

Overall, childhood animal cruelty often goes along with emotion dysregulation, poor social information processing, and low empathy (Wauthier & Williams, 2022). Research has shown that childhood cruelty to animals tends to be associated with low affective empathy (Alleyne & Parfitt, 2018; Hawkins et al., 2020) and with several emotional problems, especially linked to callous or unemotional personality traits that can lead to the development of antisocial behaviors (Dadds et al., 2006). From a socio-cognitive, biological, and environmental perspective, antisociality is characterized by low empathy, low overall emotionality, and disregard for others (DeWall et al., 2011).

The relationship between negative affect and empathy-related behaviors is complex. According to Berkowitz's (1989) "frustration-aggression" hypothesis, negative emotions can lead to low empathic concern for others' needs and well-being, which might be in turn associated with aggressive behaviors. Both negative affect and the need for power are related to attitudes regarding cruel behaviors toward animals, even though "a high level of power motivation is associated with a relatively callous view toward the maltreatment of animals" (Oleson & Henry, 2009, p. 262), yet only among men. Problems in emotion regulation appears to be so related to animal abuse that it has been argued that "animal abuse is an outcome of poor emotion regulation" (Parfitt & Alleyne, 2018, p. 62).

9. Discussion

As opposed to zoonosis, the term "zooeyia," introduced by Hodgson and colleagues (Hodgson et al., 2017), comprises the physiological, psychological, and social benefits of animals on humans. Pet ownership has been shown to provide children with various cognitive and emotional benefits, such as increased self-esteem and the feeling of not being alone, and is also

associated with increased social competences, social interactions, and play behaviors (Purewal et al., 2017). Play – and playing – during childhood is a fundamental step towards psychic growth, development, and emotional interactions, even though it can become pathological when it acquires the role of a means to escape from reality (Jureidini, 2000). Interestingly, pets can aid children in developing the capacity for emotion regulation (Carr & Rockett, 2017). Kaminski and colleagues (2002) showed that both play and pet therapy represent mood enhancing experiences for hospitalized children, as reported by parents and as shown by children's heart rate and the positive affects they displayed. Unsurprisingly, AAIs targeting children are mainly based on games involving animals, which seem to ensure the structuring of a collaborative climate and trust (Menna et al., 2019).

On the dark side of the pet-child bond, we have seen how such relationship can be accompanied by disrupted behaviors. Whereas research has shown that recurrent cruelty to animals is predictive of later interpersonal violence (Hensley et al., 2018; Hensley & Ketron, 2018; Trentham et al., 2018), the developmental trajectory that goes from childhood animal abuse to adulthood violent behaviors is still a matter of debate (Jegathesaan et al., 2020). An association appears to exist between lack of empathic understanding of others, interpersonal and/or witnessed violence, and animal cruelty (McPhedran, 2009).

What emerges from the existing reviews on the human-animal relationship is that – albeit not always – companion animals can have beneficial effects on individuals that own, care about, or interact with pets, both psychologically (e.g., through mood enhancement, and stress and anxiety reduction) and physiologically (e.g., through reduction in cortisol levels, heart rate, and blood pressure) (Hosey & Melfi, 2014; Barker & Wolen, 2008; Peacock et al., 2012; Virués-Ortega & Buela-Casal, 2006). It is still unclear why companion animals can have these effects, which can be either direct (e.g., through the relationship itself) or indirect (e.g., in facilitating other human interactions; Berget & Braastad, 2008) (Hosey & Melfi, 2014). Such effects have been hypothesized to be due to stress-buffering mechanisms occurring because of a non-critical relationship or through relaxation by means of classical conditioning (Virués-Ortega & Buela-Casal, 2006). It might also be that animals have specific effects on humans because of the activation of the oxytocin system, which reduces perceived stress and facilitates social interactions (Lee et al., 2005; Uvnäs-Moberg, 1998). However, the endocrinologic dynamics and mechanisms of the activation of the oxytocin system during pet-human interactions are still unclear (Beetz et al., 2012).

Ultimately, however, discrepancies exist as to the evaluation of the positive or else possibly negative effects of companion animals on humans, which might be due to differences in study design, types of outcomes investigated, or lack of control for confounding variables (e.g., attachment patterns and gender differences) (Wells, 2019). This is why further research is needed as to the investigation of the effects of companion animals on human health and well-being. The kind of bonding that the person has with the companion animal might acquire different meanings depending on its psychological significance. Given that the human-animal bond might be supposed to consist more of a dialogue with another human being than a relationship to some sort of "thing," we might argue that aggressive behavior, even though disrupted and maladaptive, is nonetheless a form of (negative) bonding, just as affiliative relationships are supposed to be (positive) forms of relationship (Gobbo & Zupan, 2020). Given that the literature has displayed the relationship existing between human aggression, antisocial behaviors, and animal abuse, then a pattern of abusive behavior toward animals is to be taken seriously into account, in order to prevent and better treat individuals who are at risk at carrying out interpersonal violence.

The existing literature dealing with the interspecific relationship makes it difficult to hypothesize any causal relation or effect that the presence and the bond with a pet can have on mental health and well-being. Overall, most of the literature seems to point to two alternative paths, which address the different types of behavior that the person exhibits with the companion animal and relate to various mental health outcomes. On the one hand, affiliative bonds appear to be associated with more positive mental health for the person interacting with a companion animal (Peacock et al., 2012; Rost & Hartmann, 1994; Wishon, 1987). Owning and interacting with pets is in most occurrences beneficial for humans, in that such affiliative and caring relationship can allow for a better personal and social life (McNicholas & Collis, 2000; McNicholas et al., 2005; Pachana et al., 2011). On the other hand, cruel animal behaviors seem to be associated with poor mental health outcomes (Girotra, 2021; Wauthier & Williams, 2022; Dadds et al., 2002; Hensley & Tallichet, 2009).

As we have seen, this is not to say that cruel behavior toward animals is somehow predictive of later interpersonal violence, or even that animal cruelty can cause later mental disorders or psychological disturbances. The only claim that we might be allowed to do based on the existing literature is that animal cruelty generally tends to be associated with more disturbed and conflictual interpersonal relationships. However, even without referring to a causal relationship, but simply observing the associations between interspecific relationship and psychological conditions, the various behaviors that the person exhibits toward animals seem to be linked to

some extent with emotion regulation capacities, psychological skills, and mental health outcomes.

More research is needed on the underlying dynamics of the interspecific relationship that can promote psychological wellbeing and/or can be associated with psychological disorders. Since, on the one hand, affiliative animal-human bonds seem associated with positive mental health outcomes, and, on the other hand, cruel and disrupted behavior seems associated with poor psychological health, as a heuristic work hypothesis we might posit that affiliative bonds and cruel relationships with companion animals could lie on a continuum, which we imagine as having at the two far ends these opposite behavioral styles. This continuum-hypothesis, that future research might better articulate, as well as research on the causal mechanisms underlying the psychological effects of the interspecific relationship, should definitively confirm or disconfirm what the current scientific literature seems to simply suggest, namely, the fact that the affiliative and caring bond with pets can promote and possibly predict psychological well-being, whereas a disrupted, cruel, and aggressive bond with (and/or behavior toward) pets might possibly predict poor mental health.

10. Limitations and clinical and psychodynamic implications

The scientific literature on the topic mainly focuses on the role that the animal-human bond has for human beings' health and well-being, thus neglecting the other side of the relationship, namely, the health and well-being of animals. In fact, when scholars speak of the interspecific relationship, they mainly focus on humans rather than on animals. However, it is not necessarily the case that certain human behaviors, even if perceived as affiliative by the person, are beneficial to animals. For instance, it is not always the case that adult individuals correctly identify fear- and anxiety-related behaviors in dogs during child-pet interactions (Demirbas et al., 2016). Children are also at risk of misinterpreting the pet's behavior, which can be a consequence of perceived stress or discomfort of which the person is unaware, and that can also lead to a bite injury (Meints et al., 2010). Furthermore, children are often more likely to approach pets because they can incorrectly identify their emotional behavior (Aldridge & Rose, 2019). Therefore, attention paid on companion animals' well-being should focus on the importance of the pet's perception, feelings, and motivation to behave in a certain way, and to the types of its responses to specific environmental stimuli (Clark et al., 1997). Overall, we strongly believe that the welfare of one species cannot be promoted at the expense of the welfare of another species (Menna et al., 2019). In other words, human, animal, and ecosystem's functioning are to be viewed as inextricably interconnected. Only if health promotion involves

all species can we authentically speak of promotion of well-being as a universal value (Amodeo et al., 2018; Scandurra, Bochicchio et al., 2021; Scandurra et al., 2017, 2018, 2020).

Research examining the relationship between adult animal abuse and maladaptive emotion regulation is scarce (Parfitt & Alleyne, 2018). This is even more surprising, since research has shown that an association exists between animal abuse and aggressive behaviors, which are in turn associated with specific emotion regulation styles. For instance, Tull and Roemer (2007) found a link between emotional avoidance and emotional inexpression as predictive of aggressive behavior. Therefore, the link between animal cruelty and future aggressive and violent behaviors should be taken into account mainly from an emotion regulation perspective in order to foster preventive measures and avoid animal harm.

The social support offered by pets is not limited to their companionship, but has also a role in modulating stress reactivity (Martin & Farnum, 2002). Since stress hinders learning and performance processes throughout the lifetime, and especially during development, introducing pet figures to decrease the level of stress in children is a promising area of research (Beetz et al., 2012). In addition, animal companionship can play a significant role also given that children's habit to spend much time with digital games is associated with inhibited private speech for relevant self-regulatory purposes (Bochicchio, Maldonato, et al., 2018; Bochicchio et al., 2022).

Another interesting topic of research concerns how affects and emotions are mutually communicated between humans – particularly children – and animals, and the sensory systems that are involved in the processes of communication and interpretation of emotional experiences (Bochicchio & Winsler, 2020; Bochicchio, Scandurra, et al., 2018; Bochicchio et al., 2019). As to the relevance of sensory systems in the human-animal interaction, for instance, human chemosignals have been found to influence dogs' physiological status, and to induce different behaviors (D'Aniello et al., 2018). In this regard, the pre-verbal, sensory communication channels and the ways in which affects and emotions are interpreted represent a promising field of research.

Overall, animal abuse appears to have strong implications for the individual's mental health and for the development of psychopathology (Ascione & Maruyama, 2011). Therefore, addressing the association between cruelty to animals and human violence can aid in preventing and treating childhood behavioral problems, such as those exhibited by children affected by CD (Haden & Scarpa, 2005). Furthermore, since most of the studies dealing with the predictive role of childhood CDs and adult aggressive behaviors almost never grant a referral to a causal relationship between these developmental periods (Myles & Merlo, 2022a, 2022b; Popoviciu et

al., 2022; Settineri & Merlo, 2020), a gap is to be filled through the development of studies combining retrospective analyses of violent adult behaviors on the one hand, and prospective longitudinal investigations on the other (Beirne, 2004).

Finally, what emerged from Signal and colleagues' (2013) study was a pattern of therapists' limitation of the exploration of animal cruelty in patients who met specific diagnostic "structures," thus limiting, in turn, possible treatment strategies that could be more widely utilized when animal cruelty is present but does not represent a symptom of a well-established, official diagnosis. Therefore, cues of animal cruelty should be observed through a fine-grained lens even in young children, to make sure that prevention and treatment can be as effective as possible for further potential aggressive developments of such behaviors. Ultimately, human-animal interactions should examine how the interaction between individual differences, animals, and environment is implemented in concrete situations (Esposito et al., 2011).

11. Conclusions

Whether the childhood interspecific relationship is characterized by the same dynamics outlined in the classical attachment theories is still a matter of debate. Most of the literature pointed out that pets can aid children in socialization and growth processes, representing "social catalysts" that facilitate human relationships and prosocial behavior. The interspecific affiliative relationship involves different attachment styles, affective regulation skills, transitional object dynamics, and self-awareness and mentalization processes. On the dark side of the pet-child bond, interspecific relationships can also be disrupted and accompanied by animal cruelty, which is associated with behavioral and emotional problems that possibly underlie psychopathology. A history of childhood cruelty to animals has been found to be associated with antisocial personality, and to often go along with emotion dysregulation, poor social information processing, and low empathy. The clinical and research implications of these findings are extremely significant, since the type of animal-child bond can be a sign of the person's present and future attitudes toward oneself, others, and the world. Ultimately, we agree on the fact that, "The more we know about how people connect to their pets, the better we may be able to help them connect to the rest of the world" (Compitus, 2021, p. 86).

Data Availability Statement *: The authors can make all data available upon reasonable request.

Conflict of interest statement *: The authors declare no conflicts of interest.

Acknowledgments: All authors dedicate this work to the loving memory of Lucia Francesca Menna, who left us prematurely in April 2022. She devoted her entire life to the study and understanding of interspecific relationships. She based her research on a great respect for animals, revolutionizing the way of understanding the anthrozoological relationship in the Animal Assisted Interventions and bestowing intrinsic dignity on every living being.

Author Contributions * **:** *Conceptualization*, SM, LFM, and VB; *Data curation*, SM and VB; *Investigation*, CS (2nd author), AS, and NMM; *Resources*, FM, CS (5th author), SC, and RP; *Supervision*, VB; *Visualization*, CS (2nd author), AS, and NMM; *Writing – original draft*, SM and VB; *Writing – review & editing*, CS (2nd author), FM, CS (5th author), SC, and RP.

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DOI: 10.13129/2282-1619/mjcp-3547